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RESEARCH ARTICLE

Middle School Students' Perception of Coronavirus (Covid): A Metaphor Analysis

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Abstract

The Covid epidemic, which is supposed to have first appeared in Wuhan, China, and was declared as a pandemic by the World Health Organization, has caused positive and negative changes in many areas from people's business lives to their daily lives. Covid has caused people to form certain ideas about the virus and have a perception. Therefore, this study, which aims to reveal the perceptions of secondary school students about Covid through metaphors, was carried out with 304 students in Şanlıurfa and Kütahya, using basic qualitative research design. "Coronavirus (COVID) is like because" open-ended questionnaire forms in sentence structure were prepared and data collection was carried out electronically. The data were analyzed using the content analysis method. It was revealed that the students participating in the study produced 186 different metaphors. Metaphors are divided into 20 different categories according to the reasons for choosing them and their common features. Among the metaphors produced by the participants, it is seen that the most used ones are "flu, disease, fire, grim reaper, germ, enemy, contagious." As a result of the research, it was concluded that the meanings attributed by the students to the concept of coronavirus are generally negative and very diverse.

Keywords: Coronavirus, Covid, metaphor, secondary school students

Introduction

The Covid (coronavirus) pandemic, which emerged in the city of Wuhan, the capital of the Hubei region of China, toward the end of 2019, has led to significant changes in many areas such as health, economy, social life, and education throughout the world. In this sense, many countries have taken various measures to reduce the spread of the virus, but curfews have been implemented because of insufficient measures (Kahraman, 2020).

With the pandemic, the flow of life has changed all over the world (Zhao, 2020). The deep reflections of the serious problems created by the pandemic, which has affected the whole world, on health, economic, psychological, social life, and education still continue, and there is no definite information about when it will end (Can, 2020). The changes that occurred in the society with the pandemic forced the authorities to take sudden and unplanned decisions against the problems, and this caused various negativities in the society (Aktaş et al., 2020). As a precaution, closures have been implemented in order to minimize the contact of people with each other. Schools were at the forefront of these (Gupta & Goplani, 2020). The closure of schools has forced countries to quickly organize their education systems, shape them according to the pandemic, and produce uninterrupted solutions. The quality of learning continues to show its effects depending on the level and quality of digital access in countries (Gilani, 2020). According to Giannini and Lewis (2020), school closures in the context of the rapidly spreading virus help both slow the spread of the disease and reduce the impact on health systems that are potentially unable to cope with many diseases.

Pointing out the psychological effects of the coronavirus on people, Saatçi and Aksu (2020) stated in their study that experts have developed a new disease called "coronaphobia" related to coronavirus and that this disease can cause some psychological and social problems. It points out that if coronaphobia continues to increase with stress on people, this situation will greatly affect people's lives and their quality of life may deteriorate.

It is a matter of curiosity about how the pandemic affects people's lives and how they make sense of it. In this context, one of the most effective ways to understand the simulations and the meanings attributed to them is through metaphors. People use metaphors when transferring views, concepts, and terminologies about a situation to another area that they know little or have no knowledge of it (Güngörmez Gulmez, 2020). Since a known situation is transferred to the unknown with metaphors, it becomes very easy to understand the situation. In this context, it may be effective for students to learn concepts that are difficult to understand in this way and to understand abstract concepts more easily. The process of producing emotions and thoughts that people perceive using the metaphor method is known as "metaphorical thinking" (Saatçi & Aksu, 2020). With metaphorical thought, an abstract phenomenon that is wanted to be explained or made sense at the beginning and then a concrete phenomenon in which this abstract concept is explained are created. Finally, an analogy is established between abstract and concrete phenomena. In this way, metaphors can be expressed more emphatically with fewer words. Although metaphors are generally considered rhetoric to embellish the discourse, they are much more important than that. Because in cases where language and words are insufficient, individuals

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reflect their inner world's feelings and thoughts to the outside world through metaphors (Anılan, 2017). Metaphors allow talking and thinking by simply handling complex or abstract concepts with more realistic information (Flusberg et al., 2018).

Metaphors have gained importance in research because the complexity of diseases facilitates the use of metaphors. Studies show that diseases are often conceptualized in terms of violence. While Wallis and Nerlich (2005) explain SARS virus using the metaphor of the killer, Koteyko et al. (2008) explain bird flu using metaphors of travel to imply foreign origin and metaphors of war to justify government measures. In a study on how Malaysian and Singaporean prime ministers frame the coronavirus through metaphors, it is seen that the prime ministers use metaphors such as direction, journey, and war for Covid in their publications (Rajandran, 2020). Saatçi and Aksu (2020) aimed to determine the coronavirus perceptions of foreign students receiving tourism education at the undergraduate level through metaphors. In total, 8 categories were created as "natural events," "health," "questioning life," "education," "death," "war," "art," and "innovation." The most striking result of the study is that the students did not develop any metaphors related to tourism. Bozkurt (2020), on the other hand, tried to determine primary school students' perceptions of distance education with metaphors during the coronavirus pandemic. According to the results of the study, it was emphasized that the theory and practices in the distance education process should be placed in the teaching planning in a balanced way, and thus, meaningful learning would increase even more. In the study carried out by Gungormez Gulmez (2020), it was aimed to reveal the perceptions of the students who attended the fifth-, sixth-, and seventh-grade science courses through EBA, regarding the "Distance Science" course through metaphors. As a result, it is seen from the metaphors that the metaphors created by the students are very diverse and that some of them approach the process with a positive perspective and some with a negative perspective.

During the coronavirus pandemic, most studies focused on medical fields, and studies in the field of education are less common. The negativities experienced in education occur in different ways such as insecurity, low motivation, lack of self-confidence, and attitude changes depending on the degree of affecting students (Akmansoy, 2012). It is thought that the use of language in a correct, effective, and purposeful way has a great effect on students' reflection on the feelings, and thoughts they experience in their inner world. The experiences of students who were separated from their peers in closed environments with the transition from face-to-face education to distance education may have caused many different perceptions in their minds regarding the Covid epidemic. Although distance education provides flexibility to students, it has negatively affected students in many ways by decreasing interaction (Bergdahl & Nouri, 2020). In the studies, it was emphasized that face-to-face education is more effective than distance education for almost all the students, and the lessons that teachers and students make face-to-face in the classroom environment are seen as more valuable by students (Keskin & Ozer-Kaya, 2020; Richardson et al., 2017). Since the determination of the meanings attributed to the concept of coronavirus by the students, who are under the influence of many dimensions during the pandemic and who are among the groups most affected by this pandemic, especially education and training activities, through metaphors will contribute to filling this gap in the literature and metaphors will reflect their inner worlds. It is thought that the positive and negative effects of the pandemic on students will be examined in more detail and will shed light on the studies to be done on this subject. It is important for the students to indirectly identify the disruptions in education after the pandemic with metaphors, in terms of contributing to the formation of certain ideas and a perception by the relevant people in the arrangements to be made regarding the post-epidemic education.

For this reason, it is important to determine how the concept of coronavirus is perceived by secondary school students and the meanings they attribute to this concept.

This study was aimed to determine the metaphorical perceptions of secondary school students about the concept of coronavirus. In line with this main purpose, answers to the following questions were sought:

1. What are the metaphors of secondary school students regarding the concept of coronavirus?
2. Under which conceptual categories are the metaphors of the secondary school students regarding the concept of coronavirus gathered according to the participant groups?

Methods

The Research Model

This research is aimed to understand the experiences of secondary school students regarding the concept of coronavirus, their perceptions of these experiences, and the meanings they attribute to the coronavirus. For this reason, the basic qualitative research design was used in the research. In the qualitative research design, a way of revealing the events in their natural environment and holistically is adopted. This design is focused on the thoughts of the participants about the phenomenon, event, or process and what meaning they add to their experiences (Yıldırım & Simsek, 2018).

Study Group

The research was carried out with 304 secondary school students in private and public schools affiliated to the Ministry of National Education in the provinces of Kutahya and Sanliurfa. The answers of 30 students who participated in the study were not evaluated because they left the form blank or filled incompletely. In the study, the participants were selected according to the easily accessible case sampling method, one of the purposive sampling methods. It is known that especially young age group students are among the most affected groups during the pandemic. Since it is thought that better results will be obtained by using data collection tools such as cartoons and pictures in metaphor studies in younger age groups, it was decided to conduct the study with secondary school students, since it was thought that data were collected with a questionnaire and students could express their life experiences and perceptions more accurately. Since the two researchers in the study were working in secondary schools in these two provinces, the research was carried out in these two schools in order to provide ease of application. The demographic characteristics of 304 students participating in the study are given in Table 1.

Data Collection

Research data were collected in an electronic environment with an open-ended questionnaire. The form developed by the researchers and consisting of two parts was arranged by taking the metaphor studies and expert opinions in the literature. In the first part of the questionnaire, there are questions to determine the demographic characteristics of the participants (gender, grade level, and mother and father education level) and the status of contracting coronavirus of family or relative. In the second part, there is the sentence "Coronavirus (COVID) is like because" which was given in order to determine the metaphors of the participants regarding the concept of coronavirus. The study group was told to complete the sentence in the second part of the questionnaire by creating a single metaphor reflecting their own feelings and thoughts about the concept of coronavirus by sending the prepared questionnaire electronically, and no guidance was given to the students during this stage. In metaphor studies, the expression "like" in the sentence is used to create a simile, and the expression "because" is used to base the created simile on a logical justification.

Table 1.
Demographic Characteristics of the Students Participating in the Research

Variable		Frequency
Gender	Female	160
	Male	144
Grade Level	5	50
	6	47
	7	102
	8	105
Mother's Education	Illiterate	68
	Literate	15
	Primary School	60
	Middle School	26
	High School	37
	University	77
Father's Education	Graduate	21
	Illiterate	9
	Literate	13
	Primary School	68
	Middle School	47
	High School	50
Income Rate	University	79
	Graduate	38
	0–3000 TL and Below	143
	3000–6000 TL	73
	6000–9000 TL	42
Type of School	9000 TL and Above	46
	State School	152
	Private School	152
The status of the student catching the coronavirus	Yes	21
	No	283
A family member or relative of the student catching coronavirus	Yes	157
	No	147
Total		304

For similar reasons, the same approach was followed in this study. For the collection of data, ethics committee approval was obtained by Eskişehir Osmangazi University Social and Human Sciences Scientific Research and Publication Ethics Committee with the letter numbered E-64075176-050.01.01-118428 dated 04/12/2020.

Data Analysis

The analysis of the metaphors created by the secondary school students was carried out with the content analysis method. In content analysis, first, the collected data is conceptualized, then efforts are made to reveal the themes that can define the phenomenon (Yıldırım & Simsek, 2018). The data in the study were analyzed considering the content analysis stages (e.g., coding and extracting, creating a category, validity and reliability, and data interpretation).

Coding and Extracting

After the research data were collected, the answers of the participants were examined first, the deficiencies in the form or the forms of the participants who were left blank and not completed were excluded from the study group and were not included in the study. Participants with valid data were coded in the range of Ö1-Ö152 for Şanlıurfa and Kütahya, numbered in separate documents, and the metaphors created by the participants were listed. Based on the data generated at the end of this stage, a relational category framework was created.

Creating a Category

At this stage, all metaphors created by the participants regarding the concept of coronavirus are listed alphabetically. Among the metaphors

created by the participants, those with common features were gathered in the same group. As a result of content analysis, themes were made. While creating the categories, it was given importance to ensure a meaningful integrity of the metaphors collected in the same theme, and it was examined whether all the metaphors obtained within the scope of the research constitute a unity with the purpose of the research. The 304 middle school students participating in the research produced 186 different metaphors for the concept of coronavirus given to them. It was observed that some metaphors created were produced by more than one student. Considering the explanations given by the participants, when trying to associate with a certain theme, a total of 20 conceptual categories were created, 8 of which were common for the provinces of Kütahya and Şanlıurfa, regarding the concept of coronavirus.

Validity and Reliability

During the research process, care was taken not to give an example that could guide the participants at the stage of producing metaphors so that they could reflect their own subjective thoughts and not to direct the participants in this direction. Since credibility and transferability are important to ensure the validity of the research, the metaphors created by the participants and their reasons for the metaphor were directly included, and the results were interpreted in light of these views. In order to determine the reliability in terms of consistency between the coders, the reliability (number of agreement/ (number of agreement + number of disagreement)) was calculated with the formula brought to the literature by Miles and Huberman (1994), and the agreement between the coders was calculated as .91 and this agreement was 70% or higher means that its reliability can be ensured (Miles & Huberman, 1994).

Data Interpretation

After completing the abovementioned stages, the metaphors, categories, and explanations created were presented in tables and figures and interpreted by making explanations.

Results

This research aims to reveal the metaphorical perceptions of secondary school students about the concept of coronavirus. In this part of the research, the metaphors and categories created by secondary school students regarding the concept of coronavirus are presented in tables. In the tables presented, metaphors produced by the participants under the determined categories and statements given by the participants are included.

As it can be seen in Figure 1, secondary school students produced a large number of metaphors related to the concept of coronavirus, and the produced metaphors were given in the form of a word box according to the intensity of use of the participants. Among these metaphors, it is seen that the most-used metaphors by the participants are “flu, disease, fire, grim reaper, microbe, enemy, contagious.” When the metaphors produced by secondary school students are carefully examined, it is seen that they mostly associate the coronavirus with bad or negative concepts in daily life.

As a result of grouping based on the common features of the 186 metaphors produced by secondary school students regarding the concept of coronavirus and the reasons for the use stated by the students, the metaphors were collected in 20 different categories. Eight of these categories are common categories for Kütahya and Şanlıurfa provinces participant groups. The categories created are presented in Figure 2.

Metaphors and student statements produced by secondary school students regarding the concept of coronavirus and collected in 20 categories are listed separately under each category title, taking into account both participant groups and are given in tables.

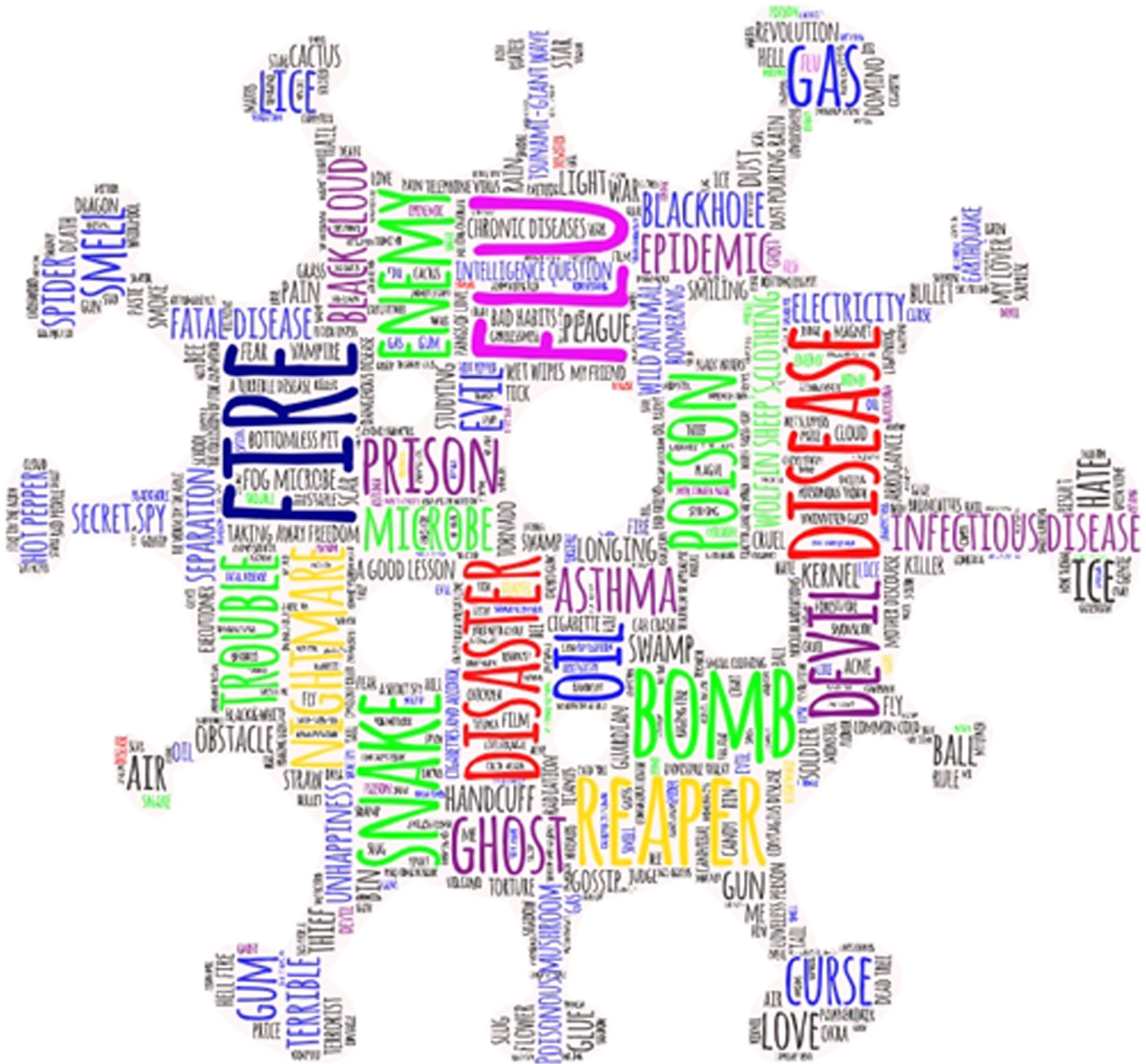


Figure 1.
Middle School Students' Coronavirus (Covid) Metaphors.

Common Categories Determined for Participant Groups

First of all, examples of student views on the Covid category as a restrictive factor, common to both participating groups, are given in Table 2.

As a restrictive factor, it is seen that students in Kütahya use 14 metaphors, while students in Şanlıurfa use 10 metaphors under the category of Covid. When we look at the statements of the students, it is understood that they evaluate the coronavirus in the context of the restrictions it creates in our lives.

Examples of student views on the category of Covid as an invasive element are given in Table 3.

It is seen that students in Kütahya use 18 metaphors, while students in Şanlıurfa use 12 metaphors under the category of Covid as

an invasive element. When we look at the students' statements, it is seen that they evaluate the coronavirus in the context of spreading and infecting others in the metaphors they created.

Examples of student views on the category of Covid as a lethal/harmful element are given in Table 4.

It is seen that students in Kütahya use 37 metaphors, while students in Şanlıurfa use 40 metaphors under the category of Covid as a lethal/harmful factor.

Examples of student opinions regarding the Covid category as an uncertain element are given in Table 5.

It is seen that students in Kütahya use 12 metaphors, while students in Şanlıurfa use 10 different metaphors under the category of Covid as

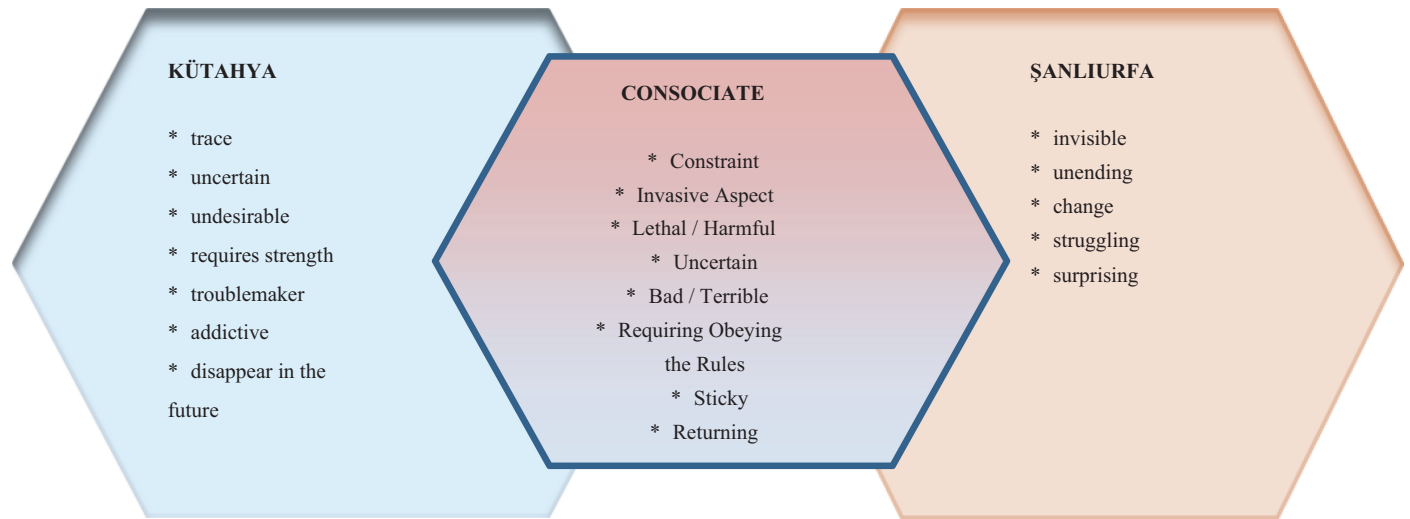


Figure 2.

Categories Were Created for the Concept of Coronavirus.

an uncertain element. Looking at the students' statements, it is understood that they evaluated the coronavirus in the context of the uncertainty feature in the metaphors they created.

Examples of student opinions regarding the Covid category as a bad/terrible element are given in Table 6.

It is seen that students in Kütahya use 4 metaphors, while students in Şanlıurfa use 5 different metaphors under the category of Covid as

a bad/terrible element. When the expressions of the students are examined, it is understood that they evaluate the coronavirus as bad and terrible in the metaphors they created.

Examples of student opinions regarding the Covid category as an element that requires obeying the rules are given in Table 7.

It is seen that students in Kütahya use 12 metaphors, while students in Şanlıurfa use 9 metaphors under the category of Covid as an element

Table 2.
Covid Category as a Constraint

Distribution of Metaphors According to Participant Groups and Sample Statements

Kütahya (f:15)	Statements	Şanlıurfa (f:11)	Statements
Spider (1)	<i>S145: It made us stay at home.</i>	Longing (1)	<i>S19: We can't hug our parents and siblings.</i>
Handcuff (1)	<i>S144: It forces people to live as captives when caught with the virus, and if we do not use the lock of the handcuffs, that is, if we do not attach importance to our hygiene, do not use masks in public, and do not pay attention to social distance, we cannot get rid of the handcuffs, that is, the virus.</i>	Ice (1)	<i>S22: It freezes our lives just as it freezes us at every touch.</i>
Pouring Rain (1)	<i>S34: We stay at our houses in heavy rain, and don't go out. If we do, we get wet. A mask is like an umbrella. It protects us in a similar way.</i>	Separation (1)	<i>S50: We can't be together; we can't come together, even with our closest ones, but sometimes this separation can be endless if we don't follow the rules.</i>
Prison (2)	<i>S107: It restricts our freedom to go out.</i>	Prison (1)	<i>S67: All our relations with real-life are cut off. . . The world has become like a prison. We can't go out as if we are criminals.</i>
Chronic diseases (1)	<i>S150: It restricts us and doesn't leave the body once it's in.</i>	Loveless person (1)	<i>S81: It keeps people away from each other.</i>
Arrogance (1)	<i>S13: Requires people to stay away from each other.</i>	Obstacle (1)	<i>S93: It prevents me from going to school.</i>
Separation (1)	<i>S44: We can't see our loved ones.</i>	Plague (1)	<i>S99: ... People run away from each other and when it is contagious, it also affects the social bond.</i>
My lover (1)	<i>S26: S/he won't allow anything.</i>	Disaster (2)	<i>S101: The only reason we stay away from our loved ones, each other, our school, our teachers, our education, our friends is Covid.</i>
Mother discourse (1)	<i>S38: It makes us stay at home and make online education.</i>	A good lesson (1)	<i>S119: It reminded us of our freedom and the value of our lives. It forced us to stay away from our loved ones. Meanwhile, it taught us the value of our loved ones.</i>
Disaster (1)	<i>S71: It ended all the social life.</i>	Taking away freedom (1)	<i>S122: Human rights are restricted to prevent the spread of the virus.</i>
Fog (1)	<i>S82: We can't see our loved ones.</i>		
Microbe (1)	<i>S89: It takes our loved ones and lives away from us.</i>		
Studying (1)	<i>S124: We should not do the things we want and give up some things.</i>		
Guardian (1)	<i>S139: It locks us in our house and prevents us from going out.</i>		

Table 3.

*Covid Category as an Invasive Aspect***Distribution of Metaphors According to Participant Groups and Sample Statements**

Kütahya (f:19)	Statements	Şanlıurfa (f:27)	Statements
Soldier (1)	<i>S2: It invaded everywhere like an army.</i>	Bomb (1)	<i>S20: It was in one person at first, he gave it to another, and he gave it to another. Then it exploded in the hands of some people.</i>
Hate (1)	<i>S37: It infects.</i>	Black cloud (1)	<i>S25: It spreads faster.</i>
Fire (1)	<i>S45: It spreads very quickly.</i>	Epidemic (3)	<i>S47: If it infects one person, it can also infect another.</i>
Swamp (1)	<i>S49: It spreads even more if you fall into it.</i>	Flu (13)	<i>S128: Everyone will catch the virus one day.</i>
Kernel (1)	<i>Ö50: It infects our family just like the salt on a sunflower kernel. Besides two weeks later, the shell of the kernel and the coronavirus seem obvious.</i>	Oil (1)	<i>S57: It spreads immediately.</i>
Light (1)	<i>S87: It spreads very fast.</i>	The collision of fire and wind (1)	<i>S75: People who go near each other get the coronavirus.</i>
Love (1)	<i>S96: It infects fast.</i>	Microbe (2)	<i>S78: It spreads from person to person.</i>
Gossip (1)	<i>Ö127: It spreads very fast.</i>	Dangerous disease (1)	<i>S84: Whoever it infects, it can infect even the people around it. That's why we must be very careful.</i>
Tornado (1)	<i>S55: It sucks in whatever is on the way.</i>	Domino (1)	<i>S94: Once infected, it infects many people later on.</i>
Unhappiness (1)	<i>S66: It spreads from person to person. We become unhappy when we see another unhappy person.</i>	Smell (1)	<i>S97: Everyone who passes by gets sick because of this smell.</i>
Air (1)	<i>S77: It's not clear where and when will it come.</i>	Nightmare (1)	<i>S109: It infects people and is very difficult to move away from.</i>
Oil (1)	<i>S53: The oil spreads to those near it like a virus.</i>	Contagious Disease (1)	<i>S103: It spreads from person to person.</i>
Gas (2)	<i>S80: It spreads everywhere.</i>		
Terrorist (1)	<i>S90: Terrorists invade countries. The coronavirus is also invading (taking over) our body.</i>		
Smell (1)	<i>S114: It spreads immediately and the effect is seen quickly.</i>		
Evil (1)	<i>S105: If people do not change their habits, evil will spread.</i>		
Smiling (1)	<i>S17: It increases as you share, if you laugh, the other person will laugh too.</i>		
Wet wipes (1)	<i>S112: When you pull out one, they all come together.</i>		

that requires obeying the rules. When we look at the statements of the students, it is understood that they evaluated the coronavirus in terms of its feature that requires obeying the rules in the metaphors they created.

Examples of student opinions regarding the Covid category as a sticky element are given in Table 8.

It is seen that students in Kütahya use 11 metaphors, while students in Şanlıurfa use 3 metaphors under the Covid category as a sticky element. When the expressions of the students are examined, it is understood that they consider the coronavirus as something with a sticky feature in the metaphors they created.

Examples of student opinions regarding the Covid category as a returning element are given in Table 9.

As a returning element, it is seen that students in Kütahya use 6 metaphors, while students in Şanlıurfa use only 1 metaphor under the category of Covid. When we look at the students' expressions, it is understood that they evaluate the coronavirus as something that cannot be completely avoided in the context of its ability to come back again.

Categories Determined for Kütahya Province Participant Group

Table 10 shows that the students in Kütahya regarding the coronavirus used 14 different metaphors under 7 different categories, apart from the common categories they created with the participant group in Şanlıurfa.

Considering the categories in which the students in Kütahya produce the most metaphors, it is thought that the coronavirus can take over their lives and leave permanent traces afterward. That's why students said that it is necessary to be stronger against the coronavirus.

Categories Determined for Şanlıurfa Province Participant Group

Table 11 shows that the students in Şanlıurfa regarding the coronavirus used 13 different metaphors under 5 different categories, apart from the common categories they created with the participant group in Kütahya.

Considering the category in which the students in Şanlıurfa produce metaphors the most, it can be explained that they are afraid of the coronavirus, they are afraid of the things they do not see due to reasons such as the uncertainty of where it will come from.

Discussion, Conclusion, and Recommendations

Considering that metaphors are powerful mental tools used to make sense of and express complex and abstract concepts, this study aimed to reveal the metaphorical perceptions of secondary school students toward the concept of coronavirus. Conceptual categories were created from the metaphors used by the participants. In the study, it was determined that 304 secondary school students used 186 different metaphors while expressing the concept of "coronavirus." This reveals the diversity of perception and perspective on the concept of coronavirus.

It is understood that the most used metaphors produced by the participant students are "flu, disease, fire, grim reaper, microbe, enemy, contagious." It is seen that the students participating in the research likened the concept of coronavirus to the concepts in the field of health with the metaphors of "flu, disease, germ, contagious." In addition, with the metaphors of "fire, grim reaper, enemy," it can be said that the coronavirus causes a negative perception in the participants in general.

Creating new meanings in the formation of metaphors is realized by using different creative ways (Gültekin, 2013). It was seen that the

Table 4.

Covid Category as a Lethal/Harmful Element

Distribution of Metaphors According to Participant Groups and Sample Statements

Kütahya (f:50)	Statements	Şanlıurfa (f:62)	Statements
Cactus (1)	S120: It hurts if its thorns prick.	Smoke (1)	S1: It chokes us.
Disaster (1)	S128: People can even die because of this.	Infectious disease (3)	S147: The death rate of the people infected is high, I don't want to be infected.
Nuclear radiations (1)	S129: Both are harmful.	Tsunami-Giant wave (2)	S3: It takes everything on its way.
The worm in the apple (1)	S126: The worm in the apple slowly eats the apple and finishes it off, just like Covid finished us.	Blackhole (2)	S145: It swallows what it catches.
Executioner (1)	S79: If infected, it kills.	Curse (2)	S5: It takes people's lives.
Radiation (1)	S81: Causes people to die.	Terrible (2)	S11: It is fatal.
Poisonous mushroom (2)	S70: It makes sick and kills anything that eats it.	Flu (5)	S85: Gives serious damage to the infected person.
Ball (1)	S72: It prickles its spines as soon as you swallow it.	Asthma (2)	S14: The person has trouble breathing.
Bad habits (1)	S74: It infects all those around you and harms you and others.	Unhappiness (1)	S18: It makes people very sad, their families and relatives die.
Gun (1)	S14: Some are killed instantly, while others are treated in hospitals or at home in pain.	Telephone virus (1)	S21: When a person is caught, it slowly destroys the person.
Fire (3)	S113: It burns where it falls.	Reaper (3)	S64: It takes lives everyday.
Pangs of love (1)	S31: The pain of love hits the heart, corona hits the liver.	Poison (2)	S28: Drives people to death.
A terrible disease (1)	S32: People are dying, about 1 billion people have died, so I think it's like a terrible disease.	Microbe (1)	S30: Everyone gets sick and dies.
Torture (1)	S64: In each case, it hurts more.	Car Crash (1)	S152: We hurt all over.
Cigarette (1)	S94: Both damage the lungs.	Fire in the Barn (1)	S34: The disease first started with a tiny spark, and then it harmed all living things.
Hot pepper (2)	S122: It hurts people.	Fire (4)	S38: Just as the fire burns the place where it fell, it takes the people caught in Covid from us.
Thief (1)	S123: It takes the lives of your loved ones when you least expect it.	Lightning (1)	S40: Just as lightning shatters the house it fell, Covid shatters the family it fell into.
Lice (1)	S41: It kills the people it adheres to.	Fire (1)	S44: It both literally and emotionally burns our liver.
Flower (1)	S42: If we get sick, that flower wilts.	Vampire (1)	S46: It will end us, suck our blood like a vampire.
Wild animal (2)	S46: It can hurt us if we don't take precautions.	Ticket to leave the world (1)	S62: People die because of it.
Glue (1)	S43: It comes off very hard when it sticks. When you smell it, it damages your lungs. It harms your skin when you come in contact with it.	Hot pepper (4)	S77: If you eat hot pepper, you won't be able to eat anything for a while, you won't get a taste, it will hurt, just like the coronavirus.
Enemy (3)	S56: It is insidious and deadly.	Bad people (1)	S79: As you live, it suddenly darkens your life.
Pain (1)	S148: Because it makes people suffer.	Dead tree (1)	S86: A dead tree loses its roots. When a person is also infected with the coronavirus, the body loses its immunity.
Swamp (1)	S52: It pulls you in as you try to run away from it.	Killer (1)	S90: It kills people. However, we will remove Covid from us by following the measures.
Poison (1)	S54: Both kill people.	Poisonous Thorn (1)	S150: If you touch it, you will be poisoned, you will fight or die to get rid of that poison.
Snake (2)	S60: If it bites, you die.	Cruel (1)	S96: It cruelly stops people's breath.
Trouble (2)	S62: It makes you suffer and locks you in.	Hell fire (1)	S100: People are dying of that disease.
Invisible threat (1)	S83: It takes what it catches to death.	Devil (1)	S92: It does evil.
Reaper (1)	S19: It kills many people.	Fatal disease (2)	S80: It is a very dangerous disease.
Bomb (3)	S21: If we get caught in that bomb, it could kill us.	Wolf in sheep's clothing (1)	S117: It eats up the body.
Invisible killer (1)	S111: It killed millions of people in its tiny form.	Electricity (1)	S120: It electrocutes if it catches you, it's a one in a million chance to survive.
Wolf in sheep's clothing (3)	S86: It silently infiltrates the body and kills.	Hail (1)	S124: Just as a person gets hurt when it hails, a person who catches Covid also gets hurt.
Bullet (1)	S133: It is small in size, but the harm is big.	Trouble (1)	S129: It spreads a contagious and nasty disease, a life-threatening disease.
My friend (1)	S141: It is small but dangerous.	Cannibal (1)	S131: Cannibals harm humans like the coronavirus.
Dust (1)	S59: Dust makes you sneeze, sometimes it has little effect, sometimes it has a heavy effect.	Snake (2)	S91: It sneaks up on us, drains its venom, and we become too tired to know where it's coming from.
Small clothing (1)	S28: It is not suitable for our anatomy.	War (1)	S144: It's like you're going to get shot if you go out.
Asthma (1)	S130: People with asthma can't breathe.	Straw (1)	S151: When you eat something, you cannot taste it.
		Bronchitis (1)	S111: Bronchitis is very similar to the coronavirus. Shortness of breath and cough are also present in Covid.
		Common Cold (1)	S59: Many symptoms are the same.
		Bin (1)	S146: People get sick when you litter it.

Table 5.

*Covid Category as an Uncertain Element***Distribution of Metaphors According to Participant Groups and Sample Statements**

Kütahya (f:12)	Statements	Şanlıurfa (f:10)	Statements
Reaper (1)	<i>S20: It takes life or it doesn't.</i>	Bee (1)	<i>S10: You don't know how it hurts until a bee stings. It is unknown what happened to the virus before it stings.</i>
Uninvited guest (1)	<i>S93: You never know when it will come.</i>	Surprise (1)	<i>S13: We or our relatives can catch it when we least expect it.</i>
Rain (1)	<i>S4: You can't leave school or stay dry unless you have an umbrella.</i>	Fear (1)	<i>S15: You don't know when you catch it and what to do.</i>
Spider (1)	<i>S11: You never know where it will come from</i>	Uninvited guest (1)	<i>S65: It came to our lives unexpectedly.</i>
Bottomless pit (1)	<i>S106: At the moment of your capture or death, you are always alone.</i>	Death (1)	<i>S104: It is invisible and inaudible. It infects suddenly and doesn't discriminate. Some don't feel anything, some feel all forms of pain.</i>
Bad friend (1)	<i>S15: A human can be a wolf or a lamb, the important thing is which cleft s/he chooses.</i>	To burn in the apocalypse (1)	<i>S106: If you pour water, it will not go out, if you throw wood, it will not burn.</i>
Star (1)	<i>S134: Some die (with mask, distance, hygiene), a black hole is formed, some continue to live.</i>	Cloud (1)	<i>S121: You never know what it will do. It may go away or can be a flood.</i>
Devil (1)	<i>S30: You never know when or where it will come from.</i>	Earthquake (1)	<i>S137: Just as a person may or may not be harmed by an earthquake, the person infected by the coronavirus may or may not be harmed.</i>
Scar (1)	<i>S39: Some get better easily, some are hard.</i>	A secret spy (1)	<i>S138: It infects us secretly and causes us to get ill.</i>
Blackwaters (1)	<i>S73: If you don't know how to swim, you die, if you do you survive.</i>	Black-white (1)	<i>S17: When we get corona, we see black and white.</i>
Tetanus (1)	<i>S143: You don't care if it catches you, but you may die.</i>		
Anime character (1)	<i>S101: It is not known when or what will it do, it can constantly mutate and at the same time it is strong like Madara Uchiha.</i>		

Table 6.

*Covid Category as a Bad/Terrible Element***Distribution of Metaphors According to Participant Groups and Sample Statements**

Kütahya (f:5)	Statements	Şanlıurfa(f:5)	Statements
Nightmare (2)	<i>S22: The life we live is not like the life we're used to. It is too bad and dark to be true.</i>	Monster (1)	<i>S43: It's a terrible disease.</i>
Pawnbroker (1)	<i>S151: When it comes into our lives, it takes something from us.</i>	Evil (1)	<i>Ö41: It is nasty.</i>
Me (1)	<i>S95: We're both heartbreaking.</i>	Raging fire (1)	<i>S51: No one can go near it.</i>
Doubt-stress-fear (1)	<i>S147: It is a disease that threatens our health, puts our loved ones at risk, and cuts us off from social life.</i>	Lovelessness (1)	<i>S83: Lovelessness is a terrible thing.</i>
		Devil (1)	<i>S102: It brought unrest to the whole world.</i>

metaphors were gathered in 20 different categories after the common features of the 186 metaphors produced by these students regarding the concept of coronavirus were taken into account and grouped depending on the reasons for their use. Of these, 8 categories were developed jointly by both participating groups that are a restrictive element, an invasive element, a lethal/harmful element, an uncertain element, a bad/terrible element, an element that requires obeying the rules, a sticky element, and a returning element. There are 7 categories developed specifically for the participant group in Kütahya (an element that leaves a trace, an unknown element, an undesirable element, an element that requires being strong, a troublesome element, an addictive element, and an element that will disappear in the future). The 5 categories developed by the participant group in Şanlıurfa were determined as an invisible element, an unending element, an element causing change, a struggling element, and Covid as a surprising element.

It is seen that students in Kütahya use more metaphors under the Covid category as a restrictive factor developed jointly by both participating groups. Among these metaphors, “prison, separation, disaster” metaphors were used in common in both participant groups. It is seen that students mostly use the metaphors of “prison” and “microbe” in Kütahya, and the metaphor of “disaster” mostly in Şanlıurfa. In the metaphors created from student expressions, it is seen that they evaluate their perceptions of coronavirus in terms of the restrictions it creates in our lives, such as being cut off from real life, being away from

loved ones, hindering their education life, and being away from their social lives. In their study, Çetin et al. (2021) found that the metaphors teachers use for the concept of virus cause uncertainty about the future, restrict life and freedom, steal health and social life, and restrict personal living spaces. It is seen that students in Kütahya use the metaphor mostly under the category of Covid as an invasive element. Among these metaphors, “smell” and “oil” metaphors were used jointly by each participant group. In Kütahya, students used the metaphor of “gas” the most, and in Şanlıurfa, the metaphor of “flu” the most. When we look at the expressions of the students, it is seen that they evaluated the coronavirus in the context of its very rapid spread, infecting others, and invading and multiplying by sharing with the metaphors they created. In one of the studies conducted in this area, it was observed that the general views of pre-service teachers about Covid were handled with very different categories. The definition of coronavirus by many teacher candidates: the fact that it is a virus that can spread quickly and easily, easily transmitted from person to person, spread from animal to human, is more contagious than swine flu and ebola, and is transmitted by contact shows that the participants have knowledge about the subject and consider the situation as a serious issue (Görgülü Arı & Hayır Kanat, 2020). Students in Şanlıurfa used more metaphors under the category of Covid as a lethal/harmful factor. Among these metaphors, the metaphors of “asthma, snake, trouble, wolf in sheep’s clothing, reaper, poison, hot pepper, fire” were used in common in both participant groups. The students mostly used the metaphors of “fire,

Table 7.

Covid Category as an Element Requiring Obeying the Rules

Distribution of Metaphors According to Participant Groups and Sample Statements

Kütahya (f:13)	Statements	Şanlıurfa (f:16)	Statements
Hell (1)	S16: Just as our number of sins increases, the length of time we stay in hell increases, and the longer the precaution is reduced, the longer the coronavirus stays with us.	Contagious disease (1)	S6: We may get infected if we are not careful.
Crossword (1)	S29: If one does not follow the instructions, the wrong output is reached, so we catch the virus.	Magnet (1)	S56: If we don't follow the rules, it will pull us.
Judge (1)	S33: S/he puts anyone who doesn't follow the rules under house arrest.	Forest fire (1)	S71: If we do not take precautions, the whole forest will be destroyed.
Poison (1)	S40: If you don't wear a mask, you drink the poison.	Carelessness (1)	S74: This virus is spreading because we don't take precautions.
Water (1)	S51: If we are not careful, we will drown in it.	Rule (1)	S82: If you put the rules in front of you and you don't follow, you will suffer the consequences.
Microbe (1)	S57: If we do not pay attention to our hygiene and social distance, we will take this microbe into our body.	Nightmare (2)	S87: The coronavirus is not a disease we can overcome. By keeping a mask or cleaning distance, the whole of Turkey can and will succeed.
Dragon (1)	S78: If you can't escape, it will kill you like a dragon's fire, and if you take precautions, you will survive.	Disease (7)	S126: It creates negative thoughts on people. It is a contagious disease that separates people or society from each other. We will save this world by following social distance, mask, hygiene, and 14 rules.
Enemy (1)	S92: If you forget about it and act recklessly, it will take advantage of it.	High voltage line (1)	S127: It can kill you if you touch it and don't keep your distance.
Electricity (1)	S119: Invisible, it kills if no action is taken.	Sock with a hole (1)	S135: If we don't sew that sock and take our precautions, that hole will get bigger and the socks will become unwearable. If we do not take our measures against the coronavirus, it will spread even more and become unstoppable.
Wet slippers (1)	S125: You don't understand until it comes to you, and when it comes to you, you understand that you need to be careful.		
Volcano (1)	S36: You think nothing will happen and then you will be caught.		
Intelligence question (2)	S63: Those who do not know the answer are punished.		

bomb, enemy, and wolf in sheep's clothing" in Kütahya, and "influenza, fire and hot pepper" metaphors the most in Şanlıurfa. The belief that this virus will pass if measures are taken after a certain period of time, and secondary school students' metaphors in the Covid category as "flu" as an element that will disappear in the future are similar to the metaphors of "deadly, flu, contagious" among the metaphors related to coronavirus in the literature (Görgülü Arı & Hayır Kanat, 2020). However, it was observed that some students expressed the virus as an endless element with the metaphors of "black cloud and bottomless

cloud" in the Covid category. Considering that they live socially and emotionally, it is expected that many participants feel anxiety due to reasons such as losing their relatives in this process or constantly encountering such news, realizing that there is a risk of losing their life (Bozkurt, 2020). Therefore, it can be said that students experience this expected situation extremely intensely with their metaphors in the categories of Covid as a lethal/harmful element and as a restrictive element. When we look at the students' expressions, it is understood that they discussed the lethal and damaging features of the coronavirus by

Table 8.

Category of Covid as a Sticky Element

Distribution of Metaphors According to Participant Groups and Sample Statements

Kütahya (f:11)	Statements	Şanlıurfa (f:3)	Statements
Paste (1)	S1: It is difficult to clean once it sticks.	Gum (1)	S53: It sticks to the lungs, just like chewing gum sticks to the hand.
Result (1)	S136: No matter how far you run, it will come and find you, it will happen.	Candy (1)	S49: When you eat it, it spreads all over you, just like when you get the coronavirus, the disease spreads everywhere.
Grass (1)	S23: It won't let you go once it sticks.	Slug (1)	S132: Sticks to people like slime.
Shadow (1)	S108: It will never let you go, whether you bend or fall.		
Gum (1)	S35: Once it sticks, it never leaves.		
Green slime (1)	S58: It is also sticky and harmful.		
Chewed gum (1)	S118: You take it with one hand, it gets into your hand, and if you do it again, it will get to your other hand again. Every change of hand is like a person catching a virus.		
Tail (1)	S121: Wherever you go, it will follow you.		
Oil paint (1)	S132: It smudges where it touches and comes out very hard, sometimes even not at all.		
Annoying kid (1)	S140: It tries to annoy you.		
Trachoma disease (1)	S149: Both are transmitted by contact.		

Table 9.

*Covid Category as a Returning Element***Distribution of Metaphors According to Participant Groups and Sample Statements**

Kütahya (f:7)	Statements	Şanlıurfa (f:1)	Statements
Lice (1)	<i>S5: No matter how clean you are, it will come back to you unless it is completely destroyed.</i>	Trouble (1)	<i>S66: When it comes, it doesn't go away, and you never know when it will come.</i>
Maths (1)	<i>S98: Even if we get rid of it, it will mutate and appear again.</i>		
Fly (1)	<i>S47: You dismiss it, but it comes back.</i>		
Boomerang (2)	<i>S110: When you throw it away, it turns around and comes to you again.</i>		
Acne (1)	<i>Ö84: When you think it's over, it pops up again.</i>		
Film (1)	<i>S97: Just as the events are unraveling, it becomes confused again.</i>		

Table 10.

Categories and Metaphors Related to Kütahya Province Participant Group

Category	Metaphor	Statements
Covid as a trace	Meteor (1)	<i>S18: It leaves a scar on everyone it hits.</i>
	Cherry stain (1)	<i>S109: No matter how much you wash it, it leaves a stain.</i>
	Staple (1)	<i>S117: If it infects a person, it leaves a trace.</i>
Covid as an uncertain element	Creatures in the ocean (1)	<i>S25: Just as the creatures in the ocean are not fully known, so is the corona.</i>
Covid as an undesirable element	Elderliness (1)	<i>S3: Nobody wants him to come, but one day comes to everyone and when he comes, he goes with death.</i>
	Okra (1)	<i>S91: I don't like okra at all.</i>
	School (1)	<i>S146: It bothers.</i>
Covid as an element that requires strength	Enemy Soldier (1)	<i>S61: If we are weak, he will beat us, but if we are strong, we will defeat him.</i>
	Whirlpool (1)	<i>S65: If you are weak, it will take you away.</i>
	Earthquake (1)	<i>S6: If your building (body) is weak, you will collapse (die).</i>
Covid as a troublemaker	Rose thorn (1)	<i>S9: A rose is not unhindered in life without thorns, there is a proverb that anyone who loves a rose bears its thorns, and one who loves life must endure its obstacles.</i>
		<i>S68: A snowslide is a snowdrift, and with the coming of the coronavirus, a collection of problems has arisen.</i>
	Snowslide (1)	
Covid as an addictive element	Cigarettes and alcohol (2)	<i>S69: Once we start both, we don't quit, and at, it also doesn't leave us.</i>
Covid as an element that will disappear in the future	Flu (3)	<i>S7: It will pass, and it will be a normal illness like the flu.</i>

Table 11.

Categories and Metaphors Related to Şanlıurfa Province Participant Group

Category	Metaphor	Statements
Covid as an unending element	Black cloud (2)	<i>S31: It doesn't rest.</i> <i>S36: The dark cloud is like despair, so is the corona.</i>
	Bottomless pit (1)	<i>S143: As if it will never end.</i>
	Whiskers (1)	<i>S133: It tasted like pumpkin.</i>
Covid as an element of change	Revolution (1)	<i>S48: It led to major changes in society.</i>
	Price (1)	<i>S55: So far, we have seen the world as our own order, but there is no such thing.</i>
Covid as a struggling element	Life struggle (1)	<i>S112: Everyone struggles not to get infected by Covid.</i>
Covid as a surprising element	Ghost (2)	<i>S58: We don't always know where and how it is.</i> <i>S123: It may appear unexpectedly.</i>
		<i>S16: We cannot see the coronavirus, and it secretly takes over our bodies.</i> <i>S138: It secretly catches us and makes us sick.</i>
Covid as an invisible element	Secret spy (2)	<i>S24: It is very small.</i>
	Chickpea (1)	<i>S72: We know it's walking among us. We can't see it, even though we know it infected us, sickened a lot of people, and killed a lot of people.</i>
	Ghost (1)	<i>S60: It is frightening, and it is not known exactly where and how it is.</i>
	Genie (1)	<i>S105: It gets into your body, and you don't realize it.</i>
	Tick (1)	<i>S108: They disappear suddenly.</i>
	Melting chocolate (1)	

stating that it takes everything away, swallows what it catches, separates it from loved ones unexpectedly, is caught and causes pain as they flee, and most importantly, causes people to die in the metaphors they have created. In addition, it has been revealed that the category with the highest number of metaphors is the Covid category as a lethal/harmful factor. It is seen that it is effective in being a lethal factor with its high level of contagious effect in people carrying the coronavirus

(Shen et al., 2020). It is seen that students in Kütahya use more metaphors under the category of Covid as an uncertain element. Among these metaphors, the metaphor of “uninvited guest” was used in common in both participant groups. Although a single common metaphor is used, the different metaphors used show that they perceive the coronavirus as uncertain. It can be said that they express uncertainty with dilemmas such as life or death, wolf or lamb, hard or easy, black or

white, and extinguished or not extinguished. It is seen that students in Şanlıurfa province use more metaphors in the Covid category as a bad/terrible element. Although there is no common metaphor used by both participant groups in this category, it is seen that they produce different metaphors under the same theme. In the province of Şanlıurfa, it was observed that each metaphor in this category was used by a single student, while in the province of Kütahya, the students used the metaphor of “nightmare” the most. When we look at the students’ expressions, it is seen that they perceive the coronavirus as a heart-burning, too bad, terrible disease that looks down on the ground and as bad and terrible as no one can come near it, in the metaphors they created. It is seen that students in Kütahya use more metaphors under the category of Covid as an element that requires obeying the rules. There is no metaphor used in this category by both participating groups. Students used the metaphor of “intelligence question” the most in Kütahya and the metaphor of “disease” the most in Şanlıurfa. When we look at the statements of the students, it is understood that they evaluated the coronavirus in terms of requiring compliance with the rules in metaphors they created such as taking precautions, paying attention, wearing a mask, hygiene, and taking precautions. It is seen that students in Kütahya use more metaphors under the category of Covid as a sticky element. Among these metaphors, the “gum” metaphor was used in common in both groups. When we look at the students’ expressions, it is seen that they evaluate the coronavirus as something that is difficult to clean when contaminated, does not leave when it sticks, follows you wherever you go, and has a sticky feature like mucus. As a returning element, it is seen that students in Kütahya use more metaphors under the category of Covid. In this category, there was no common metaphor used in both cities. When we look at the students’ expressions, it can be said that they evaluate the coronavirus in terms of its ability to come back, such as coming back even though we throw it away, coming back when we say it’s over, not going again when it’s over, and mutating when it’s over. MacLeod (2021) stated that the world of tomorrow may be very different from the world of yesterday and the difficulties we will encounter while coping with that world will not end with the survival of our society but may have just begun and may reappear.

With the metaphors they use under the category of Covid as an element that leaves a trace, students in Kütahya stated that wherever the coronavirus hits, it leaves a trace no matter how much one washes. Under the category of Covid as an uncertain element, they reflected in their metaphors that the coronavirus is not fully known as the entity in the ocean. Under the category of Covid as an undesirable element, it is stated in metaphors that the coronavirus will come to everyone one day, even if it is not wanted. It has been emphasized that the students in Kütahya have created the most metaphors under the category of Covid as an element that requires being strong, and in these metaphors, the strongest will win. Charteris-Black (2004), the most important conceptual keys framing war metaphors in the Covid epidemic are as follows: life is a struggle for survival, and society is a person, epidemics and diseases are enemies. Rajandran (2020) emphasized that war metaphors are an important way but not the only way to think about the virus and stated that there are alternative metaphors inspired by travel, music, and sports. Under the category of Covid as a troublesome factor, a perception of coronavirus that creates obstacles in our lives, just like the thorn of a rose and an avalanche, is expressed in metaphors. Under the category of Covid as an addictive element, they stated that both coronavirus and cigarettes and alcohol once started did not quit. Under the category of Covid as an element that will disappear in the future, it is seen that the coronavirus is compared with a more optimistic approach to a disease that will pass like the flu. Considering the categories in which the students produced the most metaphors, it is seen that they think that the coronavirus can take over their lives and leave permanent traces afterward. Therefore, it can be said that students are aware of the need to be stronger against coronavirus.

It can be said that in the metaphors that the students in Şanlıurfa produced under the category of Covid as an unending element, they perceived the coronavirus as if it would never end, like a bottomless pit, collapsing like a black cloud. Considering that they live socially and emotionally, it is expected that many participants feel anxiety due to reasons such as losing their relatives in this process or constantly encountering such news, realizing that there is a risk of losing their life (Bozkurt, 2020). Under the category of Covid as a factor that causes change, it can be concluded that the coronavirus causes social change and that people are of the opinion that they are not the master of this order and cannot change it. It is stated that everyone is struggling for life to be protected from the coronavirus under the category of Covid as a struggling element. Semino (2021) addresses possible problems related to the metaphor of war in Covid discourses, and it is seen that he emphasizes the conclusion that metaphors expressing negativity affect people. As a surprising element, under the category of Covid, it is simulated to be like a ghost that does not know where it will come from at any moment and that appears unexpectedly. It is seen that the category in which students produce metaphors the most is the category of Covid as an invisible element. It can be said that the metaphors produced are very small, that he secretly seizes the body without being seen, and that there are metaphors that express that he secretly catches people.

Considering the categories developed jointly by the participant groups in Kütahya and Şanlıurfa and by both participant groups individually, it is seen that the participant group in Kütahya province produces more metaphors under more categories in terms of numbers. The fact that the participant group in Kütahya produced more metaphors and the higher income levels of the families may be related to the social and cultural quality of life they offer to their children as parents. This situation is also seen in the study of Kılıç and Tezel (2012). According to the results of the study, it is seen that the scientific creativity levels of the students whose families have a high monthly income are also high. When the number of participants in Kütahya and Şanlıurfa provinces is compared in terms of gender, it is seen that more than half of the participants in Kütahya are male, while more than half of the participants in Şanlıurfa are female. It is seen that the number of metaphor types produced by the participants in Kütahya, where the number of male students is higher, is higher. When we look at the literature, it is seen that similar results emerged in Öncü’s (2003) study comparing the creativity of girls and boys aged 12–14 according to age and gender. Considering the effect of creativity on producing metaphors, the fact that 13-year-old boys have a higher average than girls in terms of producing different alternatives can be interpreted as showing similar agreement with the results of this study.

The high number of metaphors produced by the participants in Kütahya revealed that the students in private school produced more different metaphors than the students in the public school. This may be due to the fact that private schools have more economic opportunities and that children perform more social activities to develop their imagination. As a matter of fact, in the study conducted by Kılıç and Tezel (2012) to determine the scientific creativity levels of eighth-grade students, it was determined that the scientific creativity levels of students studying in private schools were higher than those studying in public schools. The explanation of this situation by providing more opportunities to students in private schools supports the results of the study in this respect. In addition, when the metaphors produced by the participants in Kütahya are examined, there are more specific and various metaphors such as “whirlpool, anime character, boomerang, nuclear radiation, trachoma disease”; when the metaphors produced by the participants in Şanlıurfa are examined, it has been revealed that the supernatural and subconscious, fearful, invisible, and unknown concepts such as “nightmare, ghost, genie, monster, apocalypse” are at the forefront. It is thought that the reason for this situation is the

reflection of social and cultural differences on the metaphors produced. Türkdoğan and Özgenel (2021), in their study, examined the relationship between teachers' creative thinking tendencies and school climate and stated in their research that people's creativity levels can change with the social environment they live in. In this sense, the fact that people can bring various interpretations to the situations they encounter in an environment that supports and encourages creativity coincides with the result of the study.

When evaluated in terms of the reasons for the metaphors, it is seen that the whole world has been affected by the epidemic process and that the participants produce and justify their metaphors according to the way they are affected. The most important result is the production of metaphors and justifications related to the importance of health in our lives. In their study, Saatçi and Aksu (2020) also mentioned the importance of health, desperation, and death because of desperation, and stated that the fear of death increased. However, they emphasized that it is a process in which the importance of health, cleanliness, hygiene, and, most importantly, patience is understood, which people did not realize beforehand and cared less. They stated that everything known can change with uncertainty because of the struggle made in this process and that a new beginning or end can occur. All these results show that students are adversely affected in many ways during the pandemic.

Moreover, 68% of all participants participating in the study are seventh- and eighth-grade students. The fact that 186 different metaphors were produced in the study can be explained by the fact that as the grade level increases, students' perspectives on the subjects develop and enrich, and they begin to acquire cognitive skills that are more suitable for abstract thinking. Öncü (2003) examined the creativity levels of 12–14 age group students and found that 14-year-old children were significantly different from 12–13-year-olds in all 4 dimensions of creativity. Again, in a study by Alacapınar (2013), when he examined the creativity of children from third to eighth grade, he concluded that creativity scores increased from third to fifth grade. In this sense, considering the importance of creativity in the production of metaphors for a concept, seeing that various and many metaphors were produced in this study shows that the result of the study overlaps with the literature. When the education levels of the parents of the students are examined, it is seen that 43% of the mothers and 46% of the fathers are high school, university and undergraduates. There is no doubt that there is parents' contribution of thinking skills, creativity, and education level to the various metaphors that students create about the coronavirus. Looking at the literature, according to the results of the study conducted by Kılıç and Tezel (2012) with eighth-grade students, it was seen that the scientific creativity of the students whose mothers and fathers were university graduates was higher than the other students. It is seen that the cognitive development of the children of parents with a high education level develops positively. As a result of the study, the reason why the participants with low educational level of parents produced less kinds of metaphors can be interpreted in this way. When the metaphors produced by the participants were analyzed according to catching the coronavirus category, it was seen that only 7% of the participants caught the coronavirus, and the majority of them produced the metaphors that fell into the category of Covid as a lethal/harmful element. It was observed that the participants who contracted the coronavirus mostly talked about the effects of the disease, how it was transmitted, and their own experiences during the disease process while explaining the reasons for the metaphors. At the level of individual illness experience, Wicke and Bolognesi (2020) states that the framing power of metaphor can be effective in the general expressions of patients, especially in health-related discourses. When the relatives of the students in the study were examined, it was determined that one of the relatives of 51% of the participants had the disease. From this point of view, it can be said

that even if the majority of the students do not have the disease, they observe their surroundings and are influenced by various informative sources such as television and the Internet. Ekici (2016) made similar statements in his study, in which he aimed to determine the perceptions of biology teacher candidates regarding the concept of microscope through metaphors and stated that the learning situation would be facilitated and simplified, and the concepts would become concrete by matching the new situations with the concepts that existed in the minds of individuals from their experiences in their lives. It is known that people's experiences and lifestyles contribute to their imaginations in metaphor production.

As the general result of the study, it can be said that secondary school students generally explain the concept of coronavirus with negative metaphors, and their perceptions of the concept of coronavirus are very diverse. The fact that this study was conducted in one private and one public school in only two cities makes it difficult to generalize the results. As a suggestion, it can be suggested that a similar study can be carried out with a larger sample group. It is thought that this study will shed light on future studies and will be effective in examining the effects of the students' situation in terms of different disciplines, based on the students' perceptions of coronavirus.

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