An Investigation of the Views and Experiences of Teachers Working with Visually Impaired Students with Multiple Disabilities on Distance Education

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Abstract

The objective of this study was to gain a comprehensive understanding of the experiences and perspectives of educators working with students with visual impairments and multiple disabilities regarding distance education. This study employed exploratory sequential design, a type of mixed-methods research. To this end, the researchers developed and employed a "Semi-Structured Interview" form, a "Demographic Information Form", and an "Opinions on Distance Education Questionnaire" for the purpose of data collection. In the initial phase of the study, the researchers gathered qualitative data through semi-structured interviews and conducted an analysis thereof. In the second stage, the research team developed the Opinions on Distance Education Questionnaire, a tool designed to collect quantitative data, based on the findings of the qualitative analysis. Subsequently, the team collected the requisite quantitative data. Seven teachers participated in the qualitative portion of the study, while 40 teachers took part in the quantitative phase. The findings revealed that teachers of visually impaired children with multiple disabilities reported unfavorable experiences pertaining to the children's disabilities, students' access to the Internet, and the utilization of technology in distance education practices. Teachers made adaptations and utilized family support to overcome these challenges. The teachers reported that they required the most support from their families in distance education, as well as training in the use of technology, the Internet, and infrastructure support. They suggested that for distance education to be effective, families should be trained in distance education, and students should have access to the necessary internet and digital devices.

Keywords: teachers, perspective, experiences, visually impaired students with multiple disabilities, distance education, mixed method.

Görme Yetersizliği Olan Çok Engelli Öğrencilerle Çalışan Öğretmenlerin Uzaktan Eğitime İlişkin Görüş ve Deneyimlerinin İncelenmesi

Öz

Bu çalışmanın amacı, görme yetersizliği olan çok engelli öğrencilerle çalışan öğretmenlerin uzaktan eğitimle ilgili deneyimlerini ve bakış açılarını kapsamlı bir şekilde anlamaktır. Bu çalışmada karma yöntem araştırmasının bir türü olan keşfedici sıralı desen kullanılmıştır. Bu amaçla, araştırmacılar veri toplamak için "Yarı Yapılandırılmış Görüşme Formu" "Demografik Bilgi Formu" ve "Uzaktan Eğitime İlişkin Görüşler Anketi" geliştirmiş ve kullanmışlardır. Araştırmanın ilk aşamasında, araştırmacılar yarı yapılandırılmış görüşmeler yoluyla nitel verileri toplamış ve bunların analizini gerçekleştirmiştir. İkinci aşamada, araştırmacılar, nitel analizin bulgularına dayanarak, nicel verileri toplamak için Uzaktan Eğitime İlişkin Görüşler Anketi'ni geliştirmiş ve nicel verileri toplamıştır. Çalışmanın nitel kısmında yedi öğretmen, nicel kısmında ise 40 öğretmen yer almıştır. Bulgular, görme yetersizliği olan çok engelli öğrencilerle çalışan öğretmenlerin çocukların yetersizlik düzeyleri, öğrencilerin internete erişimi ve uzaktan eğitim uygulamalarında teknoloji kullanımına ilişkin olumsuz deneyimler bildirdiklerini ortaya koymuştur. Öğretmenler bu zorlukların üstesinden gelmek için uyarlamalar yapmış ve aile desteğinden yararlanmıştır. Öğretmenler uzaktan eğitimde en çok ailelerinin desteğine ihtiyaç duyduklarını, bunun yanı sıra teknoloji kullanımı, internet ve altyapı desteği konularında eğitime ihtiyaç duyduklarını belirtmişlerdir. Uzaktan eğitimin etkili olabilmesi için ailelerin uzaktan eğitim konusunda eğitilmesi ve öğrencilerin gerekli internet ve dijital cihazlara erişiminin sağlanması gerektiğini belirtmişlerdir.

Anahtar kelimeler: öğretmen, bakış açısı, deneyim, görme yetersizliği olan çok engelli öğrenciler, uzaktan eğitim, karma yöntem.

INTRODUCTION

This study examines the perspectives and experiences of educators engaged in distance education of visually impaired students with multiple disabilities. Distance education is defined as a pedagogical approach that employs synchronous or asynchronous instruction, utilizing comprehensive digital instructional materials and communication technologies, irrespective of the physical location or temporal constraints of the instructor and learner (Baran & Sadık, 2021; Boz, 2019). Distance education offers several advantages, including the provision of equal educational opportunities and access to education for all who desire it (Bozkurt, 2017). It has been demonstrated that an effectively designed distance education program can be as effective as a traditional, face-to-face educational experience, ultimately leading to increased student success (Shachar & Neumann, 2010; Simonson et al., 2011; Ünay et al., 2021). However, it should be noted that distance education also has certain limitations. Technological issues, negative teacher attitudes, the use of inappropriate teaching methods, and an inability to provide sufficient assistance to students who are not accustomed to independent and self-directed learning are among the limitations of distance education (Akyürek, 2020; Valentine, 2002;Balaman, Hanbay-Tiryaki, 2021; Baran & Sadık, 2021; Uzoğlu, 2017; Trust & Whalen, 2020; Ünay et al., 2021; Yılmaz & Aktuğ, 2011; Yılmaz & Güven, 2015). In light of the aforementioned advantages and disadvantages, it is evident that all individuals of an educational age have been compelled to engage in distance education during the ongoing pandemic. The isolation process resulting from the global pandemic of SARS-CoV-2 has precipitated significant alterations in the routines of all educators, learners, and most notably, children with developmental disabilities (Lebrasseur et al., 2021). In particular, students with multiple disabilities who are blind have been among the student groups most affected by the significant changes in their daily routines and learning pathways. While visual limitations are disadvantageous even in traditional, face-to-face educational settings, they have proven to be particularly problematic in distance education (Sani-Bozkurt et al., 2022).

Over the past three decades, there has been a notable surge in the number of visually impaired individuals who have multiple disabilities (Argyropoulos & Gentle, 2019). Visual impairment is the most prevalent disability among students with multiple disabilities, and this group is notably heterogeneous (Chen & Dote-Kwan, 1995). Students in this group may also experience difficulties in terms of cognitive, motor, and communication skills (Horn & Kang, 2012; Şafak, 2012; Şafak & Uyar, 2015; Westling et al., 2009). In their learning processes, they may encounter challenges in obtaining sufficient information from their environment and utilizing and generalizing this information independently. Consequently, repetition and routines are essential for these students (Argyropoulos & Thymakis, 2014; Erin, 2017; Taylor & Preece, 2010). Given their inability to utilize language and visual cues in the learning process, it is imperative to enrich their educational experiences with tactile and auditory inputs (Bilgiç et al., 2024; Şafak, 2012; Şafak & Bilgiç, 2021; Şafak et al., 2018;). However, students who are visually impaired and have multiple disabilities are a vulnerable group that may experience regression when educational services change (Frederick et al., 2020).

While the international literature indicates that visually impaired students with multiple disabilities were able to pursue their education through distance learning prior to the advent of the Coronavirus Disease 2019 (Covid-19) pandemic (Rice et al., 2019), such an initiative has yet to be implemented in Turkey. In response to the global pandemic of the novel coronavirus, educators of visually impaired students with multiple disabilities were compelled to transition to distance learning, confronting similar challenges to those experienced by all teachers (Alan & Can, 2021). In distance education, teachers are required to provide additional assistance and support to their students (Rose & Blomeyer, 2007; Vasiliki, Dimitrios, & Maro, 2021), yet they lack the necessary skills to engage students in the learning process (Hamilton et al., 2020; Hopcan et al., 2021). However, they found themselves in online classrooms without the requisite training in online teaching (Schleicher, 2020). In conclusion, the abrupt transition to distance education compelled numerous educators to utilize novel technologies and develop new competencies (Smith, 2020).

In conclusion, the literature contains studies examining the opinions of special education teachers, comparing the opinions of special education teachers and teachers from different fields, investigating the impact of distance education on the performance of visually impaired students with multiple disabilities, and incorporating family opinions. Nevertheless, no study has been conducted that focuses specifically on the views of teachers who work with visually impaired students with multiple disabilities. Given that visually impaired students with multiple disabilities require a multisensory educational approach and that distance education is an educational process based on visual input, it is of interest to consider the views of teachers working with such students on the distance education process and their experiences that affect their views. In light of the potential for new global pandemics,

it is crucial to understand how educators are adapting to the transition from face-to-face to distance education, the challenges they are facing, their needs during this process, and their recommendations regarding the transition. The objective of this study is to gain comprehensive insight into the experiences and perspectives of educators who work with visually impaired students and students with multiple disabilities in the context of distance education.

METHOD

Research Design

This study employs an exploratory sequential design, a type of mixed methods research. In this design, the qualitative data are collected and analyzed initially, and then the quantitative data are collected and analyzed subsequently. Qualitative data is accorded greater priority, while quantitative data is employed to corroborate and extend the insights derived from the qualitative analysis. The analysis of data is frequently integrated with the interpretation of findings and discussion sections. This design is useful for exploring existing relationships when research variables are unknown, testing a theory, developing a new test or measurement instrument based on qualitative analysis, and generalizing qualitative findings to a specific population (Baki & Gökçek, 2012; Creswell & Plano-Clark, 2011; Toraman, 2021).

Participants

The qualitative data of this study were obtained through homogeneous sampling, which involves the selection of a sample that is similar to the whole population or to a particular subgroup within the population. In this type of sampling, focus groups are usually conducted with groups of 4 to 12 participants on topics that are specifically determined or focused (Baltacı, 2018; Marshall, 1996; Patton, 2005). The fundamental objective of employing such sample groups is to convene individuals with analogous experiences to identify the predominant circumstances that impact them. In this study, the researchers exclusively examined the experiences and perspectives of educators working with visually impaired children with multiple disabilities in the context of distance education. Consequently, the researchers obtained qualitative data from a homogeneous sample group. Due to the limited number of teachers working with blind children with multiple disabilities, the voluntary nature of participation, and the teachers' availability for semi-structured interviews, the researchers conducted semi-structured interviews with seven teachers.

The study's participants were teachers employed at educational institutions affiliated with the Ministry of National Education who were engaged in the instruction of visually impaired students with multiple disabilities. The participants were required to participate in the study on a voluntary basis, to have students with a second disability in addition to vision in their classes, and to have actively continued the distance education process. In the qualitative component of the study, seven teachers participated, five of whom were female and two of whom were male. Table 1 presents the demographic information of the teachers who participated in the qualitative dimension of the study.

Table 1. Demographic Information of the Teachers Participating in the Qualitative Dimension of the Study

Participants	Gender	Seniority	Branch	Grade of Service
P1	Female	16 and above	Special Education	Vocational
P2	Male	16 and above	Special Education	Vocational
P3	Female	16 and above	Special Education	Elementary
P4	Female	10-15 years	Handicrafts	Vocational
P5	Female	16 and above	Preschool	Preschool
P6	Male	16 and above	Special Education	Vocational
P7	Female	1-4 years	Special Education	Vocational

Table 2. Demographic Characteristics of the Teachers Who Participated in the Quantitative Dimension of the Study

Variables		n	%
Gender	Female	30	75
	Male	10	25
Age	20-30	10	25
	30-40	12	30
	40-50	14	35
	50 and above	4	10
Graduate	Undergraduate	33	82,5
	Graduate	7	17,5
Graduation Field	Special Education	31	77,5
	General Education	2	5
	Vocational Teacher	3	7,5
	Other	4	10
Seniority	1-5 years	7	17,5
	6-10 years	9	22,5
	11-15 years	9	22,5
	16 and above	15	37,5
Grade Of Service	Preschool	2	5
	Elementary	18	45
	Secondary	11	27,5
	Vocational School	9	22,5
Distance Education Training	No	35	87,5
	Yes	5	12,5
Total		40	100

Research Ethics

The research was found ethically appropriate by the Gazi University Ethics Commission in its meeting dated 01.06.2021 and numbered 10. Implementation permission was obtained with the decision of the Strategy Development Directorate of the Ministry of National Education dated 20.04.2022 and numbered E-49614598-605.01-48204255.

Data Collection Instruments

In order to collect the data for this study, the researchers developed and used three different tools. The data collection tools included the "Semi-Structured Interview Form," the "Demographic Information Form," and the "Opinions on Distance Questionnaire." The researchers initially devised a semi-structured interview form to facilitate qualitative data collection. To this end, an initial pool of open-ended questions was formulated, and the necessary adjustments and refinements were made. Subsequently, the questions were presented to three field experts. The questions were then reorganized to achieve consistency in expert opinion. The semi-structured interview form was finalized to consist of five main questions and sub-questions derived from these main questions.

The researchers prepared the demographic information form and the opinions on the distance education questionnaire to collect quantitative data. The Demographic Information Form included a series of questions regarding the demographic characteristics of the teaching staff, including age, gender, academic background, professional seniority, employment status, and whether they had received any training in distance education. In preparing the Opinions on Distance Education Questionnaire, the dimensions of the questionnaire were determined in accordance with the qualitative data obtained in the initial stage of the study. A question pool was thus constructed according to the aforementioned dimensions. In the second stage, the researchers removed inappropriate or repetitive questions from the question pool and made the necessary language corrections. In the third stage, the questionnaire was submitted to an expert opinion panel for review. In accordance with the expert recommendations, the items that included two distinct facts or judgments were removed, and new sub-dimensional questions that were deemed appropriate for inclusion were added. The questions that were unclear or difficult to

comprehend were revised to enhance their clarity and intelligibility. Therefore, the "Survey of Opinions on Distance Education" was concluded.

Data Collection

The data were collected in accordance with the exploratory sequential method, as outlined in the research protocol. The researchers initially gathered qualitative data and conducted an analysis thereof. In accordance with the findings of the preceding analysis, the research team convened to devise a questionnaire for the collection of quantitative data. Subsequently, the researchers collected quantitative data.

In the initial phase of the study, the researchers contacted seven teachers who had volunteered to participate and scheduled appointments for semi-structured interviews. In the second stage of the study, the interviews were conducted. Prior to posing the interview questions, the researchers provided the participants with an overview of the research project. The researchers requested permission to record the interviews on audio. During the interview, the researchers posed the questions set out in the semi-structured interview form to the participants. The shortest interview lasted 12 minutes, while the longest lasted 28 minutes.

In the second stage, quantitative data were gathered. In order to facilitate this, the researchers uploaded the Demographic Information Form and Opinions on Distance Education Questionnaire to the online environment. While designing the questionnaire in an online format, the researchers ensured that the "must be filled" option was selected for all questions. Therefore, the possibility of participants omitting questions was effectively negated. The survey link was disseminated to teachers via social media. The link was accessible for data collection for a period of 15 days, after which it was closed.

Data Analysis

In accordance with the sequential exploratory design of this research, the qualitative data were initially collected and subsequently analyzed. This was followed by the collection and analysis of the quantitative data. The researchers conducted a content analysis of the transcripts. In content analysis, qualitative data are analyzed in depth, coding is done, themes are created based on the coding, and frequency and percentage values are included in the items related to the themes (Hsieh& Shannon, 2005; Sönmez & Alacapınar, 2013). The initial analysis of the qualitative data was conducted by the first and second authors. To this end, the audio recordings obtained from the semi-structured interviews were initially transcribed verbatim without any corrections. The qualitative data analysis program NVivo12 software was also used to analyze the data. Initially, the researchers undertook an independent identification of categories. To this end, the transcripts were repeatedly read, notes were taken, and categories that reflected the participants' views were identified. Subsequently, the researchers convened to deliberate upon the identified categories, subsequently creating sub-themes and themes. The themes and subthemes were then presented to the third and fourth authors. To ensure the internal validity of the results, all researchers reached a consensus.

A series of processes were followed to ensure that the qualitative dimension of the study met the trustworthiness criteria (Başkale, 2016; Creswell, 2011). To ensure the external validity of the study, the sample group was determined in accordance with the research objectives, and the information about the participants was tabulated in detail. To ensure internal validity, the researchers obtained participant confirmation. Following the completion of each interview, a summary of the participant's responses was prepared, and they were requested to offer any corrections or additions they deemed necessary. The use of triangulation, entailing the involvement of multiple researchers, was employed to enhance the reliability of the study. The coding and analysis process results were presented by the first and second authors to the third and fourth authors, respectively. A consensus was reached among all researchers on the outcomes presented. To ensure the confirmability of the study, the entire data collection and analysis process was reported in detail, and the findings were reported by including the participants' statements.

The quantitative analyses of the research were carried out based on the data obtained from the questionnaire developed to determine the opinions and experiences of teachers working with visually impaired students with multiple disabilities regarding distance education. These analyses involved a systematic examination of the data using descriptive statistical methods. Frequency and percentage distributions for each item were calculated using SPSS 27 package programme. The findings obtained allowed to evaluate the opinions and experiences of the teachers about the distance education process from a numerical perspective, and these data were visualized and made more understandable through tables.

FINDINGS

The objective of this study was to ascertain the perspectives of educators engaged in distance education with visually impaired students with multiple disabilities and to procure comprehensive data regarding their experiences throughout the process. To this end, the researchers initially collected and analyzed qualitative data, subsequently collecting and analyzing quantitative data. In this section of the study, the qualitative and quantitative findings are presented and interpreted together. The analysis of the qualitative findings yielded three primary themes: experiences, thoughts, and recommendations. A total of ten sub-themes were identified, with sixteen categories falling under these sub-themes. The resulting themes, sub-themes, and categories are presented in Figure 1.
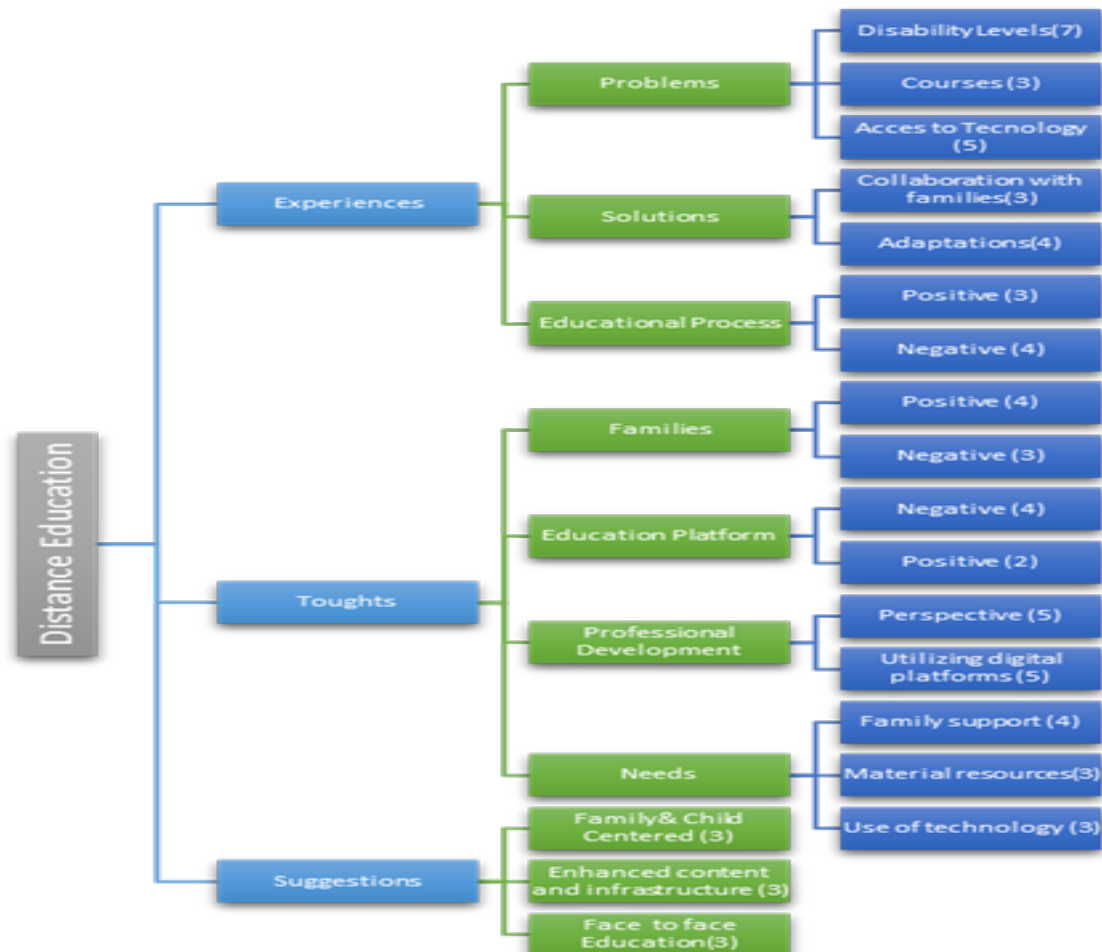

Figure 1. *Themes and subthemes emerging from the analysis of semi-structured interviews.*

Table 3 presents the frequencies and percentages of teachers' responses to the Opinions on Distance Education Questionnaire, as collected in the quantitative dimension.

Table 3. The Frequencies and Percentages of Teachers' Responses to the Opinions on Distance Education Questionnaire

Items	f	%
1. In distance education, as the level of disability of my students increased, I had more difficulty in the process.	33	%82,5
2. In distance education, my students had difficulty accessing technology.	29	%72,5
3. In distance education, my students had difficulty accessing technology.	29	%72,5
4. I was able to provide interaction similar to classroom interaction in distance education.	18	%45
5. I had difficulty providing interaction similar to classroom interaction in a distance education setting.	22	%55
6. I have established collaboration with families in distance education.	33	%82,5
7. I had difficulties in making necessary adaptations (material, activity, teaching process, etc.) for different courses in distance education.	25	%62,25
8. I think that my adaptation skills (material, activity, teaching process, etc. adaptations) have improved during the distance learning process.	27	%67,5
9. I think I use the EBA platform effectively in distance learning.	29	%72,5
10. I think that I cannot use the EBA platform effectively in distance learning.	11	%27,5
11. I think that the families have a positive attitude towards cooperation in the distance education process.	27	%67,5
12. I think that my skills in using technology and different platforms have increased during the distance education process.	32	%80
13. I think that the distance education process is a good option if it is well planned.	30	%75
14. I needed the support of my family in the distance education process.	23	%57,5
15. I needed infrastructure support such as computers and Internet in distance education.	29	%72,5
16. I needed training on how to use technology in distance education.	29	%72,5
17. Families should be trained about distance education.	38	%95
18. Infrastructure support such as computers and the Internet should be provided to teachers and parents.	39	%97,5
19. Visually impaired students with multiple disabilities should receive face-to-face education instead of distance education.	36	%90

The findings obtained at the conclusion of the qualitative data analysis revealed that the statements made by teachers regarding distance education could be classified into three primary themes: experiences, thoughts, and suggestions. The theme of experience yielded three sub-themes: problems, solutions, and the educational process. In the interviews with teachers regarding the subtheme of problems, all participants indicated that as the disability levels of their students increased, they encountered greater challenges in the process. One teacher offered the following insight: *"If there was another group, maybe it would have been easier, it would have been easier to find activities... When there are multiple disabilities, things change. It is not impossible, but very, very difficult."* (P3). Upon analysis of Table 3, it becomes evident that the majority of the surveyed teachers (n = 33, 82.5%) expressed their views in alignment with this assessment.

In the interviews, the majority of the teachers cited difficulties in their students' access to technology as a significant challenge when discussing technology-related issues. In this regard, one of the participating teachers offered the following observation: *"I had a student who did not have home internet. He connected to the lesson as long as the internet of his parents' cell phone was enough, as long as free internet was available. They connected when they went to their aunts and uncles. Computers and the internet have always been a problem."* The teachers who completed the questionnaire (n = 29, 72.5%) expressed similar views to those who participated in the interviews.

The teachers who participated in semi-structured interviews elucidated the solutions they had devised to address the challenges they had encountered. In this regard, the teachers, in particular, highlighted the specific adaptations they had made to distance education. In this regard, the teachers in question indicated that they modified the length, content, and scheduling of the lessons in accordance with the needs of the students and the support they received from their families. In this regard, one teacher: *"For example, five of my six students were students with multiple disabilities. Therefore, of course, I had separate lessons with all of them. We could not share the educational environment at the same time as in the classroom. Therefore, I had to do one-to-one education in accordance with their sleep patterns and development."* (P5). A participant who is a handicrafts teacher provided the following example: *"For instance, there was a handicrafts exhibition held by Hacettepe*

University, which provided audio descriptions. Consequently, I proceeded to attend the exhibition." I initiated the lesson by stating, *"Let us now listen to this." (P4).* In addition to the findings from the semi-structured interviews, 82.5% (n=33) of the teachers who participated in the quantitative component of the study indicated that they collaborated with families. While 62% of the teachers (n = 25) indicated that they encountered challenges in making adaptations, 67% (n = 27) reported that their adaptation skills enhanced during the distance education process. This situation may be regarded as an indicator that teachers are able to adapt to distance education.

With regard to the educational process sub-theme within the experience theme, nearly half of the participating teachers reported positive experiences in the interviews and the questionnaire, while the remaining half reported negative experiences. In their responses, the teachers indicated that: *"We gave distance education to our students for about 1.5 years. I did not have much difficulty." (P6). "If we think only about visually impaired students, we were actually finding many activities that could be easily provided.... Distance education with multiple disability groups was definitely very difficult." (P7).* The results of the questionnaire indicated that 45% (n=18) of the teachers reported providing an interaction that was similar to that observed in the classroom, while 55% (n=22) stated that they encountered difficulty in providing this interaction. The results of the questionnaire corroborate the statements made by the teachers who participated in the semi-structured interviews.

The second theme that emerged from the qualitative analysis of the data was the theme of "Thoughts." In the theme of thoughts, teachers articulated their perspectives on four sub-themes: families, educational platforms, professional development, and needs. In semi-structured interviews, teachers expressed their thoughts on the role of families in education: *"I can say that they were more supportive as a role. I mean, in a way, the parent was a kind of teacher." (P1), I never witnessed them coming up to them and saying what are you doing my child... honestly, the parents who were interested in face-to-face education were also interested in distance education, and the parents who were not interested were also not interested'* (P4). A comparison of the results obtained from qualitative and quantitative data reveals that the two sets of data are largely congruent. The data obtained from the survey results indicate that 67.5% of the teachers reported that parents expressed positive attitudes toward cooperation.

Teachers articulated their perspectives on educational platforms within the context of the "Thoughts" theme. While some teachers expressed positive opinions about the educational platforms they use, others stated that the platforms should be more comprehensive. *"Actually, I didn't really need anything, I had a computer and internet, I didn't have any problems over EBA, in terms of communication." (P3).* In this regard, 72.5% (n=29) of the teachers who participated in the questionnaire also expressed support for this situation.

The teachers who participated in semi-structured interviews also provided commentary regarding the impact of the distance education process on them. Teachers frequently highlighted the value of professional development, noting that they gained new insights into education from a different perspective and proficiency in utilizing digital platforms. *"In my opinion, distance education paved the way for everyone. I think everyone learned to think differently. (P3). "Whether it is in the sense of using the internet actively, the EBA platform, meeting with parents via WhatsApp, meeting with my parents via Zoom... These have also improved us..." (P6).* A majority (75%, n=30) of the surveyed teachers indicated that the distance education process is a viable option when adequately planned. Additionally, 80% (n=32) of the respondents reported an enhancement in their technological proficiency and utilization of platforms such as EBA throughout the distance education process.

In the sub-theme of needs, teachers proffered opinions in three areas: family support, material resources, and the use of technology. *"Of course, we needed a lot of family support, especially for students with multiple disabilities." (P5). "Because there are no materials, their attention is distracted, we had very serious problems." (P5). "I mean, we use phones and computers, but of course, we don't know the fine details. We didn't have any previous courses on this subject." (P1).* The survey results corroborate the needs identified by the teachers in the interviews. A majority of the teachers (72.5%, n=29) indicated a need for infrastructure support and technology use. Additionally, 57.5% (n=23) of the teachers reported a need for family support.

The third theme that emerged from the semi-structured interviews was suggestions. In the section dedicated to suggestions, the interviewed teachers highlighted the importance of in-person education for children with multiple disabilities, emphasizing its suitability as the most appropriate form of instruction. In the course of the interview, one teacher offered the following opinion: *"Students with multiple disabilities require one-to-one education anyway, so I think it should be face-to-face education." The survey results indicated that 90% (n=36) of the participating teachers believed that face-to-face education should be maintained for children with visually impaired and multiple disabilities. In the event of a future return to distance education, teachers have recommended that the education be organized in a family- and child-centered manner, with improved content and*

infrastructure. "Actually, it should be something for families; it should be done by informing the families and how to take on the role of the teacher at home by giving them the necessary materials and tools to be done at home..." (P2). "There should definitely be a richness of content for the field of special education in general because I know that fellow teachers have difficulties." (P4). Upon examination of the items prepared for these sub-themes in the questionnaire, it was found that 97.5% of the teachers indicated that infrastructure support should be provided, while 95% suggested that a family and child-centered education should be organized.

DISCUSSION & CONCLUSION

The objective of this study is to ascertain the perspectives of teachers who work with visually impaired students with multiple disabilities in the context of distance education and to obtain comprehensive insights into their experiences throughout the process. The findings of the study are presented below, organized according to three key themes: experiences, opinions, and suggestions. The findings of this study indicate that as the disability level of visually impaired students with multiple disabilities increases, the difficulties experienced by teachers in interacting with and adapting to these students also increase. The participants indicated that the level of visual and mental disability has a significant impact on the distance education process. This finding is consistent with the existing literature on students with visual disabilities (Battistin et al., 2020; Kaman & Altunay, 2021; Sani-Bozkurt et al., 2022; Wild et al., 2022) and intellectual disabilities (Parmigiani et al., 2020; Sani-Bozkurt et al., 2022; Simo-Pinatella et al., 2022; Toquero, 2021). Indeed, Rice and Carter (2016) underscored the pivotal role of students' level of disability in distance education.

One of the findings of the present study indicated that teachers encountered challenges in adapting instructional materials, activities, and teaching processes. Indeed, previous studies have indicated that special education teachers encounter limitations in adapting teaching methods, materials, and activities within the context of distance education (Yunita et al., 2021). The education of visually impaired students with multiple disabilities necessitates adaptations that entail the preparation of multisensory materials and the enhancement of educational experiences with tactile and auditory inputs (Bilgiç et al., 2024; Şafak & Bilgiç, 2021; Şafak, Demiryürek, & Yılmaz, 2018; Şafak, 2012). It can be surmised, therefore, that the distance education process presents a significant challenge for teachers. Furthermore, the participants indicated that they encountered challenges in interacting with students with multiple disabilities who were blind. This finding is consistent with the results of previous studies, which have indicated that difficulties in interaction are a primary obstacle to the effective implementation of distance education for students who are unable to regulate their own learning behaviors (Baran & Sadık, 2021; Mengi & Alpdoğan, 2020; Pürbudak, Yılmaz, & The studies by Çakır (2022), Uzoğlu (2017), Vasiliki et al. (2021), Yılmaz & Aktuğ (2011), Yılmaz & Güven (2015), and Yunita et al. (2021) also support this conclusion.

Another challenge encountered by the participants in this study was the transition from face-to-face to distance education and the associated use of technology. A majority (73%) of the participants indicated that they encountered challenges in utilizing technology. The extant literature indicates that teachers are experiencing heightened pressure due to the limitations of the technological resources and knowledge at their disposal. Additionally, they are facing challenges in utilizing technology and adapting to its rapid pace (Ani et al., 2024; Balaman, Hanbay-Tiryaki, 2021; Erdemci & Elçiçek, 2022; Demir, Özbek, & Demir, 2022; Putri et al., 2020; Supratiwi et al., 2021; Williams, 2020). Donnely et al. (2022) asserted that teachers encounter greater challenges in the technological domain than in the pedagogical domain during this process. Additionally, the participants indicated that the constraints encountered by students with regard to computers, internet access, and other resources represent a significant challenge that impedes the educational process. In light of these findings, studies have highlighted the detrimental impact of limited opportunities within families on the efficacy of distance education (Akbayrak, Vural, & Ağar, 2021; Alvarez, 2020; Ani et al.). (Demir, Özbek, & Demir, 2022; Özdoğan & Berkant, 2020; Parmigiani et al., 2020; Pürbudak, Yılmaz, & Çakır, 2022; Simonson et al., 1999; Supratiwi, Yusuf, & Anggarani, 2021; Toquero, 2021).

Notwithstanding the aforementioned challenges, it was demonstrated that the participants encountered difficulties with the distance education process and were able to identify solutions to the issues they encountered. This finding is consistent with the findings of previous studies in the literature. The existing literature emphasises that teachers can cope with the challenges of distance education, despite encountering difficulties along the way (Auma & Achieng, 2020; Fedina et al., 2017; Glessner & Johnson, 2020; Nissim et al., 2022; Ventayin). (Williams, 2018; Williams, 2020; Yunita et al., 2021). The participants indicated that they were able to identify solutions to their challenges through adaptations and the support of their families. Given that students with multiple disabilities present with a range of additional challenges, their needs are similarly diverse. Consequently, they often encounter

difficulties in engaging with the distance education process independently (Yıldırım & Bozak, 2021). Accordingly, the participants indicated that the process becomes more straightforward when families participate in the educational process alongside their children and receive assistance from other families. This finding is consistent with the findings of previous research in the literature. The literature highlights the significance of family involvement and support in the distance education process (Bilgiç et al., 2024; Currie-Rubin, 2019; Supratiwi et al., 2021; Parmigiani et al., 2020; Yunita et al., 2021). Schuck, Lambert, and Wang (2021) posit that the continuation of family collaboration after the distance education process can enhance teacher-family relationships, facilitate more effective student services, and offer teachers the chance to gain deeper insights into their students.

The majority of participants identified the disadvantages of distance education, yet they also acknowledged the advantages. A majority (75%) of the participants indicated that distance education is a viable option when it is effectively designed and implemented. This finding is consistent with the perceived advantages of distance education, including the provision of equal opportunity and accessibility to all interested parties (Bozkurt, 2017; Kalaç, Telli, & Eronal, 2020). However, the results of both the semi-structured interviews and the survey indicate that the participants believe that face-to-face education should be provided for visually impaired students with multiple disabilities rather than distance education. In the studies conducted with special education teachers in literature, significant difficulties have been identified in the implementation of distance education in the field of special education (Akbayrak, Vural, & Ağar, 2021; Kalaç et al.). The studies conducted by Akbayrak, Vural, and Ağar (2021), Demir, Özbek, and Demir (2022), Mengi and Alpdoğan (2020), Simo-Pinatella, Goei, Carvalho, and Nelen (2022), Supratiwi, Yusuf, and Anggarani (2021), Toquero (2021), and Yunita, Sunardi, and Kristiyanto (2021) indicate that distance education is not an optimal approach for special education. Additionally, the findings of Mengi and Alpdoğan (2020) suggest that distance education is contrary to the fundamental principles of special education.

The findings of the present research indicated that the participants expressed their opinions within the following categories: family, educational platform, professional development, and need, which were grouped together under the theme of "thoughts." A majority of the participants (57.5%) indicated that collaboration with families should be established, and they reported that their capacity to work with families had been enhanced as a result of this process. The involvement of families in the education of students with disabilities is of significant importance, as it has been demonstrated to enhance their academic performance and quality of life (McKenzie et al., 2021). Teacher-family collaboration has assumed a more pivotal role, particularly in the context of the pandemic (Cai & Wang, 2020). The extant literature emphasizes that families bear a greater responsibility in the distance education process and that family education represents an important yet often overlooked area (Mengi & Alpdoğan, 2020; Yıldırım & Bozak, 2021; Schuck et al., 2021; Şenol & Yaşar, 2020; Yunita et al., 2021). Yıldırım and Bozak (2021) posited that if families amass sufficient knowledge and experience in the education of children with multiple disabilities, they will facilitate the distance education process. In their study with blind students with multiple disabilities and their mothers, Bilgiç et al. (2024) found that when mothers attended the lesson with their children in the distance education process, both the skill levels of the students increased, and the mothers perceived this process to be productive for their children and themselves. It is also important to note that teachers' attitudes, skills, knowledge, and willingness to encourage family involvement in the educational process will influence the support that families provide to their children (Al-Dababneh, 2018; Yunita et al., 2021).

Furthermore, the participants indicated that they were able to utilize the educational platform and technology in an effective manner. Additionally, they reported that the distance education process enhanced their professional development, particularly in terms of adopting a different perspective on education and utilizing technology. As evidenced in the literature, the distance education process has been shown to make significant contributions in terms of the use of technology and the enhancement of professional skills and awareness (De Paepe et al., 2018; König et al., 2020; Supratiwi et al., 2021; Özdoğan & Berkant, 2020; Yılmaz et al., 2021). Nissim et al. (2022) posit that educators engaged in distance education with students with multiple disabilities must cultivate competencies such as the effective utilization of available technology, the establishment of constructive relationships with the family, and the creation of personalized synchronous and asynchronous interactive learning activities.

The final theme of the study is that of suggestions. The participants proffered suggestions on family and child-centered education, the provision of richer content and infrastructure, and the implementation of face-to-face education. A total of 98% of the participants recommended providing infrastructure support, including computers and internet access, to teachers and parents. This finding is consistent with the findings of previous studies in the literature (Demir, Özbek, & Demir, 2022; Nissim et al., 2022; Pürbudak, Yılmaz, & Çakır, 2022). Providing equal

access to resources in the distance education process represents a potential solution to any potential issues that may arise from unequal access to resources and inherent inequalities (Özdoğan & Berkant, 2020). The participants proposed that educators should receive training in distance education. In light of this finding, the participants also proposed that they should undergo training (Hopcan, Polat-Hopcan, & Öztürk, 2021; Nissim et al., 2022; Parmigiani et al., 2021; Smith, 2020). Teachers are integral to the success of distance education and require training to effectively manage the process (Adin et al., 2024). Tremmel, Myers, Brunow, and Hott (2020) posited that a two-day training program for a cohort of educators supporting students with disabilities during the pandemic led to an enhancement in their self-efficacy. A majority (95%) of the participants indicated that families should receive training on distance education. Simo-Pinatella et al. (2022) underscored the necessity of educating and empowering families to enable them to comprehend and implement interventions that will genuinely impact their lives. In the context of distance education, it is imperative that families receive the necessary training to effectively support their children's educational endeavors. This, in turn, should facilitate the child's active participation in the educational process (Nissim et al., 2022; Yıldırım & Bozak, 2022; Şenol & Yaşar, 2020). Akbayrak, Vural, and Ağar (2021) asserted that families serve as a conduit between teachers and students in distance education. They further posited that the knowledge and attitudes of families towards distance education represent a crucial determinant of the efficacy of distance education.

In conclusion, the results of the current study demonstrated that teachers working with visually impaired children with multiple disabilities reported negative experiences about the children's disabilities, students' access to the internet, and the use of technology in distance education practices. As a result of these challenges, it was not possible to provide an interaction comparable to that which would occur in a traditional face-to-face educational setting. To address these challenges, adaptations were made, and family support was leveraged to facilitate positive outcomes. The participants indicated that they required the greatest support from their families, as well as training in the use of technology and internet and infrastructure support. The distance education process proved beneficial for the teachers in terms of their professional development. While the participating teachers acknowledged the potential benefits of well-designed distance education, they asserted that in-person instruction remains the optimal mode of education for children with multiple disabilities. It was determined that for distance education to be effective, it is essential to provide families with training on distance education and to ensure that students have access to the necessary internet and digital devices.

Limitations

The initial constraint of this study is its restriction to the perspectives of teachers engaged in the distance education process. A further limitation is the restriction of the qualitative dimension of the study to seven teachers, thus limiting the generalizability of the findings.

Recommendations

Given the unpredictability of the timing and severity of a future pandemic, it is imperative to utilize this distance education process as an opportunity to enhance the learning experience for all individuals with disabilities. In light of the aforementioned findings, the following recommendations are put forth:

a) It is imperative that educators receive comprehensive training, both pre-service and in-service, on the effective integration of technology in the development of digital literacy and the implementation of online teaching methodologies.

b) In addition to in-service training, educators' competence should be enhanced through the provision of coaching support.

c) The establishment of clear guidelines is imperative, as is a distance education process for students affected by disabilities, which must be prepared and disseminated.

d) Additionally, online course materials must be prepared, and adaptations must be made for visually impaired students with multiple disabilities.

e) Furthermore, family training should be provided so that families can provide more support to their children's education during distance education.

f) Finally, policies must be developed to prevent inequality of opportunity. Families and teachers must receive the necessary support, particularly regarding technological infrastructure.

g) Families should be more involved in the educational process to enhance collaboration between teachers and families.

h)   It is recommended that studies be conducted with input from key stakeholders, such as administrators and families of students with multiple disabilities who are blind, etc.

Statements of Publications Ethics

We declare that the study has no unethical problems, and ethics committee approval was obtained from Gazi University Ethics Committee (Date: 01/06/2021 Decision 10).

Researchers' Contribution Rate

Authors	Literature Review	Method	Data Collection	Data Analysis	Results	Conclusion
Author 1	x	x	x	x	x	
Author 2	x		x	x	x	x
Author 3		x		x	x	
Author 4		x		x	x	

Conflict of Interest

This study has no conflict of interest.

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REFERENCES

Adin, N. A. A., Enriquez, E. M. S., Ribo, J. V. P., Quililan, C. J., ryne Gemarangan, S., Saldariega, L., ... & Doren, C. A. (2024). Teachers' Perspective on Distance Learning for Students with Visual Impairment. *European Journal of Higher Education and Academic Advancement*, *1*(1), 27-37. https://doi.org/10.61796/ejheaa.v1i1.29

Ani, E. C., Olu-lawal, K. A., Olajiga, O. K., Montero, D. J. P., & Adeleke, A. K. (2024). Intelligent monitoring systems in manufacturing: current state and future perspectives. *Engineering Science & Technology Journal*, *5*(3), 750-759. https://doi.org/10.51594/estj.v5i3.870

Akbayrak, K., Vural, G., & Agar, M. (2021). Özel eğitim öğretmenlerinin koronavirüs pandemisi döneminde uzaktan eğitime ilişkin deneyim ve görüşleri. [The experiences and views of special education teachers towards distance education throughout coronavirus pandemic period]. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, *22*(1), 471-499. doi: 10.17679/inuefd.863029

Akyürek, M. İ. (2020). Uzaktan eğitim: Bir alanyazin taramasi. [Distance education: a literature review abstract]. *Medeniyet Eğitim Araştırmaları Dergisi*, *4*(1), 1- 9.

Alan, Y., & Can, F. (2021). Covid-19 salgını döneminde öğretmen olmak: Türkçe öğretmenlerinin görüşleri. [Being a teacher during the covid-19 pandemic: opinions of Turkish teachers]. *Atatürk Üniversitesi Türkiyat Araştırmaları Enstitüsü Dergisi*, (72), 541-562. doi: https://doi.org/10.14222/Turkiyat4451

Al-Dababneh, K. A. (2018). Barriers preventing parental involvement in mainstream education of children with specific learning disabilities: parent perspectives. *European Journal of Special Needs Education*, *33*(5), 615-630. https://doi.org/10.1080/08856257.2017.1391013

Alvarez, Jr., A. (2020). Learning from the problems and challenges in blended learning: basis for faculty development and program enhancement. *Asian Journal of Distance Education, 15*(2), 112-132. https://doi.org/10.5281/zenodo.4292631

Argyropoulos, V., & Gentle, F. (2019). Formal and non-formal education for individuals with vision impairment or multiple disabilities and vision impairment: Current trends and challenges. In J. Ravenscroft (Ed.) *The routledge handbook of visual impairment*, 118-142. Routledge. doi:10.4324/9781315111353-9.

Argyropoulos, V., & Thymakis, P. (2014). Multiple disabilities and visual impairment: an action research project. *Journal of Visual Impairment & Blindness, 108*(2), 163-167. https://doi.org/10.1177/0145482X1410800210

Auma, O. M., & Achieng, J. (2020). Perception of teachers on effectiveness of online learning in the wake of covid-19 pandemic. *Journal of Humanites and Social Sciences*, *25*(6), 19-28. doi: 10.9790/0837-2506111928

Baki, A., & Gökçek, T. (2012). Karma yöntem araştırmalarına genel bir bakış. [A general overview of mixed method researches]. *Elektronik Sosyal Bilimler Dergisi*, *11*(42), 1-21.

Balaman, F, Hanbay Tiryaki, S . (2021). Corona virüs (Covid-19) nedeniyle mecburi yürütülen uzaktan eğitim hakkında öğretmen görüşleri. [The opinions of teachers about compulsory distance education due to corona virus (Covid-19)]. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi* , *10* (1) , 52-84 . Retrieved from http://www.itobiad.com/tr/pub/issue/60435/769798 https://doi.org/10.15869/itobiad.769798

Baltacı, A. (2018). Nitel araştırmalarda örnekleme yöntemleri ve örnek hacmi sorunsalı üzerine kavramsal bir inceleme. [A conceptual review of sampling methods and sample size problems in qualitative research]. *Bitlis Eren Üniversitesi Sosyal Bilimler Dergisi, 7*(1), 231-274.

Baran, A., & Sadık, O. (2021). Covid-19 sürecinde sınıf öğretmenlerinin acil uzaktan öğretim tecrübelerinin ve görüşlerinin incelenmesi. [An examination of primary school teachers' emergency online teaching experience and perceptions during covid-19.]. *Uludağ Üniversitesi Eğitim Fakültesi Dergisi*, *34*(2), 813-854. https://doi.org/10.19171/uefad.882291

Başkale, H. (2016). Nitel araştırmalarda geçerlik, güvenirlik ve örneklem büyüklüğünün belirlenmesi. [Determination of validity, reliability and sample size in qualitative studies]. *Dokuz Eylül Üniversitesi Hemşirelik Fakültesi Elektronik Dergisi*, *9*(1), 23-28.

Battistin, T., Mercuriali, E., Zanardo, V., Gregori, D., Lorenzoni, G., Nasato, L., & Reffo, M. E. (2021). Distance support and online intervention to blind and visually impaired children during the pandemic COVID- 19. *Research in Developmental Disabilities*, *108*, 103816. https://doi.org/10.1016/j.ridd.2020.103816

Bilgiç, H. C., & Şafak, P. (2021). Çoklu Yetersizliği Olan Az Gören Çocuklara Doğrudan Öğretimle Sunulan Şematik Düzenleyicinin Bir Fen Konusunun Öğretiminde Etkisi. [The effect of schematic organizer presented with direct teaching to students with multiple disabilities on teaching a science subject]. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi*, *22*(1), 175-206. https://doi.org/10.21565/ozelegitimdergisi.629598

Bilgiç, H. C., Uyar, D., Demiryürek, P., & Şafak, P. (2024). Çoklu yetersizliği olan görmeyen öğrencilerin çevrimiçi derslerdeki tepkileri ve annelerinin çevrimiçi derslere ilişkin görüşleri. [Responses of students with multiple disabilities and visual impairment in online classes and their mothers' views on online classes]. *Trakya Eğitim Dergisi*, *14*(3), 1984-2006. https://doi.org/10.24315/tred.1467983

Boz, A. (2019). *Öğretmen adaylarının teknoloji kabullenme ve kullanımı bağlamında uzaktan eğitim algılarının incelenmesi. [The examination of the pre-services teachers' perceptions to distance education in the context of the use acceptance and use of technology].* Master Dissertation, Necmettin Erbakan University.

Bozkurt, A. (2017). Türkiye'de uzaktan eğitimin dünü, bugünü ve yarını. [The past, present and future of the distance education in Turkey]. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi*, *3*(2), 85-124.

Cai, R., & Wang, Q. (2020). A six-step online teaching method based on protocol-guided learning during the COVID-19 epidemic: A case study of the first middle school teaching practice in Changyuan city, Henan province, China. *Henan Province, China (March 17, 2020).*

Chen, D., & Dote-Kwan, J. (1995). *Starting points: instructional practices for young children whose multiple disabilities include visual impairment.* Blind Childrens Center

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research (2nd ed.).* Sage Publications.

Currie-Rubin, R., & Smith, S. J. (2014). Understanding the roles of families in virtual learning. *Teaching Exceptional Children*, *46*(5), 117-126. https://doi.org/10.1177/004005991453010

Demir, E. B. K., Özbek, A. B., & Demir, K. (2022). Exploring Turkish special education teachers' experiences of emergency remote teaching during the COVID-19 pandemic. *Journal of Educational Technology and Online Learning*, *5*(2), 316-335. https://doi.org/10.31681/jetol.1076853

De Paepe, L., Zhu, C., & Depryck, K. (2018). Online Dutch L2 learning in adult education: educators' and providers' viewpoints on needs, advantages and disadvantages. *Open Learning: The Journal of Open, Distance and e-Learning*, *33*(1), 18-33. https://doi.org/10.1080/02680513.2017.1414586

Donnelly, H. K., Solberg, V. S. H., Shavers, E. I., Howard, K. A., Ismail, B., & Nieves, H. (2022). Support and Perceptions of Teachers Working with Students with Special Needs during the COVID-19 Pandemic. *Education Sciences*, *12*(8), 531. https://doi.org/10.3390/educsci12080531

Erdemci, H., & Elçiçek, M. (2022). Investigation of special education teachers' online teaching experiences during covid 19 pandemic. *Journal of Computer and Education Research*, *10*(20), 319-329. https://doi.org/10.18009/jcer.1081755

Fedina, N. V., Burmykina, I. V., Zvezda, L. M., Pikalova, O. S., Skudnev, D. M., & Voronin, I. V. (2017). Study of educators' and parents' readiness to implement distance learning technologies in preschool education in Russia. *Eurasia Journal of Mathematics, Science and Technology Education*, *13*(12), 8415-8428. https://doi.org/10.12973/ejmste/80802

Frederick, J. K., Raabe, G. R., Rogers, V. R., & Pizzica, J. (2020). Advocacy, collaboration, and intervention: A model of distance special education support services amid COVID-19. *Behavior Analysis in Practice*, *13*(4), 748-756. https://doi.org/10.1007/s40617-020-00476-1

Glessner, M. M., & Johnson, S. A. (2020). The experiences and perceptions of practicing special education teachers during the COVID-19 pandemic. *The Interactive Journal of Global Leadership and Learning*, *1*(2), 4. https://doi.org/10.55354/2692-3394.1013

Hamilton, L. S., Diliberti, M. K., & Kaufman, J. H. (2020). Teaching and leading through a pandemic: Key findings from the American educator panels spring 2020 COVID-19 surveys. https://www.rand.org/pubs/research_reports/RRA168-2.html

Hong, S., & Erin, J. N. (2017). Community mentors: The perspectives of working adults with visual impairments. *Journal of Visual Impairment & Blindness*, *111*(6), 605-610. https://doi.org/10.1177/0145482X1711100612

Hopcan, S, Polat Hopcan E., & Öztürk, M. E. (2021). Are special education teachers ready for distance education? Experiences and needs during the covid-19 outbreak. *Bartın University Journal of Faculty of Education*, *10*(3), 526-540. https://doi.org/10.14686/buefad.823743

Horn, E., & Kang, J. (2012). Supporting young children with multiple disabilities: What do we know and what do we still need to learn? *Topics in early childhood special education*, *31*(4), 241-248. https://doi.org/10.1177/0271121411426487

Hsieh, H. S., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research 15*(9), 1277-1288. doi:10.1177/1049732305276687

Kalaç, M. Ö., Telli, G., & Erönal, Y. (2020). *Covid-19 mücadelesi kapsamında uzaktan eğitim sürecinde engelli öğrencilerin durumu sorunlar ve çözüm önerileri.* Manisa Celal Bayar Üniversitesi Yayınları.

Kaman, K., & Altunay, B. (2021) Görme Yetersizliği Olan Öğrencilerde Uzaktan Eğitim Sürecinde Yaşanan Sorunların Öğretmen, Öğrenci Ve Aile Açısından İncelenmesi. In O. M. Kalaç, V. Tecim, (Eds.), *Engelsiz Bilişim* (pp.75-100). Kriter

Khan, A. M., Jameel, H. T., & Nabeel, T. (2021). Covid-19 pandemic: Difficulties faced by special education teachers during emergency remote teaching through online learning and their opinions. *Journal of Arts & Social Sciences*, *8*(2), 78-84. https://doi.org/10.46662/jass.v8i2.184

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

Lebrasseur, A., Fortin-Bédard, N., Lettre, J., Bussières, E. L., Best, K., Boucher, N., ... & Routhier, F. (2021). Impact of COVID-19 on people with physical disabilities: a rapid review. *Disability and Health Journal*, *14*(1), 101014. https://doi.org/10.1016/j.dhjo.2020.101014

Marshall, M. N. (1996). Sampling for qualitative research. *Family Practice, 13*(6), 522-526. https://doi.org/10.1093/fampra/13.6.522

McKenzie, J., Shanda, N., & Aldersey, H. M. (2021). Family–teacher partnerships: families' and teachers' experiences of working together to support learners with disabilities in South Africa. *British Journal of Special Education*, *48*(1), 26-49. https://doi.org/10.1111/1467-8578.12337

Mengi, A., & Alpdoğan, Y. (2020). Covid-19 salgini sürecinde özel eğitim öğrencilerinin uzaktan eğitim süreçlerine ilişkin öğretmen görüşlerinin incelenmesi. [Investigation of teacher's opinions about distance education processes of students who receive special education during the covid-19 pandemic period]. *Milli Eğitim Dergisi, 49*(1), 413-437. https://doi.org/10.37669/milliegitim.776226

Navas, P., Amor, A. M., Crespo, M., Wolowiec, Z., & Verdugo, M. Á. (2021). Supports for people with intellectual and developmental disabilities during the COVID-19 pandemic from their own perspective. *Research in Developmental Disabilities*, *108*, 103813. https://doi.org/10.1016/j.ridd.2020.103813

Nissim, M., Ido, O., Sanduka, Y., Shmerling, C., & Ariel, N. (2022). In relation to the relationship: teachers of pupils with multiple disabilities and parents following the COVID-19 pandemic. *European Journal of Special Needs Education*, *38*(5), 599-613. https://doi.org/10.1080/08856257.2022.2145685

Özdoğan, A. Ç., & Berkant, H. G. (2020). Covid-19 pandemi dönemindeki uzaktan eğitime ilişkin paydaş görüşlerinin incelenmesi. [The examination of stakeholders' opinions on distance educatıon during the Covid-19 epidemic]. *Milli Eğitim Dergisi*, *49*(1), 13-43. https://doi.org/10.37669/milliegitim.788118

Parmigiani, D., Benigno, V., Giusto, M., Silvaggio, C., & Sperandio, S. (2021). E-inclusion: online special education in Italy during the Covid-19 pandemic. *Technology, Pedagogy and Education*, *30*(1), 111-124. https://doi.org/10.1080/1475939X.2020.1856714

Patton, M. Q. (2005). *Qualitative research.* John Wiley & Sons, Ltd.

Phan, T. T. N., & Dang, L. T. T. (2017). Teacher readiness for online teaching: A critical review. *International Journal on Open and Distance e-Learning*, *3*(1).

Purbudak, A., Yılmaz, M., & Cakır, O. (2022). Emergency distance education during the COVID-19 pandemic: A qualitative research from a special education perspective. *Turkish Online Journal of Distance Education*, *23*(3), 86-102. https://doi.org/10.17718/tojde.1137208

Putri, R. S., Purwanto, A., Pramono, R., Asbari, M., Wijayanti, L. M., & Hyun, C. C. (2020). Impact of the COVID-19 pandemic on online home learning: An explorative study of primary schools in Indonesia. *International Journal of Advanced Science and Technology*, *29*(5), 4809-4818.

Rice, M. F., & Carter Jr, R. A. (2016). Online teacher work to support self-regulation of learning in students with disabilities at a fully online state virtual school. *Online Learning*, *20*(4), 118-135. https://doi.org/10.24059/olj.v20i4.1054

Rice, M., Oritz, K., Curry, T., & Petropoulos, R. (2019). A case study of a foster parent working to support a child with multiple disabilities in a full-time virtual school. *Journal of Online Learning Research*, *5*(2), 145-168.

Rose, R. M. (2007). Research Committee Issues Brief: Access and Equity in Online Classes and Virtual Schools. North American Council for Online Learning. https://eric.ed.gov/?id=ED509623

Sani-Bozkurt, S., Genç, G. B., Vuran, S., Yıldız, G., Çelik, S., Diken, İ., ... & Demiryürek, P. (2022). COVID-19 salgınında Türkiye'deki özel gereksinimi olan öğrenciler ve ailelerine yönelik uzaktan özel eğitim uygulamalarına ilişkin uzman bakış açısı. [Expert perspectives on distance special education ınterventions for students with special needs and their families in Turkey during the covıd-19 pandemic]. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi*, *23*(1), 133-164. https://doi.org/10.21565/ozelegitimdergisi.786118

Schleicher, A. (2020). The Impact of COVID-19 on Education: Insights from" Education at a Glance 2020". *OECD Publishing*

Schuck, R. K., Lambert, R., & Wang, M. (2023). Collaborating with parents during COVID-19 online teaching: Special educator perspectives. *Education 3*-13, *51*(2), 292-305. https://doi.org/10.1080/03004279.2021.1967421

Shachar, M., & Neumann, Y. (2010). Twenty years of research on the academic performance differences between traditional and distance learning: Summative meta-analysis and trend examination. *MERLOT Journal of Online Learning and Teaching*, *6*(2).

Simó-Pinatella, D., Goei, S. L., Carvalho, M., & Nelen, M. (2022). Special education teachers' experiences of addressing challenging behaviour during the pandemic. *European Journal of Special Needs Education*, *37*(6), 907-920. https://doi.org/10.1080/08856257.2021.1963152

Simonson, M., Schlosser, C., & Orellana, A. (2011). Distance education research: A review of the literature. *Journal of Computing in Higher Education*, *23*, 124-142. https://doi.org/10.1007/s12528-011-9045-8

Smith, C. (2020). Challenges and opportunities for teaching students with disabilities during the COVID-19 pandemic. *International Journal of Multidisciplinary Perspectives in Higher Education*, *5*(1), 167-173. https://doi.org/10.32674/jimphe.v5i1.2619

Sönmez, V., Alacapınar, F. (2013). *Örneklendirilmiş bilimsel araştırma yöntemleri.* Anı Yayıncılık.

Supratiwi, M., Yusuf, M., & Anggarani, F. K. (2021). Mapping the challenges in distance learning for students with disabilities during COVID-19 pandemic: Survey of special education teachers. *International Journal of Pedagogy and Teacher Education*, *5*(1), 11-18. https://doi.org/10.20961/ijpte.v5i1.45970

Şafak, P. (2012). *Ağır ve çoklu yetersizliği olan çocukların eğitimi.* Vize.

Şafak, P., Demiryürek, P., & Yılmaz, H. C. (2018). Çok duyulu öykülerin ağır ve çoklu yetersizliği olan görmeyen öğrencilerin dinlediğini anlamalarına etkisi. [The effect of multisensory stories on listening comprehension of children who are blind with severe and multiple disabilities]. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi*, *19*(1), 129-153. https://doi.org/10.21565/ozelegitimdergisi.322391

Şafak, P., & Uyar, D. (2015). Ağır ve çoklu yetersizliği olan çocuklara seçim yapma becerisinin öğretimi. [Teaching choice making to children with severe and multiple disabilities]. *Electronic Turkish Studies*, *10*(3). https://doi.org/10.7827/TurkishStudies.7726

Şenol, F. B., & Yaşar, M. C. (2020). Covid-19 pandemisi sürecinde öğretmen ve ebeveyn gözünden "özel eğitim". ["Special education" From teacher and parent's perspective in the covid-19 pandemic process]. *Milli Eğitim Dergisi*, *49*(1), 439-458. https://doi.org/10.37669/milliegitim.787808

Taylor, K., & Preece, D. (2010). Using aspects of the TEACCH structured teaching approach with students with multiple disabilities and visual impairment: Reflections on practice. *British Journal of Visual Impairment*, *28*(3), 244-259. https://doi.org/10.1177/0264619610374682

Toraman, S. (2021). Karma yöntemler araştırması: Kısa tarihi, tanımı, bakış açıları ve temel kavramlar. [Mixed methods research: A brief history, definitions, perspectives, and key elements]. *Nitel Sosyal Bilimler, 3*(1), 1-29. https://doi.org/10.47105/nsb.847688

Toquero, C. M. (2021). Emergency remote education experiment amid COVID-19 pandemic. *IJERI: International Journal of Educational Research and Innovation*, (15), 162-176. https://doi.org/10.46661/ijeri.5113

Tremmel, P., Myers, R., Brunow, D. A., & Hott, B. L. (2020). Educating students with disabilities during the COVID-19 pandemic: Lessons learned from commerce independent school district. *Rural Special Education Quarterly*, *39*(4), 201-210. https://doi.org/10.1177/8756870520958114

Trust, T., & Whalen, J. (2021). Emergency remote teaching with technology during the COVID-19 pandemic: using the whole teacher lens to examine educator's experiences and insights. *Educational Media International*, *58*(2), 145-160. https://doi.org/10.1080/09523987.2021.1930479

Uzoğlu, M. (2017). Fen bilgisi öğretmen adaylarının uzaktan eğitime ilişkin görüşleri. [Perceptions of science teacher candidates on distance education]. *Karadeniz Sosyal Bilimler Dergisi*, *9*(16), 335-351.

Ünay, E., Erdem, R., & Çakıroğlu, O. (2021). Distance education applications in special education during the Covid-19. Journal of Uludag University Faculty of Education, 34(Special Issue), 158-184. https://doi.org/10.19171/uefad.845915

Üstün, Ç., & Özçiftçi, S. (2020). COVID-19 pandemisinin sosyal yaşam ve etik düzlem üzerine etkileri: Bir değerlendirme çalışması. [Effects of COVID-19 pandemic on social life and ethical plane: An evaluation study]. *Anatolian Clinic the Journal of Medical Sciences*, *25*(Special Issue on COVID 19), 142-153. DOI: 10.21673/anadoluklin.721864

Valentine, D. (2002). Distance learning: Promises, problems, and possibilities. *Online journal of distance learning administration*, *5*(3), 1-11.

Van Lancker, W., & Parolin, Z. (2020). COVID-19, school closures, and child poverty: A social crisis in the making. *The Lancet Public Health*, *5*(5), e243-e244. https://doi.org/10.1016/S2468-2667(20)30084-0

Vasiliki, G., Dimitrios, S., & Maro, P. (2021). Distance education in the pandemic era: The views of Greek general and special education teachers of secondary education regarding readiness, challenges and the post-covid educational practices. *European Journal of Special Education Research*, *7*(4). https://doi.org/10.46827/ejse.v7i4.4050

Ventayen, R. J. M. (2018). Teachers' readiness in online teaching environment: A case of department of education teachers. *PSU Journal of Education, Management and Social Sciences*, *2*(1).

Westling, D. L., Fox, L., & Carter, E. W. (2000). *Teaching students with severe disabilities* (2nd ed.). Upper Saddle River, NJ: Merrill.

Wild, T. A., Herzberg, T. S., & Hicks, M. A. (2022). An examination of early intervention services for children with visual impairments during the COVID-19 pandemic. *Journal of Visual Impairment & Blindness*, *116*(6), 764-773. https://doi.org/10.1177/0145482X221144043

Williams, O. D. (2020). COVID-19 and private health: market and governance failure. *Development*, *63*(2), 181-190. https://doi.org/10.1057/s41301-020-00273-x

Yıldırım, A. E. S., & Bozak, B. (2021). COVID-19 sürecinde çoklu yetersizliği olan çocukların ailelerine sunulan destekler: Bir durum çalışması. [The supports provided to families having children with multiple disabilities during the COVID-19 pandemic: A case study]. *Yaşadıkça Eğitim*, *35*(1), 154-172. https://doi.org/10.33308/26674874.2021351247

Yılmaz, E. O., & Aktuğ, S. (2011). Uzaktan eğitimde çevrimiçi ders veren öğretim elemanlarının uzaktan eğitimde etkileşim ve iletişim üzerine görüşleri. [Opinions of instructors who give lectures online about distance education]. *Akademik Bilişim*, 501-512. doi: 10.17569/tojqi.74876

Yılmaz, G. K., & Güven, B. (2015). Öğretmen adaylarının uzaktan eğitime yönelik algılarının metaforlar yoluyla belirlenmesi. [Determining the teacher candidates' perceptions on distance education by metaphors]. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, *6*(2), 299-322. http://doi.org/10.16949/turcomat.75936?

Yılmaz, Y., Karabulut, H. A., Uçar, A. S., & Uçar, K. (2021). Determination of the education technology competencies of special education teachers. *European Journal of Special Education Research*, *7*(2). https://doi.org/10.46827/ejse.v7i2.3734

Yunita, V. M., Sunardi, S., & Kristiyanto, A. (2021). Special education teachers' perceptions toward online learning during the Covid-19 pandemic. *JPI (Jurnal Pendidikan Indonesia)*, *10*(2), 202-211. doi: 10.23887/jpi-undiksha.v10i2.29773