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A phenomenological analysis of primary school teachers' lived distance education experience during the COVID-19 pandemic in Turkey

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ABSTRACT

The purpose of this phenomenological study was to investigate lived distance education (DE) experiences of primary school teachers and their perceptions about DE during the COVID-19 pandemic in Turkey. Twenty primary school teachers who actively taught online participated in online interviews. Phenomenological analysis of the interviews sought to reveal (1) the primary school teachers' lived DE experience, and (2) their perceptions about DE during the pandemic. The current status of DE, effects of DE, and teachers' perceptions of DE were the themes revealed. Results showed that teaching practice, interactivity, difficulties, needs, and inequality were the main issues revealed from the primary school teachers' lived experience. The results also identified the perceived effects of DE on both teachers and students. According to their online experiences, the teachers' perceptions about DE and their future plans with respect to online teaching were reported.

1. Introduction

The COVID-19 pandemic significantly affected all levels of teaching (Pokhrel and Chhetri 2021). COVID-19 resulted in many countries transferring their traditional face-to-face teaching to emergency remote teaching (ERT) (Eshet, Steinberger, and Grinautsky 2021; Xie, Gulinna, and Rice 2021) and online education platforms. Online teaching and learning became the common delivery method and integral to many countries' education systems (Martin, Sun, and Westine 2020; Ramon et al. 2021), since online education or remote learning made education convenient and accessible during the pandemic (Maity, Sahu, and Sen 2020).

In the literature, researchers and instructional designers mostly focused upon understanding not only the problems experienced, but also the most effective online teaching and delivery practices. However, there exists an increasing need to reveal the details and effects of this emergency form of online teaching. According to Gamage, de Silva, and Gunawardhana (2020), primary education has been more affected due to primary school students' high level of teacher dependency.

1.1. Distance education

A large and growing body of literature in both academic and practitioner journals has been inspired by the distance education (DE) concept. DE can basically be defined as education in which there exists a distance and/or time between students and teachers (Yacci 2020). Online education is a

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type of DE which employs computers and the Internet as the delivery method, and where at least 80% of course content is delivered online without meeting face-to-face (Shelton and Saltsman 2005). According to UNESCO (2020), the term 'distance learning' is often used synonymously with DE, online learning, e-learning, and Massive Open Online Courses.

Teaching at a distance through mass media is very different from face-to-face teaching, which is predominantly private and takes place within a classroom and/or laboratory, whereas neither the teacher's subjective speech nor synchronous commenting exist within DE (Harry, Keegan, and John 2001). In other words, the forms of interaction between students, and between students and teachers differ. DE may utilise one or more technology types (Roffe 2004); not only to deliver instruction, but also to support interaction between students and teachers (Allen and Seaman 2016).

Distance and online learning environments are often associated with advantages like increased accessibility and reduced costs of the teaching and learning process (Buckley 2000; Larmuseau, Desmet, and Depaepe 2019), whilst disadvantages are reported as lack of student participation, involvement, and discipline (Sithole et al. 2019), plus problems related to academic dishonesty, e.g. cheating (Jones, Reid, and Bartlett 2008) and plagiarism (Butakov, Dyagilev, and Tskhay 2012; Klein 2011).

1.2. Effects of distance education

DE stakeholders are classified as students, teachers, educational institutions, content providers, technology providers, accreditation bodies, and employers, whilst e-learning success is considered dependent upon stakeholder cooperation (Wagner, Hassanein, and Head 2008). Utilisation of technology, learning privatisation, and the separation and interaction of all stakeholders are important differences between DE and face-to-face education. The differential effects can be examined according to stakeholders such as students and teachers.

1.2.1. Effects of distance education on students

For better distance education outcomes, students should be more active, highly motivated (Mahande and Akram 2021), ready to communicate (Barnard et al. 2009) and interact with their teachers (Kuo et al. 2014; Roque-Hernández et al. 2021) and peers (Delen, Liew, and Willson 2014; Roque-Hernández et al. 2021; Tawfik et al. 2018), and be independent to participate in online course activities. However, they may experience certain difficulties or problems during online courses related to their changed role. Karal, Çebi, and Pekşen (2010) stated that students may feel isolated due to the limited contact, become disorientated, suffer motivational loss, and difficulties managing without appropriate institutional and technical support. Kvavik, Caruso, and Morgan (2004) stated that most students identified access problems as a barrier for technology utilisation. Inequalities in accessing and participating in online education (Devkota 2021) are also significant problems with DE.

1.2.2. Effects of distance education on teachers

DE teachers can be flexible facilitators (Ortigoza, Rodriguez, and Inchaurrondo 2021; Tarchi et al. 2022) who employ appropriate pedagogies (Beckmann 2010; Harper, Chen, and Yen 2004; Hunt et al. 2014), technologies (Hunt et al. 2014), and provide challenging online assessments, manage online communication, and support the students' role in DE (McPherson and Nunes 2006; Means, Bakia, and Murphy 2014). Teachers need much more time (Hunt et al. 2014; Steed and Leech 2021) to reorganise courses and adapt their teaching to the new format (Almazova et al. 2020; Dringus 2000; Lai 2021). Yueh and Hsu (2008) suggested that one barrier was fear of technology. In order to achieve success in DE, technology should be ready and teachers trained in its usage. Transferring face-to-face teaching to remote teaching with limited training in both digital literacy and creating effective distance learning activities (Xie, Gulinna, and Rice 2021) is considered a critical barrier to realising effective DE.

1.3. Distance education in primary schools

During the COVID-19, primary schools in most countries delivered teaching activities online. The literature has mostly concentrated on the methods used in distance learning developed either for adult or higher education instead of primary schools (Singh, Gupta, and Yadav 2021). Due to the difficulty and importance of fostering good relations in DE, taking care of students' psychological needs is essential in order to realise a higher quality of education (Wisniewska and Lukasiewicz-Wieleba 2021). Due to the different needs of primary schools, special attention should be paid to them (Zheng et al. 2022). Anastasiades (2003) stated that a complete methodology is required to address the requirements of primary education; with face-to-face classroom teaching considered an important factor in communication, interaction, and socialisation within primary education. Moreover, whilst tele-cooperation can improve communication, it cannot substitute for the feeling of personal/physical contact; hence, Anastasiades (2003) emphasised that teachers within virtual environments cannot effectively replace face-to-face classroom teaching.

Moreover, Burdina, Krapotkina, and Nasyrova (2019) developed and examined a versatile elementary school distance learning programme. Their study revealed both the teachers' role as facilitator and student–teacher communication as determining factors in the students' academic performance and motivation. To fulfil course objectives, DE students require not only a home tutor as mentor, but also a teacher to aid their critical thinking, problem solving, and self-motivation (Burdina, Krapotkina, and Nasyrova 2019).

To explore the pros and cons of using Internet videos when teaching complex topics, Salmeron, Sampietro, and Delgado (2020) studied how 207 primary school students (grades 4–6) evaluated and integrated multiple and multimodal (i.e. text and video) information. Their study showed that students preferred the views described in videos more than in textual format.

1.4. The current study

Following the declaration of COVID-19 as a global pandemic by the WHO on 11 March 2020, all K-12 schools in Turkey ceased face-to-face education. A period of ERT commenced soon after, on 23 March 2020 (TEDMEM 2020), with the Turkish Ministry of National Education (MoNE) having established an online Education Information Network (known as EBA) and an associated television channel (EBA TV) to support the delivery of ERT in Turkey. Then, in the fall of 2020, primary schools throughout Turkey started to teach classes 2 days per week as face-to-face and 3 days via online education.

The current phenomenological study aims to understand the lived experiences and perceptions of primary school teachers related to DE applied during the pandemic in Turkey. There has also been a lack of research in the literature regarding DE applications in primary education, an area that has gained significant importance due to the pandemic and its associated mandatory shift to DE. Examining teachers' lived experiences and their perceptions about DE within primary education is therefore deemed a necessary contribution to the current literature.

In investigating this phenomenon, the research questions that guided the study were: (1) What are the lived DE experience of primary school teachers during the COVID-19 pandemic in Turkey? and (2) How do primary school teachers perceive the effects of DE on both students and teachers in Turkey?

2. Methodology

The current research was conducted as phenomenological study. During the pandemic, many primary school teachers experienced DE as a new and unfamiliar form of teaching. The purpose of this study was not only to discover the 'lived experiences' of primary school teachers, but also to better understand their perceptions regarding their teaching experiences during the pandemic.

2.1. Participants

The study's participants (*N* = 20) were selected through purposive sampling. In using this strategy to learn or understand a phenomenon, researchers deliberately select individuals as participants (Creswell [2012](#)). Hence, primary school teachers who actively taught online during the pandemic in Turkey voluntarily participated to this study (13 female, seven male). The participants' teaching experience ranged from 3 to 41 years, with a mean of 18.9 years. The participants taught at various levels and, except for two, they all taught in state schools. Their weekly course load was 30 h; however, due to the pandemic, they mostly taught online but occasionally taught face-to-face for 2 days a week.

2.2. Data collection and analysis

After an extensive literature review, a semi-structured interview form was developed in Turkish by the researchers. Interview protocol checked for clarity and context-specificity by two experts in qualitative research. The interview included questions about the participants' demographics, online teaching practice in primary school, what was like to be a primary school teacher during the pandemic, interactivity, equality issues with regards to online teaching, and their perceptions about DE. The data of the study were collected at the end of the fall 2020 semester. Prior to the interviews, the purpose of the study was briefly explained and permission to digitally record the sessions sought from the participants. All of the interviews were conducted individually, online via Zoom by the researchers, and they took approximately 30 min. Creswell's ([2012](#)) six steps for analyzing and interpreting interview data were then followed. First, the data were anonymously transcribed, then the researchers read and reread the transcribed data to understand its general sense, before finally the data were coded.

To ensure coding credibility, the researchers initially coded one interview individually and then reviewed the labels together and negotiated an agreed coding book. Once the coding book had been decided, the remaining interviews were coded. As new codes emerged during the coding, the researchers discussed and together decided whether or not they should be added. The codes were then rearranged, and themes decided upon. The researchers then decided how best to visualise the data, before interpreting the data, and finally validating the reliability and accuracy of the findings.

3. Results

Qualitative analysis of the collected data led to three themes*: Current status of DE, Effects of DE,* and *Teachers' perception of DE*.

3.1. Current status of distance education

The participant teachers described their lived experience about online teaching during the COVID-19. Accordingly, a hierarchical code structure was formed (see Figure 1) under the four-category theme: *Teaching practice in DE, Interactivity, Inequality in education,* and *Difficulties in DE*.

3.1.1. Teaching practice in distance education
Teaching practice in DE includes the primary school teachers' lived experiences. The category included four codes: *planning, conducting, sharing,* and *evaluation* (see Figure 1).

Under the code of *planning*, teachers explained how they planned their online courses, and stated that both course content and lesson duration were set by the MoNE. However, scheduling online lectures was left to the teachers to decide. One teacher stated that schedule planning and classroom management were considered difficult in terms of DE.
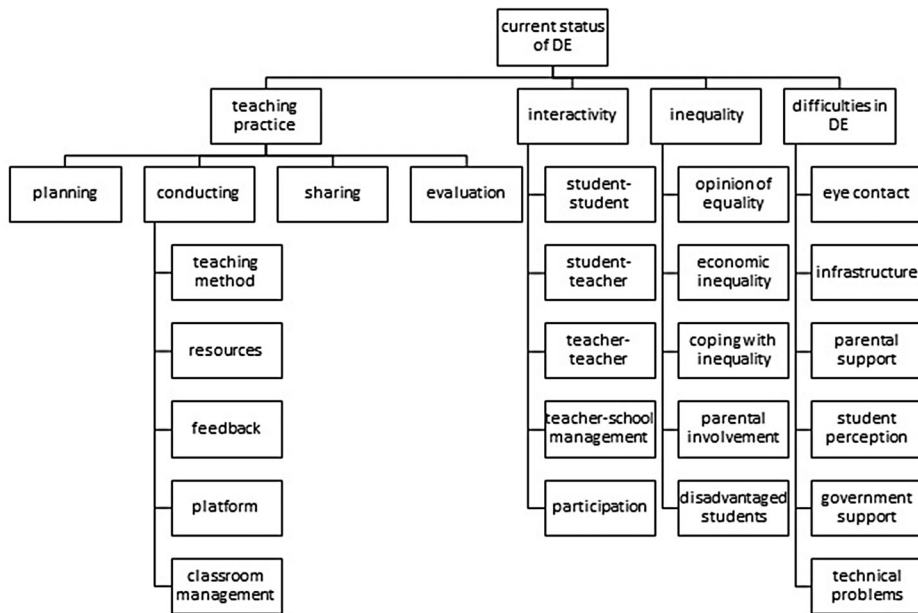
Figure 1. Hierarchical structure of the DE theme's current status.

> But it [planning] is much more difficult in DE. For example, I cannot predict what kind of a problem I may encounter during the lecture when starting life science. Even though I have been teaching for 2 weeks or more, I still can't figure it out. (T4)

According to the results, under the *conducting* code the emerged sub-codes were *teaching method, resources, feedback, platform*, and *classroom management*. The participant teachers mentioned their teaching methods whilst conducting DE, with Socratic method ($n = 6$), discussion ($n = 4$), presentation ($n = 4$), screen sharing ($n = 2$), one-to-one reading ($n = 1$), drama ($n = 1$), demonstration ($n = 1$), show and tell ($n = 1$), and practicing ($n = 1$) being the most preferred. The following quotations illustrate two of the teachers' points of view:

> Throughout the lesson, besides lecturing, we usually have question and answer sessions. (T8)

> Besides, I immediately taught the lessons by making a live drama at that moment. (T3)

Second, according to 12 of the teachers, videos, PDF files, Web 2.0 tools, textbooks, workbooks, and computer-supported materials were the most used *resources* during online lecturing. The results showed that textbooks were already converted by the MoNE into PDF format, and that these were then utilised as a primary resource. For example, T3 stated that, ' … we had scanned resources. I downloaded our textbooks. I also uploaded textbooks as well as scanned books I got from friends at work'.

Third, the teachers underlined having each developed different *feedback* strategies*,* and that it was considered difficult. For example, T2, a first-grade teacher, requested videos of writing-reading homework and provided feedback via a mobile phone, but also stated that this process took up too much time. All of the teachers utilised Zoom as the main *platform* for conducting their online courses. In addition, the EBA, WhatsApp, YouTube, and Skype were the other platforms used. For example, K8 stated 'we are used to using Zoom and EBA, so we always teach do it this way during lessons'. In conducting their teaching activities via these platforms, the teachers used computers, mobile devices, webcams, and whiteboards.

With regards to *classroom management,* the teachers stressed that online courses require certain standards for example, students should always open their webcams during lessons. Furthermore, they mentioned being unable to maintain proper control over their students compared to physical classroom teaching, which was exemplified as:

> It is important that the cameras are open. If they are turned on and the students sit in front of the screen, you have nothing else to check, else I don't know if they are really in the Zoom meeting, reading a book, or just doing something else. (T9)

Moreover, poor class attendance and time management difficulties were other problems also mentioned by the participants.

Teachers need to share course materials and announcements with their students. The findings showed that WhatsApp was the main application used for *sharing*. However, due to the students' young age, their parents' mobile phones were used instead for sharing. T2 explained this process as; 'When giving homework, I send a message to the parents' WhatsApp group for my assignments.' YouTube was the other channel that the teachers mentioned for information sharing.

Evaluation was the final code under the *teaching practice* category. The teachers underlined that evaluation was considered a problem in online courses. On this, T14 stated that, 'We cannot conduct exams in DE and are experiencing an evaluation problem. Whereas we could easily evaluate the achievements of children in face-to-face education, unfortunately we cannot perform evaluations in DE.' Despite this, in-class evaluation, online quizzes, and homework were the three most used forms of evaluation.

3.1.2. Interactivity

Interactivity within online education was another category, with student *participation* as one of its codes. *Teacher–student, teacher–teacher, student–student,* and *teacher–school management* were the sub-codes mentioned by the participants. Seven teachers stated that not all students attended online lectures. During online courses, the teachers attempted communication by asking questions and students raising their hand to speak. In less crowded classes, the teachers preferred one-to-one interaction with their students. However, the teachers criticised there being limited *teacher–student* interaction compared to face-to-face teaching. One of the teachers explained this as follows:

> Of course, our interaction with students is not like face-to-face. Our students are active in face-to-face education both emotionally and socially, … they turn on their cameras from time to time in distance education. Sometimes they may not open their cameras.

On the other hand, three of the teachers stated having used online tools *teacher–teacher* interaction. Also, they actively used WhatsApp to communicate with colleagues regarding students, materials, and other school-related issues. Surprisingly, only one teacher mentioned *student–student* interaction. T3 mentioned forming groups and fostering students through online group study activities. Lastly, WhatsApp groups and e-mail were the methods used for *teacher–school management* communication.

3.1.3. Equality in education

Overall, 15 of the teachers mentioned inequality during the COVID-19. Under the inequality category, *opinion about inequality, economic inequality, coping with inequality, parental involvement,* and *disadvantaged students* were the emerged codes. First, 17 teachers directly stated that significant inequality existed in terms of reaching education. For example, T9 underlined equality as being problematic in DE, and that some students were unable to even attend online classes. Another teacher emphasised inequality as follows:

> When we evaluate in terms of equality of educational opportunity, there is a big negation. Education has started to be formed economically, as students whose parents have financial means can attend lessons, whilst others cannot. They are somehow waiting for us in the dark.

Second, the teachers underlined those students had different technological statuses due to *economic inequality*. T2 explained their students' technical situation as follows:

> Some of my students have computers to connect, whilst others have a tablet or smartphone. There are also some who have no devices and never connected. Most students have Internet access via smartphones, and a few have Internet at home. (T2)

Some students had no means to connect to online classes, and some even had no access to a television from which to follow lessons broadcast on national state channels. Also, T20 explained that it took a month for some students' parents to resolve Internet connectivity problems and for some to acquire mobile devices or computers for their children to use. Additionally, three students' parents could not afford Internet connection, and so their children never followed the online courses. According to the study's findings, e*conomic inequality* increased in the suburbs and in rural areas, with one teacher explaining that:

> I teach in a region with limited technology access, and the parents' socioeconomic situation is not very good; frankly, I have a hard time with DE because access is below the desired level. Children cannot sufficiently benefit from technological opportunities. (T11)

Under the *coping with inequality* code, teachers, schools, and the MoNE took certain actions to address issues of inequality in education. The teachers mentioned sharing documents and homework with students who lacked an Internet connection or the devices to access online classes. T4 explained that 'I inform the parents about the subjects that I teach daily through WhatsApp.' Beside the teachers' individual efforts, daily classes for K-6 were broadcast on EBA TV channel. Mobile books and the Internet were the other strategies mentioned to address inequality. As T9 stated, the MoNE distributed free tablets to some students whose families faced economic hardship.

One interesting code to emerge was *parental involvement.* The teachers highlighted that the parents' role and interest in their children's online learning was sometimes an inequality factor. Some teachers complained about uninterested parents, and T2 stressed the future effects of such inequality, saying; 'There will definitely be a difference between those students that have interested parents and those who don't.' Also, parents' education level can be an issue in terms of inequality. On this, one teacher rationalised that:

> The education level of parents in our school is also low. For example, there may be a subject they do not know from a math class, and the children may do their homework incorrectly because of this. Therefore, I also coach the parents. (T4)

The final code under inequality was *disadvantaged students*. Only T3 taught a disadvantaged student, and underlined that because of the student's different needs, certain problems existed for both the student and in being their teacher during the pandemic, and stated that:

> I see that it is even more difficult, and I think special effort is needed. For them [disadvantaged students], it gets a little more difficult during DE. Even in face-to-face classes, it is difficult to respond to the different needs of some students. (T3)

3.1.4. Difficulties in distance education

The teachers also stated experiencing certain difficulties in DE, with *eye contact, infrastructure, parental support, students' perceptions, government support*, and *technical problems* as the codes under this category. Absence of *eye contact* was the most stated difficulty for online courses. Teachers asserted that online platforms do not provide for actual eye contact which is an important factor considering the students' young age. For example, T13 stated that, 'The strongest aspect of face-to-face education is eye-to-eye contact, so I think this is the weakest aspect of DE since it is lost.' Other difficulties mentioned were infrastructure problems like Internet connection and problems related to the government's DE platform (EBA). Parental support was another difficulty. The teachers mentioned the parents' role in online teaching, even stating that some acted irresponsibly, such as:

There are some difficulties with parents in online education. They do not follow the classes and can opt for the easiest way out by only wanting to learn when the lessons are scheduled. You must both plan the lessons and deal with the parents. There are difficulties caused by some parents. (T5)

Another difficulty mentioned regarding online education was *students' perception*. One teacher pointed out that some students perceived the teacher as a computer in online teaching and thinking of teachers as machines negatively affected the teaching process. Lack of *government support* and *technical problems* were the other issues upon which the teachers levelled criticism.

3.2. Effects of distance education

The *Effects of DE* was one of the themes that emerged during the analysis. The teachers underlined that online teaching processes affected both students and teachers in several ways. These effects were grouped as effects on students and on teachers.

The teachers pointed out that DE affected *socialisation, behaviours during classes, digital abilities,* and *self-regulation* of their students. Four of the teachers claimed that online education negatively affected student socialisation, with one stating that, 'Children are in front of the computer all day. I think it really affected them physically and emotionally. They have no interaction with their friends. Their sociability diminished completely' (T10). Moreover, T6 emphasised the lack of peer learning.

Another negative effect mentioned was student behaviour during online classes. Teachers criticised that some students behaved improperly during lectures. For example, T1 stated, 'In an online lesson, a child jumped on the sofa-bed four or five times when the camera was turned on.' Moreover, talking and interrupting classmates, eating during online courses, and engaging in other activities during class time were other examples mentioned. However, the teachers believed that online teaching also positively affected some children. For example, T4 and T10 claimed that students improved their *digital abilities*. Moreover, two of the teachers stated that *self-regulation* of students improved during this period. For example, T11 stated that, 'Even if they stay away from the school environment, I think that online education helps students to develop their self-control, self-management, and awareness.'

The teachers also mentioned how online teaching also affected themselves, with 15 criticising their increased workload. For example, 'DE makes me tired as there is considerable preparation required before lessons. It is not possible to start DE without some preliminary preparation' (T20). Additionally, nine teachers listed negative physical effects from online teaching, including headaches, exhaustion, backache, muscle pain, and eye problems. Five of the teachers underlined that school environment and interaction with both students and colleagues were important motivational factors in teaching, and that their absence was demotivational and decreased their job satisfaction. Another negative effect for teachers was stress. For example, T13 stated that, 'When these online lectures started, we would panic about spending so many hours in front of the computer, and we still do.' One positive effect of online education stated by two teachers related to their professional development. They argued that online teaching made them realise their deficiencies in digital literacy, and their need for professional development in technology integration.

3.3. Teachers' perception of distance education

According to the study's results, most of the teachers preferred and believed in the importance and value of face-to-face teaching in K-6. The teachers perceived the temporary period of online education as an obligation, emergent, and that they awaited the end of the pandemic to return fully to face-to-face education. Except for one teacher, they all stated that online teaching could not replace face-to-face teaching and that it was unsuited to primary education, as exemplified in the following quote:

> As the student age group lowers, their attention lessens. But actually I do not recommend DE for any age group. DE has made things more difficult than face-to-face education. With technological problems, the lessons can go on for a while. Everyone experienced some problems. I wish to return to face-to-face education in every sense. (T6)

Due to this rigid perception concerning DE, most of the teachers underlined their preference not to use DE in primary education beyond the pandemic. However, they stated that hybrid teaching models may be appropriate for education at higher levels. For example, one teacher explained this as follows:

> DE is not suited to primary education. In primary school, students and teachers must be in the classroom face-to-face, and they must be able to touch each other. Primary education is very important, but in secondary school, high school, and university, hybrid teaching is necessary. (T1)

Some of the teachers favoured online education for K-6, but only for short periods such as a day or a week at most, and in certain cases such as bad weather (e.g. heavy snow or storms). One teacher suggested that students with problems and difficulties in learning may benefit from additional online courses during semester breaks or the summer holidays.

4. Discussion and conclusion

4.1. Current status of DE in primary education

While describing their teaching experience, participants underscored *teaching practice, interactivity, inequality*, and the *difficulties* that they confronted. Under *teaching practice*, they described how they planned, conducted, shared, and evaluated. The results showed that the teachers faced some problems during the teaching process, and that they employed various teaching methods without guidance. The participants mostly preferred the Socratic method in online sessions. Similarly, middle school teachers in Turkey reportedly prefer questioning via online sessions (Aslan, Turgut, and Aslan 2021); however, the most preferred teaching method in the US for K-12 was reviewing works (Francom, Lee, and Pinkney 2021) and assigning homework in Italy (Scarpellini et al. 2021). Preferences vary according to teachers' choices and the type of DE. Moreover, the COVID-19 pandemic presented an emergency, with many teachers not having had the opportunity to prepare for teaching online. In the current study, parents' mobile phones and instant messaging apps were the most used tools for sharing and communication related to online lectures. However, primary school teachers in Slovenia communicated with students via Edu Page, e-mail, and Facebook groups (Ballová Mikušková and Verešová 2020).

Student evaluation was another problematic issue reported during the mandatory DE process. In general, the results showed that due to the emergent and unprepared teaching practices, difficulties were experienced in teaching processes, and that teachers struggled to overcome these problems with their limited digital pedagogic knowledge. For example, in China, unpreparedness, concerns over at-risk students, the constantly changing situation, and variety were the main challenges that teachers faced during the pandemic (Wang et al. 2021). However, with the pandemic far from over and its end unknown, DE will likely continue in various forms for some time, teachers urgently need guidance and support. Greenhow and Lewin (2021) suggested that ongoing teacher professional development should be provided to develop their digital pedagogy.

Results also showed *interactivity* as an important issue for primary school teachers. For high-quality online primary school DE, relatedness (contact with students and parents) is an important factor (Mankki 2021), whilst learner-instructor interaction was found to significantly predict student satisfaction for undergraduate and graduate DE students (Kuo et al. 2014). The current study revealed that student–teacher interaction was limited, and that teachers believed that for primary education, student–teacher interaction in online teaching should be one-to-one. As in the current study, communication with students was considered a significant problem for online

teaching during COVID-19 (Francom, Lee, and Pinkney 2021). Unfortunately, the current study revealed that student–student interaction was largely ignored during this period. However, learner-teacher and learner-content interaction are significant predictors for student satisfaction (Kuo and Belland 2016). This may be due to the unreadiness of teachers for online learning and its teaching strategies.

One significantly negative result the current study identified was *inequality*. Accordingly, although there were official and individual endeavours to address this, socioeconomic differences resulted in inequality. As the teachers emphasised, limited technology and Internet access to participate in DE presented a barrier for some students. Like the current study, Francom, Lee, and Pinkney (2021) reported that 30.9% of K-12 students experienced difficulties with Internet and computer access. Parental socioeconomic status influences student access to ICTs at home, and the frequency and quality of ICT usage is influenced by the level of ICT integration in schools (González-Betancor, López-Puig, and Cardenal 2021). Hence, these both relate to the economic status of parents and schools. Like Karasel Ayda et al. (2020), this study revealed that disadvantaged students also experienced problems accessing DE. Technology-based inequality in primary education has been an issue during the pandemic, and significant efforts should be made to provide adequate opportunity for all students to access to education.

Lastly, results indicated some problematical aspects to the pandemic DE period including lack of eye contact, infrastructure, technical issues, parental support, students' perception, and government support, with eye contact having been mentioned the most. Raes et al. (2020) stated that qualified audio and video infrastructure is crucial for success in remote learning, and the current study revealed that infrastructure and technical problems also confronted the participant primary school teachers. Dolenc, Šorgo, and Ploj Virtič (2021) mentioned hardware and Internet connectivity as the most reported problems in DE during the pandemic. Similar to the current study, Francom, Lee, and Pinkney (2021) reported parental involvement as one of the more significant difficulties in DE. On the other hand, others mentioned the significant effort and high demand of this DE process at the K-12 level (Scarpellini et al. 2021).

4.2. Effect of distance education

Interaction between students plays an important role in student learning (Cho and Jonassen 2009; Garner and Bol 2011). Therefore, *socialisation* and peer-to-peer interaction is crucial to the learning environment. In the current study, most primary school teachers stated that the pandemic negatively impacted on students' learning due to the lack of both peer-to-peer interaction and peer learning. This may be due to the limited socialisation opportunities for students. This result parallels those of Delen, Liew, and Willson (2014) and Tawfik et al. (2018), whose studies emphasised the importance of peer-to-peer interaction and peer assessment to develop and increase learner understanding, and positively contribute to the learning environment.

Classroom behaviour management is crucial for effective teaching (Brouwers and Tomic 2000). In the current study, the teachers stated an important negative effect of DE concerned students' *behaviour during classes*. Effective teaching and a positive classroom environment with limited disruptive behaviour requires planning and experience (Hepburn, Beamish, and Alston-Knox 2021) to understand the instructional practices and environmental modifications. Therefore, such problems may be due not only to poor planning, but also inexperience with DE. With suitable planning and DE experience, teachers can circumvent improper student behaviours by modifying their instructional approach to correct and prompt expected student behaviours within online environments.

During DE, active interaction does not occur automatically and requires a certain degree of student self-regulation (Cho and Jonassen 2009; Garner and Bol 2011), which can be learned (Schunk 2001) with their teachers' help (Dembo and Eaton 2000). Some teachers in the current study believed that online education supported students' self-regulation development and increased their *digital abilities*. This may be due to the increased screen times of the students.

The results of the current study emphasised that teachers were also affected during the COVID-19. For example, teachers' *workloads* reportedly increased, with most teachers mentioning that planning online lectures required much more time than face-to-face teaching; a result supported by Dringus (2000) and Hunt et al. (2014). This finding is considered very important since increased *workload* may present a significant barrier to teachers use and preference for DE in the future.

One positive effect of DE mentioned was the opportunity to identify deficiencies in teachers' digital literacy, and their need for professional development in technology integration. To cope with these deficiencies, teachers need more time and help to integrate technology into their teaching practices (Benson, Anderson, and Ooms 2011), although some may perceive those elements as time-consuming (Charles and Anthony 2007). Professional development support for teachers' capacity is a potential solution for workload issues and the probable future increases in blended and/or online education. As Greenhow and Lewin (2021) suggested, professional development activities for teachers should be ongoing in order to develop their digital pedagogy. Furthermore, digital literacy and technology utilisation training are crucial for effective and efficient education (Xie, Gulinna, and Rice 2021).

Teachers' feelings of competence (Burić and Macuka 2018), administrative control (Ingersoll 1999), and organisational culture are all factors that can determine teacher *job satisfaction*. According to the current study, except for organisational culture, the lack of DE competence and administrative support may have resulted in decreased teacher job satisfaction. Furthermore, the current study's findings parallel previous research (Liu and Ramsey 2008), in that insufficient planning, preparation, and heavy teaching *workload* causes dissatisfaction. This increased workload may be due to lack of administrative support; therefore, managers should take action to decrease teachers' workload where appropriate.

4.3. Perception of distance education

The teachers highlighted that primary education is not suited to either hybrid or DE, preferring face-to-face education instead. This finding is consistent with research by Anastasiades (2003). All of the current study's participant teachers believed that students in primary schools differed from other levels due to their cognitive levels and needs. As a result, factors affecting their learning may require alternative social interactions and pedagogical approaches, which are both easily and successfully met through face-to-face education. For similar reasons, synchronous one-to-one online tuition (Humphry and Hampden-Thompson 2019) and/or home tutoring in addition to online teaching (Burdina, Krapotkina, and Nasyrova 2019) was suggested for primary school DE. These recommendations remind of the importance of parental support as home tutors, which was also mentioned as an *inequality* due to differing levels of parental involvement. There exists a need for additional research to clarify those pedagogical approaches best suited to primary school DE, and to what extent and what type of parental support is needed.

5. Recommendations

- Ongoing teacher professional development should be provided to develop teachers' digital pedagogy.
- All types of interaction opportunities should be increased in DE.
- Significant efforts should be made to overcome economic inequality to provide adequate opportunity to improve student access to DE.
- The many problems reported for DE at the primary education level should be addressed before attempting to reapply DE in primary schools.
- Further studies should be conducted to investigate how DE can best be used in teaching and learning processes in primary schools.

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