



## OPINIONS OF SCIENCE TEACHERS TO COMMUNICATE WITH PARENTS IN THE DISTANCE EDUCATION PROCESS: USE OF WHATSAPP APPLICATION

Uzaktan Eğitim Sürecinde Ebeveynlerle İletişime Yönelik Fen Bilimleri Öğretmenlerinin Görüşleri: WhatsApp Uygulamasının Kullanımı

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### ABSTRACT

This study aims to determine the opinions of science teachers regarding the use of WhatsApp to communicate with parents during the distance education process. The study was carried out as a phenomenology study, one of the qualitative research designs. 21 science teachers working in Kayseri in the 2020-2021 academic year and using WhatsApp groups to communicate with parents constituted the study group of the study. The interview form developed by the researcher to determine the opinions of the teachers on the usability of the WhatsApp application to communicate with parents was used as a data collection tool. In the analysis of the data, the answers to the interview form were subjected to content analysis. As a result of the analysis, remarkable results were obtained in the light of the opinions of science teachers regarding the use of WhatsApp groups in communicating with parents, shared posts, feedback speed, sharing hours, advantages, recommendations for beneficial use of these advantages, disadvantages, measures that can be taken to eliminate these disadvantages, and other means of communication used by teachers. At the end of the study, suggestions for parents and teachers were presented.

**Keywords:** Science Education, Communication, WhatsApp Application

### ÖZET

Bu araştırma, fen bilimleri öğretmenlerinin uzaktan eğitim sürecinde ebeveynlerle iletişimde WhatsApp kullanımına ilişkin görüşlerini belirlemeyi amaçlamaktadır. Araştırma nitel araştırma desenlerinden fenomenoloji çalışması olarak gerçekleştirilmiştir. 2020-2021 eğitim öğretim yılında Kayseri'de görev yapan ve ebeveynlerle WhatsApp gruplarını kullanarak iletişim kuran 21 fen bilgisi öğretmeni araştırmanın çalışma grubunu oluşturmuştur. Veri toplama aracı olarak WhatsApp uygulamasının ebeveynlerle iletişim kurmada kullanılabilirliğine ilişkin öğretmenlerin görüşlerini belirlemek amacıyla araştırmacı tarafından geliştirilen görüşme formu kullanılmıştır. Verilerin analizinde görüşme formuna verilen cevaplar içerik analizine tabi tutulmuştur. Analiz sonucunda fen bilimleri öğretmenlerinin ebeveynlerle iletişimde WhatsApp gruplarının kullanımına, paylaşılan gönderilere, geri bildirim hızına, paylaşım saatlerine, avantajlarına, bu avantajların faydalı kullanımına yönelik önerilere, dezavantajları, bu dezavantajları ortadan kaldırmak için alınabilecek önlemlere ve öğretmenlerin kullandığı diğer iletişim araçlarına ilişkin görüşleri ışığında dikkat çekici sonuçlar elde edilmiştir. Çalışmanın sonunda ebeveynlere ve öğretmenlere yönelik öneriler sunulmuştur.

**Anahtar kelimeler:** Fen Eğitimi, İletişim, WhatsApp Uygulaması

## 1. INTRODUCTION

The COVID-19 pandemic has affected the whole world in 2020. This process was negatively affected the areas such as health, economy, tourism, etc., as well as education-teaching activities. Due to the COVID-19 pandemic, almost all educational institutions had to temporarily suspend face-to-face education and switch to distance education activities in Turkey, as in many countries such as China, the USA, and Italy. The distance education concept dates back to the 1700s. It started with correspondence education practices in the 1870s, continued its development in parallel with the developments in technology, and gained its current content and significance (Özbay, 2015). Distance education is "an educational system which emphasizes individualization of instruction and provides learning in a place or time different from that of the instructors or other students" (Ruksasuk, 1999, p. 3). As can be understood from the definition, it can be stated that the group most affected by this situation are teachers, students, and parents. Teachers who are struggling to give a computer-based education, students who have to receive lessons at home outside the classroom environment, and parents who are seeking to provide proper education to their children have been affected by the process in various ways. One year into the COVID-19 pandemic, close to half the world's students are still affected by partial or total school closures. Moreover, it is stated that 100 million additional children will fall below the minimum proficiency level in reading as a result of the health crisis (UNESCO, 2021).

In order not to suspend home and school life, teachers need to be in constant communication with parents and students in this process. Parent-school communication is a process that promotes information exchange to build up consensus, meet stakeholder requirements, and achieve effective learning goals (Atabey and Tezel-Şahin, 2011). Therefore, effective parent-teacher communication is essential for reinforcing children's

learning and for the improvement of school-family cooperation, which is extremely significant (Ho, Hung and Chen, 2013).

Today, modern information and communication technologies such as short message services (SMS), e-mails, websites, and blogs provide important conveniences for parents to be up to date with school and their children (Ho, Hung and Chen, 2013). WhatsApp is the most popular mobile messaging application worldwide, with over 1.5 billion monthly active users (Statista, 2019). With the ever-increasing use of Smartphone, the use of WhatsApp in the education process has increased. Through WhatsApp, teachers can instantly inform parents by sharing visual and audio content or information about the activities in the classroom. Educational materials such as text, voice message, video, or photo can be easily shared with WhatsApp, whose purpose is to facilitate communication (Bozdemir Yüzbaşıoğlu, Candan Helvacı, Ezberci Çevik and Kurnaz, 2020). Eliminating the necessity of being in the same place at the same time, message storing, and fast transmission (Yazıcı, 2015) are stated as the advantages of Whatsapp. On the other hand, posts made outside the intended use, allowing messages to be misunderstood, and providing continuous transmission regardless of time sometimes cause negativities. Despite all its advantages and disadvantages, the WhatsApp application, with its ease of use, remains one of the most used applications. WhatsApp has started to be widely preferred in the communication process between teachers and parents during the distance education passed in the Covid-19 process.

Although there are studies examining the teachers' views (Balcı and Tezel Şahin, 2018; Erdem vand Avcı, 2020) and parents' views (Bak, Bak, Eşidir and Bak, 2018; Tuncer, 2021) regarding the WhatsApp application in Turkey, studies evaluating the use of the WhatsApp application in the context of communication between parents and teacher, especially during the pandemic process, are quite limited (Sönmez, Yıldırım and Çetinkaya, 2020). Teachers had the opportunity to hold meetings at schools or meet with parents after school during the face-to-face education process. However, the increasing need for remote communication during the pandemic process has caused more frequent use of this type of application. In this context, it has become even more essential to determine the opinions of teachers on the subject. The science course is a course that requires students to be in the course synchronously; especially for such courses, there are needs such as conveying course hours and course links to students during the day, sharing documents such as science experiments, videos, photographs, and requesting pre-lesson materials for a hands-on activity to make students active. In this context, determining the opinions of teachers regarding the WhatsApp application, which is thought to have increased frequency of use, and to guide the process by considering these results is important for both teachers and parents. It is emphasized that the use of this application, which is stated to have both advantages and disadvantages, should be investigated and suggestions for appropriate use should be put forward (Bouhnik, Deshen and Gan, 2014). In this context, this study aims to determine the opinions of science teachers regarding the use of WhatsApp to communicate with parents during the distance education process.

## 1. METHOD

### 1.1. Research Design

The qualitative research method was used in this study. Qualitative research involves the use of qualitative data collection methods such as observation, interview, and document review, and the realistic and comprehensive delivery of a situation in its natural environment (Yıldırım and Şimşek, 2013). In this context, the study was carried out as a phenomenology study, one of the qualitative research designs. Phenomenology is a type of qualitative study that examines the phenomena that we encounter every day but that we do not have detailed knowledge about or think about much (Creswell, 2009; Yıldırım and Şimşek, 2013). In the present study, the opinions of science teachers regarding the use of WhatsApp with parents during the pandemic process were tried to be revealed with a qualitative understanding. For this reason, the phenomenology design, which is one of the qualitative research methods suitable for our purpose, was preferred in this study.

### 1.2. Participants

The purposive sampling technique allows the research results to be examined in-depth, rather than generalizing to the population. For this reason, the purposive sampling technique is often preferred in qualitative studies (Creswell, 2009). In the present study, criterion sampling, one of the purposive sampling methods, was used to determine the study group. Criterion sampling is the selection of participants from people, events, objects, or situations that have the qualities determined in relation to the problem

(Büyüköztürk, Çakmak, Akgün, Karadeniz and Demirel, 2009). Actively using WhatsApp groups to communicate with parents was determined as the main criteria by the researcher in the selection of the study group. Among the teachers who met these criteria, volunteers were included in the study. In this context, 21 science teachers working in Kayseri in the 2020-2021 academic year and using WhatsApp groups to communicate with parents constituted the study group of the study.

### 1.3. Data Collection Tool

The interview form developed by the researcher to determine the opinions of the teachers on the usability of the WhatsApp application to communicate with parents was used as a data collection tool. First, interview questions were prepared. A question pool was created by considering the purpose of the study and scanning the relevant literature. While forming the questions, attention was paid to ensure that the questions were understandable, clear, unbiased, and not multidimensional (Karasar, 2009).

Regarding the suitability of the questions to the purpose of the study and the specified criteria, expert opinions were taken. One of the experts is a measurement expert who has previously taught science and used WhatsApp to communicate with parents. The other expert is an academician working in the field of science education. One of the suggestions made by the experts is dividing the question "What are the most common posts (yours and parents) in the WhatsApp group?" into two separate questions. Accordingly, the question was converted into two separate questions as "What are your most common posts in the WhatsApp group?" and "What are the parents' most common posts in the WhatsApp group?" The interview form was finalized by making the editing envisaged by the experts. The interview form includes questions such as "How long have you been using the WhatsApp group to communicate with parents?," "What are your reasons for using a WhatsApp group to communicate with parents?," "What do you think are the advantages of using WhatsApp to communicate with parents?"

### 1.4. Data Collection Process

In this study, an interview, which is a preferred data collection technique in qualitative research, was used. Data were collected online to enable teachers to answer questions in the most convenient time frame and comfortably. The form was prepared via Google Form and shared with science teachers via e-mail and WhatsApp application. Data were collected in February 2021. The data collection phase was completed when the answers to the interview form stopped, and the obtained data were analyzed.

### 1.5. Data Analysis

In the analysis of the data, the answers to the interview form were subjected to content analysis. Content analysis is defined as the technique of systematically summarizing and categorizing the text related to a topic with words or phrases that will reflect its content and creating codes within the criteria determined by the researchers (Büyüköztürk, et al., 2009). Before analyzing the data, the answers received from the Google Form were transferred to the Excel Software with the question titles. During the content analysis process, the researcher read in detail and coded the answers given by the participants. The themes were reached by examining the relationships between codes with similar features. In this context, 12 themes were determined. These themes are presented below.

*Theme 1: Usage Durations*

*Theme 2: Reason for Use*

*Theme 3: Family Member(s) in WhatsApp Group*

*Theme 4: Posts Made by the Teacher*

*Theme 5: Posts Made by the Parents*

*Theme 6: Sharing Hours*

*Theme 7: Speed of Getting Feedback for Shares*

*Theme 8: Advantages of Using WhatsApp*

*Theme 9: Recommendations*

*Theme 10: Disadvantages of Using WhatsApp*

*Theme 11: Possible Measures*

*Theme 12: Other Communication Methods*

In the data analysis process, after all the coding was completed, a second coding was made by another academician from the field of science education, who was not involved in the research and was an expert in qualitative research. The reliability between both coding was calculated using the formula developed by Miles and Huberman (1994). Reliability was calculated using the formula;  $\text{Reliability} = \frac{\text{Agreement}}{(\text{Agreement} + \text{Disagreement})} \times 100$ . For internal consistency, the consensus among coders is expected to be at least 80%. In the present study, the consistency among coders was calculated as 85%.

In the process of reporting the study findings, the real names of the teachers were reported with the codes in the form of T1, T2, ..., T21, in accordance with the confidentiality principle. The views of the participants were presented under the related themes with the research questions and supported by direct quotations.

### 1.6. Validity and Reliability

To ensure the internal validity of the study, the interview form prepared by the researcher was presented to expert opinions before the application. A detailed explanation for the participants was included at the beginning of the interview form. In this explanation, the purpose of the study was clearly stated and the participants were allowed to express themselves comfortably. The responses of the participants to the questions are presented by direct quotations in the findings section. In order to ensure external validity, the research model, participants, data collection tool, data collection process, data analysis, and how the findings were organized were described in detail. It was ensured that the participants of the study consisted of relevant individuals who would contribute to the purpose of the study. The researcher avoided including her interpretation in the reporting process of the data.

Internal reliability was ensured by the independent reading of the data and the creation of codes by two researchers. It has been tried to increase external reliability by ensuring that the data are discussed appropriately in the conclusion part.

## 2. RESULTS

The findings obtained from the current study are presented according to the 12 themes obtained as a result of the content analysis.

### 2.1. Findings Related to WhatsApp Usage Durations of Science Teachers for Communicating with Parents

The findings regarding how long the science teachers have been using the WhatsApp group to communicate with parents are given in Table 1.

**Table 1.** Teachers' Opinions on the WhatsApp group Usage Durations for Communicating with Parents

Usage Durations	
Codes	f
Before the pandemic	15
After the pandemic	6
Total	21

As can be seen in Table 1, the majority of science teachers (f=15) have started using WhatsApp before the pandemic. Six teachers started using the WhatsApp application after the pandemic. Most of the teachers who used the WhatsApp application before the pandemic stated that they had been using the application for a year. Examples of teachers' statements on this subject are as follows:

*"I have been using it since March 2020, when schools were closed due to the pandemic." (T3)*

*"We used to communicate before distance education; our communication increased because of distance education, even homework was delivered in this way." (T18)*

*"Since March 13, 2019." (T20)*

### 2.2. Findings Related to Reasons for Using WhatsApp of Science Teachers for Communicating with Parents

The findings regarding the reasons of science teachers for using the WhatsApp group to communicate with parents are given in Table 2.

**Table 2.** Teachers' Opinions on the Reasons for Using the WhatsApp Group to Communicate with Parents

Reason for Use	f
Codes	
Notifying for homework and follow up	6
Make announcement	6
Communicating with parents	5
Ease of Use	4
Fast communication	3
Enabling everyone to see and interpret data at the same time	3
To inform about the general situation of the class	2
To inform about the problems of the class	2
Communicating with students	2
Scheduling distance lessons	1
Students submit their homework	1
Follow up student works	1
Providing seamless communication	1
Solving problems with different ideas	1
Video, event, document, etc. sharing	1
Internet requirement	1
Presence of the pandemic	1
Sharing course participation links	1
Families' choice	1

As can be seen in Table 2, the science teachers mostly use the WhatsApp application to inform, follow up and make announcements about homework. Also, communicating with parents, ease of use, fast communication, and enabling everyone to see and interpret the data at the same time were among the most expressed views.

*"I can provide easy and fast communication. It is an unproblematic communication method as it is used by all parents. Before distance education, I already had groups and I was using them. However, with distance education, my usage intensity has increased a lot. At first, I was only in my own class group, but now I am in the groups of all the classes I have attended."* (T4)

*"To send the school's urgent announcements to the parents in a short time."*(T14)

*"It provides a faster communication ... parents are more likely to communicate via WhatsApp."* (T20)

### 2.3. Findings Related to the Family Member(S) in the Whatsapp Group that Science Teachers Use to Communicate with Families

The findings regarding the family member(s) in the WhatsApp group that science teachers use to communicate with families are given in Table 3.

**Table 3.** Family Member(s) in the WhatsApp Group

Family Member(s) in WhatsApp Group	f
Codes	
Mother	21
Father	14
Sister	4
Brother	4
Grandmothers	2

As can be seen in Table 3, the WhatsApp group that teachers use to communicate with parents mostly consists of mothers (n=21) and then fathers (n=14). In some groups, it was observed that there were older brothers, sisters and grandmothers. Examples of teachers' statements on this subject are as follows:

*"One parent of each student is added to the group, the majority of the parents added to the groups are mothers according to the student's preference."* (T3)

*"Mothers and fathers, usually mothers. But there are also grandparents in the group who stay with the child during working hours, especially if both parents are working."* (T4)

## 2.4. Findings Related to Post of Science Teachers in the WhatsApp Group for Communicating with Parents

The findings regarding the post of science teachers in the WhatsApp group for communicating with parents are given in Table 4.

**Table 4.** Teachers' Opinions regarding Their Posts in the WhatsApp Group for Communicating with Parents

<b>Posts Made by the Teacher</b>	
<b>Codes</b>	<b>f</b>
Homework announcements	14
School's decisions/announcements	9
Lesson hours/Participation link	7
Project, competition, event, etc. announcements	3
Course content (experimental activities, science games, video, topic summary, etc.)	3
Study/course schedule	3
Guiding articles	3
Trial/Test	3
Ministry of National Education (MoNE) announcements	2
Exam announcements	2
File sharing	2
Attendance statuses	2
Subject explanation	1
General problems of the class	1
Question solution	1
Information	1

As can be seen in Table 4, in the WhatsApp group science teachers shared homework announcements most. Also, it was determined that teachers mostly share the school's decisions/announcements, class hours/participation links.

*"Lessons, homework, and school announcements." (T4)*

*"Homework announcements, MoNE announcements, and guiding articles." (T8)*

*"School announcements, homework, and tests." (T14)*

## 2.5. Findings Related to Post of Parents in the WhatsApp Group for Communicating with Science Teachers

The findings obtained from the answers of the teachers regarding the shares made by the parents in the WhatsApp group are given in Table 5.

**Table 5.** Teachers' Opinions regarding the Posts of Parents in the WhatsApp Group

<b>Posts Made by the Parents</b>	
<b>Kod</b>	<b>f</b>
Closed to parent writing	13
Homework feedbacks	3
Questions about the sharing made by the teacher	2
Videos/pictures of experiments made at home	2
Connection problem reports	1
Asking lesson hours	1
Learn about the use of EBA	1
Asking for information about the child's success	1
Other complaints	1
Presenting reasons for unfulfilled responsibilities	1
Getting information about developments	1

As can be seen in Table 5, in most of the WhatsApp groups only teachers can send messages. In the groups where parents post is allowed, it was determined that the most common shares were homework feedback, asking questions about the sharing made by the teacher, and videos/photos of the experiments made at home.

*"Only administrators can post in the group, parents can only write direct messages." (T7)*

*"Groups are mostly closed to messages from parents. Parents are communicating with teachers on WhatsApp via direct messages." (T18)*

"Response for the homework, experiment videos made by students at home, and asking about class hours." (T19)

## 2.6. Findings Related to WhatsApp Sharing Hours to Communicate with Parents

The findings regarding the sharing hours in the WhatsApp group are given in Table 6.

**Table 6.** Teachers' Opinions on the Hours of Sharing in the WhatsApp Group Used to Communicate with Parents

Sharing Hours	f
Codes	
Any time of the day/No time limit	6
Between 08.00 am. and 10.00 pm.	4
Between 08.00 am. and 11.00 pm.	2
Between 08.00 am. and 09.00 pm.	2
Between 08.30 am. and 10.00 pm.	1
Between 09.00 am. and 10.00 pm.	1
Between 08.00-10.00 pm.	1
Between 07.00-09.00 pm.	1
Until 07.00 pm.	1
Until 11.00 pm.	1
During school hours	1
After class hours/afternoon	1
In the evening hours	1

As can be seen in Table 6, teachers stated that the shares made in the WhatsApp group they use to communicate with parents are mostly at any time of the day and there is no time limit. When the time intervals specified by some teachers are examined, it has been determined that the shares are frequently made between 08.00 am. and 10.00 pm.

"We pay attention to the sharing time, so we do not post after 18:00 and 19:00, but parents write freely about the time, even at late hours." (T6)

"Shares are made between 08.00 am. and 10.00 pm." (T7)

"It usually happens during the day. But people are texting anytime, day and night. We always have to check the messages." (T14)

## 2.7. Findings Related to the Feedback Speed for Science Teachers' Shares in the WhatsApp Group

The findings regarding the feedback speed for science teachers' shares in the WhatsApp group are given in Table 7.

**Table 7.** Teachers' Opinions on the Feedback Speed in the WhatsApp Group for Communicating with Parents

Speed of Getting Feedback for Shares	f
Codes	
Very fast/Instant	12
Never	5
A few days later	3
Late	3
Next day	2
In a day	1
In an hour	1
In a few hours	1
After a certain period	1
In three days	1

As can be seen in Table 7, the feedback time of the parents to the posts made by the teachers in the WhatsApp group varies. Teachers mostly (f=12) stated that they received very fast/instant feedback from parents. While five teachers stated that they did not receive any feedback, it was determined that there were also teachers who stated that they received feedback a few days later, late, or the next day.

"It changes, there are parents who respond instantly and those who don't, but within a few hours I can get feedback from everyone." (T4)

"I teach in a village school and most of the time there is an internet connection problem, so sometimes they return after a few days, sometimes they never return." (T6)

"I'm receiving instantly." (T11)

## 2.8. Findings Related to the Advantages of Using WhatsApp Groups for Communicating with Parents

The opinions of the science teachers regarding the advantages of using WhatsApp in communicating with parents are given in Table 8.

**Table 8.** Teachers' Opinions on the Advantages of Using WhatsApp Groups for Communicating with Parents

<b>Advantages of Using WhatsApp</b>	
<b>Codes</b>	<b>f</b>
Ease of communication	14
Making announcements easy	4
Easy to use	4
Delivery of student activities	3
Provides active communication with parents	2
Easy homework sharing	2
See who has seen the post	2
Ability to collectively discuss classroom problems	2
Free/Cheap communication	3
Motivating students	1

As can be seen in Table 8, teachers mostly stated that the use of WhatsApp to communicate with parents is advantageous in terms of providing ease of communication (f=14). In addition, science teachers stated that it is advantageous in terms of making announcements easily (f=4), being easy to use (f=4), and sharing the activities carried out by the students (f=3).

*"Instant access to parents, easy sending of videos/photos about the experiments by the students." (T1)*

*"It provides faster communication. Instant response is a great benefit." (T8)*

*"We can find an interlocutor directly and in a short time for the smallest problem. Knowing that students are followed by their families can motivate them more. We can chat with the parents regularly and exchange information about the student's situation." (T17)*

## 2.9. Findings Related to the Recommendations of Science Teachers to Reveal the Advantages of Using WhatsApp in Communicating with Parents

The findings regarding the recommendations of science teachers to reveal the advantages of using WhatsApp in communicating with parents are given in Table 9.

**Table 9.** Recommendations of Science Teachers to Reveal the Advantages of Using WhatsApp in Communicating with Parents

<b>Recommendations</b>	
<b>Codes</b>	<b>f</b>
Constant communication with parents	2
Ethical rules (appropriate language, etc.) must be followed during sharing.	2
Homework feedbacks should be quick	1
Folders can be created on the phone for saved documents	1
Links can be shared for videos.	1
WhatsApp web app can be used	1
Posts should be clear	1
Message sending should be limited	1
Must have video chat	1
With more information, parents should be encouraged for group use.	1
It should be used only in important situations.	1
It should continue after the pandemic	1
The class profile should be considered	1
WhatsApp should limit usage for one day if no response was given to	1

As can be seen in Table 9, teachers made a wide variety of recommendations. While "constant communication with parents" and "Ethical rules must be followed during sharing" were recommended by two teachers; It was determined that different recommendations expressed such as "Posts should be clear", "Must have video chat", "It should be used only in important situations."

*"Educators should use a utility folder app where they can see the PDFs saved on the phone in a single folder. Since there is a duration limit for video sharing, the videos should be uploaded to different media such as Google Drive or YouTube and the relevant link should be shared." (T3)*



"Such practices, which entered our lives with the pandemic, can be continued after normalization. Even if it is not used as intensely as the current period, I think it should still be continued. The importance of cooperation with the family in the education process is undeniable. With these applications, we can eliminate the problem of not being able to communicate with some parents during physical meetings in previous years." (T17)

## 2.10. Findings Related to the Advantages of Using WhatsApp Groups for Communicating with Parents

The opinions of the science teachers regarding the disadvantages of using WhatsApp in communicating with parents are given in Table 10.

**Table 10.** Teachers' opinions on the disadvantages of using WhatsApp groups for communicating with parents

<b>Disadvantages of Using WhatsApp</b>	
<b>Codes</b>	<b>f</b>
Being able to send messages 24/7	6
Expectations/pressures for the teacher to respond at all times	3
Students can see/delete messages to parents by the teacher	2
Arguments between parents	2
Post/calls by minors other than parents	2
Late calls/texting	2
Messages causing misunderstanding	2
Going beyond the main topic	2
No disadvantage	2
Parents can see each other's numbers	1
Having students ask all kinds of questions at any time	1
Not paying attention to as in face-to-face interaction	1
Attempts by parents to appear concerned	1
Students try to trick by responding like parents	1
Excessive number of users	1
Using the same app for multiple purposes	1
Long response time for parents	1
Repeated writing of the same messages by the parent	1

As can be seen in Table 10, the most stated disadvantage of using WhatsApp to communicate with parents was "Being able to send messages 24/7" (f=6). In addition, "expectations/pressures for the teacher to respond at any time" is another disadvantage stated by the teachers (f=3).

"We are treated as if we provide 24/7 service. They see us in a position where they can reach whenever they want." (T6)

"The excessive number of users, the use of the same application for many purposes, the long response times, the misunderstandable messages, and the repeated replies of those who give feedback on the same subject." (T18)

"Making video calls is a disadvantage. Sometimes small children can make calls or text messages." (T20)

## 2.11. Findings Related to the Possible Measures of Science Teachers to Prevent the Disadvantages of Using WhatsApp in Communicating with Parents

The findings regarding the possible measures of science teachers to prevent the disadvantages of using WhatsApp in communicating with parents are given in Table 11.

**Table 11.** Possible Measures of Science Teachers to Prevent the Disadvantages of Using WhatsApp in Communicating with Parents

<b>Possible Measures</b>	
<b>Codes</b>	<b>f</b>
Parents should be informed about the purpose and rules of the group.	7
Communication only at certain time intervals	5
Only teacher/group admins should be able to post	5
A separate phone number must be obtained for the school.	1
Homework must be submitted through the school portal	1

The telephone intervention of minors other than parents should be controlled.	1
Class mother should be chosen	1
Parents should delete messages after communication	1
Parents should check group messages often	1
Messages should be short and clear	1
Only important information should be shared	1
Messages should be as few as possible	1
Must have passwords that can block video call	1
Parents should use a password for WhatsApp	1
Posts should not contain personal data	1

As can be seen in Table 11, teachers mostly stated that "parents should be informed about the purpose and rules of the group" in order to prevent the disadvantages of using WhatsApp (f=7). Also, "communication only at certain time intervals" and "only teachers/group administrators can share" are among the views frequently expressed by teachers.

*"Informing and warning parents to prevent such problems at meetings and after creating the group." (T10)*

*"Parents, as well as teachers, are new to communicating through such platforms. Therefore, when using such platforms, care should be taken to set and comply with basic rules. Informative content can be prepared and shared with parents or seminars can be held." (T17)*

*"There should be a password method that can block video calling or parents should use a password for WhatsApp." (T20)*

## 2.12. Findings Related to the Communication Methods other than WhatsApp that Science Teachers use in Communicating with Parents

The findings regarding the communication methods other than WhatsApp that science teachers use in communicating with parents are given in Table 12.

**Table 12.** Communication Methods other than WhatsApp that Science Teachers Use in Communicating with Parents

Other Communication Methods	
Codes	f
Phone calls	9
Only WhatsApp	9
Text messages (SMS)	3
School portal	1
Telegram	1
Bip	1
Education Information Network (EBA)	1
ZOOM	1

As can be seen in Table 12, it was determined that teachers mostly use phone calls (f=9) in communicating with parents, except for WhatsApp. Text messages, the school portal, Telegram, Bip, EBA, and ZOOM were also mentioned as alternative communication ways. Nine teachers stated that they only use WhatsApp.

*"When I can't reach them on WhatsApp, I'm calling them one by one; unfortunately, I can't communicate otherwise because there are internet problems." (T6)*

*"Telegram, EBA, SMS, phone call." (T9)*

*"We hold parent meetings via ZOOM. Except that, we did not use a different communication channel." (T17)*

## 3. DISCUSSION, CONCLUSION AND SUGGESTIONS

In this study, remarkable results were obtained in the light of the opinions of science teachers regarding the use of WhatsApp groups in communicating with parents, shared posts, feedback speed, sharing hours, advantages, recommendations for beneficial use of these advantages, disadvantages, measures that can be taken to eliminate these disadvantages, and other means of communication used by teachers.

First of all, the result obtained from the study revealed that science teachers frequently used WhatsApp groups to communicate with parents even before the pandemic. The easy use of WhatsApp and

communication both with two people and with the groups created can be stated as the main reasons for this situation.

It has been concluded that science teachers use WhatsApp groups mostly to inform, follow up and make announcements about homework. Another result was that teachers frequently use this application for communicating with parents. Individuals often expect instant feedback during communication. In this context, the fact that WhatsApp makes this possible can be stated as one of the reasons for teachers to use it. In their study, Erdem and Avcı (2020) concluded that the main reason for teachers to use WhatsApp to communicate with parents is to communicate quickly and easily with parents. In this context, the related study supports the present study. Also, in the related study, in parallel with the present study, raising awareness of parents and informing them about emergencies were stated among the reasons for use; other reasons were also stated as ensuring the integration of parents and preventing paper waste. Balcı and Tezel Şahin (2018) were concluded that teachers preferred WhatsApp groups for reasons such as to communicate quickly and easily with parents, inform families collectively, share photos and videos, inform about the activities in the school, save time, and save paper, test sheets, and other written materials. The related studies support the present study.

Another result obtained from the study is that mothers are the most common parents in the WhatsApp group that teachers use to communicate with parents. Then the fathers and then the older sister and brother at home are the parents in the WhatsApp group. In the study conducted by Tuncer (2021), it was concluded that more mothers were included as parents in the classroom WhatsApp groups. In the related study, it was stated that this situation may be due to the fact that the father's relationship with the child is different from the mother's relationship with the child and that the social roles are different. It is thought that a similar situation is valid in the present study. However, it can be stated that the father's participation plays an equally important role in communication with the teacher as much as the mother's participation. Keith et al. (1993) examined the relationship between eighth-grade students' achievement in four subject areas (reading, math, science, and social studies) and mother-father participation. It has been revealed that mother-father participation has a strong effect on students' achievement in all four lessons examined. The participation of parents in their children's education contributes to the development of behavioral and social adaptation of students. Therefore, it contributes to the reduction of disciplinary problems and the conduct of the social and emotional development of students in a healthy environment (Epstein and Sheldon, 2002).

It was determined that homework announcements were in the majority among the science teachers' posts. School decisions/announcements, course hours/attendance link, topic summary, video, course content, and tests were also frequently shared by teachers in the WhatsApp group. Related opinions are the reflection of teachers' reasons for using WhatsApp in their posts. In the study conducted by Haşiloğlu Durak and Arslan (2020), parallel with the current study, it was stated that science teachers share subject screening tests, questions, subject summaries, and trial tests to reinforce the subjects in the distance education process. Regarding the posts made by the parents, it was determined that in most groups only administrators, teachers, can post. In the groups where parents were allowed to post, the most common shares were homework feedback, questions about the teacher's post, and experiment videos/photos made at home. In Tuncer's (2021) study, it was determined that parents mostly shared "what children do at home". The increasing busyness of parents during the pandemic process (home-office work, etc.) leads them to choose the fastest and easiest way to communicate. In this context, it can be stated that WhatsApp is an easy-to-use and preferred tool for communicating with the teacher and solving problems in a short time.

Another striking result obtained from the study is that teachers stated that in the WhatsApp group they use to communicate with parents the posts can be sent at any time of the day. When the time intervals specified by some teachers are examined, it has been determined that the posts are frequently between 08.00 am. and 10.00 pm., 08.00 am. and 11.00 pm., and 08.00 am. and 09.00 pm. It was determined that the teachers had a lot of trouble about the post hours. The expectancy of parents to get information at any time and their attempts to reach the teacher to solve their children's problems in a short time sometimes can remove the sensitivity about time. Sending messages at a late hour has been shown among the problems caused by parents using WhatsApp in Tuncer's (2021) study also. Erdem and Avcı (2020) concluded that teachers consider it an important problem that children's family members use the application on holidays, late at night, or at other improper times.

It was determined that the speed of getting feedback from parents to the posts of science teachers in the WhatsApp group varied. While some teachers stated that they mostly received very fast/instant feedback

from parents, some teachers stated that they did not receive any feedback at all. It was determined that the no-feedback situations were generally reported by the science teachers working in the village schools. According to the results of Sönmez, Yıldırım and Çetinkaya's (2020) study, as they move away from the city center, it becomes more difficult to follow the students who continue distance education. In the present study, it was determined that teachers used other communication methods to eliminate this problem.

According to the results obtained on the advantages of using WhatsApp for communicating with parents, the science teachers stated that it was advantageous in terms of providing the most ease of communication. Also, teachers stated that it is advantageous in terms of making announcements easily, being easy to use, and presenting the activities made by the students. As a result of their studies, Balcı and Tezel Şahin (2018) stated that teachers' favorite features of WhatsApp in communicating with parents are providing delivered-seen information, providing collective information, sharing photos and videos, and being free. The recommendations offered by science teachers to reveal the advantages of using WhatsApp in communicating with parents were constant communication with parents, compliance with ethical rules during sharing, clear posts, video conversation, and using only in important situations. The recommendations given by the teachers indicate that this kind of practice will continue to be used after the pandemic. Therefore, it can be stated that WhatsApp will cease to be an alternative in the process and will become one of the main tools of communication in education.

Among the teachers' views on the disadvantages of using WhatsApp in communicating with parents, the most cited disadvantage was the ability to send messages 24/7. Also, expectations/pressures for the teacher to respond at all times, students can see/delete messages to parents by the teacher, arguments between parents, posts/calls by minors other than parents, late calls/texting, messages causing misunderstanding, and going beyond the main topic were other disadvantages stated by the teachers.

The disadvantages experienced when using WhatsApp groups (use at inappropriate times, having a problem-argument between parents, misuse, comparing children in the group, misunderstanding, and ethical problems) have been gathered under similar opinions in different studies (Balcı and Tezel Şahin, 2018; Erdem and Avcı, 2020; Tuncer, 2021). In the present study, some teachers' opinions are that there is no disadvantage of the application. In this context, it is necessary to impose some restrictions on the application in order to turn this situation into an advantageous situation on behalf of teachers who state their disadvantages. Among the measures offered by teachers to prevent the disadvantages of using WhatsApp, the most emphasized one was "informing parents about the purpose and rules of the group". Also, "communicating at certain time intervals" and "only teachers/group administrators can send messages" were also identified as the views frequently expressed by teachers. In the study, which examines how the communication established through WhatsApp affects the interaction between teachers and parents and the work of teachers, it was emphasized that WhatsApp should be used at certain times (Wahyuni and Febianti, 2019).

It was determined that science teachers mostly use phone calls to communicate with parents, except for the WhatsApp application. Also, SMS, the school portal, Telegram, Bip, EBA, and ZOOM were mentioned as other communication ways by teachers. In the study conducted by Haşiloğlu, Durak and Arslan (2020), the teachers asked the question "Which communication channel do you use to reach your students?" The most common answer to the question was the WhatsApp application. In the study conducted by Sönmez, Yıldırım and Çetinkaya (2020) it was stated that teachers mostly preferred phone calls to assign additional homework and assignments to students. In the relevant study, teachers stated that they also use WhatsApp, the EBA website, and the ZOOM application. Balcı and Tezel Şahin (2018) also found that besides WhatsApp groups, teachers mostly make phone calls for communicating with parents. In this context, it can be stated that teachers frequently use WhatsApp and phone calls for communicating with parents, as in the present study.

In line with the results obtained, the following recommendations are presented:

- ✓ It can be ensured that the results obtained from the study are handled and evaluated by teachers and parent-teachers association members at school-parent meetings.
- ✓ This study was carried out with science teachers. Unlike the present study, studies can be conducted to include the opinions of teachers, parents, and students. Thus, comparisons can be made by presenting the views of other stakeholders in the process.
- ✓ In order to eliminate the mentioned disadvantageous situations, communication can be established with parents at the beginning of the education period. For this purpose, family education (informing and awareness-raising

studies) can be carried out for teacher-parent communication, especially regarding the use of applications such as WhatsApp.

## References

- Atabey, D., & Tezel-Şahin, F. (2011). Aile öğretmen iletişim ve işbirliği ölçeği. *Kastamonu Eğitim Dergisi*, 9(3), 793-804.
- Bak, G., Bak, Ö., Eşidir, O. V. ve Bak, A. (2018). Öğrenci velilerinin whatsapp guruplarının oluşturulması konusundaki görüş ve önerilerinin incelenmesi, *Social Mentality and Research Thinkers Journal*, 4(14), 1100-1109.
- Balcı, A., & Tezel Şahin, F. (2018). Öğretmen-aile iletişimde WhatsApp uygulamasının kullanımı. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, 38(2), 751-778.
- Bouhnik, D., Deshen, M., & Gan, R. (2014). WhatsApp goes to school: Mobile instant messaging between teachers and students. *Journal of Information Technology Education: Research*, 13(1), 217-231.
- Bozdemir Yüzbaşıoğlu, H., Candan Helvacı, S., Ezberci Çevik, E., & Kurnaz, M. A. (2020). Examinations of the conversation in whatsapp group created for communication in a bachelors' level astronomy course. *International Journal of Education in Mathematics, Science and Technology (IJEMST)*, 8(2), 167-176.
- Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö.E., Karadeniz, Ş., & Demirel, F. (2009). *Bilimsel araştırma yöntemleri*. Ankara: Pegem Yayınları.
- Creswell, J. W. (2009). *Research design, qualitative, quantitative, and mixed methods approaches (Third Edition)*. California: SAGE Publications.
- Epstein, J. L. & Sheldon B S. (2002). Improving student behavior and school discipline with community and family involvement. *Education and Urban Society*, 35, 4-26.
- Erdem, C., & Avcı, F. (2020). Okul öncesi eğitimde aile katılımının sağlanması için bilgi iletişim teknolojilerinin kullanımı: WhatsApp uygulaması örneği. *Başkent Üniversitesi Eğitim Fakültesi Dergisi*. 7(2), 439-452.
- Haşiloğlu, M. A., Durak, S., & Arslan, A. (2020). Covid-19 uzaktan eğitim sürecinde fen bilimleri şube rehber öğretmenlerinin gözünden öğretmen, öğrenci ve velilerin değerlendirilmesi. *Uluslararası Eğitim Bilim ve Teknoloji Dergisi*, 6(3), 214-239.
- Ho, L., Hung, C., & Chen, H. (2013). Using theoretical models to examine the acceptance behavior of mobile phone messaging to enhance parent-teacher interactions. *Computers & Education*, 61, 105-114.
- Karasar, N. (2009). *Bilimsel araştırma yöntemi, (20. Baskı)*. Nobel Yayın Dağıtım: Ankara.
- Keith, T. Z., Keith, P. B., Troutman, G. M., Bickley, P., Trivette, P. S., & Singh, K. (1993). Does parental involvement affect eighth grade student achievement? Structural analysis of national data. *School Psychology Review*, 22, 474-496.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded Sourcebook*. (2nd ed). Thousand Oaks, CA: Sage.
- Özbay, Ö. (2015). Dünya'da ve Türkiye'de uzaktan eğitimin güncel durumu. *Uluslararası Eğitim Bilimleri Dergisi*, 2(5), 376-394.
- Ruksasuk, N. (1999). *Library and information science distance education in Thailand in the next decade*. In 65th IFLA Council and General Conference, Bangkok, Thailand, 20 - 28 Aug, 1999.
- Sönmez, M., Yıldırım, K. & Çetinkaya, F. Ç. (2020). Yeni tip Koronavirüs (SARS-CoV2) salgınına bağlı uzaktan eğitim sürecinin sınıf öğretmenlerinin görüşleriyle değerlendirilmesi. *Turkish Studies*, 15(6), 855-875.
- Statista. (2019). *Number of Mobile Phone Users Worldwide from 2015 to 2020 (in Billions)*. Accessed 03.05.2021. <https://www.statista.com/statistics/274774/forecast-of-mobilephone-users-worldwide/>
- Tuncer, N. (2021). Aileler ve öğretmenler arasındaki iletişim için güncel bir uygulama: WhatsApp grubu örneği. *Trakya Eğitim Dergisi*, 11(2), 1037-1063.

UNESCO (2021). *Education: From disruption to recovery*. Accessed 03.05.2021. <https://en.unesco.org/covid19/educationresponse>

Wahyuni, S., & Febianti, K. (2019). The use of WhatsApp group discussion to improve students' writing achievement. *Indonesian Educational Administration and Leadership Journal*, 1(1), 45-51.

Yazıcı, T. (2015). Kişiler arası iletişimde anlık mesajlaşma uygulamasının yeri: WhatsApp uygulaması ile ilgili üniversite öğrencileri üzerine bir inceleme. *International Journal of Social Sciences and Education Research*, 1(4), 1102-1119.

Yıldırım, A., & Şimşek, H. (2013). *Sosyal bilimlerde nitel araştırma yöntemleri*. Seçkin Yayıncılık