



Rakap, S., Karnas, M., Bayrakdar, U., Kalkan, S., Vural-Batik, M., & Sari, H. I. (2023). Virtual learning is not for my child! A parental perspective of practices used with children with autism during the pandemic. *International Online Journal of Education and Teaching (IOJET)*, 10(2), 1831-1847.

Received : 24.12.2022
Revised version received : 28.02.2023
Accepted : 01.03.2023

VIRTUAL LEARNING IS NOT FOR MY CHILD! A PARENTAL PERSPECTIVE OF PRACTICES USED WITH CHILDREN WITH AUTISM DURING THE PANDEMIC

Research Article

Salih Rakap  (0000-0001-7853-3825)
University of North Carolina Greensboro, USA
Ondokuz Mayıs University, Turkey
srakaptr@gmail.com

Mustafa Karnas  (0000-0003-0304-1791)
Kilis 7 Aralik University, Turkey

Uygar Bayrakdar  (0000-0001-6310-6492)
Ondokuz Mayıs University, Turkey

Sinan Kalkan  (0000-0001-6890-6421)
Canakkale Onsekiz Mart University, Turkey

Meryem Vural-Batik  (0000-0002-7836-7289)
Ondokuz Mayıs University, Turkey

Halil Ibrahim Sari  (0000-0002-7899-2797)
Kilis 7 Aralik University, Turkey

Biodata:

Salih Rakap, Ph.D., Associate Professor, Department of Specialized Education Services, University of North Carolina Greensboro; Department of Special Education, Ondokuz Mayıs University

Mustafa Karnas, Ph.D., Assistant Professor, Department of Special Education, Kilis 7 Aralik University

Uygar Bayrakdar, M.S., Lecturer, Department of Child Care and Youth Services, Ondokuz Mayıs University

Sinan Kalkan, Ph.D., Assistant Professor, Department of Special Education, Canakkale Onsekiz Mart University

Meryem Vural-Batik, Ph.D., Associate Professor, Department of Special Education, Ondokuz Mayıs University

Halil Ibrahim Sari, Ph.D., Associate Professor, Department of Educational Science, Kilis 7 Aralik University.

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Virtual Learning Is Not for My Child! A Parental Perspective of Practices Used with Children with Autism During the Pandemic

Salih Rakap

srakaptr@gmail.com

Mustafa Karnas

mustafakarnas@kilis.edu.tr

Uygar Bayrakdar

uygar.bayrakdar@omu.edu.tr

Sinan Kalkan

sinan.kalkan@comu.edu.tr

Meryem Vural-Batik

meryem.vural@omu.edu.tr

Halil Ibrahim Sari

hisari@kilis.edu.tr

Abstract

Once the COVID-19 was declared as a pandemic, most countries temporarily closed schools and shifted to home-based distance education. Each country had its own way of implementing education remotely. Turkey used an enhanced version of the currently existing Education Information Network (EBA) to deliver distance education to all children including those with autism. The rapid shift from face-to-face education to home-based virtual learning created unprecedented challenges and impacted development and learning of children with autism who often need individualized and systematic instruction. Therefore, the purpose of this study was to explore parental perceptions about effectiveness of distance education practices for children with autism and challenges they faced during virtual learning. A total of 208 parents of children with autism participated in quantitative data collection while 18 also attended to individually conducted interviews. Results indicated many families did not use EBA to support their children's learning and the content of virtual learning opportunities through EBA was not appropriate for the characteristics of children with autism. Implications for future practice and research as well as the limitations of this study were discussed.

Keywords: Autism, Parental perspective, Distance education, Virtual learning, Education information network

1. Introduction

With the diagnosis of first case in December 2019, the entire world started to deal with the life threatening COVID-19 outbreak. Once The World Health Organization declared the COVID-19 as a pandemic at the beginning of 2020 (UNESCO, 2020), many countries around the world began to implement precautionary measures such as minimizing mass gatherings to prevent the spread of the virus. Accordingly, most countries temporarily closed the schools and



shifted to home-based distance education that deprived students of traditional face-to-face education. The delivery of distance education showed similarities across countries but also country specific distance education practices were implemented. For example, in Italy and the U.S., the distance education heavily relied on virtual instruction through online engagement and support through video-based instruction (Frederick, Raabe, Rogers, & Pizzica, 2020; Petretto, Masala, & Masala, 2020). In Nigeria, distance education is mostly delivered through state TVs and radio stations, especially for children at elementary and secondary levels (Samaila, Mailafia, Ayanjoke, & Chukwuemeka, 2020). In Serbia and Hungary, the distance education relied on both TV channels, national online platforms where students could join broadcasted classes, and virtual courses (Molnar, Námesztovszki, Glušac, Karuović, & Major, 2020).

In Turkey, Ministry of National Education (MoNE) made a quick a decision to shift from face-to-face education in schools to virtual learning through distance education practices at home (Yucesoy-Ozkan, Kaya, Gulboy, Altun, & Oncul, 2020). Virtual learning in Turkey was delivered through the Education Information Network (Eğitim Bilişim Ağı [EBA]), a web-based platform, and three branches of the Turkish Radio and Television, state-funded radio and television station. These branches included EBA TV for Elementary Students, EBA TV for Secondary School Students, and EBA TV for High School Students. Recorded courses were delivered nationwide through EBA TV channels at scheduled times and they were also available through EBA online platform for review and use in other times (Yucesoy-Ozkan et al., 2020). EBA online platform has been available for many years, but only few teachers used it as a tool to provide supplementary resources to students. Once Turkey shifted to distance education, MoNE improved the EBA and announced it as a full-time instructional tool and a national platform to deliver distance education in entire country. EBA online platform allowed live virtual classes and included recorded course videos, online books, and evaluation materials. EBA TV channels allowed students to watch courses when they did not have internet access or equipment to access internet. EBA website allowed students to watch recorded course videos any time they wanted and participate in virtual classes delivered by their classroom teachers based on pre-determined schedule.

The rapid shift from face-to-face education to virtual learning around the world resulted in unprecedented challenges on daily life of teachers, students, and parents (Garbe, Ogurlu, Logan, & Cook, 2020; Rakap et al., 2022). One of the challenges indicated in the literature was limitations in accessing distance education and required services (Chukwuemeka & Dominic, 2020; Croft & Moore, 2019; Toquero, 2020). Even in developed countries such as the U.S., some students reported that their internet access was unpredictable and they did not have technology (e.g., computers) that were required for distance education (Croft & Moore, 2019). Moreover, teachers and specialists did not have enough knowledge and skills on utilization of assistive education technology in Philippines (Toquero, 2020) and many students did not have necessary devices to access the distance education programs in Nigeria (UNESCO, 2020; Chukwuemeka & Dominic, 2020).

To make distance education more accessible for as many students as possible, the MoNE in Turkey provided free tablets for students who were in secondary or high schools and were coming from low-income backgrounds. The MoNE also signed contracts with GSM operators to provide 6 to 8 GB free internet for all students and teachers nationwide (Özer, 2020). Shifting to distance education was more detrimental for students in the rural area because many students did not have internet or equipment to access EBA and participate in virtual courses through EBA. To support students in rural areas, the MoNE provided mobile internet routers stationed in the areas where internet infrastructure was not established. However, the number of these mobile routers was very limited.

United Nations (2020) highlighted that the students with disabilities were among the groups who benefited from the distance education practices at the lowest level as they did not receive specialized and individualized services they needed to learn and develop. During the school closure, most students with disabilities were not able to receive in-person therapies and special education services. Moreover, parents did not have required specialized equipment readily available in their house to guide their children's learning. Even when families have the equipment, many did not have enough knowledge and skills to use them (Warner-Richter & Lloyd 2020). In order to mitigate challenges of distance education for students with disabilities and ensure these students can benefit from distance education as much as possible, several countries developed and implemented additional support services. For example, Grapevine-Colleyville Independent School District in the U.S. provided hotspot for nearly 1500 students who were receiving special education services. The district also started a locker system for technology repairs so that students could drop-of their malfunctioning device and pick up a replacement until their device is fixed (Hutchins, 2020). Furthermore, another school district in the U.S. provided learning packets, virtual meetings, and counseling for parents through online instruction (Tremmel, Myers, Brunow, & Hott, 2020).

In Turkey, all above-mentioned resources through EBA were also available for students with disabilities. Special education teachers implemented virtual classes through EBA. Additionally, special education teachers also recorded and uploaded course videos focused on different classes including language, social studies, math, science, and daily life skills (MoNE, 2020). All these videos were broadcasted through EBA TVs at scheduled times. Furthermore, several online platforms including e-library enhanced their contents to support children with disabilities. A GSM operator led the development of an application by child psychologists based on the principles of applied behavior analysis. This application included variety of activities and consultation videos for parents to implement these activities at home with their children who have disabilities.

Despite all the measures taken to increase accessibility of distance education for all students, studies has shown that remote services or distance education are neither convenient nor sufficient for most children with disabilities (Ekas & Whitman, 2011; Garbe et al., 2020; Warner-Richter & Lloyd 2020), particularly for students in need of individualized and intensive and professional support such as children with autism (Alhuzuni, 2021; Ameis, Lai, Mulsant, & Szatmari, 2020; Narzisi, 2020). Children with autism might be one of the most disadvantaged groups among children with disabilities in terms of benefiting from distance education programs due to the characteristics and nature of the disability. The characteristics of autism including impairments in social interaction and communication as well as repetitive and restricted behaviors (American Psychiatric Association, 2013) might limit the impact of distance education and be harder to address remotely (Colizzi et al., 2020; Ekas & Whitman, 2011; Tobing & Glenwick, 2006). Moreover, parents had to assume new and additional responsibilities regarding their children's education including being facilitators, supervisors, and educational supporters of their children's learning (Rakap et al., 2023).

As virtual learning through distance education is a new practice for children with autism, there is very limited research regarding its appropriateness and effectiveness (e.g., Colizzi, 2020; Şahin, Öz, & Özdurak- Sıngın, 2020). Therefore, there is a need to further explore the benefits and challenges of virtual learning and distance education practices for children with autism. The purpose of this study was two-fold. First, this study explored parental perceptions about the effectiveness of virtual learning and distance education practices on the development of children with autism. Second, this study explored the challenges parents faced regarding

virtual learning and how they addressed the difficulties encountered during distance education. The following research questions were addressed in this study:

1. What were parents' perspectives about the effectiveness of virtual learning practices on the development and learning of their children with autism?
2. What were the challenges families encountered during virtual learning and distance education practices?
3. What strategies did the parents use or recommend to address the challenges faced during virtual learning and distance education practices?

2. Method

2.1. Participants

Participants of this study included 208 parents of children with at least one child with autism who were selected from a list of 824 parents participated in a larger project that investigated the impact of COVID-19 outbreak on the quality of life of children with disabilities and their families (Author et al, 2022; 2023). Out of 208 participants, 188(90.4%) were mothers and 20 (9.6%) were fathers. Mean age of parents was 38.55 ($SD = 6.51$; range = 22-55). Participants had in total 229 children with autism with the mean age of 9.07 ($SD = 5.05$; range = 1 - 29). Table 1 presents demographic characteristics of study participants. Participants were consented to participate in the study.

Table 1. *Demographic characteristics of participants (N = 208)*

Variable	N	%
Level of Education		
Primary School	64	30.8
Middle School	24	11.5
High School	55	26.4
College/University/ Graduate School	55	26.4
Not Reported	10	4.8
Socioeconomic Status		
Lower	53	25.5
Middle	150	72.1
Upper	5	2.4
Marital Status		
Married/Together	198	95.2
Divorced/Separated	8	3.8
Not Reported	2	1.0
Number of Children in the Family		
1	59	28.4
2	81	38.9
3+	68	32.7
Number of Children with Disability in the Family		
1	184	88.5
2	23	11.5
3	1	0.5
Lost Job During Pandemic	37	17.8
Employed/Worked During Pandemic	170	81.7

An approval from a university ethics committee as well as permission from the local education agency was obtained prior to the implementation of the study.

2.2. Instruments

This study employed a demographic information form, a survey, and a semi-structured interview protocol to collect data from participants. The demographic information form contained items about parents, their children, and other family members including items regarding gender, age, level of education, socioeconomic status, marital status, number of children with and without disabilities in the family and job status during the pandemic. The survey included 9 questions (1 yes/no question, 7 Likert type questions and 1 open ended question). The yes/no question asked parents whether they used EBA to support their child's development and learning during the pandemic. Rated from 1 (not beneficial at all) to 10 (very beneficial), the first Likert type question focused on how beneficial parents found the EBA system in supporting their child's development and learning during pandemic. The second Likert type question, also rated for 1 (not competent at all) to 10 (very competent), focused on parents' perceptions about their own skills to support their child's development and learning at home. The last five Likert type questions asked parents to rate the perceived impact of home-based distance education practices on their child's academic, speech and language, physical, social, and emotional skills as well as overall development and learning. These items were also rated from 1 to 10, where 1 was my child's development was not affected at all and 10 was my child's development was significantly affected. The open-ended question focused on strategies parents used to support their child's development and learning at home. A semi-structured interview protocol was developed by the research team. The interview focused on determining the challenges that parents of children with autism faced while using the EBA during the pandemic, and strategies and resources they used or needed to address these challenges.

2.3. Data Collection Procedures

Demographic information form and the survey were completed by 208 parents of children with autism using a web-based data collection platform within a two-month time period (between September and November 2020). A link to surveys was emailed to parents on their preferred email addresses along with the information about the study and voluntary participation and they were given 2 weeks to complete the survey. At the end of the survey, parents were asked whether they would like to participate in an interview focused on learning about their experiences during the pandemic in relation to education of their children. A total of 18 parents noted their interests in participating the interviews and provided contact information for the research team to schedule the interview. Semi-structured interviews were conducted with these 18 parents face-to-face using phone/virtual meeting platforms based on parents' choice and availability. The semi-structured interview guide contained five parts: (a) an opening statement, (b) brief conversation to build rapport with participants, (c) an explanation of study purpose, (d) interview questions, and (e) a concluding statement. All interviews were recorded with consent from the participants. Semi-structured interviews lasted an average of 23 minutes (SD=4.3, range = 19- 25 minutes).

2.4. Data Analysis

Descriptive statistics (mean, standard deviation, and range) were calculated to analyze the data obtained from the survey. Interview data were analyzed using inductive thematic analysis approach (Creswell & Creswell, 2018). Thematic analysis allows identification, analysis, and reporting of patterns (themes) in data. Inductive analysis allows researchers to code the data without trying to fit into a preexisting coding frame; thus, it is a data-driven process. Six phases of thematic analysis described by Braun and Clarke (2022) guided the data analysis process: (1) familiarizing yourself with the data; (2) creating initial codes; (3) identifying for themes;

(4) reviewing/revising themes; (5) defining/naming themes; and (6) developing the report. After audio recordings were transcribed, two researchers conducted the data analysis using the steps listed above. For the purpose of reliability, the coding was completed by two researchers and a third researcher listened the 10% of the audio recordings and compared them to transcribed data. To ensure credibility in this study, a member checking process was employed in two different occasions. Transcribed data were sent to participants for review and comments before data analysis. Once the data analysis was over, results were shared with the participants for additional comments and potential corrections. To ensure transferability, a complete description of the data and findings were provided so that other researchers could evaluate transferability of findings to other environments. To attain dependability, processes and procedures used during the research was documented in detail to permit others to trace or reproduce these processes. Confirmability, the explanations and conclusions of the researchers are supported by the data, was realized by ensuring credibility, transferability, and dependability as described above.

3. Results

3.1. Quantitative Data Analysis

Survey results showed that 62 of 208 (29.8%) parents of children with autism actively used EBA to support their child's development and learning during the pandemic. Parents' responses regarding the strategies they used to support their child's development and learning at home during the pandemic were shown in Table 2. As seen in Table 2, parents used self-selected activities (23.6%), instruction provided by the teacher (17%), educational games (13.9%), reviews of topic covered during the class in EBA (12%), reading and written assignments (10.6%) to support their children's learning at home. Seventeen parents (8.2%) reported that they did not do anything at home to support development and learning of their children.

Table 2. *Strategies used by parents to support their children's education at home*

Response	Frequency
Through activities they selected	49
Based on the instruction and homework given by the teacher	35
Through educational games	29
By reviewing the topics taught through EBA by the teacher	25
Through reading and writing assignments	22
Through speaking and language exercise	12
Using web-based activities	11
Through practice to improve their children's daily life skills	10
Based on professional support from special education teacher	8
Using physical activities and exercises	6
Did not do anything to support their children	17

As shown in Table 3, the mean score for the survey item focused on parents' perceptions about the benefits of EBA in supporting their children's development and learning was 3.47 ($SD = 2.79$), indicating relatively low levels of support for EBA. The mean score for the item focused on parents' perceptions about their own skills to support their child's development and learning at home was 5.38 ($SD = 2.47$), indicating that parents found themselves somewhat competent to support their children at home. Data analysis for the survey items focused on parents' perspectives about the impact of the pandemic on their children's overall development and learning in different developmental areas resulted in a mean score of 6.86 ($SD = 3$) for overall development and learning, 6.88 ($SD = 3$) for academic/cognitive development, 6.38

($SD = 3.23$) for social-emotional development, 5.93 ($SD = 3.34$) for speech and language development, and 5.50 ($SD = 3.44$) for motor development.

Table 3. *Parents' responses to the survey items (N=208)*

Variable	Mean	SD
How beneficial do you think EBA is in supporting your child's development and learning at home?	3.47 ^a	2.79
How competent do you think you are to support your child's learning at home during distance education/virtual learning?	5.38 ^a	2.47
How do you think your child's development and learning in general is affected during the distance education/virtual learning?	6.86 ^c	3.00
How do you think your child's academic/cognitive skills are affected during the distance education/virtual learning?	6.88 ^c	3.00
How do you think your child's social-emotional skills are affected during the distance education/virtual learning?	6.38 ^c	3.23
How do you think your child's speech and language skills are affected during the distance education/virtual learning?	5.93 ^c	3.34
How do you think your child's motor skills are affected during the distance education/virtual learning?	5.50 ^c	3.44

^a Ratings range between 1= Not beneficial at all and 10 = Very beneficial

^b Ratings range between 1 = Not competent at all and 10 = Very competent

^c Ratings range between 1 = Not affected at all and 10 = Significantly affected

3.2. Qualitative Analysis of Data

Four main themes were identified as a result of qualitative analysis of data collected from parents of children with autism through semi-structured interviews. These themes were (1) use of EBA, (2) challenges, (3) solutions, and (4) recommendations.

3.2.1. Use of EBA

As seen in Table 4, parents reported the use of EBA in several different ways. While some parents had their children participate in virtual classes ($n = 8$), others used EBA TV to watch recorded classes ($n = 4$). Yet, others used EBA for contacting to the teachers and getting advice from them ($n = 4$). Parents reported that once virtual classes were available, they got their children watch them because they did not benefit from recorded classes. One of the parents explained relative effectiveness of virtual classes over recorded classes as follows, "We did not like recorded classes. They were difficult to follow. It was better attend to virtual classes. We felt there was more individual attention, there." Parents whose children used EBA TV to watch recorded classes reported that they accessed EBA TV five to six times per week. Children's participation in virtual classes also varied. While some children attended virtual classes more regularly, other attended two or three days a week for less than an hour each due to various reasons. One parent explained this as follows, "My son attended virtual classes two or three times every week for about 30 min each. He could not sit longer in front of the computer. He was not engaged in the classes after a while." Furthermore, some parents reported that teachers used EBA website to share resources or to advise them about what kind of activities they could use at home. One parent noted resource sharing as follows, "Our teacher sent an activity booklet so we can do that at home." Results of the qualitative data revealed that one third of parents who participated in the interviews reported that their children used EBA but did not benefit from it because it was not individualized. One parent explained this as follows, "Content provided through EBA was not appropriate for my child. They were not tailored to address my

son's individualized needs." Finally, some parents reported their children did not use EBA or EBA TV at all. One parent stated, "I could not get my son to sit on the computer and watch the videos or classes. It was not possible. I tried many times, but gave up... Because he did not want to listen and watch the classes."

Table 4. *Frequency of codes for theme one: The use of EBA*

Codes	f
Participating virtual classes	8
Watching EBA-TV	4
Getting advice from teachers	4
Used EBA but did not benefit from it	6

3.2.2. Challenges

Parents identified several challenges in relation to distance education and use of EBA (see Table 5). All parents ($n = 18$) agreed that courses offered in EBA were not appropriate for children with autism because they were not specifically designed for these children or did not consider individual differences children with autism have. Moreover, some participants found it difficult to follow the content presented in virtual classes or recorded courses ($n = 8$). One parent noted, "Some of the classes in EBA required advanced skills that my son did not have. We were not able to follow them to support my son's learning." Parents also reported that attendance in virtual classes were low because many had access issue due to weak internet ($n = 11$) or lack of equipment ($n = 3$).

It was also noted that connection issues resulted in decreased motivation ($n = 11$) and extended period of time spent in front of a computer caused increase levels of problem behaviors in these children ($n = 6$). One of the participants explained this challenge as follows, "We had difficulties in accessing the EBA; it would not connect to the website. So my child got tired of waiting. Often this endless waiting to connect to class triggered problem behaviors that lasted entire day." Participants also reported that their child's teacher sent worksheets, assignments, and activities to complete at home. However, it was difficult to assume the teacher role at home to complete these activities. One participant noted, "I am mother to my child; I am not a teacher. I cannot behave like a teacher. This negatively impacted my relationship with my child."

Table 5. *Frequency of codes for theme two: Challenges*

Codes	f
The content was not appropriate for individual differences of my child	18
Very few students attended virtual classes	15
Challenges on internet access	11
Decreased student motivation	11
It was difficult to follow the content presented	8
Increased problem behaviors	6
Difficulties associated with having a teacher's role	5
Only few classes were available	3
Lack of equipment such as computer	3

3.2.3. Solutions

Parents reported that they used different ways to deal with the challenges they faced in relation to virtual learning and EBA (see Table 6). Several parents reported that they communicated with the service providers from the rehabilitation centers where their children

were receiving in-person services prior to pandemic ($n = 8$) or with their child's teachers ($n = 3$) at least once in a week to get support when they faced difficulties in teaching their children. One parent noted, "Our teachers in the school and rehabilitation centers were very helpful. I talked to them when I needed help with my son. They shared resources and activities with me to use at home." Support and consultation by these professionals were provided over the phone or through home visits. Parents used smart phone applications with video call option to connect with teachers/service providers as they were working with their children. The same venues were used by professionals to share activities and resources to parents.

Parents also used educational applications developed by non-profit organizations to support skills development of their children ($n = 5$). One of the parents explained this as follow, "Tohum Autism Foundation has many applications specifically designed for our children, children with autism. We were using them prior to the pandemic and continued to benefit from them during the pandemic, too." Participants reported that they practiced previously learned skills and behaviors at home ($n = 2$), used education toys ($n = 3$) and games ($n = 5$) to support their children's learning, and received one-on-one tutoring support for their children ($n = 2$). One parent mentioned the following, "I could not deal with it. We needed to have one-on-one support. I called our tutor to see if she would be willing to come to our house to work with my son. She came twice a week for one hour each. We all had to put masks on, but it was helpful to have someone working with him." Moreover, some parents used social media ($n = 5$) to connect with other parents of children with autism and exchanged information regarding what to do to support their children's development and learning at home. One of the participants noted, "I have been involved in Facebook groups for many years. We shared ideas and activities through one of the autism pages. I learned about activities that I could do at home and offered what we did at home to other parents."

Table 6. *Frequency of codes for theme three: Solutions*

Codes	f
Consultation and support from rehabilitation centers	8
Use of internet resources including social media	5
Playing more educational games at home	5
Consultation and support from teachers	3
Use of educational toys	3
Practicing previously learned skills and behaviors	2
Getting tutoring support	2

3.2.4. Recommendations

Parents offered several recommendations in relation to improving virtual learning and distance education practices as well as supporting development and learning of children with autism during unprecedented times such as the pandemic (see Table 7). Most parents recommended that families should be provided with internet access ($n = 11$) and technology to connect to virtual classes ($n = 10$). One parent recommended, "Families should be offered unlimited internet during the pandemic, not just us, families of children with disabilities, but all families with school-age children." The need for parent ($n = 4$) and teacher ($n = 2$) training is also emphasized by the participants. While the suggested focus for parent training was strategies to be used in home environment to support development and learning of children with autism, the recommendation for teacher training was providing effective distance education and virtual learning opportunities to support children with autism. One of the participants explained the need for parent and teacher training as follows, "I definitely needed training to work with my child at home 24/7. I needed guidance. Our teachers were helpful,

but they were also trying to learn how to provide instruction over internet. Both us, parents, and teachers needed training and support to make it better.”

Parents also recommended that EBA should include more courses specifically designed for children with autism including those that are available offline ($n = 2$), but the length of virtual and recorded courses should be shortened to prevent motivation and engagement loss ($n = 4$). One parent stated, “Course were very long, whether virtual or recorded... My child could not sit on the computer that long and be motivated. He often lost his engagement and started to show challenging behaviors. We need more course for children with autism but shorter ones.” Finally, few parents ($n = 4$) recommended that children with autism and their families should be provided support at home. The frequency of these visits can be adjusted during the course of the pandemic. One parent noted this as follows, “I wish we had some types of in-person support at home. Even if it is once a month or once biweekly, that would help.”

Table 7. *Frequency of codes for theme four: recommendations*

Codes	f
Providing internet access and technology to connect virtual classes	11
Developing courses appropriate for children with autism	10
Training parents about home-based practices	4
Offering shorter courses in terms of time to enhance motivation and engagement	4
Providing support at home	4
Making offline course videos available	2
Training teachers on web-based instruction and support	2

4. Discussion

The purpose of present study was to explore parental perceptions about the effectiveness of virtual learning and distance education practices on the development of children with autism and to examine challenges parents faced regarding virtual learning and the strategies they used to address the difficulties. Overall, the results demonstrated that virtual learning and distance education practices offered through EBA were used infrequently by children with autism and their parents for various reasons including the content not being suitable for these children and technological difficulties. We also found that parents did not find EBA beneficial for their children and perceive themselves to be competent to support their children’s learning at home. Moreover, parents reported that pandemic had adverse impacts in their children’s development in different areas. In the following section, main findings of the study were discussed in relation to extant literature.

A notable finding of this study is the infrequent use of virtual learning opportunities through EBA reported by the parents of children with autism. Results indicated that less than one third of participating parents used EBA to support development and learning of their children with autism during the pandemic when schools were closed. Moreover, parents reported that virtual learning opportunities presented through EBA was not beneficial for their children’s development and learning. These findings are consistent with the findings of previous research (Croft & Moore, 2019; Chukwuemeka & Dominic, 2020; Toquero, 2020) reporting limited access to and use of distance education practices by children with autism.

This study revealed important findings that may explain why EBA was used extensively by parents of children with autism although it was the only national platform for virtual learning and distance education. Along with the lack of technology requirements (internet, computer equipment and knowledge), inappropriate content presented through courses were among the two main reasons for parents of children with disabilities reported. Many parents felt that the

content of courses was somewhat difficult or hard to follow and did not address individual needs of their children with autism. Several studies also reported that students with intense support needs may not benefit from virtual learning opportunities as much as typically developing children or children with milder disabilities (Bozkus-Genc & Sani-Bozkurt, 2022; Buchnat & Wojciechowska, 2020; Stenhoff, Pennington, & Tapp, 2020). To address the issues about the technology requirements to connect virtual classes, the MoNE provided free tablets for students from low-income backgrounds at secondary and high school levels and contracted with GSM operators to provide free internet to students and teachers. Handing out free tablets allowed more students to access virtual learning opportunities and distance education in upper grades. However, elementary school students from low-income families did not benefit from such support. Furthermore, accessing virtual learning opportunities and distance education was almost impossible for students who live in rural areas because of limited internet coverage.

Among the other challenges parents reported regarding the use of virtual learning opportunities and distance education were motivation of their children to attend online classes and increased levels of problem behaviors especially during long and difficult classes. Colizzi et al. (2020) also found that children with autism in Italy showed more intense and frequent problem and disruptive behaviors during the pandemic, reported by their parents. Some participants in this study also reported that among the responsibilities they had to assume during the pandemic was facilitating development and learning of their children at home, in other words, assuming the teacher's role. Parents in this study did find themselves to be confident and competent in supporting their children at home. Coupled with the increasing levels of problem behaviors, limited skills in managing day-to-day learning activities with minimal support from professionals increased the stress levels and family burden (Bozkus-Genc & Sani-Bozkurt, 2022; Rakap et al., 2022), which in turn had adverse impact on intra-family relationships (Rakap et al., 2023). Baweja et al. (2022) also reported that although parents might have supported their children's learning in the past with guidance from professionals and they had great insight about their children's abilities and needs, they are less likely to have training and experience required to effectively support their children's learning based on individualized education plans. Therefore, parents of children with autism faced a great deal of difficulty supporting their children, while trying to work from home, taking care of other family members, preparing meals, and running household chores.

Although a small percentage of parents participated in this study reported the use of EBA to support development and learning of their children with autism, they employed other strategies to enhance their children's learning at home. The majority of participants ($n = 191$; 92%) named at least one strategy they used for this purpose. The most frequently reported strategy ($n = 49$) by parents was teaching through activities of their choice. Parents also reported that they supported their children based on the instruction and homework given by the teachers ($n = 35$) or professional support from the special education teachers. ($n = 9$). These findings are somewhat concerning because many parents implemented activities to support development and learning of their children without any guidance from professionals. Given that parents are less likely be trained of effective teaching strategies, it is not clear whether they selected appropriate activities and implemented them correctly to teach individualized goals of their children.

Participants in this study were also asked what they did to address the challenges they faced in relation to virtual learning and distance education. Consultation and support from rehabilitation centers, teachers, and tutors were some of these resources parents used address their children's individual needs. Furthermore, some parents used internet to learn about potential activities and strategies to support their children at home. Although internet can be a

good source when professional support is limited or not available, information obtained from such sources should be used with caution. Reichow et al. (2013) reported that websites related to developmental disabilities including autism include information that is not research-based or correct.

Finally, parents reported that their children's development in all developmental areas (academic/cognitive, speech and language, social-emotional, and physical) were adversely impacted during the pandemic while distance education was used as a mode of instruction. These results are somewhat expected as many parents reported that they did not use EBA at all or find the classes and activities unsuitable for their children, and only one fourth of the participants received consultation or support from professionals. Many studies in the extant literature emphasized the negative impact of pandemic on children's skills in different developmental areas (e.g., Colizzi et al., 2020; Rakap et al., 2022; Şahin et al., 2020; White, Stoppelbein, Scott, & Spain, 2021). In addition to overall learning, academic/cognitive and social-emotional development were among the most affected areas reported by the participants. Teaching of academic/cognitive skills often require specialized, systematic instruction offered with high fidelity and intensity to result in positive learning outcomes for children (McLeskey et al., 2017). Parents are not likely to use such teaching approaches without training and ongoing implementation support (Hohlfeld, Harty, & Engel, 2018; Rakap & Rakap, 2014). Moreover, children learn social and emotional skills best through their interactions with the social environments in schools including peers and responsive adults (Jones, Barnes, Bailey, & Doolittle, 2017; Rakap, Balikci, Kalkan, & Aydin., 2018). Because of the school closures during the pandemic, children did not have opportunities to learn and practice social-emotional skills, which may have contributed to the increase in problem behaviors demonstrated by these children. Baweja et al. (2022) noted that emotional and behavioral problems during the pandemic might be results of many factors including changes in children's routines, restricted social interactions, and isolation.

4.1. Implications for Practice

There are several implications of the findings of this study for practice. First, implications are about the content of courses prepared for virtual learning and distance education. Courses specific to address individualized skills of children with autism should be developed. These brief online courses should offer adaptations for parents to use in their specific situations. Live courses offered to children with autism should be kept short to support children's engagement and motivation. Second, both parents and teacher should be trained to learn about strategies to support development and learning of children with autism in similar situations. While parent training could focus on strategies and activities to support children's development at home, teacher professional development programs could focus delivering effective virtual learning opportunities to children with disabilities and web-based support to parents of these children. Teacher-delivered instruction through distance education should be primary mode of instruction supported by parents at home. Moreover, teachers should be prepared to support parents while they are working towards academic and individualized goals of their children.

Third, children and families from socio-economically disadvantaged backgrounds should be provided technology support regardless of their grade level. This support can include materials support (e.g., computers and tablets) or training (e.g., how to use technology to connect to classes or receive consultation program professionals). Fourth, the MoNE should coordinate preparation of activities and materials for home use to support virtual learning opportunities provided by the teachers. These materials and activities should be individualized based on the specific needs of children with autism and address academic areas, functional skills, and behaviors.

4.2. Limitations of the Study and Directions for Future Research

Findings of this study should be interpreted within the context of its limitations. There are at least four limitations of this study. First, data collected in this study are based on parent self-reports. Future studies should consider collecting data using multiple strategies including interviews, survey, and observation. Second, data in relation to the severity of children's disability were not collected and considered while data analysis were conducted. Future studies should collect such data to examine potential differences among children with mild, moderate, and severe disabilities. Third, the majority of participants were mothers of children with autism. Future research should address this issue by promoting a more balanced father-mother involvement. Finally, this study used a cross-section approach where the data were collected at one given time during the course of the study. Future studies should investigate parental perspectives longitudinally to identify potential changes as they experience the pandemic.

5. Conclusion

Following the declaration of COVID-19 as a pandemic, schools were temporarily closed to prevent the spread of the virus and the mode of education shifted from face-to-face to home-based distance education. Countries developed different ways of delivering virtual learning opportunities to school-age children. Turkey used an enhanced version of the currently existing Education Information Network to deliver virtual learning opportunities to all children including those with autism. The rapid shift from traditional face-to-face education to home-based distance education created unprecedented challenges and impacted development and learning of children with autism who often need individualized and systematic instruction. Through the use of quantitative and qualitative data collection strategies, this study explored parental perceptions about effectiveness of distance education practices for children with autism and challenges they faced during virtual learning. Results showed many families did not use EBA to support their children's learning and the content of virtual learning opportunities through EBA was not appropriate for the characteristics of children with autism. This study offered practical implications for future research and practice.

6. Acknowledgements

Work described in this article was supported by Grant # 120K259 from The Scientific and Technological Research Council of Turkey (TUBITAK). The opinions expressed are those of the authors, not the funding agency.

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