

Developing the social activities of primary school students with hearing impairment using technologies

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Abstract

It is known that the use of technology to support individualization and motivation in education programs for hearing-impaired individuals has positive results. This research aims to reveal the views of teachers, students, and parents to develop the social activities of hearing-impaired students by supporting them with technology. This research was conducted with the phenomenology pattern, one of the qualitative research designs. Data were collected through semi-structured interview forms prepared separately for teachers, students, and parents. The participants of the study consisted of 20 primary school teachers, 20 hearing-impaired primary school students, and 20 parents of hearing-impaired students, who were working in various primary schools in Kazakhstan in the 2022-2023 academic year. As a result of the research, the majority of the participants believed the communication problems mostly faced by students with hearing impairment outweighed the psychological and school problems. The majority of the participants stated that the students were willing to participate in social activities if they were supported.

Keywords: Hearing impaired students; social activity; technology.

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1. Introduction

Sensory perception is of great importance in the education and social environment of hearing-impaired individuals in educational life and social activities. Impairment in the sense of hearing; negatively affects communication skills, language and speech development, and the physical development of the child, causing restrictions in the person's life (Mitchell & Quittner, 1996). Today, with the development of technology, developments in hearing aids provide opportunities for individuals with hearing impairment to receive education and socialize under equal conditions. It is very important to realize the learning-teaching processes of hearing-impaired children with appropriate methods and techniques and to support them with technology applications to respond to their special needs at the highest level. It is thought that these opportunities will gain meaning when technology is included in educational and social activities with this instructional approach (Yoon & Choi, 2010).

1.1. Theoretical and conceptual framework

People meet their needs with their senses and provide a relationship with their environment through their senses. Hearing is the basic tool that enables the person to think, speak, transfer his thoughts, get to know his environment, and socialize (Johnson et al. 2021). Hearing impairment is a sensory disorder that can lead to psychological and social problems. Limited communication with the environment due to hearing impairment often leads to the isolation of the individual from society (Von Mentzer et al, 2013).

According to the data of the World Health Organization, there are 466 million hearing-impaired individuals worldwide. Children under the age of 15 make up 34 million of these people. WHO predicts that by 2050, 2.5 billion people will experience varying degrees of hearing loss (WHO, 2011). Communication is the most important key to development and social interaction for all children, whether they are hearing impaired or not (Wolters et al., 2011).

Hearing-impaired children face many problems in school success and social life due to communication problems. Apart from communication difficulties, hearing-impaired children experience difficulties such as being rejected by their peers, being withdrawn, having problems in adapting, and feeling neglected (Wauters & Knoors, 2007; Stinson & Kluwin, 2003). Social interactions and friendships in childhood affect many factors related to psychological well-being in adulthood. Having positive peer relationships in childhood produces positive results such as increased self-esteem, emotion regulation, school adjustment, and success (Batten et al. 2014).

In the education programs for the hearing impaired, the motivation of the individual should be supported by using educational materials suitable for his/her age, interest, language, and knowledge level. It is known that educational activities carried out with pleasure affect the reading level of the student positively. In addition, it is known that the participation of hearing-impaired individuals in social activities with their peers has positive results such as socialization of the individual and an increase in school success. It is known that the use of technology to support individualization and motivation in education programs for hearing-impaired individuals has positive results (Gstoettner et al., 1997; Nikolarazi et al., 2013).

1.2. Related research

When the studies conducted in the field are examined, it has been observed that research has been conducted on the difficulties experienced by hearing-impaired children, their participation in social activities, and the use of technology. Ching et al (2021) in their study on hearing, speaking, and language skills, found that it is related to psychosocial skills and quality of life and that studies should be conducted to improve functional hearing skills and social communication skills of children with hearing impairment. Similar to the findings of this research, Overgaard et al. (2021) found that young people with hearing impairment have more emotional and behavioral problems and have a lower

quality of life than young people with hearing impairment. In the study of Engel-Yeger and Weissman (2009) in which they compared the activity and self-efficacy of children with and without hearing impairment; They found that children with hearing impairment had significantly lower motor skills and had balance problems, but there was no significant difference between their self-efficacy scores.

In the study of Van der Straaten et al. (2020), comparing inclusive education and normal education with hearing-impaired children, they found that to improve the social life quality of deaf children in special education, special guidance should be developed for the school activities of deaf children receiving normal education. In the study of Yoon and Choi (2010) to examine the effects of subtitles for the hearing impaired in online learning materials, subtitles and sign language video clips were found to have a positive effect on understanding the educational content. Asogwa et al. (2020), in their study to determine the effect of video-guided education on school engagement of hearing-impaired students. They found that students who participated in video-guided instruction adjusted better to school.

In a study conducted by Meinzen-Derr et al.(2019) investigating the effect of technology on the language development of hearing-impaired children, they found that using basic vocabulary language strategies through iPad technology can support continuous and rapid speech-language development among deaf school-age children. Hartman et al.(2011) examined the effects of the participation of hearing-impaired children in sports activities on their motor skills and found that children participating in sports activities performed better in ball skills and balance.

1.3. Purpose of the research

The purpose of this research is to present the views of teachers, students, and parents to improve the participation of hearing-impaired students in social activities by supporting them with technology. Following the purpose of the study, answers were sought to the following questions;

1. What are the teachers' views on the development of hearing-impaired students' participation in social activities with technology?
2. What are the opinions of hearing-impaired primary school students on the development of hearing-impaired students' participation in social activities with technology?
3. What are the views of parents on the development of hearing-impaired students' participation in social activities with technology?

2. Method and Materials

2.1. Research method

The research was designed using the phenomenology design, which is a qualitative research method. The phenomenology design focuses on the phenomena that we encounter in our daily lives, that we are aware of but do not have an in-depth and detailed understanding of. Phenomena can appear in various forms such as events, experiences, perceptions, orientations, concepts, and situations in the world we live in (Creswell, 2007). For this reason, it was found appropriate to use the phenomenological design method in our research.

2.2. Participants

The sample of this study consisted of teachers teaching hearing-impaired primary school students living in various regions of Kazakhstan, hearing-impaired students studying at primary education level, and their parents. Table 1 contains data on the demographic characteristics of primary school teachers, table 2 contains data on the gender and class of primary school students, and table 3 includes data on

demographic characteristics of parents. In Table 1, demographic distributions of primary school teachers participating in the research regarding their professional experience and gender are given.

Table 1

Gender and professional experience distribution of primary school teachers

Professional experience	Gender		Sum
	Female	Male	
1-3 Years	2	1	3
4-6 Years	5	2	7
7-9Years	5	3	8
10 Years and above	1	1	2
Sum	13	7	20

Thirteen (13) of the teachers participating in the research are female and 7 are male. There are 3 teachers with 1-3 years seniority, 7 teachers with 4-6 years seniority, 8 teachers with 7-9 years seniority, and 2 teachers with 10 years and above seniority. When Table 1 is evaluated, it is seen that the majority of the teachers participating in the research are women, and the minimum number of teachers with a seniority of 7-9 years and seniority of 10 years or more. In Table 2, demographic characteristics of the hearing-impaired students participating in the research regarding gender and the class they are studying are given.

Table 2: Gender and class distribution of hearing-impaired primary school students

Class	Gender		Sum
	Female	Male	
1. Class	3	2	5
2. Class	2	3	5
3. Class	4	-	4
4. Class	2	4	6
Sum	11	9	20

In Table 2, the gender and education class distributions of the students participating in the research are given. 11 of the students participating in the study were female and 9 were male. There are 5 students attending 1st grade, 5 students attending 2nd grade, 4 students attending 3rd grade, and 6 students attending 4th grade. When Table 2 is evaluated, it is seen that the majority of the students participating in the research are women, the students attending the 4th grade at most, and the students attending the 3rd grade at least.

In Table 3, the degree of closeness of the parents participating in the research and the demographic characteristics of their age are given.

Table 3: Closeness and age distribution of parents with a hearing-impaired child

Parents	Relationship		Age			
	Mother	Father	19-25 age	26-32 age	33-44 age	45 +
20	13	7	1	6	8	5

In Table 3, the closeness and age distributions of the parents participating in the research are given. 13 of the students participating in the research are mothers and 7 are fathers. There is 1 parent between the ages of 19-25, 6 parents between the ages of 26-32, 8 parents between the ages of 33-

44, and 5 parents between the ages of 45 and over. When Table 3 is evaluated, it is seen that the majority of the parents participating in the research are mothers, the most parents are between the ages of 33-44 and the parents between the ages of 19-25 at least.

2.3. Data collection tools

The data used in the research were collected through interviews. Information was obtained from each participant through a "semi-structured interview form". While creating the interview form, the studies on the subject were examined and the draft interview form was prepared by taking the opinions of 2 expert teachers and a social worker. Interview form; Two questions were asked to determine demographic characteristics and three different questions were asked to examine the effect of technology on the participation of hearing-impaired individuals in social activities, and parents, teachers, and students were asked to answer these questions. Semi-structured interview forms are included at the end of the research in the form of Annex-1, Annex-2, and Annex-3.

2.4. Procedure

The teacher interview form, one of the semi-structured interview forms prepared for use in the research, was collected at the school, taking into account the social distance measures during the Covid-19 pandemic process. A collaborative approach to reaching students and parents was expected from teachers and school principals, semi-structured interview forms were sent to parents and students via e-mails, and the purpose and content of the study were explained to each participant. As a result of the communication established with the parents, the questions in the semi-structured student interview form were asked to the students and parents via video and audio interviews. Interviews with students and parents were recorded. The interviews lasted approximately 30 minutes for teachers and parents and 40 minutes for students. The audio responses of the interviews were transferred to the semi-structured student and parent interview forms by the researchers.

2.5. Data analysis

Content analysis was used in the analysis of the research data. Content analysis is expressed as identifying repetitive issues, problems, and concepts within the obtained qualitative data, defining and interpreting them systematically and quantitatively (Backman & Hentinen, 2001). The questions in the semi-structured interview forms were categorized using the coding method. Teachers participating in the research A1, A2, A3..., students B1, B2, B3.... And parents are coded as C1, C2, C3.... The answers to the questions in the semi-structured interview forms were examined, and themes and sub-themes were created. Teacher, student, and parent interview forms were sent to 2 classroom teachers and 1 social worker, who was not among the participants, to get an expert opinion. Experts were expected to reach the themes and sub-themes in the interview forms. Then, the themes and sub-themes created by the researcher and experts were compared (Vaismoradi, Turunen, & Bondas, 2013). In terms of the reliability of the study, common themes and sub-themes were decided and given in tables with frequency and percentage calculations. In addition, the views of the participants supporting the themes are included under each table by directly quoting along with their codes.

3. Results

This section; consists of teacher opinions, student opinions, parent opinions, and comparisons of these opinions.

Opinions of teachers on the development of social activities of hearing-impaired individuals with technologies

The opinions of the teachers who voluntarily participated in the research on the difficulties faced by the hearing-impaired students, their views on the participation of the hearing-impaired students in social activities, and the opinions on the effects of technology on the participation of the hearing-impaired students in the social activities were collected in three categories.

Table 4 includes primary school teachers' views on the difficulties faced by hearing-impaired students.

Table 4 : Teachers' views on the difficulties faced by hearing-impaired students

Themes	Reasons	F	%
Communication problems	Difficulty distinguishing words	9	45
	Limited vocabulary		
	Problems in speech and language development		
	Mutual use of alternative means of communication		
Psychological problems	Student's introversion	7	35
	Student's adjustment problems		
	Student's aggressive behavior		
School problems	Adaptation problem	4	20
	Academic failure		

In Table 4, the opinions of the teachers participating in the research regarding the difficulties faced by the hearing-impaired students were evaluated. The difficulties faced by the hearing-impaired students are grouped under three categories as “communication problems”, “Psychological problems” and “school problems”. 45% of the teachers stated that students have communication problems, 35% of students have psychological problems and 20% have school problems.

The opinions of the teachers regarding the difficulties faced by the hearing-impaired students are as follows;

A5 Code Teacher; Hearing-impaired students are much quieter than non-hearing-impaired students, and I think they fall behind in attending the lesson.

A8 Code Teacher; Deaf students have a hard time finding friends. Because they have problems communicating with students without disabilities, they may face exclusion.

A7 Code teacher; Although they have problems in many issues, they mostly experience psychological problems.

A17 Code Teacher; I make sure that the words I use in the lesson are not complicated and that the hearing-impaired students can easily understand them. Because I get a lot of feedback on this. Hearing-impaired students have difficulty understanding complex words, which causes communication problems.

Table 5 shows primary school teachers' preferences regarding the participation of hearing-impaired students in social activities.

Table 5

Opinions of teachers on the participation of hearing-impaired students in social activities

Themes	Reasons	F	%
Willingness to participate in social activities	Willingness to engage in social activities	5	25
	Presenting ideas for doing social activities		
Unwillingness to participate in social activities	Not participating in social activities at school	4	20
	Reluctance to social activities		
Support to participate in social activities	Participation in social activities planned by the school is greater when peers are invited.	11	55
	Participating in family activities		

In Table 5, the views of primary school teachers participating in the research on the participation of hearing-impaired primary school students in social activities were evaluated. 25% of the teachers participating in the research stated that the students were willing to participate in social activities, 20% were not willing to participate in social activities, and 55% stated that students should be supported to participate in social activities.

The opinions of some teachers about the participation of hearing-impaired students in social activities are given below;

A11 Code Teacher; We plan social activities at school. Like trips or movie days. Participation of hearing-impaired students in such activities is low.

A20 Code Teacher; Hearing-impaired students are generally introverted and shy. They are not very willing to participate in social activities. I insist that they participate in social activities. Because they communicate more during social activities.

A4 Code Teacher; I have a hearing-impaired student who wants to participate in social activities.

A2 Code Teacher; I have a hearing-impaired student in my class. I think you are not willing to participate in social activities.

In Table 6, primary school teachers' views on the effect of technology on the participation of hearing-impaired students in social activities were examined.

Table 6: *The effect of technology on teachers' participation in social activities of hearing-impaired students*

Themes	Reasons	F	%
It is beneficial	Easy access to technology	17	85
	Benefits of technology in education		
It is not beneficial	The benefits of visual designs and videos	3	15
	The notion that technology is not helpful		
	Rejecting technology		

In Table 6, the opinions of the teachers participating in the research on the effect of technology on the participation of hearing-impaired students in social activities were evaluated. While 85% of the teachers participating in the research stated that technology would be beneficial, 15% stated that technology would not be beneficial.

Some of the teachers' views on the effect of technology on the participation of hearing-impaired students in social activities are given below;

A4 Code Teacher; Of course, technology will be beneficial in this regard, as it does in every other subject. I can't always deal with each student individually. I can't go outside of class times. Every student's perception is not the same, technology will certainly be beneficial.

A 8 Code Teacher; I don't think it will be helpful.

A 13 Code Teacher; It can be useful; you should try and see.

A9 Code Teacher; I don't think technology will be helpful. I am already more interested in hearing-impaired children. I don't think technology will be more useful than my interest.

Opinions of hearing-impaired students on the development of social activities of hearing-impaired individuals with Technologies

The opinions of the hearing-impaired students who participated in the research voluntarily about the difficulties faced by the hearing-impaired students; The opinions of hearing-impaired students on their participation in social activities and the opinions of hearing-impaired students on the effect of technology on their participation in social activities were collected in three categories.

In Table 7, the opinions of the hearing-impaired primary school students regarding the difficulties faced by the hearing-impaired students are given.

Table 7: Opinions of students on the difficulties faced by students with hearing impairment

Themes	Reasons	F	%
Communication problems	Inability to understand complex sentences	10	50
	Language development is different from their peers		
	Teachers do not know sign language		
Psychological problems	Loneliness	7	35
	Depression		
	Being rejected and neglected		
School problems	Lack of willingness to attend school	3	15
	Academic failure		

In Table 7, the views of hearing-impaired primary school students about the difficulties faced by hearing-impaired students are evaluated. 50% of the students participating in the research stated that they had communication problems and 35% stated that they had psychological problems. 15% of the students stated that they had problems with school.

Some of the students' views on the difficulties experienced by hearing-impaired students are as follows;

B4 Code Student; I do not want to go to school. I'm having trouble understanding the lectures. I cry when I go to school. I wish I never went to school.

B7 Code Student; My friends at school don't include me in some games, I feel very lonely at those times. Because I have hearing aids, they are afraid of me and sometimes they make fun of me.

B9 Code Student; I have the most difficulty communicating.

B11 Code Student; I love my teachers, but sometimes I don't understand what they are saying. When I try to lip-read, I can't understand some words. I have questions and I am afraid to ask them, I am afraid that they will not understand me.

Table 8 shows the opinions of hearing-impaired primary school students about their participation in social activities.

Table 8: Participation of hearing-impaired primary school students in social activities

Themes	Reasons	F	%
Willingness to participate in social activities	Desire to socialize	9	45
	Desire to mingle with peers		
Unwillingness to participate in social activities	Don't be introverted	3	15
	Incompatibility with peers		
	Fear of exclusion		
Support to participate in social activities	High participation in activities involving hearing-impaired students	8	40
	The need to support shy students		

In Table 8, students' views on the participation of hearing-impaired students in social activities were evaluated. 45% of the students participating in the research stated that they were willing to participate in social activities, 15% were not willing to participate in social activities, and 40% stated that they needed support to participate in social activities.

The students' views on the participation of hearing-impaired students in social activities are as follows;

B8 Code Student; I want to socialize and participate in social activities. I want to socialize and be like my other friends.

B3 Code Student; I feel lonely when I participate in social activities. I don't want to plan social activities with my hearing-impaired friends.

B 5 Code Student; I do not participate in social activities.

B16 Code Student; When I participate in social activities, I want someone from my family to be with me. I enjoy the activities I participate in with my mother more.

Table 9 includes the opinions of hearing-impaired students about the effect of technology on their participation in social activities.

Table 9: Opinions of hearing-impaired students on the effect of technology on their participation in social activities

Themes	Reasons	F	%
It is beneficial	Considering technology useful	16	80
	Using visual designs and videos		
	Lecture with subtitled videos		
It is not beneficial	Don't deny technology	4	20
	The notion that technology is not effective		

In Table 9, the opinions of hearing-impaired students on the effect of technology on their participation in social activities are evaluated. While 80% of the students participating in the research stated that technology would be beneficial in participating in social activities, 20% stated that technology would not be beneficial in participating in social activities.

The opinions of some students regarding the effect of technology on the participation of hearing-impaired students in social activities are as follows;

B2 Code Student; I think it would be beneficial to use technology in social activities at school or outside. For example, if I watch videos visually in sign language in the activities we do at school, I can enjoy it more.

B15 Code Student; Supporting social activities with technology may be beneficial.

B 20 Code Student; I don't think it will be helpful.

B14 Code Student; I don't think technology will have any effect on social activities.

Opinions of parents of hearing-impaired primary school students on the development of social activities of hearing-impaired individuals with technology

The opinions of the parents of the hearing-impaired students who voluntarily participated in the research on the difficulties faced by the hearing-impaired students, their views on the participation of the hearing-impaired students in social activities, and the views on the effects of technology on the hearing-impaired students' participation in social activities were collected in three categories.

Table 10 presents the views of parents of hearing-impaired primary school students regarding the problems faced by hearing-impaired students.

Table 10: *Opinions of parents of hearing-impaired primary school students regarding the problems faced by hearing-impaired students*

Themes	Reasons	F	%
communication problems	Teachers' lack of training in alternative ways of communication	4	20
	The limited vocabulary of students		
	Parent's lack of verbal communication		
	Inability to understand complex sentences		
Psychological problems	Don't be introverted	10	50
	Don't be antisocial		
	Don't be lonely and unhappy		
	Anxiety		
school problems	Adaptation problem	6	30
	Academic failure		

In Table 10, the opinions of the parents of the hearing-impaired primary school students regarding the problems faced by the hearing-impaired students were evaluated. While 20% of the parents participating in the research stated that the students had communication problems, 50% stated that the students had psychological problems. 30% of the parents stated that the students had school problems.

Some of the parents' views on the problems faced by hearing-impaired primary school students are as follows;

C1 Coded Parent; Being a mother of a disabled child is very difficult, while it is so difficult for me, I feel very sad when I think about the difficulties my child has had to go through. My child does not want to go out. Sometimes I see him ostracized among the kids in the neighborhood.

C6 Coded Parent; We cry before going to school, we talk every day to go to school. He has to go to school; I want him to develop himself and socialize. On the other hand, I am sad that he is crying and unhappy.

C8 Code Parent; He has a lot of problems, but the biggest problem is that he feels alone.

C11 Coded Parent; Failure in school subjects.

C4 Code Parent; My child has the most communication problems. My son is deaf from birth, actually, it's my fault too. After learning that he is deaf, I communicated less verbally, and his doctor told me that verbal communication should be continued even if the child is disabled. I took sign language training to communicate more easily. But we still have a problem because not everyone knows sign language.

Table 11 shows the views of parents of hearing-impaired primary school students about their children's participation in social activities.

Table 11: *Participation of children of parents of hearing-impaired primary school students in social activities*

Themes	Reasons	F	%
Willingness to participate in social activities	Not wanting to feel out of harmony	5	25
	Not wanting to be excluded		
	The student's need for socialization		
	Feeling peer support		
Unwilling to participate in social activities	Extracurricular activities are not suitable for hearing-impaired students.	9	45
	Don't be introverted		
Support to participate in social activities	High participation in parent-involved activities	6	30
	The need to support shy students		

In Table 11, the opinions of parents of hearing-impaired primary school students regarding their children's participation in social activities were evaluated. While 25% of the parents participating in the research stated that their child was willing to participate in social activities, 45% stated that they were not willing to participate in social activities. 30% of parents stated that their child needs support to participate in social activities.

The views of some parents regarding the participation of hearing-impaired primary school students in social activities are as follows;

C7 Code Parent; My son is very willing to participate in social activities. We do our best to participate in social activities appropriate for his age on weekends and during the rest of his classes.

C4 Code Parent; Despite my insistence, he does not want to participate in social activities.

C18 Coded Parent; My daughter is not very keen on participating in social activities. Although I insist that he participate in social activities that his peers attend, he does not want to participate. He's already

a very introverted kid. I took him to social activities that we would attend together a few times, but I understand that he is not willing to do so.

C20 Arm Parent; My son does not demand to participate in social activities. I try to contribute to his socialization by going with him to social activities that he can enjoy. I can understand from his behavior that he is more positive after social activity.

Table 12 contains the views of parents on the effect of technology on the participation of hearing-impaired students in social activities.

Table 12: Parents' views on the effect of technology on their children's participation in social activities

Themes	Reasons	F	%
It is beneficial	Considering technology useful	14	70
	Using visual designs and videos		
It is not beneficial	Lessons are more effective with subtitled videos	4	20
	Don't think it's useless		
No idea	Technology rejection	2	10
	Lack of opinion on the subject		
	Don't be indecisive		

In Table 12, parents' views on the effect of technology on their children's participation in social activities are evaluated. 70% of the parents participating in the research stated that technology is beneficial for their children to participate in social activities, 20% stated that technology is not beneficial for their children to participate in social activities. 10% of the parents stated that they had no idea about this issue.

Some of the parents' views on the effect of technology on the participation of hearing-impaired students in social activities are as follows;

C9 Code Parent; I don't think technology can be useful. I constantly see phones in the hands of children, mothers, and fathers. I see technological tools that I don't even know the name of. Instead, it would be better if everyone took care of their child and communicated.

C10 Code Parent; It might be useful.

C11 Coded Parent; I think it's useful and I use technology in almost every part of my life. I spend quality time with my child; We watch movies with subtitles, and we even participated in many events using technology during the COVID-19 period.

C19 Code Parent; I have no idea about it.

Comparing the opinions of teachers, students, and parents about the problems faced by hearing-impaired students, their participation in social activities, and the effect of technology on their participation in social activities;

In Table 13, the views of teachers, students, and parents who voluntarily participated in the research on the problems faced by hearing-impaired students, their participation in social activities, and the effect of technology on their participation in social activities were evaluated comparatively.

Table 13: *Opinions of teachers, students, and parents on the effect of technology on participation in social activities*

Themes	Sub-themes	Teacher		Student		Parent	
		F	%	F	%	F	%
Difficulties faced by students	Communication problems	9	45	10	50	4	20
	Psychological problems	7	35	7	35	10	50
	School problems	4	20	3	15	6	30
Sum		20	100	20	100	20	100
Participation in social activities	Willingness to participate in social activities	5	25	9	45	5	25
	Unwillingness to participate in social activities	4	20	3	15	9	45
	Support for participating in social activities	11	55	8	40	6	30
Sum		20	100	20	100	20	100
The effect of technology on participation in social activities	It is beneficial	17	85	16	80	14	70
	It is not beneficial	3	15	4	20	4	20
	No idea	-	-	-	-	2	10
Sum		20	100	20	100	20	100

In Table 13, the opinions of the teachers, students, and parents participating in the research on the problems faced by the hearing-impaired students, their participation in social activities, and the effect of technology on their participation in social activities were evaluated comparatively. 45% of the teachers, 50% of the students, and 20% of the parents stated that the students had communication problems. 35% of the teachers, 35% of the students, and 50% of the parents stated that the students had psychological problems. 20% of the teachers, 15% of the students, and 30% of the parents stated that the students had school problems. 25% of teachers, 45% of students, and 25% of parents stated that students are willing to participate in social activities. 20% of the teachers, 15% of the students, and 45% of the parents stated that the students were not willing to participate in social activities. 55% of teachers, 40% of students, and 30% of parents stated that students should be supported to

participate in social activities. 85% of teachers, 80% of students, and 70% of parents stated that technology is beneficial for students to participate in social activities. 15% of teachers, 20% of students, and 20% of parents stated that technology is not beneficial for students to participate in social activities. 10% of the parents stated that they do not have an idea about whether technology is beneficial for students to participate in social activities.

4. Discussion

In our study, the majority of teachers, parents, and students stated that they had psychological and communication problems in the question asked to evaluate the difficulties faced by hearing-impaired individuals. Similar to our study, Marshall et al. (2018) conducted a study to determine the relationship between semantic fluency performance and children's vocabulary and executive function skills. Comparing the performance of deaf and hearing children on the semantic fluency task, they found that deaf children produced fewer items in the semantic fluency task than hearing children. Similar to our study, the study of Engel-Yeger and Weissman (2009), which compared the activity and self-efficacy of hearing impaired and non-hearing children, found that children with hearing impairment had significantly lower motor skills and had balance problems, but there was no significant difference between their self-efficacy scores.

In the research, when the answers to the questions we asked about the participation of hearing-impaired students in social activities were examined; The majority of the participants stated that the children were more enjoyable and socialized faster after participating in social activities. In the study conducted by Ata (2020), they found that social activities had a positive effect on students participating in sports activities in gaining social behaviors with higher socialization scores. According to the results of Berber's (2011) study, which has similar results with our study, children with hearing impairment who participate in social activities express themselves better than children who do not do sports. In addition, they stated that they have more social self-confidence, more developed leadership qualities, are more prone to meeting new people, participating in social activities, helping people, and fulfilling their duties in the social community better. In our study, when we asked about the increase in participation in social activities with support, the majority of the participants stated that participation in social activities would increase with support. Similar to our study, Bailly et al.'s (2003) study also emphasizes that variables such as education methods, parental harmony, and parental support may have a positive effect on the development of the hearing-impaired child.

In our research, most of the participants stated that technology is beneficial/will be useful to the question we asked to determine the effect of technology on the social activity and development of hearing-impaired children. Similar to our study, Von Mentzer et al. (2013) found that computer-assisted education positively affects the listening and communication skills of children with hearing impairment and normal hearing.

5. Conclusion

It is undeniable that technology benefits and makes our lives easier, as the whole world has witnessed in the recent Covid-19 pandemic process. Technology that is included in our lives step by step in every field provides advantages such as ensuring equality in education, reducing the workforce, using visually supported products in various sectors, shopping on the internet, producing new devices in the field of health, and incorporating them into our lives. To measure the effect of technology on the participation of hearing-impaired individuals in social activities, the difficulties experienced by the hearing-impaired students, their participation in social activities, and the effect of technology on participating in social activities were questioned in our study by taking the opinions of teachers, students and parents. Among the answers given regarding the difficulties faced by the students regarding communication problems, psychological problems, and school problems, the majority of the participants answered communication problems.

Among the responses given to the students' participation in social activities, responses to being willing to participate in social activities, not being willing, and being willing if supported were given. The majority of the participants stated that the students were willing to participate in social activities if they were supported. Among the answers given to the question in which the effect of technology on participating in social activities was questioned; It has benefits, it is not useful, and I have no idea, the majority of the participants stated that technology is beneficial. Using technology in education and social activities is important for the formation of a healthier society by benefiting the psychological well-being and mental development of the hearing-impaired children, who are disadvantaged groups.

6. Recommendations

Based on the results of this research, the following can be suggested in terms of better communication between hearing-impaired students with their teachers and peers; planning sign language education and ensuring the participation of all teachers and students is recommended. For hearing impaired students to communicate more effectively, planning and increasing in-service training to ensure appropriate communication for hearing impaired individuals in environments such as hospitals, pharmacies, and shopping centers is recommended.

Planning social activities supported by technology at school for the participation of hearing-impaired students and ensuring their integration and socialization by ensuring the participation of all students. Conducting the study with disadvantaged groups other than hearing-impaired individuals is also recommended.

References

- Ata İ. (2020). Investigation of the socialization levels of hearing-impaired students attending sports activities Master Thesis –Malatya. <http://hdl.handle.net/11616/18516>
- Asogwa, U. D., Ofoegbu, T. O., Ogbonna, C. S., Eskay, M., Obiyo, N. O., Nji, G. C., ... & Eze, B. C. (2020). Effect of video-guided educational intervention on school engagement of adolescent students with hearing impairment: Implications for health and physical education. *Medicine*, 99(23). [10.1097/MD.00000000000020643](https://doi.org/10.1097/MD.00000000000020643)
- Bailly, D., Dechoulydelencave, M. B., & Lauwerier, L. (2003). Hearing impairment and psychopathological disorders in children and adolescents. Review of the recent literature. *L'encephale*, 29(4 Pt 1), 329-337. <https://pubmed.ncbi.nlm.nih.gov/14615703/>
- Batten, G., Oakes, P. M., & Alexander, T. (2014). Factors associated with social interactions between deaf children and their hearing peers: A systematic literature review. *Journal of deaf studies and deaf education*, 19(3), 285-302. <https://doi.org/10.1093/deafed/ent052>
- Backman K. And Hentinen M.(2001) Factors associated with the self-care of the elderly living at home. *Scandinavian Journal of Care Sciences* 15, 195-202. <https://doi.org/10.1111/j.1365-2648.2007.04569.x>
- Berber R (2011). The effect of sports on the socialization of the hearing-impaired master's thesis Kütahya <https://acikbilim.yok.gov.tr/handle/20.500.12812/611960>
- Ching, T. Y., Cupples, L., Leigh, G., Hou, S., & Wong, A. (2021). Predicting Quality of Life and Behavior and Emotion from Functional Auditory and Pragmatic Language Abilities in 9-Year-Old Deaf and Hard-of-Hearing Children. *Journal of Clinical Medicine*, 10(22), 5357. [10.3390/jcm10225357](https://doi.org/10.3390/jcm10225357)
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications. <https://psycnet.apa.org/record/2006-13099-000>

- Ussenova, M., Zhiyenbayeva, N., Kosshygulova, A., Iskakova, L., Aigul, S., & Zhuzimkul B., (2022). Developing the social activities of primary school students with hearing impairment using technologies. *Cypriot Journal of Educational Science*, 17(1), 174-192. <https://doi.org/10.18844/cjes.v17i1.6700>
- Engel-Yeger, B., & Weissman, D. (2009). A comparison of motor abilities and perceived self-efficacy between children with hearing impairments and normal-hearing children. *Disability and Rehabilitation*, 31(5), 352-358. [10.1080/09638280801896548](https://doi.org/10.1080/09638280801896548)
- Gstoettner, W., Hamzavi, J., & Czerny, C. (1997). Rehabilitation of deaf persons with cochlear implants; Rehabilitation Hoergeschaedigter mit Cochlearimplantaten. *Radiologe*, 37. [10.1007/s00170050312](https://doi.org/10.1007/s00170050312)
- Hartman, E., Houwen, S., & Visscher, C. (2011). Motor skill performance and sports participation in deaf elementary school children. *Adapted Physical Activity Quarterly*, 28(2), 132-145. [10.1123/apaq.28.2.132](https://doi.org/10.1123/apaq.28.2.132)
- Johnson, J. C., Marshall, C. R., Weil, R. S., Bamio, D. E., Hardy, C. J., & Warren, J. D. (2021). Hearing and dementia: from ears to brain. <https://doi.org/10.1093/brain/awaa429>
- Marshall, C. R., Jones, A., Fastelli, A., Atkinson, J., Botting, N., & Morgan, G. (2018). Semantic fluency in deaf children who use spoken and signed language in comparison with hearing peers. *International journal of language & communication disorders*, 53(1), 157-170. <https://doi.org/10.1111/1460-6984.12333>
- Meinzen-Derr, J., Sheldon, R. M., Henry, S., Grether, S. M., Smith, L. E., Mays, L., ... & Wiley, S. (2019). Enhancing language in children who are deaf/hard-of-hearing using augmentative and alternative communication technology strategies. *International journal of pediatric otorhinolaryngology*, 125, 23-31. [10.1016/j.ijporl.2019.06.015](https://doi.org/10.1016/j.ijporl.2019.06.015)
- Mitchell, T. V., & Quittner, A. L. (1996). Multimethod study of attention and behavior problems in hearing-impaired children. *Journal of Clinical Child Psychology*, 25(1), 83-96. https://doi.org/10.1207/s15374424jccp2501_10
- Nikolarazi, M., Vekiri, I., & Easterbrooks, S. R. (2013). Investigating deaf students' use of visual multimedia resources in reading comprehension. *American annals of the deaf*, 157(5), 458-474. [10.1353/aad.2013.0007](https://doi.org/10.1353/aad.2013.0007)
- Overgaard, K. R., Oerbeck, B., Wagner, K., Friis, S., Øhre, B., & Zeiner, P. (2021). Youth with hearing loss: Emotional and behavioral problems and quality of life. *International Journal of Pediatric Otorhinolaryngology*, 145, 110718. [10.1016/j.ijporl.2021.110718](https://doi.org/10.1016/j.ijporl.2021.110718)
- Stinson, M. S., Whitmire, K., & Kluwin, T. N. (1996). Self-perceptions of social relationships in hearing-impaired adolescents. *Journal of Educational Psychology*, 88(1), 132-143. <https://doi.org/10.1037/0022-0663.88.1.132>
- Van der Straaten, T. F., Rieffe, C., Soede, W., Netten, A. P., Dirks, E., Oudesluys-Murphy, A. M., ... & DECIBEL Collaborative study group. (2020). Quality of life of children with hearing loss in special and mainstream education: A longitudinal study. *International journal of pediatric otorhinolaryngology*, 128, 109701. [10.1016/j.ijporl.2019.109701](https://doi.org/10.1016/j.ijporl.2019.109701)
- Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences*, 15(3), 398-405. <https://doi.org/10.1111/nhs.12048>
- Von Mentzer, C. N., Lyxell, B., Sahlén, B., Wass, M., Lindgren, M., Ors, M., ... & Uhlén, I. (2013). Computer-assisted training of phoneme-grapheme correspondence for children who are deaf and hard of hearing: Effects on phonological processing skills. *International Journal of Pediatric Otorhinolaryngology*, 77(12), 2049-2057. <https://www.sciencedirect.com/science/article/pii/S0165587613004928>
- Wauters, L. N., & Knoors, H. (2008). Social integration of deaf children in inclusive settings. *Journal of deaf studies and deaf education*, 13(1), 21-36. <https://doi.org/10.1093/deafed/enm028>
- WHO (2011) World Report on Disability 8-15. <https://www.who.int/teams/noncommunicable-diseases/sensory-functions-disability-and-rehabilitation/world-report-on-disability>
- Wolters, N., Knoors, H. E., Cillessen, A. H., & Verhoeven, L. (2011). Predicting acceptance and popularity in early adolescence as a function of hearing status, gender, and educational setting. *Research in developmental disabilities*, 32(6), 2553-2565. <https://doi.org/10.1016/j.ridd.2011.07.003>
- Yoon, J., & Choi, H. (2010). "The effects of captions on deaf students' contents comprehension, cognitive load and motivation in online learning", *Technology and Deaf Education Symposium: Exploring Instructional*

and Access Technologies, held at the National Technical Institute for the Deaf, Rochester Institute of Technology, Rochester, NY, June 21-23. <https://dcmp.org/learn/static-assets/nadh274.pdf>

Annex-1

Teacher semi-structured interview form

You are invited to our study to present the views of teachers, students, and parents to develop the social activities of hearing-impaired students by supporting them with technology. Participation in the research is completely voluntary and your refusal to participate will not result in any penalty. It is important for the reliability of the research that you answer the following questions sincerely. Thank you for your participation.

Teacher;	
Gender:	
Professional experience:	
1. What are the difficulties experienced by students with hearing impairment?	
2. Are the hearing-impaired students willing to participate in social activities?	
3. Do you think that technology affects the participation of hearing-impaired students in social activities?	

Annex-2

Student semi-structured interview form

You are invited to our study to present the views of teachers, students, and parents to develop the social activities of hearing-impaired students by supporting them with technology. Participation in the research is completely voluntary and your refusal to participate will not result in any penalty. It is important for the reliability of the research that you answer the following questions sincerely. Thank you for your participation.

Students	
Gender:	
Class:	
1. What are the difficulties you experience due to hearing impairment?	
2. What are your thoughts on participating in social activities? Do you want to participate in social activities?	
3. Do you think technology affects your participation in social activities?	

Annex-3

Parent semi-structured interview form

You are invited to our study to present the views of teachers, students, and parents to develop the social activities of hearing-impaired students by supporting them with technology. Participation in the research is completely voluntary and your refusal to participate will not result in any penalty. It is important for the reliability of the research that you answer the following questions sincerely. Thank you for your participation.

Parents	
Relationship:	
Age:	
1. What are the difficulties your child is experiencing?	
2. Does your child want to participate in social activities?	
3. Do you think technology affects your child's participation in social activities?	