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METAPHORIC PERCEPTIONS OF FAMILIES WITH CHILDREN WITH VISUAL IMPAIRMENT REGARDING ASSISTIVE TECHNOLOGIES

Abstract: This research aims to ascertain the metaphorical perceptions of families with children with visual impairment regarding assistive technologies. The phenomenological pattern, a qualitative research approach, was utilized in this research. Fifty-four families with children with visual impairment participated in this research. The research employed a data collection tool comprising two sections. The first part captured the demographic information of the families, while the second part featured an open-ended questionnaire containing the prompt, *"Assistive technologies are like/similar to... because..."* The research data underwent content analysis. Ultimately, the researcher identified 47 distinct metaphors that families with children with visual impairment associated with assistive technologies. Overall, metaphors such as *"eye," "family," "friend," "book," "light," "school," "compass,"* and *"star"* were prominent. Furthermore, the researcher categorized the metaphors devised by the families with children with visual impairment into six distinct themes: *"support," "guidance," "education," "facilitating life," "entertainment,"* and *"independence."*

Keywords: Children with visual impairment, assistive technologies, family, metaphor, special education.

Introduction

Today, the expectations of individuals in life are increasing and diversifying over time. Studies and developments in the field of technology serve to meet the expectations of individuals. This situation indicates a mutual interaction between technology and individuals (Karacam & Aydin, 2014). This interaction is manifested in all areas where individuals exist. One of these fields is education.

The quality and permanence of education can be increased by using developing technologies in educational environments and planning the use of technology in teaching principles and methods. Educational environments with continuously evolving technology applications and equipment can significantly contribute to individuals' development. All individuals in academic environments can benefit from this contribution to varying degrees. Mechanical and digital technologies are essential for individuals with a disability and for all individuals (Aslan & Yalcin, 2022). In other words, technology-supported educational environments created for individuals with disability can support their academic skills, positively affect their behavioral and sensory development, and increase their academic motivation (Ozer Sanal, 2022).

In the literature, the tools and equipment that support the academic skills of individuals with a disability, increase their independence, and facilitate their daily lives are generally described by the concept of *"assistive technologies"* (Cakmak, 2018). In other words, assistive technologies are defined as *"all kinds of tools and equipment that facilitate individuals with a disability to access information, help*

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them to move independently in their daily lives, increase their physical and mental self-efficacy perception and motivation, and serve to provide satisfaction from life." (Sani-Bozkurt, 2017). Assistive technologies help individuals with disability access information more efficiently and use information more quickly. By facilitating the education of disabled individuals, assistive technologies help them learn what materials are and how to use them. In addition, it enables these individuals to achieve their educational goals, receive systematic feedback at the end of their actions practice, and positively support their learning rate (Cakmak, 2018). One of the main groups that benefit from these supports and advantages is the individuals with visual impairment (Aslan, 2018).

Assistive technologies are critical for individuals with visual impairment to show and learn skills such as independent living, orientation and independent movement, and daily living (Aslan, 2018). Individuals with visual impairment are one of the disability groups with low incidence (Kucukozyigit, Aslan, & Yalcin, 2021). However, the researchers can say that most assistive technologies are developed for individuals with visual impairment (Aslan, 2018). The use of assistive technologies by individuals with visual impairment goes beyond classroom applications and can affect their lives in a broader range. In this regard, assistive technologies can benefit individuals with visual impairment, specifically and functionally.

For this reason, it is believed that it is necessary to introduce individuals with visual impairment to assistive technologies to facilitate their daily lives, support their academic skills, and increase their self-efficacy perceptions. In this way, the teachers can help individuals with visual impairment become independent. The most fundamental way to make this possible is in the family environment where individuals with visual impairment start their lives.

The family can be described as the fundamental unit of society, comprising a husband, wife, and children. In many cultures, children are considered to be the most valuable part of the family phenomenon (Kucukozyigit et al., 2021). Children are adopted as the new generation of adults in many societies. In addition, these children are seen as individuals who are raised with great care and devotion and whose every need is met promptly (Avsaroglu & Cavdar, 2018). With the birth of a child, a significant change occurs in the lives of families. Cultural, social, and economic changes in children's society have influenced this change. Although families in every society believe, expect, and desire to have children with typical development, they may sometimes encounter unexpected situations. Some children born into the world may have disabilities due to various factors before, during, and after birth. This disability affects not only the children's lives but also their families' lives. At the same time, it increases the responsibilities of families and causes them to have different needs. These needs of families may vary according to the type and degree of disability of their children (Kucukozyigit et al., 2021). In this direction, the researchers can say that families with children with visual impairment also have different needs. However, some families may avoid expressing these needs. For example, some families may not express their thoughts on specific issues directly. Experts in the field may also sometimes have difficulty revealing and understanding the views of families. At this point, using metaphors to tell or understand the views and perceptions of families on specific issues may be one of the options needed.

Metaphor, in its most general definition, is *"conveying abstract concepts and thoughts in the human mind through description using concrete objects."* (Cavas et al., 2019). In other words, metaphor is *"a figure of thought that carries cultural and social meanings as well as a phenomenon that reflects a person's attitudes, thoughts, or beliefs about a subject or situation."* (Koc, 2013). While metaphors make it easier to explain one thing by transferring it to another, they also draw attention to the similarities between two things and allow comparisons between them (Kilcan, 2017). In addition, metaphors lead to thinking and acting in new and different ways; they enable new possibilities by broadening the perspective of insight (Morgan, 1998). A metaphor fits at least two contents into a form or structure (Lakoff & Johnson, 2015). Metaphors are expressions that people usually do not realize but use to visualize abstract concepts while expressing themselves (Celikkaya & Seyhan, 2017). They are said to have a guiding effect in analyzing and correctly interpreting complex ideas that are difficult to explain (Cavas

et al., 2019). Thus, metaphors can help provide a broader perspective to make sense of and understand a situation. Let us look at the etymological origin of metaphor. We can see that it has the characteristic of reconceptualizing the phenomenon or object, associating it from different angles, and expressing it together (Eraslan, 2011).

A literature review unveils numerous metaphorical researches concerning technology and related concepts. For instance, these researches shed light on the metaphorical perceptions regarding technology (e.g. Aydin, Somuncu Demir, & Aksut, 2021; Cavas et al., 2019; Durukan, Hacioglu, & Donmez Usta, 2016; Kahyaoglu, Daban, & Cetin, 2017; Karacam & Aydin, 2014; Koc, 2013; Ozer Sanal, 2022), the computer and computer education (e.g. Colak, 2015; Ekici, 2016; Erten, 2020; Lombard, 2005), the digital literacy (e.g. Dedebali, 2020; Tham et al., 2021), the internet (e.g. Jamet & Moulin-Lyon, 2010; Kocadag, Aksoy, & Zengin, 2014; Senyuva & Kaya, 2013), teaching/education technologies (e.g. Bilgic, 2021; Goksu & Kocak, 2020), and the smartphone (e.g. Gezgin et al., 2019; Gunduz, Aslan, & Guclu, 2021; Polat, 2018; Senel, 2016) have been examined. In research by Aslan & Yalcin (2022) focusing on assistive technologies, the researchers explored the metaphors crafted by special education pre-service teachers concerning assistive technology. This research revealed diverse metaphors such as *"friend," "organ," "guide,"* and *"light."* However, according to the examination results, the researcher found no research on metaphors regarding assistive technologies for families with children with visual impairment. In this respect, discussing the need for research may be possible.

Current research

In recent years, assistive technologies in special education have emerged as one of the most intricate and challenging concepts to grasp. Qualitative studies are needed to examine the views, perceptions, and experiences of families with children with visual impairment regarding assistive technologies. These studies guide the determination of the needs of families with children with visual impairment and the provision of the necessary services. This research unveils the perceptions of families with children with visual impairment regarding assistive technologies. The results obtained from the study will benefit the literature in terms of guiding future assistive technologies designed for individuals with visual impairment. On the other hand, teachers, experts, and trainers working with families of children with visual impairments can use metaphors as a tool for change and evaluation. In addition, they can support the effective and efficient use of assistive technologies because of the information they obtain here. It is also anticipated that the results obtained from the research will reveal the different perceptions of families with children with visual impairment about assistive technologies and will guide the planning of the content of family training on this subject. Families with children with visual impairment may differ depending on their perception of technology in terms of using assistive technologies and allowing their children to use them. Therefore, knowing how families with children with visual impairment perceive assistive technologies is essential. This research aims to ascertain the metaphorical perceptions of families with children with visual impairment regarding assistive technologies. In this context, the researcher solicited responses to the following inquiries:

a) What metaphors do families with children with visual impairment employ to describe assistive technologies?
b) b) Under which conceptual themes do the specified metaphors for standard features fall?

Method

A phenomenological model was employed in this qualitative research. This model focuses on phenomena we know but needs a deep and detailed understanding. It presents examples, explanations, and experiences that provide results that help us to recognize and understand a phenomenon (Yildirim & Simsek, 2003) given the purpose of this research to unveil the metaphorical perceptions of families with children with visual impairment regarding assistive technologies, a phenomenological design was preferred.

The average age of families with children with visual impairment is 41.4. Mothers participated in the research in the family context. Families with children with visual impairment do not have any other child or children other than their child with visual impairment. Most of the families are primary school graduates, and they are usually the wives. Working families, on the other hand, work in fields such as civil servants, teachers, and the private sector.

Participants

The participants of this research are families with children with visual impairment. Families with children with visual impairment were chosen using the purposive sampling method. In metaphor research, each of the responses of the people to whom the application is made has meaning. It is assumed that the sample group represents the universe. In such research, even one person's answer is important and can be the subject of research. Since this research is qualitative, the researcher did not write the population sample. Accordingly, participation in the study was voluntary, and 54 families with children with visual impairment participated. The responses of 17 families were excluded due to their responses needing to be complete or needing more meaning in their expressions on the form.

Data Collection

The research employed a data collection tool comprising two sections. The first part captured the demographic information of the families, while the second part featured an open-ended questionnaire containing the prompt, *"Assistive technologies are like/similar to… because..."* The researcher chose the open-ended question format to enable families with children with visual impairment to freely articulate their feelings, ideas, and beliefs about assistive technologies. This prompt comprised two blanks, which families were asked to complete to express their perceptions of assistive technologies. Specifically, families were requested to provide a single metaphorical expression in the first blank to convey their understanding of assistive technologies. The second blank served as an explanation section, allowing families to elucidate their reasoning behind selecting the term.

Given that this sentence structure was designed to assess metaphorical perceptions, the researcher instructed families to express their views directly and without altering the phrase most appropriately. Furthermore, before commencing the data collection process, families were briefed about the research's objectives and instructed not to seek assistance from each other. The researcher provided ample time for families to complete the task.

Data Analysis

The research data were evaluated using content analysis. Encompassing stages include data extracting, numbering, coding, categorizing, validity and reliability assessments, and interpretation. The researcher initially scrutinized the data collected from families with children with visual impairment. Subsequently, 17 families' responses were deemed unsuitable for the research due to incomplete metaphors or lack of explanation. Consequently, these data were excluded, and the researcher numbered the remaining responses from one to 54. The researcher then individually coded these ranked responses, resulting in 143 metaphors categorized under 47 distinct codes. Frequency and percentage values for these codes were computed and tabulated. Through this analysis, 143 valid metaphors were clustered based on similarities and common attributes. Each cluster was associated with a specific theme, and six different thematic categories were present. Additionally, each family was assigned a unique code (e.g. F_1, F_2), and excerpts from the perspectives of families with visually impaired children were integrated into these codes. Furthermore, the researcher generated a word cloud reflecting the frequency of code usage.

Results

The metaphors for assistive technologies created by families with children with visual impairment are shown in Table 1.

Table 1. Metaphors produced by families.

	Metaphors	n	%		Metaphors	n	%		Metaphors	n	%
1.	Eye	8	5.55	17.	Life	4	2.78	33.	Car	1	0.69
2.	Family	8	5.55	18.	Map	3	2.08	34.	Stairs	1	0.69
3.	Friend	7	4.86	19.	Communication tool	3	2.08	35.	Police	1	0.69
4.	Book	7	4.86	20.	Telephone	3	2.08	36.	Social environment	1	0.69
5.	Light	7	4.86	21.	Water	3	2.08	37.	Sports equipment	1	0.69
6.	School	7	4.86	22.	Rehabilitation	2	1.39	38.	Muscle development	1	0.69
7.	Compass	6	4.17	23.	Toy	2	1.39	39.	Psychology	1	0.69
8.	Hand feet	6	4.17	24.	Household appliance	2	1.39	40.	Companion	1	0.69
9.	Star	6	4.17	25.	Breath	2	1.39	41.	Touch	1	0.69
10.	Guide	5	3.47	26.	Superhero	2	1.39	42.	Walking stick	1	0.69
11.	Savior	5	3.47	27.	World	2	1.39	43.	Mirror	1	0.69
12.	Teacher	5	3.47	28.	Drug	2	1.39	44.	Rain	1	0.69
13.	Bread	5	3.47	29.	Bird	1	0.69	45.	Library	1	0.69
14.	Music	4	2.78	30.	Balloon	1	0.69	46.	Relationship	1	0.69
15.	Computer	4	2.78	31.	Coat on a winter day	1	0.69	47.	Self-expression	1	0.69
16.	Sound	4	2.78	32.	Flower	1	0.69				

Considering the data provided in Table 1, it becomes evident that families with children with visual impairment generated 47 distinct metaphors concerning assistive technologies. It is observed that 5.5% of the families with children with visual impairment likened assistive technologies to an *"eye"* or a *"family."* It is observed that 4.86% of the families with children with visual impairment thought assistive technologies were identical to *"friend," "book," "light,"* and *"school."* It is observed that 4.17% of the families with children with visual impairment thought assistive technologies were identical to *"compass," "hand feet,"* and *"star."* In addition, 3.47% of families with children with visual impairment consider assistive technologies to be a *"guide," "savior," "teacher,"* and *"bread."* Apart from these, the most common metaphors used by families with children with visual impairment for assistive technologies are as follows: *"life," "music," "computer," "map," "communication tool," "telephone,"* and *"water."*

Figure 1. Word cloud of metaphors produced by families.

The word cloud depicts the metaphors generated by families with children with visual impairment regarding assistive technologies, as shown in Figure 1.

Table 2. Metaphor themes.

	Themes	Related Metaphors	f	%
1.	Support	Eye, Family, Friend, Hand feet, Savior, Life, Water, Rehabilitation, Breath, Superhero, Stair, Police, Social environment, Muscle development, Companion, Rain, Walking stick	54	37.46
2.	Guidance	Compass, Light, Map, Guide, Star, Sound, World, Psychology, Mirror	35	24.3
3.	Education	Book, Teacher, School, Library	20	13.88
4.	Facilitating Life	Drug, Household appliance, Telephone, Computer, Car, Bread, Coat on a winter day, Touch	19	13.18
5.	Entertainment	Music, Toy, Flower, Sports equipment	8	5.55
6.	Independence	Self-expression, Communication tool, Bird, Balloon, Relationship	7	4.84

Table 2 presents the metaphorical themes devised by the families with children with visual impairment regarding assistive technologies. According to the data in Table 2, the researcher categorized the metaphors crafted by families with children with visual impairment for assistive technologies into six distinct themes: *"support," "guidance," "education," "facilitating life," "entertainment,"* and *"independence"* respectively.

Theme 1. Support

The researcher mostly collected the metaphors created by families with children with visual impairment regarding assistive technologies under the theme of *"support"* (37.46%). When reviewing the data presented in Table 3, it becomes apparent that families with children with visual impairment generated various metaphors, including *"eye," "family," "friend," "savior," "water,"* and *"hand feet"* concerning assistive technologies within this theme. Furthermore, this theme emerges as the one in which families with children with visual impairment generated the highest number of metaphors. Sample metaphorical expressions created by families with children with visual impairment related to

this theme are provided below:

> *"Assistive technologies are like close friends. Because it is always there when you need it."*
> *(F$_{23}$)*
> *"Assistive technologies are like an eye. Because it allows its to notice everything around it."*
> *(F$_{47}$)*
> *"Assistive technologies are like companions. Because they prevent us from taking a wrong step." (F$_{38}$)*
> *"Assistive technologies are like superheroes. Because they make the impossible possible."*
> *(F$_{2}$)*

Theme 2. Guidance

The secondary theme that families with children with visual impairment create the most metaphors for is the theme of *"guidance"* (24.3%). Families with children with visual impairment produced nine different metaphors under this theme. *"Compass," "light," "guide,"* and *"star"* are seen as prominent themes. Below are some expressions of families with children with visual impairment regarding the metaphors they created regarding this theme:

> *"Assistive technologies are like a compass. Because it provides direction and wayfinding."*
> *(F$_{45}$)*
> *"Assistive technologies are like a map. Because it directs my child's life." (F$_{29}$)*
> *"Assistive technologies are a star. Because it always guides my child." (F$_{4}$)*
> *"Assistive technologies are like sound. Because it directs my child's dark life." (F$_{42}$)*

Theme 3. Education

Under this theme, families with children with visual impairment created four metaphors (13.88%). These metaphors are *"book," "teacher," "school,"* and *"library."* Below are some sample expressions about the metaphors families with children with visual impairment created regarding this theme:

> *"Assistive technologies are like books. Because they give information." (F$_{31}$)*
> *"Assistive technologies are like school. Because it prepares children for life." (F$_{17}$)*
> *"Assistive technologies are like libraries. Because it helps children learn their lessons." (F$_{40}$)*

Theme 4. Facilitating Life

Families with children with visual impairment produced 14 metaphors (13.18%) under this theme. Within the scope of this theme, *"bread," "computer," "telephone,"* and *"household appliance"* are the prominent metaphors. Some metaphor expressions created by families with children with visual impairment regarding this theme are given below:

> *"Assistive technologies are like a household appliance. Because it is indispensable and practical." (F$_{44}$)*
> *"Assistive technologies are like a drug. Because it is good for my child." (F$_{39}$)*
> *"Assistive technologies are like a coat on a winter day. Because it helps him/her cope with the difficulties in life." (F$_{33}$)*

Theme 5. Entertainment

Under this theme, families with children with visual impairment produced four metaphors (5.55%). These are *"toy," "music," "flower,"* and *"sports equipment."* Below are sample expressions from some metaphors created by families with children with visual impairment regarding this theme:

"Assistive technologies are like toys. Because it makes my child happy." (F$_{12}$)
"Assistive technologies are like sports equipment. Because it allows one to learn while having fun." (F$_{44}$)
"Assistive technologies are like flowers. Because it adds colour to my child's life." (F$_{33}$)
"Assistive technologies are like music. Because it provides psychological relief." (F$_{15}$)

Theme 6. Independence

Families with children with visual impairment produced five different metaphors (4.84%) under this theme: *"self-expression," "communication tool," "bird," "balloon,"* and *"relationship."* Statements of families with children with visual impairment regarding this theme are exemplified below:

"Assistive technologies are like self-expression. Because my child can reach his family whenever he wants." (F$_{35}$)
"Assistive technologies are like balloons. Because it liberates my child." (F$_{25}$)
"Assistive technologies are like a relationship. Because it connects my child, who isolates himself from society to life." (F$_{6}$)
"Assistive technologies are like a communication tool. Because it allows my child to communicate with his environment." (F$_{13}$)

Discussion

This research aims to ascertain the metaphorical perceptions of families with children with visual impairment regarding assistive technologies. In this context, 54 families participating in the research process produced 143 valid metaphors under 47 codes. The most frequently made metaphors about assistive technologies by the families participating in the research were determined as *"eye," "family," "friend," "book," "light," "school," "compass," "hand feet," "star."* In addition to these, various metaphors were also obtained. It is recognized that metaphors vary based on individual experiences (Cisek, 1999). Hence, each metaphor created holds significant importance. The abundance of metaphors indicates that families with children with visual impairment possess diverse and distinct perceptions regarding assistive technologies. In addition, when the researcher evaluated the metaphors produced by the families in the context of meta-categories, they were grouped under six different themes: *"support," "guidance," "education," "facilitating life," "entertainment," and "independence"* according to their similarities. Metaphors enable families with children with visual impairment to articulate their perspectives on assistive technologies. Consequently, metaphors signify the depth of families' viewpoints, creativity, and cognitive frameworks. Furthermore, families elucidate their perceptions of assistive technologies using various concepts through metaphors (McDermott, 2003).

According to the results obtained from the research, the theme of *"support"* was the theme in which families with children with visual impairment produced the most metaphors regarding assistive technologies. Within the framework of this theme, families with children with visual impairment frequently created metaphors such as *"eye," "family," "friend," "hand feet," and "savior."* In the second theme, *"guidance,"* families with children with visual impairment produced the most metaphors, frequently creating metaphors such as *"compass," "light," "guide," and "star."* Similar to these findings, Aslan & Yalcin (2022), who examined the metaphors produced by special education pre-service teachers for the concept of assistive technology, reported metaphors such as *"family," "friend," "water," "stairs"* within the framework of the theme of *"providing/being support"* and *"compass," "light," "guide"* in the theme of *"guiding."* Bilgic (2021) determined the metaphorical perceptions of pre-service teachers studying in different programs towards educational technologies as *"building," "friend"* in the *"support"* category and *"lantern," "light," "sun," "guide," "traffic light"* in the *"guidance"* category. Research (Goksu & Kocak, 2020) aimed to determine the perceptions of pre-service teachers

towards the concept of instructional technologies with metaphors, metaphors such as *"light," "compass," "mirror," "map," "stairs," "guide"* was obtained within the categories of *"support"* and *"guidance"* of instructional technologies. Durukan et al. (2016) expressed pre-service teachers' perceptions of technology in the category of *"illumination"* with the metaphor *"illuminates our lives."* Koc (2013) explained the perceptions towards the concept of technology with metaphors such as *"savior," "walking stick," "compass," and "stairs"* within the framework of the *"facilitation"* theme. Based on these results, it can be interpreted that there is a parallelism between the results obtained from the research and the findings in the literature. Assistive technologies are generally defined as *"the tools and equipment that support the academic skills of individuals with a disability, increase their independence, and facilitate their daily lives."* (Cakmak, 2018; Kamali-Arslantas et al., 2021; Michaels et al., 2002). The fact that families with children with visual impairment generally preferred the metaphors of *"support"* and *"guidance"* may have resulted from their perception of assistive technologies as providing help, guiding, or enlightening. In this context, it can be interpreted that families with children with visual impairment know of assistive technologies. It can be thought that this knowledge is reflected in their metaphoric expressions.

Another theme in which the researcher collected the metaphorical perceptions of families with children with visual impairment regarding assistive technologies is the theme of *"education."* Within the framework of this theme, families with children with visual impairment perceived assistive technologies with *"book," "library," "teacher,"* and *"school"* metaphors. In line with these results, Bilgic (2021) reported that pre-service teachers produced *"teacher"* metaphors in the *"multifunctionality"* category and *"book"* metaphors in the *"facilitating the process"* category. In another study, the researchers emphasized the *"book," "library,"* and *"teacher"* metaphors under different themes (Goksu & Kocak, 2020). Similarly, it is noteworthy that the researchers used *"school," "teacher," "book,"* and *"library"* metaphors in some other research (e.g. Durukan et al., 2016; Ekici, 2016; Koc, 2013; Ozer Sanal, 2022). In this respect, there is a similarity between the results obtained and the results in the literature. In metaphor research in the field of education, metaphors such as *"school," "teacher," and "book"* are frequently encountered. In this research, it can consider the perception of assistive technologies with these metaphors critical. It can be interpreted as an indication that families with children with visual impairment perceive assistive technologies as informative, preparing them for life, helping them to learn lessons, or in the role of educator-teacher.

One of the striking results of the research is that families with children with visual impairment explained assistive technologies with metaphors such as *"life," "water,"* and *"breath."* Families with children with visual impairment equated assistive technologies with elements such as *"life," "water," and "breath,"* which are indispensable for the continuity of life. This situation points to the importance of assistive technologies for families with children with visual impairment. Therefore, assistive technologies are essential for families with children with visual impairment. In parallel with these results, research findings in the literature are also found. For example, in the research conducted by Durukan et al. (2016), metaphors such as *"water," "bread," and "breath"* were reported in the context of the *"indispensable"* category. Similarly, in some research results, it is seen that metaphors such as *"life," "water," and "breath"* were produced for the concepts of *"technology," "assistive technology,"* and *"instructional technologies."* (e.g. Aslan & Yalcin, 2022; Ekici, 2016; Goksu & Kocak, 2020; Ozer Sanal, 2022). Therefore, the researcher can say that the results obtained are similar to those in the literature.

The researcher combined some of the metaphors produced by families with children with visual impairment regarding assistive technologies under the theme of *"facilitating life"* (e.g. *"drug," "household appliance," "telephone," "computer," "car")* In line with these results, Koc (2013) reported metaphors such as *"car," "drug," "remote controller," "shortcut"* under the theme of *"facilitating life"* In the research conducted by Aslan & Yalcin, metaphors such as *"drug," "instrument," "social interaction," "robot," "secretary"* came to the fore in the theme of *" facilitating life"* Similarly, Ekici (2016) came up with the metaphors of *"mobile phone" and "means of transportation"* in terms of *"making life easier."* Durukan et al. (2016) used the metaphors *"drug"* and *"bread"* in the *"need"* theme

and the *"car"* metaphor in the *"progress"* theme. Goksu & Kocak (2020) identified the metaphors of *"computer," "drug,"* and *"household appliance"* within the theme of *"facilitating learning"* and the metaphor of *"telephone"* within the theme of *"permanent learning." "Car"* metaphor in the *"delivery to the destination"* theme (Bilgic, 2021); *"car," "mother," "instrument,"* and *"road"* metaphors in the *"technology that makes our lives easier"* theme (Cavas et al., 2019), and *"computer"* metaphor (Ozer Sanal, 2022) are other results that yield similar results. Therefore, it can be said that there are similar results between the results obtained from this research and the research in question. These results indicate that families with children with visual impairment perceive assistive technologies as *"facilitating life."* In addition, these results provide evidence that they have a positive perception towards assistive technologies.

Some of the metaphors produced by families with children with visual impairment about assistive technologies are *"entertainment"* (e.g. *"music," "toy," "flower"*) and *"independence"* (e.g. *"communication tool," "bird," "balloon"*) united under the themes. These two themes were the ones in which families with children with visual impairment produced the most miniature metaphors regarding assistive technologies.   However, there are still researches that reach metaphors such as *"toy," "game," "music," "arcade,"* and *"puzzle"* reported within the theme of *"learning by having fun,"* similar to the results obtained from the research (e.g. Bilgic, 2021; Goksu & Kocak, 2020). Additionally, regarding assistive technologies, Aslan & Yalcin (2022) reported metaphors such as *"life coach," "weather," "fly," "freedom,"* and *"sky."*

Conclusion

As a result of the results from the research, the metaphorical perceptions of families with children with visual impairment regarding assistive technologies are generally positive. When the researcher examined the metaphor expressions and reasons created by families with children with visual impairment, he obtained no negative metaphor or theme. The researcher can say that families with children with visual impairment perceive assistive technologies as making life easier, guiding, educating, and entertaining. These results emphasize that technology is an indispensable part of our lives today and is constantly evolving. It also highlights that technology is seen as an essential need and functional factor for families. Societies that give due importance to science and technology have an independent and modern social structure and, at the same time, rise above the level of contemporary civilizations. In this sense, the most basic task of the education system is to raise individuals who can quickly adapt to the current age. In addition, the necessity of using technology effectively in education should be our mission in educating these individuals. Using technology as teaching materials is one of the indispensable elements of the field of special education. Technology provides various opportunities for individuals with disability to use their existing skills at the highest level by helping them overcome the difficulties they may experience. In this regard, it is crucial to include applications that use assistive technologies, especially for families with children with visual impairment.

This research is limited to 54 families with children with visual impairment. In this regard, other researchers can plan research that involves more families. In addition to metaphor research, the researchers can conduct research to increase families' knowledge and skill levels regarding assistive technologies. Based on the results of this research, the researchers can perform new research to reveal the metaphorical perceptions of special education teachers or individuals with disability regarding assistive technologies. The researcher did not consider variables such as gender, profession, age, and geographical region factors in this research. However, in similar research on assistive technologies, variables such as gender, profession, age, and geographical region can be investigated. Additionally, in addition to assistive technologies, metaphorical perception research on different topics such as *"accessibility," "universal design,"* and *"social inclusion,"* which we frequently encounter in the field of special education, can be conducted, and the researchers can examine metaphorical perceptions for each concept comparatively.

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