

Parents' Perceptions of the Importance of Sibling Participation in Intervention-Based Activities for Children with Hearing Disabilities

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Abstract

This research assessed the perception of parents about siblings' participation in intervention-based activities for individuals with hearing disabilities. It sought to understand what specific intervention-based activities facilitate the development of communication skills from the parents' perception. The study employed a qualitative methodology, utilizing a case study that combined semi-structured interviews and document analysis. Six parents of hearing children and hearing disabilities from Saudi Arabia were chosen using non-probability sampling. The findings regarding the aforementioned question suggested that parents realized the importance of interaction between their hearing children and those with hearing disabilities. They underscored that such interactions play an imperative role in the growth of communication skills. Regarding the question of what intervention-based activities these children can participate in, the findings suggested that daily activities, basic activities for learning, and skills-based activities helped children with hearing disabilities develop communication skills. The researchers recommended conducting further research to substantiate these results.

Keywords: intervention-based activities, siblings' participation, communication skills, hearing disabilities

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Introduction

The role of siblings is imperative in the lives of individuals with disabilities. Their presence gives their sibling with disabilities with an ever-present opportunity for social interaction. The continuum of their presence provides consistency and helps individuals with disabilities develop social and communication skills (Braconnier et al., 2017; Kryzak et al., 2014; Niedbalskim, 2024). The roles of these siblings evolves over time, especially as these individuals obtain greater maturity and understand the importance of their role (Niedbalskim, 2024). Siblings of individuals with disabilities often have positive relationships with their siblings, and they often enjoy the feeling of responsibility, being needed and the sense of belonging to their family. However, there can also be negative ramifications to having a sibling with disabilities, including frustration with all the attention their sibling needs, leading to jealousy and strife (Ammar, 2020).

The study by Kale and Sigirtmaç (2021) in Turkey showed that older sisters participate in caregiving practices for their siblings with disabilities, regardless of gender. They also have roles and responsibilities, including nutrition, hygiene, safety, monitoring, companion play, and helping with treatments for their siblings with disabilities. Siblings are an essential component affecting the child with disabilities as they help their siblings learn the social skills of giving and receiving, cooperation and participation, and fulfilling the covenant between them. Not only that, but persons with disabilities may help their siblings learn some good qualities, as well (Kresak et al., 2009).

Olson (2022) found interactions between younger siblings are less frequent and complex when playing than interactions between children and adults. Also, older siblings interact with more warmth when the age gap is larger. Furthermore, the findings of a study by Ben-Itzhak et al. (2016) revealed that sibling relationships enhance the development of social skills. For children with autism spectrum disorder, the experience of having an older sibling increases the child's ability to be involved in social experiences, interact with children, and gain communication skills. Siblings can also be involved in intervention-based activities that pay attention to the child's interests in education. This is done by developing learnable goals within planned daily activities in intervention-based activities. It provides the child with disabilities with the opportunity to develop skills within daily activities in the educational process without the need for other external activities (Özen & Ergenekon, 2011).

One method that can be implemented when siblings are interacting is the activity-based intervention (ABI) method. This method encourages spontaneity, as well as daily activities, which help children with disabilities achieve their goals and develop necessary skills through interaction with family members (Ministry of Education, 2017). Research by Glugatch and Machailcek (2021) indicated that a play-activity-based intervention done with the participation of siblings was useful for their siblings with disabilities, as increasing positive play between siblings was important, especially during a pandemic (COVID-19).

The category of children with hearing disabilities is one of the most important categories to which early intervention services are provided. These interventions provide warranted investment during the early childhood stage to best facilitate children's abilities (Al-Rashidi & Turkestani, 2018). One of the difficulties children with hearing disabilities face is their challenge with expressing themselves, as they often are not able to communicate verbally and have communication barriers (Mohamed & Al-Dardiri, 2016). The main goal of early intervention in hearing disability is to develop their language and communication skills. The focus is often on the ability of the child to achieve linguistic development that matches his cognitive abilities (Al-Zuraiqat, 2016).

Research has suggested it is most effective to incorporate children's specific interests into their daily learning activities (Dunst et al., 2016; Özen & Ergenekon, 2011). The findings of the study by Özen and Ergenekon (2011) indicated intervention-based activities are suitable for teaching children academic and non-academic skills in all different environments and that the skills learned through (ABI) are often generalized by the child with disabilities in all environments. Dunst et al. (2016) substantiated this finding and found children learned language well when their interests were considered and included on a daily basis.

The findings of the study by Kresak et al. (2009) revealed that goals related to siblings were often not listed in the individual family service plan. Parents also mentioned that siblings needed more information about their sibling's disability. In addition, the findings asserted parents believed that educating siblings about disabilities is important, as it would help them understand their sibling's disability. Training is also important, and in a study done during the COVID-19 pandemic, Mumpuniarti et al. (2021) found parental training for the development of social skills for children with intellectual disabilities can be effectively done through interactions during activities. The matter does not stop here only, as the study by Glugatch and Machailcek (2021) showed that play and activity based interventions, which were done with the participation of siblings, were useful for their siblings with autism spectrum disorder. Increasing positive play between siblings was found to be important, especially during the COVID-19 pandemic. Mcleod et al. (2017) also found a relationship between at-risk preschool children's vocabulary development and play-based activities.

Purpose of the Study

Previous research, such as that by Ammar (2020) and Kresak et al. (2009), expressed the need for research assessing the role of siblings of individuals with disabilities. The recommendation was made, because most prior research examined the relationship between individuals with disabilities and their parents, or families in general, rather than their siblings. Kresak et al. (2009) stated the need to involve siblings in the individual family plan, as well. Accordingly, the purpose of the current research is to investigate parents' perceptions of the importance of sibling participation in intervention-based activities for children with hearing disabilities.

Research Questions

What are parents' perceptions of the importance of sibling participation in intervention-based activities for children with disabilities to help with the development of communication skills?

What intervention-based activities do hearing children participate in with their siblings with hearing disabilities to develop their communication skills from the parents' perception?

Methodology

The purpose of the current research is to investigate parents' perceptions of the participation of children with their siblings with hearing disabilities in intervention-based activities. Therefore, the qualitative approach was adopted in this study. The current research used a case study approach as one of the methods of qualitative research through which it explores parents' perceptions of the participation of children with their siblings with hearing disabilities by collecting detailed and in-depth data from many sources. The main objective behind adopting the case study approach in the current research is the ability of this approach to deeply understand participation between siblings within intervention-based activities. The case study approach is also more appropriate for the current research sample, because it is based on understanding and ideal for studying smaller communities (Creswell & Poth, 2018).

Participants

The research community was limited to parents of children with hearing disabilities enrolled in integration kindergartens in three cities, Medina and Yanbu, as well as Makkah city, located within the western

regions of the Kingdom of Saudi Arabia. The research sample was chosen, which consisted of (6) parents who have children with hearing disabilities, as well as other hearing children. They were chosen according to the non-probability sampling linked to a criterion, which requires the presence of certain criteria. Two basic criteria were determined for participation in the research: A- The participant shall be a father or a mother responsible for caring for a child with a hearing disability. B- The participant shall have hearing children. The participants were (6) parents of children with hearing disabilities whose ages ranged between (4-8) years old, while the ages of their hearing siblings ranged between (4-21) years old.

Study Procedures

Two tools were used to collect data, the interview and document analysis. Using more than one tool within the research provides greater validity and reliability for the data presented in the research when using the qualitative approach (Creswell & Poth, 2018). Using two tools within the research achieves the concept of pluralism, which is a criterion of quality in qualitative research.

The Interview

Semi-structured interviews were used as a tool to collect data to answer the research questions (Al-Abdulkarim, 2020). The development of the tool by the researchers went through a series of stages: (a) The first stage included preparing initial questions for the research that dealt with an introduction containing information about the researchers, the title of the research, and the objective and purpose of this research. The introduction also dealt with the expected time for the interview to end, which is 30-40 minutes long. The participants were also reminded that the interview will be recorded, while keeping their information secret. (B) A sample question form the interview was initially prepared. It contained basic questions centered around the basic research questions, as well as follow-up questions linked to the basic research questions that allow researchers to obtain further information about the phenomenon being investigated to understand it and delve deeper into it. The questions were then improved and revised before and during the experimental study by faculty staff in the Department of Special Education at universities in the Kingdom of Saudi Arabia to benefit from their experiences. (C) Finally, Pilot Interviews were conducted with three participants outside the sample. They are three parents who have children with hearing disabilities between the ages of 6-7 years and who have hearing siblings. As shown in Table 1.

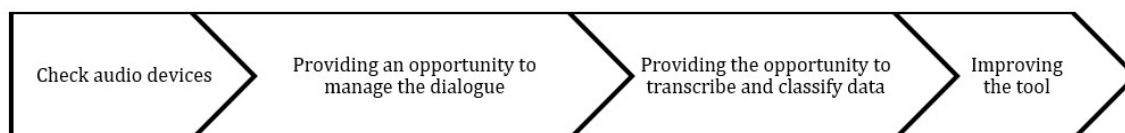
Table 1
Pilot Sample

Data from participants in pilot interviews					
Participation Number	Nick Name	Center Code	Severity of Disability	Nomination Method	
1	(H.N)	1	Moderate	Standard sampling	non-probability
2	(A.B)	2	Moderate	Standard sampling	non-probability
3	(N.Y)	3	Severe	Standard sampling	non-probability

This step aimed to improve the research tool by reformulating the questions as a result of confusion occurring when only the term (siblings) was used when asking questions. Therefore, it was necessary to clarify who the targeted siblings were within the researcher, instead the term (hearing siblings) was used. It helped to ensure the process of asking questions and transcribing data led to answering the objection of the research. The pilot sample also contributed to improving the researcher's knowledge of ways to manage dialogue and return participants to the question, as well as determining the appropriate time for the interview. In addition, this experiment contributed to verifying that the audio recording devices (voice notes on the iPhone) achieved their desired goal; The recorded data was clear and easy to save and send to other devices.

Figure 1

An Illustration of the Most Prominent Findings of Conducting the Pilot Interviews



Finally, the interview guide was confirmed in its latest version, and the questions that led to similar answers remained to collect and recall data, as much as possible. In addition, a form was prepared for consent to participate in the research, before officially starting to conduct the study. Important facilitation has also been obtained in the centers where the sample was available to participate in the current research.

Document Analysis (Notes, Drawings)

After that, researchers moved on to collecting documents. Document analysis is a process based on examining and studying materials related to the phenomenon being studied. Through that, a set of information related to that phenomenon can be produced. These resources are usually in the form of written texts and may also be in the form of pictures or artistic drawings (Al-Abdulkarim, 2020). Six documents were analyzed. The researchers contacted the parents to obtain a set of drawings by their children so they can be analyzed according to the standards of graphics analysis. The researchers also communicated with the speech-language pathologists and the social counselor to obtain a set of documents. All the documents consisted of a case study, the individual educational plan objectives, and drawings. Table 2 shows the document of each participating child.

Table 2
Review of Documents

Center Number	Child Number	Nick Name	Documents Used
1	1	F.M	Individual educational plan document (IEP)
1	2	B.W	Drawings
2	3	R.S	Individual educational plan document(IEP)
2	4	D.W	Case Study
2	5	SH.T	Individual educational plan document(IEP)
3	6	L.N	Drawings

When starting to conduct interviews, the purpose of conducting that interview was mentioned and the rights of the participants were presented to create an atmosphere of comfort in the hearts of the participants for dialogue and discussion. Parents were officially contacted via telephone. During all interviews, participants were reminded of the ethical considerations afforded to them, such as preserving their identity. Consent was also taken before recording the interview and mentioning the basic purpose behind conducting the research. Ambiguous points were also clarified for all participants before the interview was conducted. Finally, questions were asked to the participants. All interviews ranged from 45 minutes to one hour. Researchers continued to conduct interviews until they reached the stage of saturation and repetition of data. Saturation refers to the stage in which the researcher stops conducting further interviews because they have reached a stage where no new information or data can be obtained. Repetition of information is evidence that the researchers obtained the same results. Therefore, the researchers should stop and be satisfied with the results that the researchers obtained previously (Braun & Clarke, 2019).

Data Analysis

Data analysis is a way aiming to process and organize data and examine that data in such a way enabling the researchers to distinguish patterns and focal subjects. It also helps to identify the relationships and links between that data, and then interpret, criticize, clarify, or create a theory through it (Al-Abdulkarim, 2020). Braun and Clarke (2006) used the thematic analysis method to analyze data. It is one of the qualitative data analysis methods through which information is organized and classified according to specific subjects and categories. Then the researchers interpret that data to answer the questions of the research. During the above, the research passed through six stages: First: The collected interviews were transcribed into Word documents for each participant. That data was then read and reviewed several times to reach the stage of familiarity with the data. After that, the data was coded, through which the participants' sayings were coded with a sentence that summarized common content among the participants. The data also began to form into core subjects as a result of the data that had been previously coded. These subjects and their codes were also reviewed to verify the accuracy of that connection. After verifying the validity of that data, the naming stage began. All related subjects were given a name. After completing all these steps, the researchers prepared the final report.

Ethical Considerations

The research is based on a set of ethical considerations stipulated in the laws and legislation for preparing qualitative scientific research and all stages of the study relied upon Creswell and Poth's list of ethics. Therefore, the two researchers adopted a set of ethical considerations. The ethical considerations of the research preserved the identity of all participants in the research. The researchers confirmed the objective of the research is absolute knowledge. The participants were informed their personal data would not be disclosed or published. The names of the participants were coded to keep their data secret during publication. Parents were also assured that all recordings would be destroyed two years after the research was published and that there were no legal consequences that might befall the participants when conducting the interview.

Quality Criteria in Qualitative Research

Qualitative research has multiple criteria through which the validity and reliability of the research are measured. Creswell and Miller (2000) suggested nine strategies to ensure the validity of qualitative research including pluralism, rich and intensive description, and participant and peer review. These strategies were thoughtfully implemented because of their ability to substantiate the research objective. Pluralism, or triangulation, and the focus on ensuring multiple data collection sources were utilized was one of the most imperative validity strategies (Creswell & Poth, 2018). Accordingly, this strategy was applied in two ways. A) Method of collecting data: The researchers used two tools to collect data in the current research, semi-structured interviews and analysis of documents, that the researcher depended on, as in Table 3. B) Multiple locations for the sample: Despite the difficulty of finding the sample, a sufficient number of people were reached in three cities within the Kingdom of Saudi Arabia. Pluralism helps to obtain the best results suitable for the Saudi environment.

Table 3
Research Participants

Center Number	Child Number	Nick Name	Child's Age	Sibling's Age	Hearing Loss	Medical Interventions	Nomination Way	Documents
1	1	F.M	8	21	Moderate	Hearing aids	Standard non-probability sampling	Individual educational plan objectives document
1	2	B.W	7	4	Severe	-	Standard non-probability sampling	Drawings
2	3	R.S	6	5	Severe	Cochlear implant	Standard non-probability sampling	Individual educational plan objectives document
2	4	D.W	6	4	Moderate	Cochlear implant	Standard non-probability sampling	Case Study
2	5	SH.T	4	6	Severe	Cochlear implant	Standard non-probability sampling	Individual educational plan objectives document
3	6	L.N	7	4	Severe	Hearing aids	Standard non-probability sampling	Drawings

The detailed and intensive description strategy was utilized in the current research. It means that the researchers mentioned a group of details about the case or subject. The description is not rich unless it provides a group of diverse and detailed information. Those details may appear in the form of a physical description or a specific activity. It includes a group of activities that move between them from general to specific (Creswell &

Poth, 2018). This strategy was applied by describing the research stages and methods for choosing the sample to participate in the research and clarifying some information related to the participants that is related to the research. In addition, the interview guide and interview content were described.

The Member Checks Strategy is also one of the most important strategies for validity in qualitative research. Through that, the opinions of participants are known and feedback is provided about the elements of the research (Creswell & Poth, 2018). The researchers sent the participants' answers after transcribing them into copies of a Word file to all participants via the communication method Whats App. It contained their answers related to the interview questions. This was to verify the accuracy of this information.

Findings

The findings showed that there are two main subjects that answered the first research question. They were the effective participation of siblings and communication skills. The answer to the second question included three main subjects: daily activities, basic learning activities and activities based on skills development.

Active Participation of Siblings

Active participation of siblings with hearing impairment is important. Siblings practice many activities with each other through which many skills can be developed or gained by their siblings with hearing disabilities. Perhaps the most important of these skills is developing communication among people with hearing disabilities, which can be developed through modeling, such as imitating siblings and observing the articulation of letters or the way their lips move, as well as noticing descriptive signs when their siblings communicate with others. One other confirmed the importance of sibling interaction (2) by stating, "Whenever she wants something from her sister, she speaks to her with signs, meaning playtime while they play." F.M (1): "She loves to imitate her sisters a lot, and does things that her sisters do." Meanwhile, R.S's mother (3) said, "In terms of playing, I often feel that she is participating with her brothers. I feel that her skills have developed. I feel, for example, that she imitates their speech pronunciation."

While SH.T (5) said: "Through her sisters, she is encouraged to do things." L.N (6) stated, "I feel that her sister affected her communication. There were signs between her and her sister." All participants showed that effective participation based on modeling between siblings has a role in developing communication. The age factor between siblings is also one of the factors that helped enhance or originate participation between siblings. The age difference played a major role in determining participation or the types of activities in which siblings participate. The findings of the research coincidentally revealed parents' perceptions confirmed the role of younger siblings in stimulating the process of developing communication among their siblings with hearing disabilities. While some parents illustrated that older siblings served as a guidance factor for their siblings with hearing disabilities; The perceptions of some parents were that the participation of older siblings was much less than what younger siblings showed to their siblings with hearing disabilities during routine activities. R.S's mother (3) stated, "I mean, frankly, her little sister is the one who shares a lot with her more than her older brothers." SH.T's mother, (5), also said, "My eldest daughter, like their second mother, sits and teaches them useful things." As R.S's mother (3) explained, "But her big brothers or her big brother do that." Parents confirmed that the roles provided by older siblings differ from those provided by younger siblings.

While younger siblings showed more recreational involvement in activities than older siblings, older siblings tended to guide and care for their siblings with hearing disabilities in intervention-based activities. This finding was consistent with the findings of the study by Kale and Siğirtmaç (2020), which showed that older siblings participated in caregiving practices for their siblings with disabilities, regardless of gender. That is represented in roles and responsibilities such as nutrition, hygiene, safety and monitoring. The findings of effective participation have shown that the interactions that occurred between siblings within the activities have helped to develop the communication skills of siblings with hearing disabilities. Parents indicated that the participation during which interactions between siblings and their siblings with hearing disabilities increased was a result of their preferred activities. Younger siblings provided greater interactions while participating in play-based activities than did older siblings, while the older siblings tended to take on more of a caregiving role. Olson (2022) also found older siblings tended to display more warmth toward their sibling, particularly when the age gap was larger. Conversely, Olson (2022) found interactions during play between younger siblings were less frequent, less complex and less qualitative than interactions between adults and children.

Communication Development

The communication process is one of the most important skills that allows individuals to share their opinions and express their thoughts and feelings, as well as their likes and dislikes. People with hearing disabilities face clear weaknesses in communication skills, which may sometimes lead to the individual with hearing disabilities becoming isolated from society. Environment and one's upbringing influences the development of communication skills and contributes to the child's personality, as well. Perhaps the most

important of these influential factors is the role of siblings in enhancing and raising the level of motivation among their siblings with hearing disabilities. D.W's mother (4) said, "This means that the level of participation between them is very high. This thing made her able to speak, communicate and learn about many things." While B.W's mother (2) said, "The more they are with each other, the more their communication and second skills increase." In the same context, R.S's mother (3) confirmed, "I noticed my daughter R.S sitting with her brothers, pronouncing words. The longer she spent with her brothers, the more her language developed. She began to produce six-word sentences." SH.T's mother agreed, stating, (5) "It has a great effect that her sisters are with her and that they communicate constantly. They become family events while she lives them." F.M (1) stated, "I felt that F.M's lip language was strong. She understood them as they spoke." All the perceptions presented by parents agreed that participation between hearing siblings and their siblings with hearing disabilities has a role in the growth and development of communication skills.

The findings indicated there are positive perceptions by parents about the participation of siblings in promoting communication among their siblings with hearing disabilities through intervention-based activities. The hearing siblings communicated with their siblings with hearing disabilities, thus enhancing their siblings' communication process. The listening siblings also pushed their siblings to speak. Some siblings enhanced non-verbal communication by developing signals among themselves within the intervention-based activities. The findings presented by the parents showed that siblings have a role in the development of verbal and non-verbal communication methods among their siblings with hearing disabilities. Children with cochlear implants were able to develop their expressive language. Children with severe hearing loss were able to communicate with their siblings through signs and gestures practiced within intervention-based activities. These findings were consistent with the findings of the study by Ben-Itzhak et al. (2016) which showed that there were sibling relationships enhanced the development of social skills. Having a sibling with autism spectrum disorder increased the child's ability to engage in social experiences, interact with children and acquire communication skills.

Based on the document analysis, the plan of monthly goals for pronunciation and speech for one of the participants showed that the child had achieved the goal of forming a sentence of four words. The monthly goals plan for pronunciation and speech also showed that another participant was able to express themselves through a set of signs in certain situations. This indicates the participants' ability to communicate through a range of situations. After completing the review of the main and sub-subjects of the first question, and addressing the results of those subjects, we moved to the second question of the current research to reveal what intervention-based activities hearing children participate in with their siblings with hearing disabilities to develop their communication skills from the parents' perception.

Daily Activities

The answer to this question illustrated that playtime and mealtime activities were the most common activities in which siblings participated. D.F's mother (4) said, "I feel playtime, especially imaginative games and motor games, is their favorite." While R.S's mother (3) confirmed, "Playtime, interactive play, and electronic applications." Similarly, the opinion of the others was supported by SH.T's mother (5), "The time she loves most is playing time and drawing time." B.W's mother (2) also stated, "The most favorite time for her two daughters is playtime" B.W's mother (2) confirmed, "At playtime, I sometimes make them draw drawings on YouTube of simple things in slow motion." The above was also confirmed by L.N's mother (6), "Playtime and drawing are what they love most, handmade things and clay."

The subject of daily activities showed that the most communicative activity between siblings was mealtime as well. F.M's mother (1) stated, "Mealtime: who picks up the spoons, who picks up the plates and the table." B.F's mother (2) did not differ much, "I feel that the thing they interact with most is when they eat and when they play." On the other hand, R.S's mother (3) stated, "When they eat, they talk to each other. She said once she wanted something like that and her sister said she wanted something like her." SH.T's mother (5) agreed, "Mealtime is the time when we sit, chat and discuss whether it is hot, cold or delicious."

The documents of the child F.M (1) indicated she mastered the goal of pronouncing things prevalent in the environment within the implicit group. The documents of R.S (3) also showed that she mastered the goals of understanding interrogative forms and providing answers to them, as well as understanding singular, dual and plural. This various data forms substantiated the findings.

There were positive perceptions between intervention-based activities and an increase in the level of learning. The intervention-based activities had an effect on language acquisition, educational goals and knowledge of tools. The findings of the research also suggested there are perceptions related to increasing linguistic knowledge and the participation of hearing siblings and their siblings with hearing disabilities in basic learning activities. Parents indicated there was an increase in the ability of their children with hearing disabilities to acquire linguistic vocabulary within activities. The findings were consistent with the findings of the study by Dunst et al. (2016) which suggested incorporating the interests of children with developmental delays into children's daily language learning activities was an effective intervention strategy for language teaching. The

research findings for the second subcategory related to educational objectives showed positive perceptions regarding parents' inclusion of educational objectives during intervention-based (2011). The results of using (ABI) in education departments showed an increase in learning the target skill within the framework of daily activities without the need for any additional activity, as well as an increase in the level of success in educational settings.

Basic Activities for Learning

The findings suggested daily activities help transfer skills, experiences and knowledge from siblings to their siblings with hearing disabilities in an enjoyable way for the siblings. Daily activities with siblings also contributes to language acquisition and introduces the child to the tools available within these activities. R.S's mother (3) realized this role, "I mean, I had some required goals to teach my daughter at home, such as what is in the kitchen?" SH.T's mother (5) stated, "At mealtime, we send her to get bread or milk." The documents of the child, SH.T (5) showed, "The child understood body parts, drinks and foods correctly."

The findings also indicated there were positive perceptions related to intervention-based educational activities. Parents suggested the activities contributed to familiarizing children with the tools and their names within each daily activity. The findings of the study were consistent with the findings of the study by Mcleod et al. (2017) which indicated there is a relationship between language vocabulary learning for at-risk preschool children and play-based activities. Based on the document analysis of the speech and communication goals plan, the child mastered the body parts in the implicit set that were generalized in the activities based on the playtime intervention. The documents also showed that the child did not achieve the goals that were not circulated.

Skills-Based Activities

This suggests daily, unintentionally occurring activities enhanced developmental skills, such as social, communication and pre-academic skills. The research focused on the extent of the development of communication skills among people with hearing disabilities. But coincidence led to the emergence of results showing the development of many skills in addition to communication skills. B.W's mother (2) said and explained, "It affected communication skills, descriptive signs and sign language. They give signs to things in the bathroom." The parents of both D.F (4), and F.M (1) agreed with this, as they both indicated their children with hearing disabilities developed verbal and non-verbal language during mealtime.

The social skills of the participants also increased during the intervention-based activities. D.W's mother (4) confirmed, "I found that her social skills developed. She started asking about her uncles and uncles." While F.M's mother (1) stated, "Playing the violin increased her social personality." As D.W's mother (4) said again, "The activities help her come and go. Through them, she acquired skills that became her linguistic skills. She became confident in herself." While SH.T's mother (5) confirmed, "Her personality has become better than before. Her social skills are better than before." This was supported by R.S's mother (3), "I feel that her social skills have developed. As she is confident of herself."

The documents of B.W (2) showed that the drawings she and her sister drew indicated that the two girls had good social skills among themselves. She drew a rainbow in a way that connected the two banks. She and her sister also drew two ducks close together. That shows the connection of feelings between her and her sister. Graphic analysis also indicated that child B.W (2) has limited relationships.

The documents of L.N (6) showed that the drawings she drew indicated the child's ability to engage with society. She drew two cars traveling on the same road in the same direction. That shows that there are social relationships, but it is limited. L.N and her sister also drew two clouds and two windows for the house. That indicated the closeness of the two sisters to each other. These drawings also show that the two girls are able to communicate with the surrounding society.

These activities also facilitated the development of pre-academic skills, such as the ability to hold a pen, for children with hearing disabilities. The parents of participants D.W (4) and F.M (1) agreed on the ability of their children with hearing disabilities to distinguish and name colors and to handle a pen correctly. The ability to classify and match also developed. SH.T's mother (5) stated, "Distinguish colors, for example, red with red." R.S's mother (3) said, "The cubes have shapes and colors and they arrange shapes. Come on, put them here, not in their place." Some of the participants also noticed that their children with hearing disabilities have grown and developed their attention and perception skills through playtime activity. B.W's mother (2) noted, "I felt their attention skills developed through playing with cubes, and I also felt their cognitive skills." F.M's mother (1) also said: "I felt that her attention, concentration and awareness increased." The documents of child D.W (4) showed that the child is able to name and recognize animals.

The findings suggested communication and social skills between siblings and their siblings with hearing disabilities increased during the intervention-based activities. A set of skills developed, such as pre-academic skills and perceptual-cognitive skills. Parent participants indicated that intervention-based activities had a positive effect on the development of skills for their children with hearing disabilities. During playtime and

mealtime, communication skills developed, including these children's ability to express themselves verbally or through signs. Confidence increased among children with hearing disabilities. Relationships between siblings and their siblings with hearing disabilities also increased during intervention-based activities. Perceptual-cognitive skills developed, such as attention, perception and focus during activities. The pre-academic skills of children with hearing disabilities also increased in early childhood such as the ability to hold a pen correctly, the ability to classify shapes according to colors and distinguish those colors. These findings agreed with the findings of the study by Dunst et al. (2013) which showed a relationship between daily activities and the development of language and communication through a review of specialized literature.

Based on the document analysis, the documents (drawings) based on the science of graphic analysis indicated the children whose drawings were analyzed had fewer social relationships, with children with hearing disabilities fearing the loss of those relationships and being unable to form new social relationships.

Discussion

The findings of the current research proved that the effective participation of siblings takes many forms. Modeling is one of the most important of these participations. Parents confirmed its importance. Parents showed that imitating their hearing siblings led to the development of communication skills and verbal and non-verbal language. This substantiated the findings by Kurnia et al. (2019) which indicated deaf people are able to learn more effectively by imitating what they see, compared to other traditional teaching methods.

Recommendations

The research provides a set of recommendations for families of children with hearing disabilities and providers of early intervention services, such as recommending the involvement of siblings of children with hearing disabilities in the individual educational plan as a model that helps develop communication skills. The research also recommends that parents, speech-language pathologists and special education teachers include intervention-based activities within the educational goals to be generalized, especially during playtime or preparing food with hearing siblings and siblings with hearing disabilities. This research focused on the development of social or communication skills among children with hearing disabilities. The research findings suggest it may be beneficial for parents to include special roles for older siblings to reduce the burden assigned to them. The researchers also recommend special education teachers and sign language teachers provide communication methods and training through a group of participants such as acting, role-playing or arts.

Future Research Proposals

The research was limited to investigating parents' perceptions of siblings' participation in intervention-based activities in developing communication skills. Through that deep stage of investigation and research into these variables. The research gave many proposals that help to study the variables in a deeper way through which the connections between these variables appear. As a result of the lack of studies conducted on these variables, the research provides suggestions to interested researchers, as follows: (a) The effectiveness of a training program based on increasing the participation of siblings in intervention-based activities to develop the communication skills of their siblings with hearing disabilities. (b) The effect of unplanned activities on pre-school skills from the perspective of parents of children with hearing disabilities. (c) The relationship between intervention-based activities and siblings' participation in developing social skills among their siblings with hearing disabilities. (h) The effectiveness of a program based on the participation of siblings of children with hearing impairment in intervention-based activities.

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