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The Perceptions of Gifted Students about Distance Education: A Metaphor Analysis

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SUMMARY

The purpose of this research was to identify gifted students' perceptions regarding the concept of distance education through metaphor analysis. In this research, "phenomenology research design", which is one of the qualitative research designs, was used. The study group of the research consisted of 190 gifted students studying at Osmaniye Şehit Veli Demiryürek Science and Art Center and Kastamonu Science and Art Center in the 2019-2020 academic year. In line with the purpose of the research, the participants were asked to fill the sentence "Distance education similar / like, because " and the data obtained were analyzed using the analysis steps specific to metaphor studies via content analysis. According to the findings of the study, gifted students produced 168 valid metaphors about distance education and these metaphors were grouped under 9 themes with 5 different conceptual categories in terms of their common features. In this study, when the metaphors and justifications produced by gifted students for distance education were examined, it was concluded that distance education provided an effective learning opportunity by contributing to the facilitation, reinforcement and accessibility of gifted students' learning lives. It can be said that the metaphors produced in the research and the data obtained will be a guide for the distance education system for the needs of gifted students and extraordinary situations such as the pandemic process.

Keywords: Distance education, gifted students, metaphor analysis

INTRODUCTION

It could be argued that technological advances motivated individuals to rethink both the function of the school and the conventional education system. Distance education, which described as an alternative education system that provides certain learning opportunities, serves as an active option to support the conventional education system or to replace the conventional education system (Khosmehr, 2013; Horzum, 2003; Alakoç, 2001). Concepts such as e-education, distance education, online education, virtual classroom, etc. are the consequences of certain educational issues such as constant increase in the number of students in educational institutions, the unequal geographical distribution of schools, classes, students and teachers, inadequate number of trained teaching staff and employment problem, the individual demand to attend educational services at different times and places and under adequate conditions, increasing significance of lifelong learning, and the requirement to provide in-service training with faster and economical methods to prevent damages to ongoing business transactions in private and public sectors (Karakaya & Aksoy, 2005).

Several studies were conducted to determine the effectiveness of distance education on learners at different educational levels. It was determined that distance education systems that are employed to support gifted students, who display advanced cognitive progress when compared to their peers, had a positive effect on students especially in face-to-face educational environments (Pyryt, 2009; Shavinina, 2009a; Siegle, 2005). Today, formal education students access several applications on the internet and the internet is an integral part of their lives. Thus, integration of educational processes and various technologies and reaching the students with various facilities provided by distance education would significantly facilitate a more interesting, effective and permanent instruction based on stakeholder preferences, attributes and priorities.

Distance Education

Several authors described distance education based on various dimensions in national and international literature. According to Moore and Kearsley (2011), distance education is a planned, institutional and administrative organization that employs various technology infrastructures and a construct that aims the implementation of teaching designs and methods where the learner and the teacher are in different locations. It is the delivery of educational services to distant students using multimedia technology instruments (satellites, video, sound, graphics, computer, etc.) (United States Distance Learning Association-USDLA, 2004). It is a planned and systematic education application that provides individual, flexible and independent learning, and the communications and interactions between the learner and teacher is conducted with printed, and audio-visual

materials through various technological devices (Uşun, 2006). Alkan (1998) described the conceptual foundations of distance education as "the development of novel opportunities, integration between work and education, democratization of the educational process, lifelong education, individual education, active employment of existing educational institutions, active technology use in education, serving individual, social and technological needs, reaching large audiences, ensuring the integrity of individual and mass education, and to balance the educational goals and financial means."

The main objective is to eliminate the disadvantages of conventional education, educate a larger population, remove physical educational obstacles, reduce educational costs, accelerate learning, and provide equal learning opportunities and a better and active learning environment for students in distance education (Eastman and Swift, 2001).

The distance education was made available for the first time in the United States on March 20, 1728 with an announcement published in Boston Gazette (Toptaş, 2001). Distance education was then adopted by several countries and conducted by mail. After 1920, due to advances in communication technologies, first "distance education by radio," and then "distance education via television" were introduced (Uşun, 2006). After the availability of internet technology, several public and private face-to-face education institutions started to provide distance education services (simultaneous and asynchronous online courses, video conferences, online discussion groups, virtual libraries, etc.), and there are several online-only education institutions all over the world.

The development of distance education in Turkey could be studied in three periods. The first period is the educational proposals period that lasted between 1927 and 1955. In the second period that lasted between 1956 and 1981, the initial distance education services were introduced in Turkey that were conducted by mail and radio programs. In the third period, two significant developments such as the assignment of the task of providing distance higher education to Anadolu University and the establishment of the Open Education High School were observed between 1982 and 1996. Today, distance education facilities are available via different technologies and for different educational levels in Turkey (Demir, 2014; Kirik, 2014; Ozbay, 2015).

Considering the advantages offered by distance education, current living conditions, and common learner attributes, it is not possible to suggest an education system in 21st century without distance education. On the other hand, it could be suggested that the increasing demand for education and several high-cost educational requirements such as instruction, material, physical facilities, planning, could be sidelined by distance education. Thus, it is necessary to employ distance education services at all levels, both in formal and non-formal education. Distance education could contribute to the special needs of gifted students whose educational needs are difficult to meet by both teachers and parents.

Gifted Students

Individuals who exhibit higher performance in certain areas and comprehend faster when compared to their peers, and have higher imagination and awareness, could solve problems that are difficult to classify, and possess attributes such as leadership and creativity, are described as gifted individuals (Heller & Hany, 2004; M. E. B., 2007). Individuals who are described as gifted in general cognitive, painting and musical fields, which are the main three skill areas have different requirements in these areas when compared to their peers. Thus, they require support based on their traits and needs in an accelerated and enriched learning environment, different from the conventional educational and instructional activities (Davis, 2009; Levent, 2011). The characteristics of the educational institution, teacher competencies, parental awareness and support are very important in the education of gifted individuals. Hong, Greene, and Higgins (2006) determined the teachers who work with gifted students should allow them to acquire high thinking, creative problem solving and personal research skills, and meet the affective needs of the students. Furthermore, it is necessary to differentiate the teaching methods and techniques to maximize the potential of gifted individuals and to improve the program content (Rotigel, 2003; Reid & Horvathova, 2016).

Due to the personality and learning abilities of gifted students, it could be suggested that the conventional education system facilities could not fulfill the active education requirements of gifted students. Thus, distance education could play an important role in filling the gaps of the conventional education system (Shavinina, 2009b). Distance education, which prepares students for future professions through the acquisition of technological competencies, could reach a higher number of learners with a flexible program and learning process, and also less costly than traditional education (Hawkridge, Jaworski, & McMahon, 1990), is quite important in the education of gifted students since it could allow the differentiation, individualization, acceleration and enrichment of the curriculum, the organization of student-student and teacher-student interaction based on individual preferences, temporal and spatial flexibility, and does not cost a lot (Shaughnessy & Persson, 2009).

As distance education, which is considered as an alternative education model, became popular, the significance of studies on the views and perceptions of the learners and teachers, the impact of distance education activities on academic achievement, and determination of the effectiveness of various distance education applications has increased (Aktaş, 2013; Kaleli Yılmaz and Güven, 2015). Literature review revealed studies that compared

distance education and conventional education system based on various dimensions. On the other hand, the number of studies on the measures that should be adopted to improve the efficacy of distance education in the education of gifted students is quite limited (Chen, Yun Dai, & Zhou, 2013). Furthermore, studies on distance education, which was presented as the only solution to maintain educational activities during the Covid-19 pandemic, are of great importance (Telli & Altun, 2020).

Metaphors are widely used in educational studies conducted to determine the "views or perceptions" of stakeholders (Cerit, 2006; 2008; Semerci, 2007; Nalçacı & Bektaş, 2012; Ocak and Gündüz, 2006; Özdemir, 2012; Özdemir and Kalaycı, 2013; Saban, 2004, 2009; Saban, Koçbeker & Saban, 2007; Toker Gökçe & Bülbül, 2014; Kösterlioğlu, 2014). Metaphors reflect the current ideas, future expectations, and past experiences of the individual and are mental tools employed by an individual to make sense and explain highly complex or theoretically abstract phenomena (Yob, 2003; Levine, 2005).

The present study aimed to determine the perceptions of gifted students about distance education based on metaphors. The determination of the perceptions of gifted students about distance education was considered very important for the analysis of the current distance education applications by the students, one of the most important stakeholders. Thus, data on the reflections of the students about these applications could lead to significant clues for improvement. Furthermore, it was suggested that the present study findings would provide an infrastructure for future studies by researchers, curriculum experts, decision makers, teachers, learners and other stakeholders and contribute to the literature. Thus, the following research problems were determined:

1. Which metaphors are used to explain the themes developed based on the perceptions of gifted students about distance education?
2. Under which conceptual categories and themes can the metaphors associated with distance education by the gifted students can be grouped based on common attributes?

METHOD

Research Design

The present study was conducted with the phenomenology method, a qualitative research design, to determine the metaphors associated with distance education by gifted students. Phenomenological design entails detailed and in-depth analysis of certain phenomena that we are aware of but could not comprehend and it is a qualitative research method conducted to determine the construction of the emotions, perceptions, and ideas of individuals about their experiences (Yıldırım & Şimşek, 2013; Johnson & Christensen, 2008). Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, and Demirel (2012) stated that the data on the phenomenon should be collected from individuals or groups who experienced the phenomenon and reflect their ideas about the phenomenon in phenomenology studies (Yıldırım & Şimşek, 2013). Thus, the present study adopted the phenomenological method to determine the perceptions of gifted students who experienced distance education but never describe the meaning they assigned to this concept in detail.

The Study Group

The study participants included 190 gifted students attending Osmaniye Şehit Veli Demiryürek Science and Art Center and Kastamonu Science and Art Center during the 2019-2020 academic year. Purposive convenience and criterion sampling techniques were used to assign the participants. Convenience sampling is one of the most frequently employed sampling method in qualitative research, and is quick, easy and convenient based on the actual study conditions (Patton, 2005). Thus, this sampling technique was employed since the authors could easily access the science and art centers in their province. In criterion sampling, the sample is assigned based on certain predetermined criteria for the case of study (Marshall & Rossman, 2014). The inclusion criteria included attendance to at least the junior grade and distance education experience. These criteria were determined since gifted students should transfer learnings to new situations successfully and the necessity to experience distance education previously, which was the phenomenon of the research design (phenomenology). It was reported that gifted students are significantly different from their peers in transferring their knowledge and experiences to new situations easily and have broader imagination (Çağlar, 2004). The study group demographics are presented in Table 1.

Table 1. Gifted Student Demographics

Gender	Female	100
	Male	90
Education	Primary school	126
	Middle school	56
	High school	8
Skills	General skills	139
	Painting	19
	Music	5
	General skills + Painting	17
	General skills + Music	9
Total	Painting + Music	1
		190

As seen in Table 1, 52.63% of the participants were female and 47.37% were male. 66.32% of the participants attended primary school, 29.47% attended middle school and 4.21% attended high school. Based on the skill areas, 73.15% had general skills, 10% had painting skills, 2.64% had musical skills, 8.94% had general and painting skills, 4.73% had general and musical skills, and 0.52% had painting and musical skills.

Data Collection

In the present study, the data were collected with a semi-structured "Data Collection Form for Distance Education Metaphors" (Appendix-1) developed by the authors. The first section of the form that included two parts consisted of questions about participant demographics. In the second part, gifted students were asked to describe their ideas on distance education with a metaphor and to state their reasons for this metaphor. To determine the perceptions of participating gifted students about distance education, they were asked to fill in the blanks in the following statement: "Distance education is like, because"

The developed data collection tool was submitted for expert opinion and a pilot scheme was conducted with the revised form. After the pilot scheme, the form was finalized. Before the data collection, information about the study topic, content and significance was provided for the students by the authors. Then, the students were instructed to focus on only one metaphor and explain the metaphor they selected in detail using the form within the allotted 10 minutes. Then the forms were collected after 10 minutes.

Data Analysis and Interpretation

In the study, the data collected from 190 gifted students were analyzed and interpreted with the steps specific to metaphor studies. These steps are detailed below:

1. Initially, whether the students stated a metaphor clearly and whether they supported the metaphor with an explanation were examined. Data that did not include a metaphor or the indicated metaphor was not consistently explained were excluded from the analysis. Thus, 22 out of 190 students were excluded from the analysis.
2. In the second stage, the metaphors were categorized based on similarity and common attributes and the correlation between the topic and the source of the metaphor with "metaphor analysis" (Moser, 2000) and "content analysis" techniques (Yıldırım & Şimşek, 2013).
3. In the third stage, the data organized based on similarities and common attributes were re-read and classified and grouped under 9 themes and 5 conceptual categories. Then, the frequency (f) and percentage (%) of the students who stated each metaphor and category were calculated.
4. The fourth and final stage aimed to ensure the credibility and consistency of the collected data. The credibility and consistency in qualitative research are associated with the consistency of the research findings with the real-world facts. Several methods were suggested to determine the consistency. Purposive sampling method and detailed description of the research are preferred to ensure the transferability of the findings. Furthermore, to improve the credibility of the study, the views of the gifted students studying in two provinces were consulted and

adequate participation was ensured. To confirm the findings, the expert opinion method was employed. In this process, the conceptual categories and the related data were approved by a qualitative research expert.

FINDINGS

The results of the analyzes conducted to determine the conceptual categories and themes based the common attributes of the metaphors associated with distance education by the gifted students and which metaphors could explain the themes developed based on the perceptions of gifted students about distance education are presented in Table 2. First, conceptual categories and themes associated with the metaphors were analyzed in the study. Then, the themes based on these metaphors are presented.

Table 2. Distance Education Metaphor Categories and Themes

Category	Theme	f	%	Metaphor
Education (%46.4)	Common effect	53	31.5	Sun (6), light (5), rain (5), water (4), plant root (3), pollen (2), moon, wind, earth, sea, cloud, air, star, candle, tree, lung of the society, heart of the society, public transportation, flower, sound, soil, plant, joy, school, love, large family, creeper, nature, spider legs, beehive, autumn leaves, soundwave, technological device, commodity
	Instruction material	18	10.7	Teacher (6), book (2), computer (2), channel, light, scientist, the bus and driver, sea, knowledge, sun, TV
	Active learning	7	4.2	Lamb, crumpled paper, seed, aesthetics, cologne, hair comb, flower
Affective (%22.0)	Motivation	28	16.7	Flower (5), moon (2), nature, military service, earth, water, arrow, light, future, chair, scientist, tree, chlorophyll, fairy godmother, protection wall, eraser, clock, parents, star, dawn, plant, hairpin, joy
	Dependency	8	4.8	Water (3), air (2), life, coffee, food
Flexibility (%16.1)	Spatial independence	23	13.7	Root (2), sun (2), bird (2), air, universe, internet site, technology education, nature, sea, sky, knowledge, rain, wind, road, living being, flower, lamppost, creeper, internet chat, mountain
	Temporal independence	4	2.4	Internet, food, freedom, sky
Access (%10.1)	Equal opportunity	17	10.1	Cloud (2), flower (2), habitable box, light, road, oxygen, earth, air, forest, apple, rain, hospital, sound, Turkish flag, life
Interaction (%6.0)	Communication	10	6.0	Ducklings, letter, unity, full wardrobe, distance, pal, bee, phone, void, friend
Total		168	100	

Conceptual Categories and Themes Associated with the Metaphors

In the study, 5 conceptual categories were determined: "Education", "Access", "Interaction", "Flexibility" and "Affective". The analysis of these categories revealed that 46.4% of the total metaphors were in "Education" category, 22.0% were in "Affective" category, 16.1% were in "Flexibility" category, 10.1% were in "Access" category, and 6.0% were in "Interaction" category. Furthermore, 9 themes were determined in the above-mentioned 5 conceptual categories. Based on Table 2, details of the themes associated with the above-mentioned categories are presented below.

The "education" category included the "common effect" theme that indicated the widespread influence of distance education (31.5%), "instruction material" theme indicating that distance education utilized different material when compared to face-to-face education (10.7%), and "active learning" theme that assessed retention of learned knowledge (4.2%). Furthermore, the "common effect" theme included the highest number of metaphors (30.9%).

The "affective" category included the themes of "motivation" (16.7%), which emphasized the significance of affective reflections in learning, and "dependency" (4.8%) about the transformation of the eagerness to learn into a desire.

The category of "flexibility" included two themes since it allows the learner to go beyond certain spaces ("spatial independence"; 13.7%) and a certain time ("temporal independence"; 2.4%).

The "access" category included the theme of "equality of opportunity" (10.1%) that provides equal access to learning facilities.

Finally, in the "interaction" category included the theme of "communication" (6.0%) since it allows learner to acquire learning experiences via communications with the teacher.

The Metaphors Indicated by Gifted Students in Each Theme

The metaphors indicated by the participants on distance education and the associated themes are presented in Table 2. Among the 97 metaphors about distance education indicated by gifted students, the most mentioned metaphors were "sun" and "teacher" specified by 6 participants.

The metaphors indicated by gifted students were categorized under 9 themes, and the distribution of metaphors is presented based on the themes listed below.

The "common effect" theme and associated metaphors:

The metaphors indicated by the participants, who argued that the common effect of distance education was significant since it serves various target audiences at all levels, included sun (6), light (5), rain (5), water (4), plant roots (3), pollen (2), moon, wind, earth, sea, cloud, air, star, candle, tree, the liver of society, the heart of society, public transportation, flower, sound, soil, plant, joy, school, love, big family, creeper, nature, spider's feet, beehives, autumn leaves, sound waves, technological tools and commodities. Certain examples of student statements about the metaphors of sun, light, rain, water, vegetation and pollen are as follows:

S48: "Sun spreads the light to all and distance education is similar."

S20: "It scatters everywhere and teaches."

S103: "Every falling drop spreads everywhere."

S166: "It affects everyone and reaches everywhere."

S109: "It covers and protects all."

S137: "Like a flower pollen, it spreads everywhere through technology."

"Instructional material theme" and associated metaphors:

The metaphors indicated by the participants on distance education, which is perceived as a support in facilitating the accessibility of learning, included teachers (6), books (2), computers (2), channel, light, scientist, bus and driver, sea, knowledge, sun, television. Certain examples of student statements about the metaphors of teachers, books and computers are as follows:

S153: "It teaches us something."

S118: "It distributes knowledge at all."

S150: "It provides information to all."

"Active learning" theme and associated metaphors:

The metaphors indicated by the participants on distance education, which is perceived contribute to the reinforcement of learning experiences, included sheep, crumpled paper, seeds, aesthetics, cologne, hair comb and flower. Certain examples of student statements about the metaphors of seed, hair comb and flower are presented below:

S161: "It can multiply and grow anywhere."

S115: "Organizes knowledge."

S4: "Its scent and knowledge are spread everywhere."

"Motivation" theme and associated metaphors:

Emphasizing the significance of motivation in raising the learner interest and attention in distance education, the metaphors indicated by the participants included flowers (5), moon (2), nature, military service, earth, water, arrow, light, future, chair, scholar, tree, chlorophyll, fairy godmother, protection wall, eraser, clock, parent, star, dawn, plant, buckle and joy. Certain examples of student statements about the metaphors of flower, moon and nature metaphors are presented below:

S59: "Their smell attracts people."

S147: "It spreads hope."

S93: "It is the livelihood of every animal, insect, flower."

"Dependency" theme and associated metaphors:

The metaphors indicated by the participants, who described distance education as a desire that turns into dependency, included water (3), air (2), life, coffee and food. Certain examples of student statements about the metaphors of water, air and life are as follows:

S65: "It is impossible to live without water. No distance education would lead to ignorance."

S64: "It is difficult to live without air, and to learn without distance education."

S168: "It is a must for all."

"Spatial independence" theme and associated metaphors:

The metaphors indicated by the participants, who argued that distance education provides the learner with an opportunity to go beyond certain levels, included root (2), sun (2), bird (2), air, universe, website, technology education, nature, sea, sky, knowledge, rain, wind, and road. Examples are, living, flower, lamppost, ivy, internet talk, and mountain. Certain examples of student statements about the metaphors of root, sun and bird are as follows:

S57: "A root spreads everywhere and it is like it provides information to people and transmitted to all."

S142: "It provides education from different locations."

S72: "It can spread everywhere."

"Temporal independence" theme and associated metaphors:

The metaphors indicated by the participants about the fact that distance education expands the limits of time in learning included internet, food, freedom and sky. Certain examples of student statements about the metaphors of internet, food and freedom are presented below:

S163: "It can happen anytime, with anything and with anyone."

S83: "We can eat it whenever we want."

S99: "Everybody reaches education whenever and wherever they want."

"Equal opportunity" theme and associated metaphors:

The metaphors indicated by the participants who argued that distance education offered equal learning opportunities for all included cloud (2), flower (2), habitable box, light, road, oxygen, earth, air, forest, apple, rain, hospital, sound, Turkish flag, and life. Certain examples of student statements about the metaphors of cloud, apple and life are as follows:

S113: "It allows rain everywhere."

S3: "Everyone knows its benefits."

S49: "It is the right of all."

"Communication" theme and associated metaphors:

The metaphors indicated by the participants, who emphasized the importance of communication in multidimensional interaction in distance education learning experiences, included ducklings, letter, unity, full wardrobe, distance, pal, bee, phone, space and friend. Certain examples of student statements about the metaphors of ducklings, unity and telephone are presented below:

S61: "They act together."

S14: "People should be together."

S67: "Phones send news to other phones."

CONCLUSION AND DISCUSSION

The present study aimed to determine the perceptions of gifted students about distance education through metaphors. While certain previous studies conducted on gifted students investigated student perceptions about the school, teachers or courses (Oğurlu, Öpengin & Hız, 2015; Yılmaz & Güven, 2015; Aslan & Doğan, 2016; Özdemir, 2018), certain others aimed to determine the perceptions of participants with different attributes about distance education (Kaleli Yılmaz & Güven, 2015; Çivril, Aruğaslan & Özkar, 2018; Şahin İzmirli & Mısırlı, 2018).

In the present study, the analysis of the metaphors and explanations indicated by gifted students about distance education demonstrated that distance education provided active learning opportunities by facilitating, reinforcing and improving the access to learning. In studies conducted with gifted students, it was reported that formal education could not meet the academic needs of these students, and students with low academic achievement, despite their giftedness, had negative perceptions about school (Archambault, Westberg, Brown, Hallmark, Zhang, & Emmons, 1993; Westberg, Archambault, Dobyns & Salvin, 1993). Furthermore, Hırç and Bayrak (2013) argued that virtual learning environments could reinforce thinking skills such as problem solving, reasoning,

decision-making, and scientific research of gifted students. Based on the studies conducted in the literature, which reported that the academic achievements and school perceptions of the gifted students were poor, knowing the perceptions of the gifted students about distance education, which was proposed as an alternative education model in the present study, was important to improve and reorganize the content, learning environment, and interaction in distance education applications.

In the present study, it was observed that the distance education metaphors mentioned by gifted students were in 5 conceptual categories. The analysis of the distribution of the metaphors among the categories revealed that the highest number of metaphors were in the "education" category (46.4%). The metaphors were distributed in the other categories as follows: "affective" (22.0%), "flexibility" (16.1%), "access" (10.1%) and "interaction" (6.0%). Thus, it could be suggested that gifted students associated their perceptions about distance education with more than one concept. The differences between the metaphors indicated by gifted students were due to the differences in their experiences and perceptions as well as individual differences. Emphasizing the significance of experiences in personal development, Dabrowski focused on the role of experiences in the development emotional potential. In Dabrowskian theory, gifted individuals could establish advanced communications based on diverse ideas and emotions, imagination and emotional sensitivity as a result of their experiences when compared to other individuals with typical development. Thus, the expressions of gifted individuals about their perceptions, emotions and ideas about anything or phenomenon are different from others (Saranlı & Metin, 2012).

It could be argued that most metaphors indicated by gifted students about distance education were positive. Similarly, in previous studies that aimed determine perceptions of different groups of participants, it was reported that most metaphors associated with distance education were positive (Thompson & Ku, 2005; Kan & Fidan, 2016; Fidan, 2017). It could be suggested that the negative metaphors reported in the present study were based on the differences in communication and accessibility between distance and face-to-face education. Similarly, it was concluded that the negative metaphors obtained in the studies conducted by Kan ve Fidan (2016), Lee (2017), and Fidan (2017) were based on the lack of communication and inadequate interaction in distance education.

With metaphors such as "a full wardrobe", "crumpled paper", "a burnt meatball" and "cologne," gifted students emphasized the limitations of distance education in interaction and it would not be possible to retain learned knowledge without reinforcement. In certain studies, it was reported that the participants had negative attitudes and ideas towards distance education for similar reasons. Gillies (2008) reported that the participants considered long-term distance education and learner-learner interaction worthless. Similarly, in a study conducted by Karal, Çebi, and Turgut (2011), the limitations of distance education in the management of instruction and interaction after instruction were indicated. Doğan and Tatik (2015) argued that it was necessary to improve the non-instructional environments to allow virtual interaction in distance education.

The conceptual categories developed based on the common attributes of the metaphors indicated by gifted students about distance education are presented the relevant category title in the study.

Among the themes in the education category, the gifted students indicated the highest number of metaphors in the common effect theme (31.5%). The analysis of the descriptions of the sun, light, rain, water and plant root themes revealed that distance education could provide education for large masses. The advantage of providing education services to large masses as indicated in almost every article on distance education was consistent with this finding (Odabaş, 2004; Şen, Atasoy, & Aydin, 2010). The metaphors proposed by gifted students in the sub-theme of instructional material (10.7%) in education category demonstrated that distance education was perceived as a source of knowledge. Similarly, previous studies emphasized that distance education was an important source of knowledge that offered ease of access and information diversity (Moore & Kearsley, 2011; Zhang, Zhao, Zhou, & Nunamaker, 2004; cited by Çivril, Aruğaslan, & Özkar, 2018). In the theme of active learning (4.2%), the gifted students emphasized the retention of learning in their metaphors.

In motivation and dependency themes in the affective category, it was observed that gifted students felt willing and motivated for learning and the earning process. Similarly, Çivril, Aruğaslan, and Özkar (2018) reported that the distance education process was effective in the improvement of intrinsic motivation of the learners.

It was concluded that the learners had the opportunity to go beyond the spatial and temporal restrictions in distance education based on the metaphors indicated by gifted students in the subthemes of spatial and temporal independence in flexibility category. In the literature, several studies on distance education reported temporal and spatial independence advantages of distance education (Demir, 2014; Dikmenli & Ünalı, 2013; Eygū & Karaman, 2013; İşman, Dabaj and Gümüş, 2004; Kaleli Yılmaz and Güven, 2015). The flexibility of distance education is considered an advantage since it allows the learners to select the most adequate method, space and time based on their requirements (Şahin & Shelley, 2008; Kan & Fidan, 2016; Gürer, Tekinarslan, & Yavuzalp, 2016). Furthermore, various studies in the literature emphasized the advantages of distance education such as temporal and spatial independence (Karataş, 2008; Umurhan, 2014).

The review of the metaphors indicated by gifted students in the theme of equal opportunity in the accessibility category revealed that the participants mentioned the equal opportunity that distance education provides for the

learners to access educational services. Similarly, in a study conducted by Kaleli Yılmaz and Güven (2015), the advantage of distance education in providing an equal opportunity to the participants was reported. In the literature, the significance of distance education as an alternative education model was emphasized in lifelong learning since it provides learning opportunities for learners of all ages (Kuong, 2009; Lee, 2017; Zirkle, 2004).

In the interaction category, negative attitudes were observed in the metaphors indicated by the gifted students in the theme of communication since they emphasized the importance of face-to-face education in learning. Similarly, Kaleli Yılmaz and Güven (2015) reported that the participants expressed negative emotions and ideas due to communication problems with teachers in distance education. Other studies also emphasized the importance of support and communication mechanisms in distance education (İşman, Dabaj, & Gümüş, 2004; Doğan & Tatik, 2015). Furthermore, the findings that communication is important in educational activities, especially in face-to-face education environments, since communications are not artificial in conventional education, and the learners may feel alone in distance education were consistent with this finding (Besser & Donahue, 1996; Hill, Song, & West, 2009; Kerka, 1996; Sung and Mayer, 2012; Vonderwell, 2003).

In line with the aim of the study, the perceptions of gifted students about distance education, which could be considered as the education of the future, are important for the employment of their current potential functions. The pandemic, which has affected the whole world since March 2020, revealed that in certain cases, distance education could be the only alternative education method. Thus, it is of great importance to invest in distance education systems and facilities in addition to face-to-face education systems. Thus, it would be possible to effectively organize the face-to-face and online education processes, which could be called as hybrid education, that would respond to the learning needs of the z generation born in the information age during developments such as the pandemic (Arslan et al, 2019; Apprentice Kurt, Yıldırım and Cüçük, 2017). Furthermore, determination of the views and expectations of students, who are the target of the education system, about the system is also an important requirement. It could be suggested that the metaphors and the data collected in the present study would guide future distance education systems for gifted students.

The following could be recommended based on the study findings:

- In the present study, the distance education perceptions of gifted students who attended the Science and Art Center were examined. The same study could be conducted with students with typical development to determine the differences between both findings.
- In the present study, the collected data included only metaphors. Future studies could analyze the metaphors and their justifications in detail with the interview technique.
- Based on the present study findings, rich distance education content and learning environments could be developed to suit the traits, interests and expectations of gifted students.

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