JETOL
JOURNAL OF EDUCATIONAL TECHNOLOGY &
ONLINE LEARNING

Digital teaching and learning: Exploring primary school teachers' approaches, sources of concern & expectations

Figen Karaferye ᵃ * iD

ᵃ Kutahya Dumlupinar University, Türkiye

Highlights	Abstract
• Teachers tried to translate their physical classroom experiences into the digital environment during remote education, both in teaching and learning. • There were differences among teachers in benefiting from PD opportunities. • Teachers are willing to benefit from more PD opportunities for digital teaching with richer content offering ready- and easy-to-use materials and tools, with compatible choices of synchronous and asynchronous PD courses and materials.	Concerning the use of digital technologies in education, the COVID-19 pandemic acted as a catalyst for rethinking educational policies. With the shift to emergency remote teaching, schools experienced a paradigm shift in delivering education. School leaders and teachers found themselves in the necessity of quick adaptation to various new modes, from using digital/online platforms to responding to the needs and expectations of their students. The experience led to contingency plans in the process and shed some light on the future-oriented plans and scenarios in education, which accelerated the use of digital technologies in education. In parallel with those, professional development courses and support provided for teachers have grown in number, variety, and extent. In this regard, the current study aims to examine primary school teachers' approaches to digital teaching & learning, their sources of concern, and their expectations from effective professional development courses based on their remote/digital teaching experiences. A focus group, a qualitative research method, was used in the study with a sample of primary school teachers. The findings were revealed under four themes: Transition to digital teaching & learning; obstacles of the digital environment as a teacher/learner; opportunities of the digital environment as a teacher/learner; expectations from PD opportunities.

1. Introduction

The COVID-19 pandemic, an unprecedented crisis worldwide, disrupted nearly all aspects of life at the beginning of 2020. It forced the necessity of school closures, then a shift to emergency remote education in educational systems, which meant moving to digital teaching & learning environments to reach learners remotely, to prevent the spread of the disease, and limit the interruption of education. However, this quick transition to the online environment, often with little prior notice, brought its challenges to teachers, school administrators, parents, and learners of all ages, all of whom were familiar with face-to-face teaching and unfamiliar with online teaching & learning (Burgin, Coli & Daniel, 2022; Jelinska & Paradowski, 2021).

Online meeting platforms, such as Zoom, Google Meet, and Microsoft Teams with/or Learning Management Systems (LMSs) became the new classrooms for teachers and learners during this period. Besides, teachers and learners had to adapt to this new environment mostly without proper preparation in advance. Teachers had to adapt to new pedagogical concepts, utilize the available technology that they could reach and utilize unfamiliar methods & new modes of delivery of teaching, which they mostly may not have been trained for (Kaden, 2020; Schleicher, 2020). On the other side of the screens, in a similar way, students were expected to adapt to this new way of learning by developing the necessary skills to do so, regulating their emotions such as social isolation and loneliness (Brooks et al., 2020) in the period, and keep up with the learning goals of the academic program. School administrators and educational leaders had to come up with solutions to the arising problems and deficiencies in the process, such as infrastructural and technical issues, home-schooling difficulties and inequalities among learners, support on program requirements and tools for teachers, etc. (Karaferye, 2022). Parents had to create a space for their kids for home-schooling, provide the technology and support, and tutoring to some extent particularly to the lower grades of K-12 level learners, that is, primary school students.

Differing from the other levels of learners due to their developmental characteristics and needs, primary school students in the early stages of K-12 education needed more support (Supporting Child and Student Social, Emotional, Behavioural, and Mental Health Needs Report, 2021). This level of learners forms a critical age group for behavioral, social-emotional, psychological, cognitive, and academic development leading to the years ahead. Thus, supporting those developmental areas in a nurturing environment plays a significant role in their lives, wellbeing, and academic expectations & achievement (Bierman et al., 2018; Jones & Kahn, 2017). Considering the unprecedented crisis and the transition to remote education, all agents involved in the teaching & learning process – primary school teachers, school administrators & leaders, parents and learners found themselves in an unfamiliar environment to accomplish those.

After two years from the crisis, educational systems are back on track with face-to-face teaching & learning. Thus, now it is beneficial to reflect upon the experiences to evaluate and learn, to improve and to be better prepared for future implementations. Today, there are studies pointing to the potential of future waves of COVID-19 or other pandemics, which also necessitates a much better and functional use of digital technologies in teaching & learning environments with proper preparedness (Kurt et al., 2022). Here, preparedness is not only about infrastructure and available technical resources to use, but it also involves improved know-how and readiness to adopt digitally compatible ways of teaching & learning, with an alignment between resources and learning goals. Besides, the emphasis on the need for personalized learning, and the increase of digital tools for quality and inclusive education are directing traditional face-to-face education into a new path of change (World Economic Forum [WEF], 2021). No change or improvement in education can reach success without the involvement and empowerment of the teachers who actively take part in it (Schleicher, 2018).

In this regard, the current study aimed to examine primary school teachers' approaches to digital teaching & learning, their sources of concern and their expectations from effective professional development courses based on their digital teaching experiences. Improving teaching & learning through the effective use of digital tools requires teacher involvement and empowerment. Fostering teacher involvement and empowerment includes teachers having opportunities for professional development, feeling efficient and effective in the classroom, and having the capacity to influence their students and school life (Tindowen, 2019). Consequently, examining the approaches of primary school teachers towards digital teaching & learning is considered important for the researchers and decision-makers in terms of shedding light on the teachers' professional growth needs and expectations for further steps on the subject. Since evaluating the current state to strengthen the competences of education professionals for promoting effective use of digital technologies is seen fundamental (OECD, 2021), this study is intended to contribute to the field.

As research shows, teachers are the most influential factor in student learning (Schleicher, 2018). In remote teaching, similarly, teachers with high subject-content-knowledge, technical skills in using technology and

supporting resources, and appropriate pedagogical techniques compatible with digital teaching & learning environment were reported to be very effective in student learning (Muñoz-Najar et al., 2021). However, how teachers experienced digital teaching & learning, and based on that, how they desire to adopt digital teaching & learning in their profession is a subject that is understudied. In this context, following the problem of how primary school teachers experienced digital teaching and learning during the period of Covid-19, this study was conducted to explore primary school teachers' approaches to digital teaching & learning, their sources of concern and their expectations from effective professional development opportunities for improving future implementations. In line with that, the study sought answers to the following questions:

1. What are the opinions of primary school teachers about teaching & learning in the digital classroom based on their remote teaching experiences?

2. What are the opinions of primary school teachers about effective professional development content and tools about improving their digital teaching & learning implementations?

2. Literature

The experience of remote/digital teaching & learning beginning with the pandemic

The COVID-19 pandemic affected over 1.6 billion students in over 150 countries. In response, many countries implemented some form of remote teaching and learning, such as through live online lessons + teaching & learning resources; TV + pre-recorded online lessons; Radio + TV + pre-recorded online lessons, etc., which brought massive use of technology in the delivery of education. The process brought both challenges and risks, and novel aspects and opportunities for education systems to consider. Since the emergency remote education, there have been various studies on the impacts of this paradigm shift in K-12 and higher education. Educational technologies and online learning have become parts of education systems. Improving the use of educational technologies/digitalization and processes and strengthening the competences of education professionals have formed an issue to handle (OECD, 2021). Following the transition to the massive use of technologies in education from the beginning of the pandemic, various studies have been done focusing on the issue from different angles. Here are some of the topics that studies have focused on:

- Learning programs, curriculum, material, assessment, and evaluation issues (Middleton, 2020);

- Technical issues (Dolighan & Owen, 2021; Middleton, 2020);

- How the process influenced students and teachers, on the social-emotional level and psychological aspects (Abou-Khalil et al., 2021; Brooks et al., 2020);

- The need for supporting and inclusive space for educators (Wong & Fitzgerald, 2022);

- How the process influenced students' cognitive and academic development (Kurt et al., 2022);

- How the process influenced students' physical development, nutrition, and care (Moore et al., 2020);

- How teachers' work changed on a professional level (Cardullo et al., 2021; Miller, 2021);

- Family – school relationships (Carrión-Martínez et al., 2021);

- Leadership lessons learnt from the pandemic (Akbaba-Altun & Bulut, 2021; Oplatka & Crawford, 2022);

- Teacher leadership perspective (Gravett & Petersen, 2022; Smith & Klerk, 2022);

- Increasing use of digital technologies in education, blended/hybrid delivery of education (Singh et al., 2021).

The World Bank Group report (2021) on the lessons from today regarding remote teaching & learning experiences suggests three complementary critical components for effective learning (Muñoz-Najar et al., 2021):

- *Effective teachers*, with in-depth content knowledge, technical skills in using digital platforms and supporting resources, and appropriate pedagogical techniques, e.g., to adjust her/his teaching practice to secure the engagement of students.

- *Availability of suitable technology*, which is necessary but not sufficient for effective remote learning, as it needs to be suited to the context in which it is deployed.

- *Engaged learners*, whose engagement depends on intrinsic motivation, teacher effectiveness, technology effectiveness, and contextual factors such as the home environment.

The role of teachers has changed enormously because traditional in-person/face-to-face teaching models did not translate to remote learning environments such as through radio, TV, mobile, online platforms, etc. Teachers needed to adapt their practices to new ways of delivery to make learning meaningful for their students. However, this needed progress of change and adaptation. Both international and national systems and organizations supported teachers and school administrators in the process. In the international context, UNESCO, UNICEF, and the World Bank supported teachers and school administrators by sharing guidelines, tools, and practical suggestions (Barron et al., 2021).

In the national context in Türkiye, the Ministry of National Education (MoNE) strengthened the infrastructure of the digital educational portal, Educational Informatics Network (EIN/EBA which is an educational content network where teachers reach contents and share materials) and collaborated with Turkish Radio and Television Corporation (TRT) to establish an effective distance education system (MoNE, 2020; 2022a; Özer, 2020). Regarding professional development, MoNE provided teachers and school administrators with enriched digital platforms and resources (e.g., the Digital Library for teachers), which supported the professional development and lifelong learning of education professionals. MoNE also prepared professional development programs for teachers and school administrators in collaboration with UNESCO and UNICEF to support their professional growth as lifelong learners in various subjects from using digital tools to inclusive education (MoNE, 2022b; Özer, 2020).

Prior to the remote teaching experience, it was mostly up to personal choice and teachers' perception of technology when it came to the incorporation of technology into teaching & learning. However, with the remote education experience, adopting technology in educational practices has become more concrete for the effective professionalization of teachers (Spoel et al., 2020). Considering the reports of the World Bank Group which examined the experiences of remote teaching & learning and the strategies adopted by countries worldwide, *teachers are more critical than ever*. The experiences highlight that regular and effective pre-service and on-going teacher professional development is key to developing digital and pedagogical tools to teach effectively both in remote and in-person teaching & learning settings.

3. Methodology

3.1. Research Design

A focus group, a qualitative research method, was used in the study. A focus group is an interview with a small group of people (typically around 10 people) on a specific topic for about one to two hours (Patton, 2002). What differentiates focus groups from one-to-one interviews is that in focus groups participants hear each other's responses and make additional comments beyond their original responses, which increase the

scope and depth of the responses given to the questions (Patton, 2002; Yıldırım ve Şimşek, 2008). Qualitative research enables investigating how participants of the focus group perceive a particular social issue (Tümen-Akyıldız & Ahmed, 2021), and focus group as a qualitative method allows exploring people's experiences (Kitzinger, 1995). In the study, the researcher explored the experiences of primary school teachers on the subject of digital teaching & learning.

3.2. Participants

Criterion sampling was used in the study. The aim of criterion sampling is "to review and study all cases that meet the predetermined criterion of importance" (Patton, 2002: 238). In the study, the predetermined criterion was set to involve teachers from all four grades of primary school to review and study differences and similarities among cases regarding their approaches and concerns based on the grade they are teaching. Teachers teaching grades 1 to 4 from five different primary schools across the city were invited to the study. 12 primary school teachers whose information is given below participated in the study. The data from 12 participants whose teaching experience changes between 10 to 27 years, and who taught different grades of primary school were used in the analysis.

Table 1.

Information about study participants

Participants	Teaching grade …	Teaching in school …	Teaching experience (… years)	Age	Gender
Participant 1	1	Bb	22	44	Male
Participant 2	1	Aa	20	43	Female
Participant 3	1	Cc	13	35	Female
Participant 4	2	Ee	18	40	Female
Participant 5	2	Cc	21	41	Female
Participant 6	2	Dd	15	38	Male
Participant 7	3	Bb	13	35	Male
Participant 8	3	Cc	22	46	Female
Participant 9	3	Aa	27	50	Male
Participant 10	4	Bb	10	32	Female
Participant 11	4	Cc	16	40	Female
Participant 12	4	Dd	14	37	Male

3.3. Data Collection Tools and Procedure

Open-ended semi-structured interview questions were addressed to the focus group. The data collection procedure consisted of two parts. The first part included demographic questions, such as age, teaching experience, teaching grade, and school. The second part included questions to explore teachers' approaches and expectations toward digital teaching & learning as a teacher and as a lifelong learner. The questions included: What do you think about digital teaching & learning as a teacher/learner based on your remote teaching experience? What do you think about its effectiveness? What were the obstacles/opportunities in your experience? Have you taken any PD courses on the issues? How did you find those courses (e.g., helpful, effective, short/long, etc.)? What would make those contents more effective? The researcher asked follow-up questions to further explore the ideas and perspectives of the participants. Prior to the focus group, the participants were contacted via email and telephone to set the date and time which best fits. Upon the consent of the participants, the focus group was conducted on an online meeting program by recording the process into a video.

3.4. Data Analysis

Content analysis was used in the analysis of the data. MAXQDA 2022 program was used in the analysis. 4 steps of qualitative analysis were followed (Yıldırım & Şimşek, 2008: 228-239): Coding data in meaningful units (1), categorizing the codes to reach themes (2), organizing, and defining data according to the codes and themes (3), interpreting findings (4). Thus, the researcher examined the sentences to the words, created codes, categorized the codes which are in relation, reached themes, organized the themes, and finally interpreted them.

3.5. Validity and Reliability

For validity and reliability, Lincoln and Guba's (1985) trustworthiness criteria and techniques to establish them were applied. Accordingly, the criteria of credibility (internal validity), transferability (external validity), dependability (reliability), and confirmability (objectivity) were applied to be met. The focus group research method provided participants to hear their colleagues' responses and make additional comments beyond their own original responses, which increases the scope and depth of the responses (Patton, 2002). Moreover, the focus group interview process was recorded into a video in the mother tongue of the participants as the process itself. Then, the recording was transcribed into text without adding any researcher insights to the responses or avoiding missing data, which increases credibility, dependability, and confirmability (Creswell, 2009; Patton, 2002; Yıldırım & Şimşek, 2008). Following this step, the researcher translated the text into English for further steps in the analysis. The data were gathered from primary school teachers from different schools to increase transferability. Even though qualitative research does not aim for generalizations (Patton, 2002; Yıldırım & Şimşek, 2008), it is desired to be able to transfer information to the primary school teachers in the other school settings based on the reached common characteristics (Creswell, 2009). Another technique taken to assure reliability was following Miles and Huberman's (1994) reaching a consensus of experts for reliability in qualitative research criteria. Thus, external expert opinion and reaching mutual agreement criteria were sought in the analysis and interpretation of the data. With the agreement of %96, it was accepted to be showing reliability to continue with the study.

The ethical approvals required for the implementation and publication of the research were obtained from the Ethics Committee of the University.

To keep the anonymity of the participants, pseudonyms were used in the analysis results; both he/she and his/her were used in the sentences for each participant.

4. Results

The analysis of the focus group data showed that the participating primary school teachers mostly had shared perspectives and experiences in terms of their approaches to digital teaching & learning, their sources of concern and their expectations from effective PD for digital teaching & learning. However, the analysis showed that there are some differences among the experiences of the participants concerning the grade they taught (such as between grade 1 and 4 teachers) or the course they taught (such as Maths, Science, or Turkish). The analysis also showed that the school settings and school-family communication and collaboration practices created differences in the experiences of the participants regarding digital teaching & learning. The findings of the analysis involve four main themes and sub-themes as shown below:
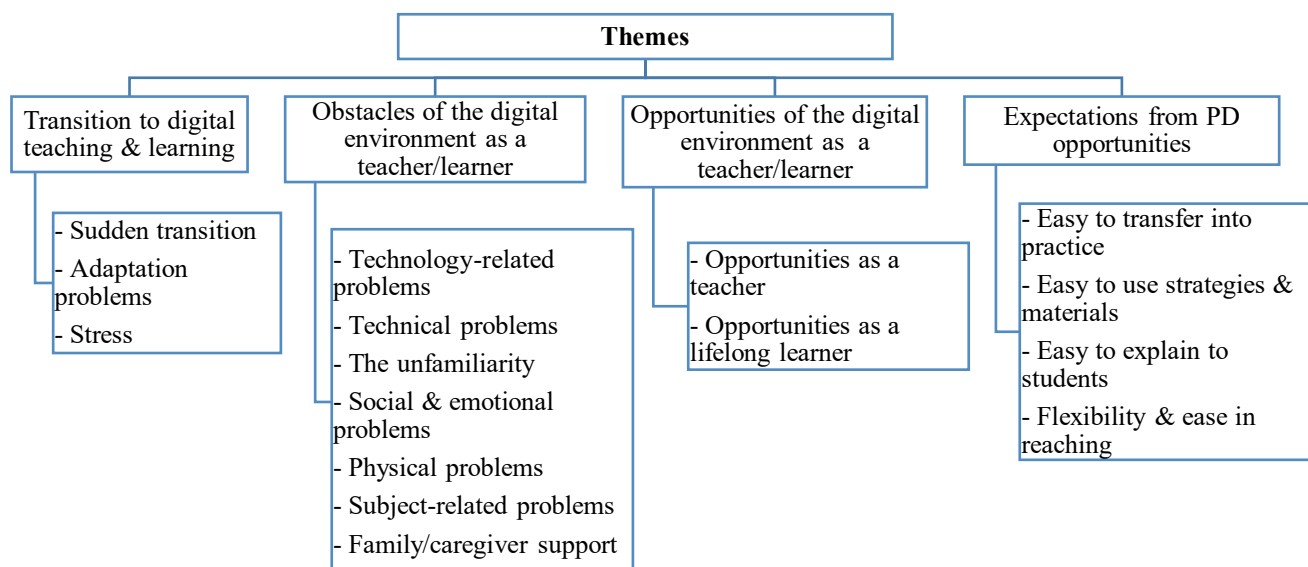
Fig. 1. Themes & sub-themes obtained from the primary school teachers' focus group analysis

Each theme is explained in detail below including the shared and differentiated perspectives and experiences of the teachers.

4.1. Transition to Digital Teaching & Learning

It was a common view for all participants that the transition to remote teaching & learning was very sudden and tough bringing adaptation problems, and feelings of frustration and stress at times. Consequently, they had to deal with many difficulties/challenges in the process and they needed to learn new things quickly. However, since most of the things they needed to learn were on the job, not from pre-taken courses such as teacher training or pre-service training, the process got more challenging.

One participant mentioned the hardship of the time, and that they simply had to experience and learn things.

P3: "I think we simply learnt by living. Teaching Maths, and Turkish online without seeing my students… I didn't know how before the pandemic. I wouldn't have thought about it. I just found myself in it and I tried to do what I could do best for them."

Another participant supported the idea by touching on the subject of support they got.

P12: I took the courses offered on the National Ministry of Education's Information Management System. But I started benefiting from those courses rather late. That's both because of me and the conditions I had, and the courses were delivered later than we started teaching remotely."

The other participants shared the same view that they started making use of the professional development courses, contents, and tools after they started managing the remote teaching process. Clearly, one reason is that the transition from in-person teaching to remote teaching was sudden due to the pandemic. Thus, the courses were prepared throughout the process to meet the needs of schools. The other reasons that the participants shared included technical problems, infrastructural problems, complexity in all aspects of life at the time, time management issues, balancing work time - family/home time issues, and so on.

4.2. Obstacles of the Digital Environment as a Teacher/Learner

The analysis showed that all the participating primary school teachers experienced some obstacles in their experiences of digital teaching & learning, both as a learner and a teacher. The obstacles that were repeatedly mentioned included the following: Reaching the required technology-related problems, technical problems, the unfamiliarity with the environment, social and emotional distance, lack of interaction, physical problems (headaches, back ache, etc.), and differences in the adaptability of the subjects being taught/learnt (abstract, concrete, experimental, etc.), and family/caregiver support to students.

All participants shared in a strong agreement that just like it is in their teaching practices, they have been used to face-to-face training, in pre-service training and in-service training. In addition, after experiencing digital teaching & learning both as a teacher and a learner in the remote teaching process, they still find digital teaching & learning processes weaker than face-to-face ones in regard to their effectiveness and efficiency.

P9: "I am, actually we are more motivated to learn and participate in face-to-face courses and PD activities. It is easier to interact, ask and answer questions, or modeling real-classroom activities. In teaching, the same, in face-to-face classes I feel myself more competent and effective."

Upon stating that the cons of digital teaching & learning environment are more than the pros in their experiences, two participants expanded the topic to the differences between teaching lower-level grades, such as the 1st graders, and higher-level grades, such as the 4th graders referring to the skill differences in digital teaching and learning processes based on child growth and subject contents. Those differences created obstacles for them in digital teaching and learning, which underlines the need for developing teacher skills specifically for the use of educational technologies with young age groups.

P4: "It was much more tiring, and more difficult with lower-level grades. I had to prepare many more materials for my 1st graders in the digital classroom, more than my colleagues did, who were teaching higher grades. And besides, more than I used to do when I was teaching lower grades in face-to-face classes.

The other participants who were teaching lower grades (1 and 2), especially those who were teaching the 1st-grade students agreed with the difficulty that they experienced and gave similar examples. The participants who had the experience of teaching higher grades (3 and 4) and especially the 4th-grade students expanded the topic to the differences in hardship between teaching subjects, such as Maths and Turkish. Upon this, the participants from all grades shared that they had similar experiences in teaching in the digital environment. Based on their experiences, teaching concrete or abstract themes/topics in the digital environment was different in practice. Particularly, when they needed to show something or experiment with it with students, they had difficulty managing it. One participant stated:

P1: "The 4th grade is the class where abstract concepts are taught in all lessons. However, in online teaching & learning, it was more difficult for us to teach abstract things, especially in science lessons it was very difficult. Normally we are used to doing experiments in class, by touching, trying, and working together – physically. However, when it is online, our students cannot touch the materials or try to do the experiment together, so I'm not very sure that we achieved the learning objectives."

Another participant shared the difficulty in teaching Maths in the digital environment and bridged the experience to the in-person teaching this year, by sharing:

P12: "I had difficulty in teaching some concepts, such as teaching multiplication and division. I need to deal with that kind of learning gap this year, unfortunately. However, I still see the opportunities of digital teaching & learning far more than the problems/challenges."

The participant shared from his/her perspective that the digital teaching & learning environment has brought more opportunities than challenges, and that s/he benefited from those both as a learner and as a teacher in

his/her classrooms. However, the participant added that s/he had problems and still questions about the effectiveness of classroom management.

P12: "I had all my students full in the classroom almost every day. However, I'm not sure if they were actually there with active involvement and focus. I feel myself better and more effective in face-to-face classroom management."

The other participants strongly agreed with the idea that they felt themselves more effective in face-to-face classroom management, and not very effective in digital classroom management. The participants detailed their perspectives by giving examples in the context of digital classroom management, such as having difficulty in keeping an engaging and interactive lesson, difficulty in checking what students are actually doing, giving feedback, keeping focus, and so on.

On another topic, about physical problems, participants not only emphasized the problems they personally had, such as constant backaches and headaches but also their observations about their peers and students in their classes. Their observations on students particularly included the increase in complaints/diagnoses about physical health, such as eye disorders. In this context, one participant stated:

P10: "In just one term, 4 students of mine started wearing glasses following their complaints. Besides, I believe it is easier to see/diagnose physical problems, but I'm worried -my colleagues mention that too, so we are worried that this digital teaching & learning process might have some negative effects on students' cognitive, social and emotional aspects, too. Only, we can't directly see them thoroughly, yet".

Two other participants brought the problem of screen addiction to their experienced physical problems. Moreover, one participant stated that s/he tried to guide her/his students better to teach them how to use their time effectively on-screen – on the internet, such as through the use of suggested websites.

Following that, the participants shared the importance of family/caregiver support in the process. Communication and collaboration between the school/teacher and family, and the support families provide to their kids play an important role in digital teaching just as in in-person teaching processes. The family factor could become an obstacle or an opportunity according to the experiences of the participants.

Three teachers shared one after the other that digital teaching & learning brings more responsibilities to the parents/caregivers of primary school students. However, the differences among parents – such as educational background, conditions at home, number of siblings, working parents, economic situation, etc.- can create problems/obstacles for the teachers. In this context, if the parent(s) can support their kid in the process, the outcomes change positively for the teachers accordingly. That is why; it can be concluded that the parent factor could both become an obstacle or an opportunity.

P4: "Family support, regular support at home was critical in this process. Parents had difficulties, and they got very confused, too. Especially with low-grade students, we needed regular support from the parents' side. It was a difficult process to teach how to read and write in the digital environment. Some parents were so supportive, but some weren't, or they couldn't, and this affected our digital classroom schedules, too. Even this year, we can see those differences among students concerning their learning needs."

All the participants agreed with that, and they emphasized socio-economic conditions of families were a critical factor. They shared, in their experience, it was mostly an obstacle that led to learning gaps and differences among students. One participant expanded the topic to the differences between school settings, local settings, and socio-economic profiles.

P9: "My students' families were from low-level socio-economic status, actually the local area and the setting is that way. So, we experienced differences in student learning. Thus, this year in face-to-face classrooms, we have bigger learning gaps."

4.3. Opportunities of the Digital Environment as a Teacher/Learner

It was a common view for all participants that the digital teaching & learning environment provided them with solid opportunities to improve their digital competencies both as a lifelong learner and a teacher.

P12: "I have improved myself tremendously. I searched and learnt many things that I did not even know the names of before, now I am still using them. I am happy to see what I have learnt in a short time, both personally and professionally."

P9: "I had had some basic equipment, such as a laptop before the remote education. However, when I started teaching in the digital environment, I realized that I needed more to make teaching & learning easy to follow. Thus, I started using a graphic tablet, which I could write and draw. Later, I realized I still needed more, not just me, but my students were also in need of a better way. So, I started going to school to my classroom and I used the interactive whiteboard, blackboard, and the graphic tablet during the lessons."

The other participants emphasized the same need that during teaching in the digital environment, they were seeking some new ways to better equip their lessons. Following the need, they made effort to learn new methodologies, they adopted the use of some novel equipment in their classes, and they tried to integrate the former methods and tools with the novel methods and tools as much as they could.

P12: "In the beginning, I didn't know what zoom was or how to use the EBA platform (Educational Information Network). I was not aware of many things, but then I started searching about them and started learning. I took all the courses offered by the ministry from Web 2.0 tools such as V-Fabrika & Lumi, drama, and intelligence games to the courses specific for distance learning design."

In the context of improving themselves as learners in the digital teaching & learning environment, all participants mentioned the courses provided by the ministry. Those courses were offered in a variety of titles, at different periods, and mostly with certificates. Another participant emphasized the practicality of reaching any course online:

P10: "It is very easy and practical to reach various courses online. You can attend when you want and where you are."

Apart from learning for personal and professional purposes, most of the participants mentioned the practicality of the digital environment as a teacher due to the convenience of reaching various contents, tools, and materials.

P11: "In the process, it got more appealing and engaging with colorful visuals, games, and interactive activities. But unfortunately, we might have discovered that kind of thing rather late. Because it needs time to learn about them and implement them."

Two other participants touched on the topic of varying their lesson design, adding new materials, and spicing up the lessons easily in the digital classroom.

P10: "We could reach various ready-to-use exercises and materials online – on EBA, on the other suggested websites, etc. This made the process easier for us. I also found some easy websites to use with my students, those were introduced in some of the courses I took. We had story time, instruction time, game time, quiz time, etc. in our lessons. It got easier to design the lesson online, but in time."

Apart from the gains, the teachers also shared their concerns about putting those newly adopted skills to rest and forgetting how to use them. Two participants stated that they continued using only some of the websites and digital tools in their in-person teaching after remote teaching.

P12: "I am still trying to use some of the websites/digital tools that I find effective, but they take time to be prepared and you know if it is not a necessity then you might not prefer it. So, I'm afraid somehow, we will be forgetting what we achieved to learn."

P10: "I stopped improving myself in digital tools and learning about the strategies for digital classrooms. It's like I suddenly stopped, now, just like my colleagues around me, because we don't have the necessity or space to continue with them."

4.4. Expectations from PD opportunities

In the context of expectations from PD opportunities, all the participants shared a common understanding of the topics: Contents that are easy to transfer into practice, easy-to-use strategies, and materials, easy-to-explain to students, exchange of ready-to-use materials among peers, and flexibility and ease in reaching courses.

P10: "It is very important for us that learning contents offer us practical things for the classroom. Of course, we learn new things from the PD courses even if they only provide abstract concepts. However, time management is critical for us especially during the school term. So, we make much of practical and easy-to-transfer into practice contents."

Two participants touched on the use and applicability of the contents and tools both in digital and in-person settings.

P7: "Especially, the courses presenting strategies, tools and materials which can be used or converted with simple adaptations to both digital and in-person classrooms would be very helpful. I am more motivated to attend those courses because I benefit more."

Two other participants stated they nearly took all the online PD courses offered by the ministry to them on the teachers' professional development platform. They stated that the ones with ready-to-use materials or the strategies/tools which were easy to transfer into the class were the most effective ones. Another participant supported the idea by expanding it to the learner level. For them, if those ready-to-use materials and tools were easy to explain to their students, they are preferable to the teachers.

P10: "It is important that the course gives us some ready-to-use materials, but it is also equally important that it should be easy for us to explain the use of this material to our students. Because if it is not easy to explain it to students, then we don't find it effective and don't prefer to use it."

In terms of the willingness of the participants to attend PD courses for digital teaching & learning, it is seen that most of the participants are willing to attend the courses. One participant shared that due to his/her retirement plans; s/he was not looking forward to taking PD courses in the future.

The participants who showed a willingness to take PD courses for digital teaching & learning emphasized their expectations about the variety of the courses being offered which meet their needs and give solutions to their problems in practice. They expect a rich variety in course titles and rich variety in content and tools. The participants also emphasized the flexibility in reaching those courses regarding time constraints and compatibility with various devices. One participant touched on the topic of job satisfaction upon benefiting from such courses.

P12: "When I reach various courses easily, benefit from them as I desire, and implement them in my class, I feel the satisfaction of my work. I get more motivated."

5. Discussion and Conclusion

This qualitative study explored primary school teachers' approaches to digital teaching & learning, their sources of concern, and expectations from effective professional development courses based on their digital teaching & learning experiences. The findings were revealed under four themes: Transition to digital teaching & learning; Obstacles of the digital environment as a teacher/learner; Opportunities of the digital environment as a teacher/learner; Expectations from PD opportunities.

The results of the analysis showed that primary school teachers had difficulties in remote teaching as a consequence of various problems/challenges such as the problems caused by the sudden transition, technology-related problems, social and emotional challenges, teaching-related and classroom management-related challenges, and parental support-related problems. Those findings are consistent with the existing literature (Burgin et al., 2022; Jelinska & Paradowski, 2021; Kaden, 2020; Schleicher, 2020).

In terms of parental support-related problems, which are stated in the sentence last above but not least formed a critical factor for teachers. Since primary school teachers worked with younger students whose developmental characteristics and needs differed from the other levels of learners, that is, they needed more support in the process, which necessitated parental/caregiver support, too (Supporting Child and Student Social, Emotional, Behavioural, and Mental Health Needs Report, 2021). However, in the study, the findings revealed that the family/parent factor could become an obstacle or an opportunity due to the differences such as educational background, conditions at home, number of siblings, working parents, economic situation, etc. Similarly, Sarı and Saralar-Aras (2022), in their study on primary school teachers, question if parents of primary school students are at a sufficient level of technological literacy in online education to support their kids. In a systematic review on family and school relationships during the Covid-19 pandemic, the problems related to financial/economic disparities, lack of internet accessibility, lack of digital skills, and the inability of families to provide curricular help were emphasized (Carrión-Martínez et al., 2021). In this context, if the parent(s) can support their kid "in an ideal way" in the process, the outcomes change positively accordingly for the teachers (Fidan, 2021).

In line with this conclusion and focusing on the experiences of the teachers in the study, providing learning opportunities for parents can be supportive of digital teaching & learning processes. Those could include not only digital literacy skills but also psychological aspects and curricular goals through video courses and some guidebooks and/or weekly/monthly bulletins for the parents of primary school students.

In line with the existing literature, the sudden transition to digital teaching & learning from traditional face-to-face teaching was itself challenging, leading to psychological, social-emotional challenges (Abou-Khalil et al., 2021; Brooks et al., 2020) together with teaching and evaluating-related challenges (Middleton, 2020). In addition, some obstacles of the digital environment in the process were also stated, such as reaching the required technology-related problems, technical problems, the unfamiliarity with the environment, social and emotional distance, lack of interaction, physical problems, and differences in the adaptability of the subjects being taught/learnt, and family/caregiver support to students.

In this study, the subject of teacher professionalization was also examined such as how teachers received Professional Development support and opportunities during this process on the issues they experienced. Regarding the subject, teachers had the opportunity to reach the courses provided by MoNE on their digital platforms. However, the results showed that not all teachers benefited highly from those courses in times of need due to reasons such as technology-related problems at the time, the timing of the expected/needed subject offered in the PD pack/platform, the practicality of the strategies/tools and materials to transfer into class, and so on. Even though the challenges they faced, teachers managed to deal with those by using various strategies they developed in the process, such as integrating the unfamiliar digital classroom environment with the familiar physical classroom environment, expanding/varying their teaching methods upon their growing experience in the digital classroom, and thanks to peer exchanges on MoNE's digital platform EBA/EIN. As the teachers shared in the study, they had been accustomed to in-person training (pre/in-service training), and they tried to translate their physical classroom competencies into digital teaching & learning environment. However, the process revealed that a simple translation would not work. Thus, they sought new ways by trying, and learning (Spoel et al., 2020).

In comparison with the finding above, in TALIS (Teaching and Learning International Survey) 2018 results, on the subject of the professional development of teachers, it was reported that across the OECD (The Organisation for Economic Co-operation and Development) countries (including Türkiye), developing

advanced ICT (Information Communication Technology) skills was one area in which teachers shared that they needed more training (OECD, 2019). In the years ahead, ICT integration into teaching & learning increased, and so did PD activities on the subject. However, the remote education experience created a new path. According to the *OECD (2020) Country Note: Turkey report with the title "School education during Covid-19: were teachers and students ready?"*, the preparedness of teachers for ICT-based teaching before the crisis was moderately high. Different from the findings that the researcher obtained in this study, the report based on the TALIS 2018 results (data from K-12 teachers and school leaders) stated that in Türkiye, 67% of teachers reported letting students use ICT for projects or class work "frequently" or "always", which was higher than the average of the OECD countries participating in TALIS. Moreover, 74% of teachers in Türkiye reported that the use of ICT for teaching was included in their formal training, and at the time of the survey, 76% of teachers felt that they could support student learning using digital technology (such as computers, tablets, smart boards) "quite a bit" or "a lot", which was a high level, too. This could be explained by the fact that remote education was not planned and without preparedness all agents in education found themselves in this global emergency, which made it more challenging. Another thing is, leaving the integration of ICT into teaching & learning in in-person teaching is different from the necessity of designing digital classroom teaching & learning (An et al., 2021). Consequently, it can be concluded that the use of digital technology in teaching & learning in in-person teaching and digital teaching (both online and offline) should be included in teacher training and PD opportunities.

In terms of opportunities in the digital environment as a teacher/learner, obviously, "the pandemic acted as a catalyst for rethinking policies regarding the use of digital technologies in early education" (OECD, 2021: 53). The results showed that teachers improved themselves rather quickly and in a variety of subjects in a limited time even though the challenges they faced (Rodriguez et al., 2021; Şahin Durmaz & Kunt, 2022). The participants in the study stated that they were satisfied with reaching the opportunities to improve their digital competencies both as lifelong learners and professionals. Providing teachers with various PD opportunities on the subject of the use of digital technologies is a salient strategy in many reports and papers. For instance, in a report by OECD (2021), under the title *Using digital technologies for early education during COVID-19: OECD report for the G20 2020 education working group*, strengthening the preparation of education professionals for distance education through pre-service and in-service training program is the top priority. Also, integrating digital technologies in early education by 2025 and developing digital learning tools specifically designed for young children are envisaged top priorities.

Since providing teachers with various PD opportunities is undeniably a required strategy as stated in many reports and papers (Schleicher, 2018; 2020), the question arises "How and what PD opportunities/support do teachers expect to reach?" for effective and efficient PD support. In terms of expectations of teachers from PD opportunities, the study results revealed that teachers would like to reach a rich variety of courses (rich variety in contents and tools) whenever and wherever they need to reach without time constraints or incompatibility with devices. The results also show that ready-to-use materials or the strategies/tools which are easy to transfer into class are preferable to knowledge transferring contents. Another salient finding is teachers expect to receive ready-to-use materials and tools which are also easy to explain to their students. This could be explained with the desire to lessen teacher instruction time in class and the materials can alternatively be provided for student individual use. It can be concluded that a compatible way of providing synchronous and asynchronous PD courses and materials would be effective. This way, synchronous online learning relies on live interactive activities whereas asynchronous online learning relies heavily on self-paced, highly independent forms of activities (Murphy & Barbour, 2011; Otten et al., 2019). In addition, real implementations in the classroom could be supported via roadmaps, self-reflection, and journaling approaches throughout the courses. In terms of their expectations toward the courses meeting their needs and giving solutions to their problems in practice in class, those will not be stable. Thus, surveys, and needs analyses should be conducted in schools for school-level/district-level PD implementations in addition to the centrally provided standardized PD program.

Moreover, to transfer new knowledge into practice and apply it, teachers can benefit from professional learning communities. This way, they can access the extended support and networking they need. Those PD opportunities/support should not only cover academic preparation but also mental and socio-emotional preparedness and support during the process, such as including stress management, conflict resolution in the digital & in-person classroom, a mindful approach to digital disconnection /digital detox for students and teachers, etc. In line with that, taking more conscious and focused steps in promoting social and emotional competencies of teachers is believed to be of utmost importance considering both teacher wellbeing and student learning.

Overall, the results of this study indicate that primary school teachers faced some challenges in the subject of digital teaching & learning. However, they managed to deal with the challenges via the strategies they came up with, the PD resources they benefited from, and peer exchanges. What is more in this study is that teachers are willing to benefit from more PD opportunities for digital teaching with richer content offering ready- and easy- to-use materials and tools; more flexible, and compatible choices of synchronous and asynchronous PD courses and materials. Based on the study results, a pilot PD course implementation can be done by choosing one of the issues mentioned above by the participating teachers, for instance, social and emotional aspects in digital teaching & learning environments. Also, a quantitative study on PD courses is recommended for further analysis, which may allow generalizations. Finally, following the results of the piloting phase, complementary analyses and if possible longitudinal examinations on the PD course(s) and reflections on classroom practices are recommended for sustainable and adaptable solutions to support education professionals both in in-person and digital teaching & learning processes in the long run.

The current study has its limitations. Due to the qualitative research methodology that was chosen on purpose and the sample size of the focus group being limited to twelve teachers, the study does not aim to generalize the findings to all teachers or school settings. However, it is open to transferring information to primary school teachers in other school settings based on the reached common characteristics (Creswell, 2009).

References

Abou-Khalil, V., Helou, S., Khalifé, E., Chen, M. A., Majumdar, R., & Ogata, H. (2021). Emergency online learning in low-resource settings: effective student engagement strategies. *Education Sciences*, *11*(1), 24.

Akbaba Altun, S. & Bulut, M. (2021). School principals' learnings from Covid-19 pandemic. *i.e.: inquiry in education 13*(2). Retrieved from: https://digitalcommons.nl.edu/ie/vol13/iss2/4

An, Y., Kaplan-Rakowski, R., Yang, J., Conan, J., Kinard, W., & Daughrity, L. (2021). Examining K-12 teachers' feelings, experiences, and perspectives regarding online teaching during the early stage of the COVID-19 pandemic. *Educational technology research and development*, *69*(5), 2589-2613. https://doi.org/10.1007/s11423-021-10008-5.

Baker, C., Gentry, J. & Larmer, W. (2016). A model for online support in classroom management: perceptions of beginning teachers. *Administrative Issues Journal: Connecting Education, Practice, and Research*, *6*(1), 22-37.

Barron, M., Cobo, C., Munoz-Najar, A. & Ciarrusta, I.S. (2021, February 18). The changing role of teachers and technologies amidst the COVID 19 pandemic: key findings from a cross-country study. Retrieved from: https://blogs.worldbank.org/education/changing-role-teachers-and-technologies-amidst-covid-19-pandemic-key-findings-cross

Bierman, K. L., Mathis, E. T., & Domitrovich, C. E. (2018). Serving the needs of young children with social, emotional, and behavioral needs: a commentary. *School Mental Health*, *10*(3), 254-263. https://doi.org/10.1007/s12310-018-9265-4

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet (London, England) 395*(10227), 912-920. https://doi.org/10.1016/S0140-6736(20)30460-8

Burgin, X.D., Coli, S. & Daniel, M.C. (2022). Ecuadorian and Uruguayan teachers' perceptions and experiences of teaching online during COVID. *International Journal of Comparative Education and Development*, *24*(1), 54-68.

Cardullo, V., Wang, C. & Burton, M. & Dong, J. (2021). K-12 teachers' remote teaching self-efficacy during the pandemic. *Jrnl of Rsrch Inno Teach & Lrn.*, *14*(1), 32-45.

Carrión-Martínez, J.J., Pinel-Martínez, C., Pérez-Esteban, M.D. & Román-Sánchez, I.M. (2021). Family and school relationship during COVID-19 pandemic: a systematic review. *Int. J. Environ. Res. Public Health*, 18, 11710.

Creswell, J.W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks: Sage Publications.

Dolighan, T. & Owen, M. (2021). Teacher efficacy for online teaching during the COVID-19 pandemic. *Brock Education Journal, 30*(1), 95-116.

Fidan, M. (2021). COVID-19 and primary school 1st grade in Turkey: starting primary school in the pandemic based on teachers' views. *Journal of Primary Education, 3*(1), 15-24. https://doi.org/10.52105/temelegitim.3.1.2

Gravett, S., & Petersen, N. (Eds.). (2022). *Future-proofing teacher education: voices from South Africa and beyond*. London: Routledge.

Jelinska, M. & Paradowski, M.B. (2021). Teachers' perception of student coping with emergency remote instruction during the COVID-19 pandemic: the relative impact of educator demographics and professional adaptation and adjustment. *Front. Psychol*. *12*(648443).

Jones, S.M. & Kahn, J. (2017). *The evidence base for how we learn: supporting students' social, emotional, and academic development*. The Aspen Institute National Commission on Social, Emotional, and Academic Development.

Kaden, U. (2020). COVID-19 school closure-related changes to the professional life of a K–12 teacher. *Educ. Sci*. *10*(165). doi:10.3390/educsci10060165

Karaferye, F. (2022). Kriz zamanlarında eğitim liderlerinin öğretmenlerin mesleki iyi oluş halini desteklemedeki rolüne bakış. *Alanyazın, 3*(1), 125-138.

Kitzinger, J. (1995). Qualitative research: Introducing focus groups. *BMJ,* 311. https://doi.org/10.1136/bmj.311.7000.299

Kurt, G., Atay, D. & Öztürk, H.A. (2022) Student engagement in K12 online education during the pandemic: The case of Turkey. *Journal of Research on Technology in Education*, 54:sup1, S31-S47, DOI: 10.1080/15391523.2021.1920518

Lincoln, Y.S. & Guba, E.G. (1985). *Naturalistic inquiry*. Newbury Park: Sage.

Middleton, K.V. (2020). The longer-term impact of COVID-19 on K–12 student learning and assessment. *Educational Measurement: Issues and Practices, 39*(3), 41-44.

Miles, M.B. & Huberman, A.M. (1994). *Qualitative data analysis*. Thousand Oaks: Sage.

Miller, K.E. (2021). A light in students' lives: K-12 teachers' experiences (re)building caring relationships during remote learning. *Online Learning, 25*(1), 115-134. https://doi.org/10.24059/olj.v25i1.2486

MoNE [Ministry of National Education in Türkiye]. (2022a). EBA TV ilkokul, ortaokul ve lise kanalları (EBA TV primary school, middle school and high school channels). Retrieved from: http://eba.gov.tr/

MoNE [Ministry of National Education in Türkiye]. (2022b). Öğretmen ve yöneticilerin kapsayıcı eğitim bağlamında uzaktan eğitim süreçlerinde tasarım ve yönetim becerilerinin geliştirilmesi (Developing design and management skills of teachers and administrators in distance education processes in the context of inclusive education). Retrieved from: https://oygm.meb.gov.tr/www/ogretmen-ve-yoneticilerin-kapsayici-egitim-baglaminda-uzaktan-egitim-sureclerinde-tasarim-ve-yonetim-becerilerinin-gelistirilmesi/icerik/1008

MoNE [Ministry of National Education in Türkiye]. (2020). Minister discusses education plan during covid-19 process with his European counterparts. Retrieved from: https://www.meb.gov.tr/minister-discusses-education-plan-during-covid-19-process-withhis-european counterparts/haber/21957/en

Moore, S.A., Faulkner, G., Rhodes, R.E. et al. (2020). Impact of the COVID-19 virus outbreak on movement and play behaviours of Canadian children and youth: a national survey. *Int J Behav Nutr Phys Act, 17*, 85. https://doi.org/10.1186/s12966-020-00987-8

Muñoz-Najar, A., Gilberto, A., Hasan, A., Cobo, C., Azevedo, J.P. & Akmal, M. (2021). *Remote learning during COVID-19: lessons from today, principles for tomorrow*. Washington, D.C.: World Bank Group.

Murphy, E., Rodríguez-Manzanares, M.A. & Barbour, M. (2011). Asynchronous and synchronous online teaching: Perspectives of Canadian high school distance education teachers. *British Journal of Educational Technology*, *42*, 583-591. https://doi.org/10.1111/j.1467-8535.2010.01112.x

OECD [Organisation for Economic Co-operation and Development]. (2021). *Using digital technologies for early education during COVID-19: OECD Report for the G20 2020 Education Working Group*. Paris: OECD Publishing. https://doi.org/10.1787/fe8d68ad-en.

OECD [Organisation for Economic Co-operation and Development]. (2020). *Country Note: Turkey. "School education during Covid-19: were teachers and students ready?"*. Retrieved from: https://www.oecd.org/education/coronavirus-education-country-notes.htm

OECD [Organisation for Economic Co-operation and Development]. (2019). *TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners*. Paris: OECD Publishing. https://doi.org/10.1787/1d0bc92a-en

Oplatka, I. & Crawford, M. (2022). Principal, let's talk about emotions: some lessons COVID-19 taught us about emergency situations and leadership. *International Journal of Leadership in Education*, *25*(1), 162-172. DOI: 10.1080/13603124.2021.2014981

Otten, S., Candela, A. G., de Araujo, Z., Haines, C., & Munter, C. (2019). Proceedings of the forty-first annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. St Louis, MO: University of Missouri.

Özer, M. (2020). Educational policy actions by the ministry of national education in the times of COVID-19. *Kastamonu Education Journal*, *28*(3), 1124-1129.

Patton, M.Q. (2002). *Qualitative research and evaluation methods*. Thousand Oaks: Sage Publications.

Rodriguez, M.B., Cobo, C., Muñoz- Najar, A. & Sánchez Ciarrusta, I. (2021). Remote learning during the global school lockdown: multi-country lessons. Washington, D.C.: World Bank Group.

Sarı, M.H. & Saralar-Aras, İ. (2022). A case study on online teaching during the Covid-19 pandemic perceived by primary school teachers. *International Journal of Psychology and Educational Studies, 9*(2), 440-449. https://dx.doi.org/10.52380/ijpes.2022.9.2.705

Schleicher, A. (2020). *The impact of COVID-19 on education - insights from education at a glance 2020*. https://www.oecd.org/education/the-impact-of-covid-19-on-education-insights-education-at-a-glance-2020.pdf

Schleicher, A. (2018). *World class: How to build a 21st-century school system, strong performers and successful reformers in education*. Paris: OECD Publishing.

Singh, J., Steele, K., & Singh, L. (2021). Combining the best of online and face-to-face learning: hybrid and blended learning approach for COVID-19, post vaccine, & post-pandemic world. *Journal of Educational Technology Systems, 50*(2), 140-171. https://doi.org/10.1177/00472395211047865

Smith, N. & Klerk, E.D. (2022). Teachers' perceptions and policy directives for transformative teacher leadership initiatives during and beyond Covid-19. *School Leadership & Management*, DOI: 10.1080/13632434.2022.2088490.

Smith, L. & Riley, D. (2012). School leadership in times of crisis. *School Leadership & Management: Formerly School Organisation*, *32*(1), 57-71.

Spoel, I., Noroozi, O., Schuurink, E. & Ginkel, S. (2020). Teachers' online teaching expectations and experiences during the Covid 19-pandemic in the Netherlands. *European Journal of Teacher Education*, DOI: 10.1080/02619768.2020.1821185.

Supporting Child and Student Social, Emotional, Behavioral, and Mental Health Needs Report, (2021). U.S. Department of Education, Office of Special Education and Rehabilitative Services. Retrieved from https://www2.ed.gov/documents/students/supporting-child-student-social-emotional-behavioral-mental-health.pdf

Şahin-Durmaz, P. & Kunt, N. (2022). Making wonders with burned fingers: The experiences of ELT teachers during the online education process. *Journal of Educational Technology & Online Learning*, *5*(1), 144-168.

Tindowen, D.J. (2019). Influence of empowerment on teachers' organizational behaviors. *European Journal of Educational Research*, *8*(2), 617-631. DOI: 10.12973/eu-jer.8.2.617

Tümen-Akyıldız, S., & Ahmed, K.H. (2021). An overview of qualitative research and focus group discussion. *Journal of Academic Research in Education*, *7*(1), 1-15. DOI: 10.17985/ijare.866762

WEF [World Economic Forum] (2021). *Technology futures: projecting the possible, navigating what's next*. https://www.weforum.org/reports/technology-futures-projecting-the-possible-navigating-whats-next/

Wong, C. & Fitzgerald, J.C. (2022). Lessons learned from educators of English as a second language in the U.S. during Covid-19: providing inclusive space for all educators. *International Journal of Inclusive Education*, DOI: 10.1080/13603116.2022.2077462.

Yıldırım, A. & Şimşek, H. (2008). Sosyal bilimlerde araştırma yöntemleri. Ankara: Seçkin Kitabevi.