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Special Education Teachers And Technology: A Metaphor Analysis

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Abstract – In this study conducted within the scope of phenomenology, a metaphor as the participants' perceptions towards technology and the rationale of this metaphor were analyzed. Study data were obtained from 164 special education teachers. The metaphors that special education teachers stated for technology were grouped into four categories: (1) Process, (2) Material, (3) Necessity, and (4) Approach. It has been observed that special education teachers' perceive technology as a process by attributing its developing, changing, and producing. In the material category, metaphors such as tools, computers, and encyclopedias are frequently expressed. In the category of necessity, it was emphasized that the teaching process is challenging the teacher and the student, and this challenge is in areas such as following up-to-date developments, receiving additional training, participating in certificate programs, and acquiring personal hobbies. The category of approach included expressing technology as a way of life, a philosophy or a belief.

Key words: instructional technology, special education, technology integration, metaphor.

Introduction

In the world, there are various individuals with different physical, cognitive, affective, or even unidentified problems who need more help than other students in their learning process. Special education can be considered a structure that gathers such individuals under an umbrella. Special education is the whole of the educational services offered to enable students with different characteristics than average individual characteristics to continue their lives independently. Special education is an adaptable form of education based on different needs according to abilities and is adopted by students who cannot adapt to the normal

education system (Florian, 2008). Special education provides services for individuals who need special education, and the learning abilities of these individuals are different from the norms (above or below) to the extent that they require special education. Individuals who need special education need different educational arrangements than other students due to both physical and mental problems that create difficulties in learning processes (Lamsa et al., 2018). Special education requires special teaching strategies to facilitate the learning and skill acquisition of individuals with learning difficulties, communication, behavior, development, or other problems (Cifuentes et al., 2016). It has been stated that students who need special education and have a highly heterogeneous population require knowledge and ability, expertise, and unwavering commitment to evaluate, plan, collaborate and provide effective interventions (Mastropieri et al., 2011). It is also very important that these students are adopted and supported by the family, teacher, and even society. Students in need of special education experience chronic school failure.

Special Education and Technology

Current pedagogies/approaches in special education emphasize the necessity of technology integration in special education classes to support teaching processes (Bağlama et al., 2017; Saddler-Smith & Smith, 2006). Integrating technology into classrooms serving students in need of special education seems to have a positive effect on their academic progress, emotional development, behavioral goals, and learning motivation (Okolo & Diedrich, 2014). Technology is used to reduce the limitations brought about by the difficulties these students face and can help them increase their ability to perform learning tasks and their participation in learning (Zhang, 2000). The integration of computer-aided tools and software applications improves the basic life skills of students in special education and can provide them with knowledge and learning experiences in different learning areas (Cumming et al., 2014; Drigas & Kostas, 2014). Technology-based learning activities allow students to experience individualized learning without the need for continuous teacher participation (Thomas et al., 2019). When computer-assisted tools are integrated into learning environments in special education, they help students with different class levels and different special education needs to gain knowledge in a wide variety of learning areas (Starcic & Bagon, 2014). Alzrayer and Banda (2017) stated that the correct use of computer-assisted tools in special education can encourage students who need special education to participate in learning activities and increase their confidence in learning. It is an important finding that

technology, which is an important factor in improving the learning outcomes of students with special needs, increases and improves communication and information sharing between special education personnel and parents (Siyam, 2018).

The fact that technology is constantly and rapidly changing does not mean that technology can be integrated into the classroom immediately, unfortunately, it is accepted and used by students and teachers. Although numerous projects and investments have been made in educational technologies around the world, it is seen that there are still limitations in integrating technology into the learning process (Buabeng-Andoh 2012). Technology integration is long-term and includes many interrelated factors. Teachers play a key role in effectively integrating technology into teaching processes (Teo, 2011). To meet the unique teaching needs of students in need of special education, educators must find answers to a range of contemporary workforce challenges, including special and additional courses for these students (Leko et al., 2015). In this context, it is vital to secure and maintain a solid workforce of knowledgeable, durable, determined, talented, and effective private educators (Belknap & Taymans, 2015).

Teachers find it difficult to integrate technology, especially when there is a lack of appropriate training, insufficient time, scarcity of available tools and resources, and lack of technical support (Saddler-Smith & Smith, 2006). The technological Pedagogical Content Knowledge (TPACK) model defines the types of knowledge required to integrate technology into teaching in a way to meets the mentioned logic (Koehler et al., 2013). The model is defined as the knowledge of teachers about how to use technology effectively to facilitate learning in certain content areas using appropriate pedagogical approaches (Brantley-Dias & Ertmer, 2013). However, in the TPACK model, it is also emphasized that technological knowledge alone is not enough to enable teachers to successfully integrate technology. Instead, effective technology integration depends on complex interactions between technological, pedagogical, and content knowledge (Koehler et al., 2013). Due to professional development focused on TPACK, teachers' confidence in integrating technology, changing pedagogical practices, and improving learning outcomes can also be supported (Koh et al., 2017). In the literature, there are studies that examine the views of private teachers on technology use and the factors that encourage or prevent their use of technology. In the study conducted by Almeida and colleagues (2016), urban and rural education teachers' computer use, self-efficacy perceptions, and the effect of teacher preparation programs on their performance of working with students who need special education at low frequency are

examined. The study results show that rural teachers rely more on technology to access resources and materials than their counterparts in urban settlements, but also rely on more technical and complex software. Another striking finding in the study was that there was a negative relationship between self-efficacy and taking a computer training course. It is very important to realize that having only technological knowledge is necessary but not sufficient within the scope of technology integration.

Aslan (2018) analyzed special education teachers' attitudes towards assistive technologies and collected data from 251 special education teachers in this context. According to the data of the study, the participation of special education teachers in training regarding age, gender, professional seniority, and assistive technologies does not affect the attitudes of special education teachers towards assistive technologies. However, it is reported that special education teachers' attitudes towards assistive technology affect the department they graduated from and their taking lessons towards assistive technology. Special education teachers with visual impairment in the graduation field have higher attitude scores towards assistive technology than the teachers who graduated from the departments of hearing, vision, and mental disability. Another remarkable finding of the study is that teachers who take courses on assistive technology have higher attitude scores than those who do not. Kutlu and colleagues (2018) also examined the views of special education teachers on the use of assistive technology, similar to the study by Aslan (2018). 211 special education teachers participated in the study. According to the data of the study, among the factors that prevent special education teachers from using assistive technologies are the complexity of technological equipment, the cost of this equipment, lack of technological equipment, and insufficient knowledge of assistive technologies. Another finding of the study is that education support, technical support, and budget support are among the support strategies for the use of assistive technologies. Evgin and colleagues (2020), on the other hand, discussed special education teachers and technology issues together with a similar study and examined the opinions and experiences of teachers. Different findings were obtained in this study, in which eight special education teachers participated. Data were collected on why special education teachers use assistive technologies, the benefits of these technologies, the difficulties they encounter in the process of using them, and the teachers' opinions and suggestions regarding the use of technology in the special education process. When the findings of the study are evaluated in general terms, it is seen that the teachers find the use of technology use, but they encounter difficulties during use. The study emphasizes the

importance and necessity of using technology in special education. Bağlama and colleagues (2017) investigated the views of special education teachers working at a special education institute on the use of technology in teaching mathematics to students with special needs. Although teachers perceived their technology competencies as high, most of the teachers in the study argued that there is a need for more in-service training on using technology in mathematics teacher processes. In the mixed-method study conducted by Allsopp and colleagues (2009), the perceptions of special education teachers towards technology integration were examined. Stress, workload, and lack of appropriate teacher training were reported to be major barriers to technology integration.

With the necessity of technology integration in special education classrooms, what is meant to be expressed is not that the teacher uses technology, but that they use technology by the objectives and needs. While applying technology-enhanced teaching, teachers who monitor the effectiveness of teaching and use their observations to plan future lessons are described as “successful” (Kennedy & Deshler, 2010). Thanks to teachers' experiences with technology, teachers develop their knowledge and belief in technology. Students will also be able to benefit from technology by integrating technology with course content and using technology effectively (Wang et al., 2012). Considering these and similar reasons, they must be encouraged to use computer-aided tools to update their teaching approach and help students who need special education in their learning (Russak, 2016). Special education teachers need different strategies to teach and it is very important and necessary to implement the most appropriate strategy, whether special education or general education processes. The more appropriate strategies the teacher chooses, the more benefits the student's benefit (Hess et al., 2008). Special education teachers do not have a chance to stay away from teaching processes surrounded by technology. Therefore, it can be said that coping with these processes will support the planning of more efficient teaching processes.

Exploration of technology with metaphors

Special education teachers and visionaries need to take advantage of the driving forces of the 21st century strategically and systematically to turn transformative models into reality (Fullan, 2011). Furthermore, teacher training needs to be designed to meet the needs of prospective teachers and provide hands-on activities focused on the ability of technology to influence students' learning (Siyam, 2019). Teacher educators must adopt a much-needed

transition from the 20th century to the 21st-century teacher development practices (Brownell et al., 2010).

Teachers' positive perceptions of technology are an important factor for technology integration (Ertmer, 1999), but it is not enough (Bauer, 2013). Being aware of the contributions of technology can be a step towards a good integration process. Before supporting teachers to use technology, what needs to be done is to see how teachers make sense of technology. Studies that improve our understanding of dynamics such as the thoughts, beliefs, and experiences of special education teachers regarding the use of educational technology can guide professional development efforts to encourage the effective use of technology in the context of special education (Anderson & Putman, 2020). At this point, "metaphor" can be considered as an assistive data collection tool. Metaphors further increase the quality of the learning process by establishing strong connections between the student's past learning and personal experiences and newly learned concepts and creating vivid images (Arslan & Bayrakçı, 2006).

It is also seen that metaphors are frequently used in educational studies to examine different phenomena. In their metaphor study, Karaçam and Aydın (2014) examined middle school students' perceptions of the concept of technology. In the study in which a total of 191 students studying in the city of Ankara participated, 68 different metaphors related to the concept of technology were obtained. These metaphors are grouped under the conceptual categories of useful, evolving, constantly changing, rapidly evolving, necessary, beneficial and harmful, limitless and infinite, and rapidly spreading. Korkmaz and Ünsal (2016) examined the perceptions of preschool teachers towards the concept of technology. 76 preschool teachers working in Gaziantep province participated in the study. A total of 57 metaphors were obtained from preschool teachers. The metaphors produced are grouped under the categories of positive, negative, eternity, a living being, need, and life. Durukan and colleagues (2016) examined pre-service teachers' perceptions of technology through metaphor analysis. 53 teacher candidates participated in the study. The teacher candidates produced a total of 118 metaphors. The metaphors of the teacher candidates are primarily divided into positive, negative, and neutral main categories. Under the positive main category, metaphors related to the concept of technology, development, progress, being a source of information, facilitation, renewal, need, change, being eternal, entertaining, reaching, enlightening, producing, communicating, being interesting, being a major, being useful grouped under

subcategories. Under the main category of negative, technology metaphors are grouped under addiction and harmful sub-categories. In the Neutral main category, technology has been included with features such as good or bad. Şahin (2019) examined the teachers' views on the use of information technology through metaphor analysis. 13 teachers participated in the study. The metaphors stated by the teachers were grouped under three main themes: (1) useful tool, (2) depth, development and change, and (3) two-way effect (useful-harmful). Özyurt and Badur (2020) investigated primary school students' perceptions of technology with the help of metaphor analysis. 346 primary school students participated in the study. The metaphors obtained from the students were grouped under 10 themes: equipment, structure, imagination, research, harmful, profession, change and development, educational tool, game, and affective. It is seen that the concept of technology has been studied by different researchers and that both similar and some different views and themes have been put forward. As can be seen from the studies, common meanings occur in the perceptions of different groups towards technology. In this context, it can be easily stated that technology affects every audience from similar angles. Although the potential of technology in special education is known, it is considered important to determine/know the perceptions of special education teachers towards technology. In this context, this study can be a step in interpreting the current situation in special education processes and evaluating special education and technology policies.

Purpose of Study

This study aims to examine the perceptions of special education teachers towards the concept of technology through metaphors. For this purpose, the following questions were sought:

1. What are the metaphor perceptions that special education teachers have towards the concept of technology?
2. Under which conceptual categories can the metaphors developed by special education teachers be collected?

Method

Research Model

This research was designed with the phenomenology approach, which is one of the qualitative research methods. Phenomenology research is an inquiry strategy applied to reveal human experiences about a phenomenon defined by the participants (Creswell, 2007). In

factual science work, the focus is on evaluating experiences and understanding the essence of these experiences (Miller, 2003; Rose et al., 1995). It can be defined as a focus (Yıldırım & Şimşek, 2011). In this direction, the focus of the research process is how special education teachers conceptualize their thoughts on technology with the help of metaphors.

Metaphors can make communication more economical and efficient and can fill word gaps and motivate semantic change (Colston & Gibbs, 2017). Metaphor is one of the most important tools of trying to partially understand what we do not fully understand, our emotions, aesthetic experiences, our moral practices, and our spiritual consciousness (Lakoff & Johnson, 2003). Metaphor is also a tool of explanation and persuasion (Thibodeau et al., 2017). Botha (2009) states that metaphor can be used as a way of discovery in education and with its creative, innovative, and interactive role, it will provide similarities between the student's previous understanding of an unknown subject and new knowledge acquisition.

Study Group

164 special education teachers participated in the data collection process of the research. The provinces where special education teachers work can be listed as follows: Adana *(n = 11)*, Ankara *(n = 22)*, Amasya *(n = 3)*, Bursa *(n = 16)*, Çanakkale *(n = 4)*, Elazığ *(n = 10)*, Erzurum *(n = 7)*, Eskişehir *(n = 8)*, Gaziantep *(n = 6)*, Istanbul *(n = 21)*, İzmir *(n = 19)*, Kayseri *(n = 6)*, Muğla *(n = 10)* , Sinop *(n = 1)*, Sivas *(n = 1)*, Tekirdağ *(n = 2)*, Şanlıurfa *(n = 5)*, Osmaniye *(n = 2)*, Konya *(n = 4)*, Antalya *(n = 5)*, and Mersin *(n = 1)*. The demographic characteristics of the participants are given in Table 1.

Table 1 Demographic information of the participants

		f	%
Age	30 -	38	23.2
	31-40	73	44.5
	41-50	39	23.8
	51 +	14	8.5
Gender	Female	96	58.5
	Male	68	41.5
Education S.	Graduate	143	87.2
	Master	16	9.8
	PhD	5	3.1
TOTAL		164	100

In order to communicate with the special education teachers who will participate in the study, informative e-mails were sent to the administrators of the special education and rehabilitation centers in each province and the e-mail addresses of the special education teachers who wanted to participate were requested. Participants consist of special education

teachers whose e-mails were reported to the researcher. That is, the participants were included in the study with the convenience sampling method.

Data Collection

The views of the participants were collected using an interview form consisting of open-ended questions developed by the researchers. (*"What would it be if you wanted to explain technology with a living or non-living being?"* and *"Can you explain why?")*

Analysis of Data

Content analysis consisting of coding, finding themes, coding data, and organizing according to themes was used in the analysis of the data. In content analysis, data that are similar to each other are organized by bringing together within the framework of certain concepts and themes, and the data are interpreted (Yıldırım & Şimşek, 2013). In addition, descriptive statistics (frequency distributions and percentage expressions) were used to report the data. The metaphors and justifications of the metaphors developed by the participants were resolved in four stages (Figure 1).

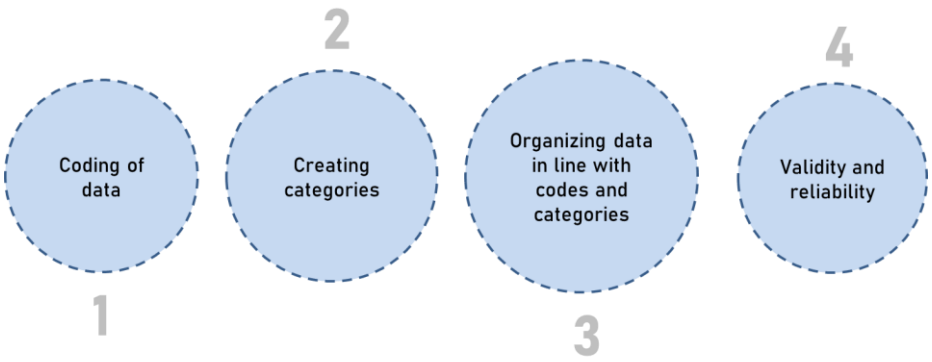

Figure 1 Steps followed in analyzing metaphors

At the stage of coding the data, a code number was assigned to each participant to be shown as "K1, K2, ... K164". The answers given by the participants to the first and second questions of the interview form were collected under the headings of "metaphor" and "explanation". While conceptualizing / coding the data, it was tried to find a concept that could best reflect the meaning in that section. During the category creation phase, the metaphor perceptions produced by all participants for the first and second questions in the interview form were examined in terms of their common characteristics of the technology. To create the categories, the codes were brought together, examined, similarities and differences were determined, and it was checked whether the data under the resulting category constitute

a meaningful whole. At the stage of organizing the data according to codes and categories, after detailed coding was done by the researcher, and after the determination of the categories that could bring together the relevant codes, the researcher created a system where he could organize the data he collected and carried out the editing process according to this system. To ensure internal validity, students' perceptions of technology were first defined with direct quotations and then interpreted. To ensure the consistency of the findings, the consistency of the concepts that constitute the themes among themselves and with other themes was evaluated and it was checked whether they formed a meaningful whole. The findings were analyzed by two special education experts and one education specialist and found to be realistic. To ensure external validity, the method of the research has been tried to be defined in detail. In addition, the findings were supported by the literature, thus providing a variety of literature. After listing the data obtained in the study, first, the researcher and two experts were coded separately and coding categories were developed. The reliability coefficient between coders was calculated as 94% according to the formula "Reliability = (Compromise / [Compromise + Disagreement]) * 100" given by Miles and Huberman (1994). If this value is over 90, it shows that the encoding has very high reliability. The consensus of the coders was completed with the result of joint work on the different data interpreted in 6%.

Findings

164 special education teachers produced 152 valid and 95 different metaphors in total. 95 metaphors were analyzed together with their justifications and gathered under four categories. These categories are defined as process, material, requirement, and approach (Figure 2). In this section, metaphors of each category and other information obtained are given respectively.

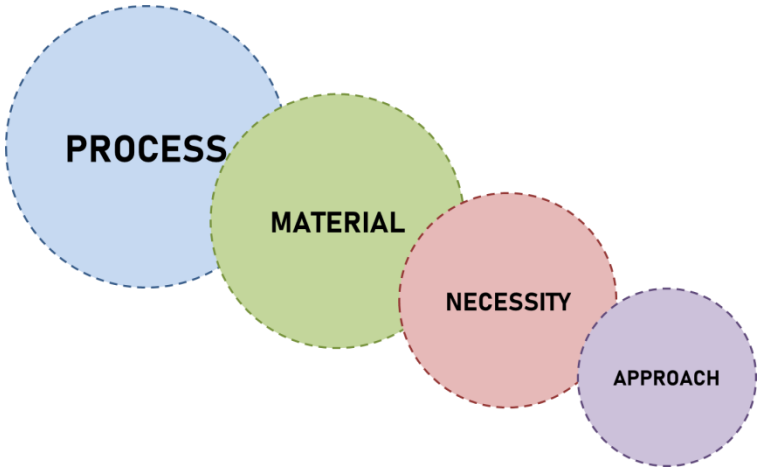

Figure 2 Categories Obtained after Analyzing Metaphors

Metaphors of the "Process" Category

The metaphors expressed by special education teachers who participated in the study and produced valid metaphors were mostly included in the process category. The process category was named this way because of metaphors such as change, development, adventure, growing up, and the common reasons for metaphors. Valid metaphors stated by special education teachers regarding the process category are given in Table 2.

Tablo 2 Metaphors related to the process category

Metaphor name	**f**	**%**	**Metaphor name**	**f**	**%**
Change	7	21.9	Run	1	3.1
Development	6	18.8	Fatigue	1	3.1
Topicality	4	12.5	Resistance	1	3.1
Grow	3	9.4	Refresh	1	3.1
Keep up with the times	2	6.3	Information source	1	3.1
Life	1	3.1	Develop	1	3.1
Adventure	1	3.1			
Stairs	1	3.1			
Move forward	1	3.1			
TOTAL	-	-	-	32	100

As seen in Table 2, 14 different metaphors in total have been included in the process category. These; metaphors change, development, actuality, growing up, keeping up with the times, life, adventure, ladder, progress, running, resistance, refreshing, and information source. Special education teachers mostly expressed the metaphor of technology change. K18 filled out the open-ended interview form as follows: *"Technology is change. Because its existence is due to the change of humanity and needs. For this reason, it can never remain the same and has to change. It is the best concept that corresponds to change.*

Technology was defined by six special education teachers with the metaphor of development. Preferring the development metaphor, K38 filled out the open-ended interview form as follows:

> *"Technology is a development process. It does not contain anything that does not develop. It both develops within its own development cycle and develops everything that is caught in this cycle."*

Technology was defined by four special education teachers using the metaphor of actuality. Using the metaphor of actuality, K3 filled out the open-ended interview form as follows:

"Technology is the most up-to-date and latest version of everything. If it is not up to date, it is not possible for it to stay in our lives. Although it has different features in up-to-date, its main feature is that it must be up-to-date and keep up to date.

The process category includes metaphors that describe technology as a living construct without borders. In this sense, it draws attention that we are faced with a concept that goes beyond any tool.

Metaphors of the "Material" Category

The metaphors expressed by special education teachers who participated in the study and produced valid metaphors were placed under the secondary majority category of material. The material category is named this way because of the common reasons that technology is expressed as a tool or equipment. Valid metaphors stated by special education teachers regarding the material category are given in Table 3.

Table 3 Metaphors related to the material category

Metaphor name	**f**	**%**	**Metaphor name**	**f**	**%**
Tools	8	29.7	Store	1	3.7
Computer	4	14.8	Lecture notes	1	3.7
Internet	3	11.1	Bag	1	3.7
Book	3	11.1			
Information source	2	7.4			
Encyclopedia	1	3.7			
Guide	1	3.7			
A4 paper	1	3.7			
Notebook	1	3.7			
TOTAL	-	-	-	27	100

As can be seen from Table 3, a total of 12 different metaphors have been included in the material category. These; tools-equipment, computer, internet, book, information source, encyclopedia, guide, notebook, lecture note metaphors. Special education teachers mostly expressed the tool-equipment metaphor for technology. K26 filled out the open-ended interview form as follows:

"Technology is actually the definition of tools in my classroom. Because the tools and equipment are no longer just paper or pen as before. My computer, my mouse, my overhead projector, everything, but all tools and gadgets describe technologies in my class.

Technology was defined by four special education teachers using computer metaphors. Preferring the computer metaphor, K17 filled out the open-ended interview form as follows:

"Technology is actually computers. I access the exam, content, management, follow-up from there. With the computer, I can manage all my technological processes and needs."

Technology was defined by three special education teachers using the internet metaphor. Using the internet metaphor, K90 filled out the open-ended interview form as follows:

"The internet is actually the biggest, unlimited and infinite technology. With it, I reach out to other needy students. I share with them. I work in collaboration with their teachers. Technology equals internet. Because if it weren't for that big network, I don't think we could do anything."

Technology has been defined by three special education teachers using a book metaphor. Using the book metaphor, K143 filled out the open-ended interview form as follows:

"It's a printed book or technology for me. I have many books in my library and I could find whatever I wanted. Before, of course… Now the library is not enough and now I have an unlimited library. Technology is a great book that offers me this opportunity."

The material category actually explains the tools and devices that show the physical equivalent of technology and are used in the teaching process.

Metaphors of the "Necessity" Category

The metaphors expressed by special education teachers who participated in the study and produced valid metaphors were numerically included in the third majority category of necessity. Valid metaphors stated by special education teachers regarding the requirement category are given in Table 4.

Table 4 Metaphors related to the necessity category

Metaphor name	f	%	Metaphor name	f	%
School	3	13.6	Health	1	4.5
Money	2	9.1	Work	1	4.5
Medicine	2	9.1	Shelter	1	4.5
Breath	2	9.1	Getting a certificate	1	4.5
Food	2	9.1	Getting additional training	1	4.5
Innovation	2	9.1	Have a hobby	1	4.5
Puzzle	1	4.5			
Water	1	4.5			
Exam	1	4.5			
TOTAL -		-	-	22	100

As can be seen from Table 4, a total of 15 different metaphors have been included in the requirement category. These; school, money, medicine, breathing, food, innovation, riddle, water, test, health, work and shelter are metaphors. Special education teachers most often expressed the school metaphor for technology. K49 filled out the open-ended interview form as follows:

"Technology is a school that has to go and finish, and actually never ends. There are so many things we do not know about. Teacher, administrator, lesson, exam, friendship. It's a great door. It is also quite mysterious. Isn't that the same in school for a child who is just starting out? It's like school for me and will always be. Will I graduate, that place is discussed, of course ..."

Technology was defined by both special education teachers with the metaphor of money. Preferring the money metaphor, K51 filled out the open-ended interview form as follows:

"The definition is money. Without money, we cannot meet most of our needs. Even if there is no technology, unfortunately, we are about to be unable to meet any needs in educational processes. This situation does not make me very happy. Is that what to improve? This is unfortunately..."

Technology was defined by two special education teachers using the drug metaphor. Using the drug metaphor, K82 filled out the open-ended interview form as follows:

"There is a medicine. I wanted to resemble him. I need it to relieve my pain and to continue my daily life in good health. If I slow down the learning process of my students or they fall behind, I will have a headache and technology will ease my pain.

Technology was defined by two special education teachers using the metaphor of breathing. Using the metaphor of breathing, K75 filled out the open-ended interview form as follows:

"Technology is like breathing. Breathing occurs naturally, but most importantly, you cannot live without it. It is in such critical places that we cannot move even one step further without technology. It is actually that important and necessary. "

The necessity category includes metaphors that show that technology is an inseparable part of life.

Metaphors of the "Approach" Category

The metaphors expressed by special education teachers who participated in the study and produced valid metaphors were numerically placed under the fourth majority approach

category. Valid metaphors stated by special education teachers regarding the approach category are given in Table 5.

Table 5 Metaphors related to the approach category

Metaphor name	f	%	Metaphor name	f	%
Way of thinking	2	13.3	Administration	1	6.7
Fashion	2	13.3	Parenthood	1	6.7
Mind	1	6.7	Accent	1	6.7
Style	1	6.7	Philosophy	1	6.7
Acceptance	1	6.7	Brain	1	6.7
Child	1	6.7	Art	1	6.7
Alive	1	6.7			
TOTAL	-	-	-	15	100

As can be seen from Table 5, a total of 13 different metaphors have been included in the approach category. These; The way of thinking, fashion, style, mind, acceptance, child, living, brain, art, management, parenting, accent, philosophy are metaphors. Special education teachers expressed the most common way of thinking metaphor for technology. K44 filled out the open-ended interview form as follows:

"Technology reflects one's way of thinking. How you use it, what you use it for, what you see it as is entirely up to you. The way you think about technology also shows how it exists in your life."

Technology was defined by two special education teachers with the metaphor of fashion. Preferring the fashion metaphor, K51 filled out the open-ended interview form as follows:

"Technology is a fashion. It changes, is followed and applied by some. But a small part is not interested at all. But even if they are not interested, that fashion infiltrates their lives somehow. "

Technology was defined by a special education teacher with the metaphor of philosophy. Using the philosophy metaphor, K82 filled out the open-ended interview form as follows:

"He can think of technology as a philosophy. It has its own concepts, processes and validities. And technology can only be explained within these limits. "

The approach category includes metaphors showing that technology is actually a superstructure related to a way of thinking.

It can be seen from the tables that present metaphors to the categories above and the opinions of special education teachers; technology is perceived from four different aspects:

process, product, requirement or approach. The metaphors of special education teachers regarding technology as a whole are shown in Figure 3.

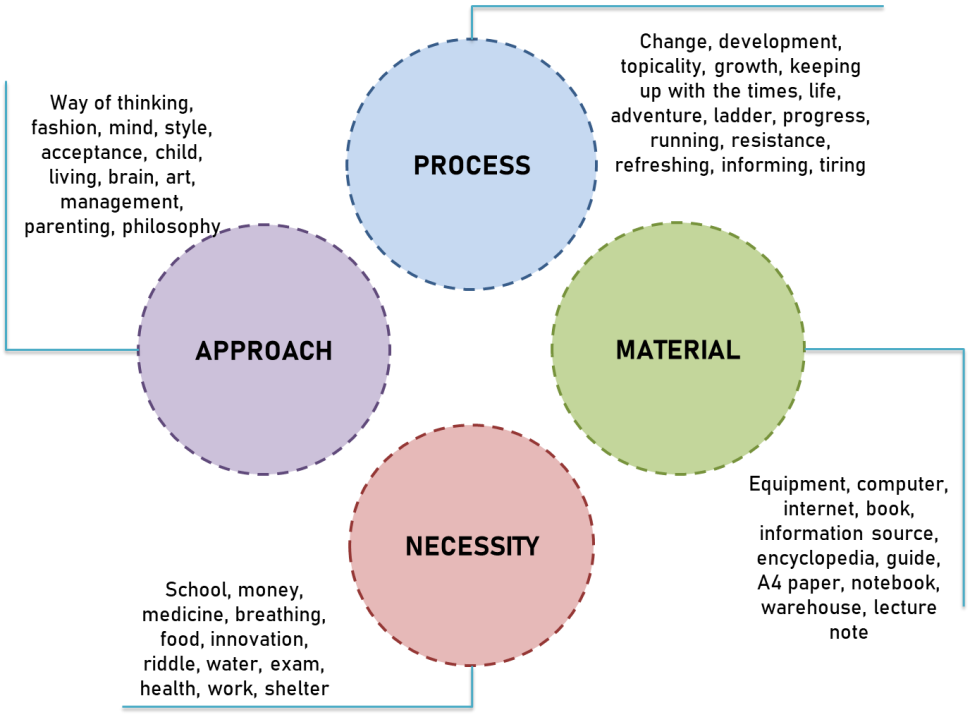

Figure 3 Categories and metaphors related to the concept of technology

Conclusion, Discussion and Suggestions

In this study, the perceptions of special education teachers towards the concept of technology were examined through metaphors. In line with the data obtained from the research, 164 special education teachers produced 95 valid and different metaphors. These metaphors produced by special education teachers were discussed and reported in four categories: (1) Process, (2) Material, (3) Necessity, and (4) Approach. When the metaphors obtained from 164 special education teachers are analyzed, it is seen that the process category is in the first place numerically. Process category has been a category expressing that technology is an ongoing, progressive and dynamic structure. Under this category, metaphors of change, development, actuality, growing, developing, keeping up with the age, life, adventure, ladder, progress, running, resistance, refreshing, and getting informed were included. Many studies are examining the views of students and teacher candidates on the concept of technology using metaphors. And the findings of the studies are in line with the findings of this study. In this study, he frequently stated that technology is a development process and that it also improves the elements associated with it, and this category is supported by the findings of different studies (Durukan et al., 2016; Ergen & Yanpar-Yelken,

2015; Gök & Erdoğan, 2010; Göksu & Koçak, 2020; Karaçam & Aydın, 2014; Kobak &Taşkın, 2012; Koç, 2013; Kurt & Özer, 2013; Şahin, 2019; Özyurt & Badur, 2020). Special education teachers emphasized that technology corresponds to the expression of "change" and stated many metaphors on this theme. It is seen that technology is transferred as the change in different studies trying to determine the perceptions towards technology with metaphors (Durukan et al., 2016; Ergen & Yanpar-Yelken, 2015; Gök & Erdoğan, 2010; Karaçam & Aydın, 2014; Kobak & Taşkın, 2012; Şahin, 2019; Özyurt & Badur, 2020). In addition, categories such as keeping up with the age (Göksu & Koçak, 2020), life (Korkmaz & Ünsal, 2016; Karakoyun, 2017), advancement (Durukan et al., 2016), supporting or facilitating learning (Durukan et al., 2016; Göksu & Koçak, 2020), which are among the characteristics of special education teachers, are supported by the literature. The findings showed us that technology has a meaning that can never be defined as a static and rigid structure. Technology is the most up-to-date solution that helps to meet the needs in life. In this context, the development, change, dynamic structure, etc. of teachers and students. It is not surprising that they perceive technology with expressions. What matters is whether teachers and students progress in parallel or not, in addition to a structure that progresses continuously. When the category of material is examined, it is seen that metaphors of equipment, computer, internet, book, information source, encyclopedia, guide, notebook, warehouse, lecture note are specified. The perception of technology as a concrete tool has been reported in different studies (Ergen & Yanpar-Yelken, 2015; Şahin, 2019; Özyurt & Badur, 2020). What do the findings revealed by the material category and the findings in the literature with similar meaning tell? In a teaching environment that keeps pace with the times, whatever you touch is a technology. It is an impossibility to want to exclude technology from such a teaching environment.

When the necessity category is examined, it draws attention that technology is perceived as a need. Under this category, the metaphors of school, money, medicine, breathing, food, innovation, riddle, water, exam, health, work, and shelter were frequently expressed by special education teachers. It was reported that technology was expressed in different metaphors in the necessity category (Çavaş et al.,2019; Durukan et al., 2016; Ergen & Yanpar-Yelken, 2015; Koç, 2013; Korkmaz & Ünsal, 2016;). Humanity is now trying to integrate itself into the world of technology rather than trying to add technology to its own life. It can be easily said that there is necessary and continuous cooperation between humanity and technology. It is not up to us to adapt technology to our whims, on the contrary, we have

to adapt to technology (Feenberg, 2009). Technology, which is said to come from human hands, dominates nature and now it also dominates humanity (Günay, 2017).

When the approach category is examined, the focus is on perceiving technology as a lifestyle rather than a process, product, or necessity. It was determined that the metaphors of thinking style, fashion, style, reason, acceptance, child, living, brain, art, management, parenting, accent, philosophy were used under this category. In the study conducted by Çavaş and colleagues (2019), technology is expressed similarly with the art metaphor. However, no results of a different study supporting this finding were encountered. Technology is a philosophy above all else. There are many different opinions about which philosophical approach the technology is more suitable for or whether it requires a new perspective. Instrumentalism (instrumentalism) is a standard modern view that states that technology is a tool of the human species (Feenberg, 2009). From a deterministic point of view, it is defined as a rationally created tool that serves universal human needs (Feenberg, 2009). There are many more philosophies that consider technology as an approach, a way of thinking, and all of them try to analyze the nature of technology with its effects on human beings.

With the analysis of special education teachers' views, it has been seen that; technology is both a necessity for them and they are exposed to it as a material. While they perceive technology both as a process, they can define it with an even broader perspective and accept it as a philosophy. Although we know that there are numerous contributions to the process by integrating technology into special education processes, it is very important to support teachers at this point. Special education teachers need to recognize the 21st century and systematically benefit from the features of the 21st century to keep up with the times and act in parallel with technology. Teacher educators must adopt a much-needed transition from the 20th century to the 21st-century teacher development practices (Brownell et al., 2010). In the teacher education process, it should be designed to meet the needs of all teacher candidates and to provide applied activities that focus on the ability of technology to affect students' learning (Siyam, 2019).

In this study, we saw how close special education teachers are to technology. The importance of technology providing interactive, effective and productive learning environments for special education students and making these environments more accessible and controllable by special education teachers should also be considered. Their belief that

both themselves and their students can develop in technology shows the necessity of integrating technology more into the field of special education. Technology, which offers a wide variety of material formats, has the potential to be diversified according to the qualifications and needs of students who need special education. Technology is an important factor that spreads to all areas of life and makes learning processes more comfortable, accessible and interactive. Planning the learning processes in an integrated manner with technology also means not missing the age. In short, although there is no evidence that special education teachers' technological perceptions and attitudes are negative, it is seen that they are in a close position to technology. Studies need to be done in the relevant contexts, taking this position into account. The more teachers are supported, the more accurately their learning processes will integrate with technology. At the end of these processes, again, our students will be the winner - what kind of an aim we are.

Özel Eğitim Öğretmenleri Ve Teknoloji: Bir Metafor Analizi

Özet:

Bu çalışma teknolojinin özel eğitim bağlamındaki yerine odaklanmış ve özel eğitim öğretmenlerinin teknolojiye yönelik algıları metafor analizi aracılığı ile incelenmiştir. Çalışma verileri 164 özel eğitim öğretmeninden elde edilmiştir. Olgu bilim kapsamında yürütülen bu çalışmada katılımcıların teknolojiye yönelik algıları olarak bir metafor ve bu metaforun gerekçesi çözümlenmiştir. Özel eğitim öğretmenlerinin teknolojiye yönelik belirttikleri metaforlar (1) Süreç, (2) Materyal, (3) Gereklilik ve (4) Yaklaşım olmak üzere dört kategoride toplanmıştır. Özel eğitim öğretmenlerinin ilk sırada gelişen, geliştiren, değişen, değiştiren, üreten, büyüyen özelliklerini atfederek teknolojiyi süreç olarak algıladıkları görülmüştür. Materyal kategorisinde araç gereç, bilgisayar, ansiklopedi gibi metaforlar sıklıkla aktarılmıştır. Gereklilik kategorisinde ise, öğretim sürecini, öğretmeni ve öğrenciyi zorlayan ve bu zorlamanın güncel gelişmeleri takip etmek, ek eğitimler almak, sertifika programlarına katılmak, kişisel hobiler edinmek gibi alanlarda olduğu vurgulanmıştır. Yaklaşım kategorisi ise teknolojinin bir yaşam biçimi, bir felsefe ya da inanç olarak ifade edilmesini kapsamıştır.

Anahtar kelimeler: öğretim teknolojisi, özel eğitim, teknoloji entegrasyonu, metafor.

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