



METAPHOR ANALYSIS OF THE PERCEPTIONS OF "GLOBAL WARMING" AS A CONCEPT

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Abstract

Humanity used to have a harmonious relationship with nature for a very short period of civilization history. However, the tendency to dominate nature has been the common denominator of all cultures in thought and action for thousands of years. In environmental literature, there is a common consensus that natural balances have changed due to more human activities following the industrial revolution. The environmental problem, defined as "global warming" in recent years, has developed as a result of human activities. This problem affects humanity with its economic, social and cultural dimensions as well as many other living species. Over the past decade, living has increasingly become harder for many living beings on the planet. Policies are being developed at national and international levels to cope with this problem and various opinions and practices are put forward. Most of these practices are based on individual local measures. However, studies show that individuals have misconceptions about this issue. For this purpose, this study aims to understand the perceptions of 87 participants, 65 women and 22 men living in the TRNC, about global warming through a "metaphor analysis". Since the study was conducted within the covid-19 period, it was conducted among the participants who can operate through a digital space. The essence of the study is based on determining how the participants express the concept of global warming, make sense of it and characterize it visually. The study was conducted using a qualitative phenomenology design. With this method, the study aimed to make sense of the phenomena that the participant described depending on their experiences. The data obtained were evaluated by content analysis method. Semi-structured forms were distributed for data collection. The first part of the form is based on demographic information, and the second part is to determine the perceptions of the participants about global warming. In order to do this the question of "If you were to compare global warming to something (abstract, concrete, alive, non-living), what would you compare it to? Why?" was asked to the participants. Lastly, the participants were required to answer the question in the sentence format of; "Global warming is like.... Because). In the study, 87 metaphors about the concept of "global warming" created by the participants were evaluated. The analyzed metaphors were gathered under 13 different conceptual categories. The expressions were interpreted and categorized by looking at how often the metaphors formed by male and female participants were used. Since this study does not consist of an equal number of male and female participants, gender differences should not be taken into account in the findings.

Keywords: Metaphor analysis, phenomenology, global warming, climate change.

Introduction

The conflict between humanity and nature has become extremely prominent since the industrial revolution. As a result of this conflict, Global Warming and Climate Change has

become an economic, ecological, social and cultural threat to humanity and nature overall. International conferences and conventions such as the United Nations Climate Change Conference (COP), the United Nations Framework Convention on Climate Change (UNFCCC), the Intergovernmental Panel on Climate Change (IPCC) have been intensely interested in the issue for nearly a quarter of a century. The reports put forward in these conventions and conferences in the UN reveal how global, multidimensional, complex and urgent the security problems are regarding climate change and global warming. Due to the aforementioned characteristics of the problem, global warming and climate change have acquired a central position in the political agenda of the 21st century. In the past decade, global warming, the depletion of the ozone layer, desertification, the destruction of forests, the rise of water levels in coastal cities and the greenhouse effect have come to threaten the continuity of our lives (Keleş & Akarsu, 2016).

Contrary to popular belief, the order of the climate is not going through changes solely due to the influence of humanity. In fact, global climate change has been experienced due to natural factors since the formation of our planet due to events such as volcanic eruptions and changes in the amount of light on the earth's surface. However, today, it is claimed that global warming, a phenomenon that threatens the world by playing a determining role on the new climate order, is the result of human activities rather than natural factors (NASA, 2020).

Global warming refers to the increase in average temperatures at the global level that occurs as a result of the greenhouse effect (Odum & Barret, 2016). In other words, global warming is a term used to describe the increase in the average temperature of the atmosphere that surrounds our world as a thin layer and the world's ocean waters, which constitute two-thirds of the planet we live in (Nart, 2009). Global warming is causing forest fires, deforestation and desertification in some parts of the world while contributing to extreme rainfall, erosion and floods in others (Ersoy, 2006). The cause of global warming is divided into two categories of natural and human effects. 30% of the sun's rays are reflected back through clouds, aerosols and the earth. It is claimed that if these reflected rays had not kept greenhouse gases, the average temperature of the earth would be 33 ° C colder than today and the world would be inhabitable for many living species (Ma, 1998). However, since the Industrial Revolution, there has been an increase in the amount of energy required due to urbanization, industrialization and the increase in the world population which resulted in more fossil fuels being used as an energy source. Since energy sources such as petroleum and coal contain carbon, they emit carbon dioxide (CO₂) gas when burned. CO₂ gas constitutes 80% of the total greenhouse gases (Hotunoğlu & Recep, 2007). CO₂ emissions, which were 280 ppm for about 800000 years before the industrial revolution, have increased to 400 ppm today (NOAA, 2013). Gas measurements done on the air inside the icebergs in Greenland and Antarctica show that there is a relationship between the increase in CO₂ level in the atmosphere and the warming and cooling of the earth. For instance, it was found that the CO₂ level was very low in the last ice age, 15000-30000 years ago, and very high during a hot interim period 5000 years ago (Sadava et al., 2014).

Content analysis of various studies done in the field of environmental studies in Turkey has illustrated that many participants held misconceptions regarding global warming and climate change. The reasons for these misconceptions are attributed to the fact that the participants had obtained their knowledge on climate change and global warming through mass media and peer groups (Bahar & Aydın, 2002; Bozkurt & Cansüngü, 2002; Arsal, 2007; Kahraman et al., 2008; Kışoğlu et al., 2010). It is seen that the number of academic studies on global warming has intensified between 2007 and 2010. In these studies, it was observed that

the participants had misconceptions about global warming and the greenhouse effect and their academic knowledge level was insufficient, but their awareness and sensitivity about the threats arising from global warming and environmental problems were high (Ünlü et al., 2011). Similarly, according to Bord et al. (1998), although the American public was environmentally sensitive, their level of concern about global warming was low compared to other environmental and social problems in their daily lives. Furthermore, studies conducted in developed countries have found that only a few people believed global warming would have economic effects. The American public perceives CO₂ as the most important pollutant causing global warming, especially among greenhouse gases, and support the government's proposed policies on this issue (Leiserowitz, 2006).

Changing weather temperatures and disasters due to severe weather conditions have led to the formation of international networks that warn different sectors regarding the climate and the media to constantly raise this issue. For example, FEWNET (Famine Early Warning System) has been established in order to announce which regions are prone to drought and the problems that will develop due to drought and to ensure that necessary measures are taken (Fewsnet, 2019). In the Turkish press, the weather has been a subject of interest in 1856 news since the beginning of 2019, with the topic of global warming being included in 7453 news (IHA, 2019). Newspapers, internet news, social media networks, television, documentaries, animations and films about the subject express a level of concern about the future of the world. For example, Leiserowitz (2004) conducted a study on how the movie "the day after tomorrow" raises awareness about global warming and found that people who watched the film developed a higher level of awareness than those who did not.

In this context, this study aims to understand the perceptions of individuals towards global warming with the method of "metaphor analysis". Some researchers state that individuals can explain concepts, perceptions and attitudes they have difficulty in expressing by using metaphors (Arslan & Bayrakçı, 2006). Metaphors are expressed as the conceptualization of a field of experience within another field of experience. In other words, metaphors serve to transfer the understanding of a situation or subject an individual lacks knowledge on to an event or a field they know better (Morgan, 1998). Cerit (2008) defines metaphors as tools that people use to simulate how they see life, environments, events, phenomena, and objects. According to Lakoff and Johnson (1980), "understanding something from another perspective" not only gives us new insights but also impacts our thoughts and actions.

Purpose of the Research

The aim of the research is to reveal the perceptions of the participants on the concept of global warming through metaphors. Determining how the participants express the concept of global warming, make sense of it and visualise it constitutes the basis of this research.

Within the framework of this general purpose, the following questions were aimed to be answered in this research;

1. What are the views of Cypriot adults regarding global warming?
2. What are the views of Cypriot female adult participants on global warming?
3. What are the views of Cypriot male adult participants on global warming?

Importance of the Research

In order to manage the risks arising from global warming and to get results to improve the situation, impact reduction and adaptation studies are carried out on a global scale and policies and action plans are prepared on this issue (Pachauri & Meyer, 2014). People's perceptions about global warming have an effect on their support for these policies and actions, that is, their reactions to the process. If the public's perceptions regarding global warming are wrong, their reactions to the policies and action plans will also be misplaced.

In this context, the importance of the study is to contribute to the formation of sustainable societies by understanding the perceptions of individuals regarding global warming and by making suggestions that will enable individuals to support "adaptation" and "mitigation" policies related to the measures. In addition, this study will contribute to filling a gap in the field of environmental studies, since there is no research with metaphors expressing the concept of global warming in Northern Cyprus. Lastly, by revealing the differences in the perceptions of women and men regarding global warming, it will contribute to previous studies in the field by providing a gender-sensitive insight.

Limitations

The limitations defined in this research are as follows:

- 1- The research was conducted in the months of March and June in a limited scope due to Covid-19 regulations.
- 2- The sample of this research consisted of 65 female and 22 male participants which affected the representativeness of this study.
- 3- The age categories were based on the classification of the World Health Organisation which classified the age ranges of 18-65 as young adults and 65-74 as elderly, which further limited the scope of my study as the elderly (75+) was not included.
- 4- A semi-structured survey was used for data collection and the questions were limited to 4 demographic and 1 question regarding the use of metaphors for global warming perception.

Methodology

The analysis of the metaphors corresponding to the perceptions of the participants regarding the concept of "global warming" was carried out using a phenomenology design. Phenomenology is a qualitative research method that aims to make sense of phenomena described by the researcher based on the experiences of the participant and takes its source from philosophy and psychology. The aim is to reach the core of the individual's experience (Giorgia, 2009; Moustakas, 1994). According to phenomenologists, there is often some commonality about how people perceive and interpret certain events. Studies in the phenomenological design focus on these common points. (Fraenkel, Wallen & Hyun, 2012) In this context, the participants' intuitive perceptions of global warming were considered as a phenomenon, and the common themes in participant's metaphorical descriptions were indicated, and categories were created.

In order to reveal the metaphorical perceptions of the individuals participating in the research on global warming the open-ended question of; "If you were to compare global warming to something (abstract, concrete, alive, non-living), what would you compare it to?"

Why?" was used. The participants were required to use the following sentence structure for their answers; (global warming is like Because)

Sampling

The study was conducted in the months of March and July 2020 with a sample of 118 participants under Covid-19 regulations. The responses of 31 people participating in the study were not accounted for in the analysis as the participant's statements were blank or incomplete. A total of 87 forms, 65 from women and 22 from men, were evaluated. Participants in the study were selected from among individuals who were able to operate a digital environment. In line with the World Health Organization's age classification, the age group of 74 and over were excluded from the study (Balci et al., 2018). In addition, since gender difference was a consideration in this study, easily accessible situation sampling was used for the selection of the sample. In this method, the researcher conducts their research with study groups that they have easy access to (Fraenkel, Wallen & Hyun., 2012). In the study, the focus was on the quality of the data obtained from a small sample group instead of reaching a large number of individuals. The general characteristics of the participants in the study are provided in Table 1.

Data Collection

The field of this research was Northern Cyprus. A semi-structured form was distributed as a data collection tool in order to determine the participants' perceptions of the concept of "global warming". The form consists of two parts. In the first part, participants were asked to provide demographic information including age, gender, occupational and education status. As for the second part, the form asked the participants an open-ended question of; "If you were to compare global warming to something (abstract, concrete, alive, non-living), what would you compare it to? Why?" and were asked to answer the question in the sentence format of; "Global warming is like.... Because). In studies where metaphor forms are used as a data collection tool, the words like "/ similar" evoke the connection between the subject and the source of the metaphor, and help to understand the reasons for the projection or reasons of this metaphor for the individual.

Data Analysis and Evaluation

The data obtained in this study were evaluated using the "content analysis" technique. In content analysis, it is aimed to reveal the existence of certain words or concepts within a set of texts or texts (Büyüköztürk, Kılıç-Çakmak, Akgün, & Karadeniz, 2008). Content analysis is based on the reorganization of similar data by the researcher in a way that the reader can understand by bringing them together under certain concept and theme titles (Yıldırım & Şimşek, 2006).

The evaluation of the data was carried out with a three-stage study: determining metaphors, coding codes, associating them with a specific theme and collecting them under categories (Patton, 2002). In this context, the data must first be conceptualized and then organized in a logical way according to the concepts. In this study, all the metaphors (monster, pressure cooker, creature, suicide) expressed by the participant were first coded. These encodings are made according to the concepts derived from the data. As a result, a list of metaphors to be used in categorizing the data was obtained. In the second stage, 87

metaphor lists were taken into consideration, and it was determined how metaphors were associated with the concept of global warming with connections/causes / reasons. In the third stage, each metaphor produced was placed in conceptual categories determined by the researcher by associating it with a certain theme according to the participant's perspective on global warming. In this study, 87 metaphors were placed in 13 different categories.

In the last stage, the findings were interpreted. For validity and reliability, the raw data were reported in detail, how the data was obtained, and how the categories were determined by evaluating the data were explained. The data obtained from the participants were stored in order to contribute to other different studies, and at the same time, external reliability was increased.

Findings

Conceptual Categories

In the study, 87 metaphors about the concept of "global warming" created by the participants were evaluated. 65 of these metaphors were unique and not repeated. The most repeated metaphor was the tangible entity (f 4) metaphor. The metaphors created by the participants were collected under 13 different conceptual categories after a thorough content analysis.

Table 1.

Categories determined for the concept of "global warming" and the frequencies and percentages of the use of metaphors within each category

Categories	Frequency (<i>f</i>)	Gender		Percentage (%)
		Male (<i>f</i>)	Female (<i>f</i>)	
As a threat	8	4	4	9.19
As a consequence of humanity	14	12	2	16.09
As a cause and effect relationship	11	6	5	12.64
As a process of extinction	10	7	3	11.49
As an effect	8	6	2	9.19
As a preventable problem	5	5	0	5.74
As a factor that disrupts the natural balance	2	2	0	2.29
As an irreversible process	8	6	2	9.19
As a scenario	3	1	2	3.44
As a concept relating to rising temperature	9	9	0	10.34

Table 1.
Continuation

Categories	Frequency (f)	Gender		Percentage (%)
		Male (f)	Female (f)	
As an abstract entity	3	4	0	4.59
As a tangible entity	4	3	1	4.59
As an illness/disease	1	0	1	1.14
Total	87	65	22	100

As seen in Table 1, 87 individuals, 65 men and 22 women, participated in the "Metaphor Analysis of Perceptions Regarding the Concept of Global Warming" study. As there are repeated metaphors, a total of 65 different metaphors were produced. The most frequently repeated metaphors were "global warming as a tangible entity" (4); "global warming as an abstract entity" (3); "global warming as a scenario" (3) metaphors:

Most of the metaphors and projections produced by all the participants in the study were gathered in the category of global warming "as a consequence of humanity".

Similarly, most of the metaphors and projection produced by female participants were gathered in the category of global warming "as a consequence of humanity".

The least used metaphors by female participants were in the categories of global warming 'as a disease/illness' and global warming 'as a scenario'.

Most of the metaphors and projections produced by the male participants in the study were gathered in the category of global warming "as a cause and effect relationship".

The least used metaphors by male participants were in the categories of global warming 'as a preventable problem', global warming 'as a factor that disrupts natural balance', and global warming as an 'abstract entity'.

Global Warming as a Threat

Table 2.
"Global Warming as a Threat" Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
Fire	2	2.29
Threat	2	2.29

Table 2.
Continuation

Metaphors	Frequency (f)	Percentage (%)
Pandemic	1	1.14
A Bomb that has exploded	1	1.14
Fireball	1	1.14
Blaze	1	1.14
Total	8 4F+4M	9.16

As seen in Table 2, 6 different metaphors created by 8 participants (f 8) were placed under the category of "Global Warming as a Threat". This category represents 9.19% of the survey participants. The most frequently repeated metaphors in the category were "threat" as f (2) and "fire" metaphor for f (2).

Among the total women; $100 \times 4 / 65 = 6.1\%$ expressed global warming as "Global warming as a threat".

Among the total men; $100 \times 4 / 22 = 18.1\%$ expressed global warming as "Global warming as a threat".

Some expressions in this category are given below:

"Global warming is like a threat; because living things and nature are being harmed. Instead of preventing it, we are making it worse and this could end humanity. It poses a great threat to us."

"Global warming is like a pandemic disease with no cure; because its effects are felt heavily all over the world."

"Global warming is like a bomb that hasn't exploded yet; because if we are not aware of the danger it will do great harm."

"Global warming is like a fireball; because it can burn everywhere"

"Global warming is a threat. Living beings are harmed. Nature is hurting."

"Global warming is like a blaze; because it can cause irreversible harm to people. "

"Global warming is like fire; because our world is slowly burning and unfortunately most of us are not aware of it."

Global Warming as a Consequence of Humanity

Table 3.

"Global Warming as a Consequence of Humanity" Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
Pitbull	1	1.14
Creature	1	1.14
Destruction	1	1.14
Melting Ice Cream	1	1.14
Suicide	1	1.14
Getting a Fever	1	1.14
Carbon Dioxide and Death	1	1.14
Unbalanced Living	1	1.14
As an end	1	1.14
Balance	1	1.14
Neglected House	1	1.14
Dying while Living	1	1.14
Human harming the ecological balance	1	1.14
Balloon	1	1.14
Total	14 12F+2M	16.09

As seen in Table 3, 14 different metaphors created by 14 participants (f 14) were placed under the category of "Global Warming as a Result of Human Doing". This category represents 16.09% of the participants in the research. No metaphors have been repeated in this category.

$100 \times 12/65 = 18.46\%$ of total women see global warming as "a result of what people do".

$100 \times 2/22 = 9.09\%$ of total men see global warming as "a result of what people do".

Some expressions in this category are provided below:

"Global warming is like a pitbull; because it is created by human beings by their own efforts, and it constantly harms human beings and everything around them. "

"Global warming is like a creature we created; because it is a problem caused by us and our actions. So we created it. But we do not realize that we will be destroyed by the creature we have created."

"Global warming is like destruction; because we are aware that we are destroying ourselves and we continue to do even that. "

“Global warming is like ice cream taken out of the refrigerator and forgotten; because eating ice cream gives people pleasure. You eat and you feel happy. You think that nature will give you pleasure like ice cream and exploit it as you wish. Just as when we will realize that it will be like melted ice cream when we will try to do something again.”

“Global warming is like suicide; because man has disturbed the balance and order in the cosmos.”

“Global warming is like getting a fever; because, just like the harm that viruses do to humans, people also harm the world and raise its temperature.”

“Global warming is an unbalanced life; because we are in an unconscious society. Nature is falling apart, when ignorant people are careless about the environment.”

“Global warming is like a neglected home; because we could not protect our house, we did not care about our house.”

“Global warming is like dying while living; because my children and grandchildren come to my mind. Nature can actually sustain itself but we humans spoil them .”

“Global warming is like a human being harming the ecological balance; because global warming is a human-made environmental threat that negatively affects human beings and life, I compared this situation to a person whose own damage is in his own hands.”

“Global warming is like the end; because global warming is mostly caused by people. Of course, natural events more or less had an effect on this, but both the smoke from factories and the needs such as deodorant and perfume increase the carbon dioxide gas. That's why the ozone layer was ruptured. In addition, while the warming of the earth normally takes many years, it has increased 1 degree more in recent years due to these gases. Despite this, we do not take measures and continue in the same way. Even more factories and industries are being built. Because of these gases, global warming is increasing more. It causes the ice caps to melt.”

Global Warming as a Cause and Effect Relationship:

Table 4.

“Global Warming as a Cause and Effect Relationship” Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
Drought	2	2.29
Pressure Cooker	2	2.29
Information	1	1.14
Food	1	1.14
Erupted Volcano	1	1.14

Table 4.
Continuation

Metaphors	Frequency (f)	Percentage (%)
Sea	1	1.14
Living Being	1	1.14
A being dehydrated in a dessert	1	1.14
Total	10 (6F+5M)	12.64

As seen in Table 4, 9 different metaphors created by 11 participants (f 11) were placed under the category of "Global Warming as a Cause-Effect Relationship". This category represents 12.64% of the participants in the research. The most frequently repeated metaphors in this category were (f2 "Pressure cooker" and "drought" metaphors).

$100 \times \frac{6}{65} = 9.23\%$ of total women express global warming "as a cause and effect relationship".

$100 \times \frac{5}{22} = 22.72\%$ of the total men see global warming as "a cause and effect relationship".

Some expressions in this category are given below:

"Global warming is like a drought; because the world will now be warmer than normal, many water sources will dry out and drought areas will increase."

"Global warming is like a pressure cooker; because human beings disrupted the world's regular functioning with what they did, it makes a sound as the temperature increases and sometimes explodes with pressure."

"Global warming is like information; because it is an event that is shaped by the insensitivity and ignorance of the society."

"Global warming is like food made by a person who has no knowledge of cooking; because the actions of people are not in harmony with nature and therefore have negative consequences."

"Global warming is like an erupting volcano; because it would be the result of the rising and spreading lava."

"Global warming is like the sea; because if we know how to use the sea positively, it serves all living things, and if we use it negatively, it will swallow everything. There is a cause and effect relationship."

"Global warming is like the gas that creates the pressure in the pressure cooker; because when the pressure inside the pressure cooker starts to exceed its capacity, it gives a warning with a sound. When we compare the world to a pressure cooker, the world warns us that the capacity

is exceeded by many signs. Global warming is the biggest factor that causes these warnings to occur.”

“Global warming is like a living being; much like how we look after a beautiful tree so that its fruit grows healthy and how diligently we water it this is also true for global warming. Because as we damage nature, the balance of nature is disrupted and the ozone layer cannot protect us from harmful rays. People actually harm all living things, not nature.”

“Global warming is like a person who has been dehydrated for a long time in the desert, because it is exposed to the burning rays caused by global warming, and just as global warming causes the melting of icecaps, it leaves the person to thirst in the desert.”

“Global warming is like a drought; because the weather gets too hot, and most water resources will dry. Accordingly, drought will cause fires by causing temperatures to rise.

Global Warming as a Process of Extinction

Table 5.

“Global Warming as a Process of Extinction” Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
As an end	1	1.14
Cancer	1	1.14
Genocide	1	1.14
Illness	1	1.14
Suffocating, invisible fog cloud	1	1.14
Person on drugs	1	1.14
Self-harm	1	1.14
Destruction	1	1.14
Monster	1	1.14
Rotting Fruit	1	1.14
Total	10 (7F+3M)	11.49

As seen in Table 5, 10 different metaphors created by 10 participants (f 10) were placed under the category of "Global Warming as an Extinction Process". This category represents 11.49% of the participants in the research. There is not the most repeated metaphor in this category.

100x 7/65 = 10.76% of total women refer to global warming as "an extinction process".

100 x 3/22 = 13.63% of the total males expresses global warming as "an extinction process".

Some expressions in this category are given below:

“Global warming is like an extinction; because the water level rises as it causes the glaciers to melt. If this is not prevented, the living creatures living there and then the whole world will be in danger of extinction. It cannot be said that these events are too far in the future from us.”

“Global warming is like a cancer cell. It gradually multiplies, causes harm and is deadly. Global warming will adversely affect the whole world if measures are not taken, climates change, and natural disasters will multiply and cause the destruction of the world.”

“Global warming is like a genocide; because it is humanity destroying its new generation.”

“Global warming is like a slow progressing disease; because it slowly hurts us and leads to a bad end.”

“Global warming is like a suffocating, invisible fog cloud; because it is gradually destroying our world and all the life in it.”

“Global warming is like a person using drugs; because it destroys itself slowly,”

“Global warming is like a person engaging in self-harm; Because just as human beings are killing themselves, we are trying to survive, increasing global warming more and we are killing nature even though we need it ourselves. We become not only our own killer, but also other creatures. It disrupts the ecosystem and the cycle of nature. But we do not know that we will suffer the most from this.”

“Global warming is like destruction; because we destroy ourselves and we never stop even though we are aware of it.”

“Global warming is like a monster; because it eats us slowly.”

“Global warming is like rotting fruit; because it is coming to an end by rotting. However, the world would be so useful and beautiful if it does not rot.”

Global Warming as an Affecting Factor

Table 6.

“Global Warming as an Affecting Factor” Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
Tar	1	1.14
Living Being	2	2.29
Snow Globe	1	1.14

Table 6.
Continuation

Metaphors	Frequency (f)	Percentage (%)
Fire	2	2.29
A virus that looks like a fireball	1	1.14
Desert	1	1.14
Total	8 6F+2M	9.19

As seen in Table 6, 7 different metaphors created by 8 participants (f 8) were placed under the category of "Global Warming as an Affecting Factor". This category represents 9.19% of the participants in the research. The most frequently repeated metaphor in this category was "fire" and 'living being'.

Among the total women, $100 \times \frac{6}{65} = 9.23\%$ expressed global warming 'as an affecting factor'

$100.2 / 22 = 9.09\%$ of total men expressed global warming as "an affecting factor".

Some expressions in this category are given below:

"Global warming is like tar; because, in every way, it produces damage."

"Global warming is like a living being. Because the world is a living being and the global climate change is also a living being that effects and changes the world"

"Global warming is like a person shaking a snow globe; Cause every time he shakes the snow globe the contents of the sphere dissipate, representing an increase in natural phenomena with global warming."

"Global warming is like fire; causes an increase in temperature and fire."

"Global warming is like fire; because the fire is beyond our control, global warming's harm cannot be controlled"

"Global warming is like a virus that looks like a fireball because much like a global virus global warming is a problem that affects our whole world. In addition, because the sun rays hitting the earth cannot return to the earth, it increases the temperature of the earth which is the reason why the virus looks like a fireball. This problem does not only affect a particular region but the whole world much like a pandemic."

"Global warming is like an alive being; because it directly affects living things."

"Global warming is like a desert; drought comes to my mind."

Global Warming as a Preventable Problem

Table 7.

“Global Warming as a Preventable Problem” Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
Covid-19	2	2.29
A person with an illness	1	1.14
Gas Stove	1	1.14
Bottomless Pit	1	1.14
Total	5 5F+0M	5.74

As seen in Table 7, 4 different metaphors created by 5 participants (f 5) were placed in the category of "Global Warming as a Preventable Problem". This category represents 5.74% of the participants in the research. The most repeated metaphor in this category was "Covid-19". $100 \times \frac{5}{65} = 7.69\%$ of total women expressed global warming as "a preventable problem".

Among the total men, $100.0 / 22 = 0\%$ referred to global warming as "a preventable problem".

Some expressions in this category are given below:

“Global warming is like Covid-19; because it causes deaths in all countries. The only difference is that covid-19 does not have a vaccine or medicine yet, but there are remedies to prevent global warming.”

“Global warming is like a patient in need of help; because it needs doctors, that is, sensitive and knowledgeable people for its recovery.”

“Global warming is like a gas stove; because it is up to us to raise and lower the temperature. If you turn on the fire too much, the water in the pot will evaporate and the pot will burn. ”

“Global warming is like a bottomless pit; because it is up to you not to fall into it. I think we can prevent it if we do whatever measures are necessary to prevent global warming.”

“Global warming is like covid-19; because it will kill people. But scientists and people have been crying out for years on how to prevent global warming, while the cure for Corona has not been found yet. But those who have the resources and power are ignoring the scientists”.

Global Warming as a Factor that Disrupts the Natural Balance

Table 8.

“Global Warming as a Factor that Disrupts the Natural Balance” Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
Pandemic	1	1.14
Suicide	1	1.14
Total	2 2F+0M	2.29

As seen in Table 8, 2 different metaphors created by 2 participants (f 2) were placed under the category of "Global Warming as a Factor that Disrupts Natural Balance". This category represents 2.29% of the participants in the research. No repeated metaphors were found in this category.

$100 \times 2/65 = 3.07\%$ of the total women refer to global warming as "a Factor that Disrupts the Natural Balance".

$100 \cdot 0/22 = 0\%$ of total males refers to global warming as "a Factor that Disrupts the Natural Balance".

Some expressions in this category are given below:

"Global warming is like a pandemic; because it disrupts the balance of the whole world."

"Global warming is like suicide; because just as people kill themselves

as we try to stay in this world we are further heightening global warming and we are killing nature, and ourselves. We are not only our own killer, but also of other creatures. It disrupts the ecosystem and the cycle of nature. But we are not aware of how much we will suffer the most from this."

Global Warming as an Irreversible Process

Table 9.

"Global Warming as an Irreversible Process" Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
Burnt Pot	1	1.14
Mutation	1	1.14
Smoking	1	1.14
Broken Refrigerator	1	1.14
Melting Refrigerator	1	1.14

Table 9.
Continuation

Metaphors	Frequency (f)	Percentage (%)
A water pot in low heat	1	1.14
Spoilt Food	1	1.14
Volcano	1	1.14
Total	8 6F+2M	9.19

As seen in Table 9, 8 different metaphors created by 8 participants (f 8) were placed under the category of "Global Warming as an Irreversible Process". This category represents 9.19% of the participants in the research. No repeated metaphor was found in this category.

$100.6 / 65 = 9.23\%$ of the total women expressed global warming as "an irreversible process".

$100.2 / 22 = 9.09\%$ of the total men expressed global warming as "as an irreversible process".

Some expressions in this category are given below:

"Global warming is like a burnt pot; because even though it is an object that can be fixed with effort, it will never be fully reversed."

"Global warming is like a mutation; because just as a mutation is permanent, negative, and generational for human beings, global warming is the same for the world."

"It is like slowly dying due to smoking; because our climate is deteriorating gradually and constantly as it gets warmer, everything will decay and become useless."

"Global warming is like a broken refrigerator; because the world is slowly becoming uninhabitable and there will be no return"

"Global warming is like a melting refrigerator; because it becomes useless when its cooling deteriorates and loses its function"

"It is like a pot filled with water over a low fire; because the world is slowly becoming uninhabitable."

"Global warming is like spoiled food; because it will bring an inevitable end"

"Global warming is like a volcano; because when it is active, it knows no obstacles and burns everything."

Global Warming as a Scenario

Table 10.

"Global Warming as a Scenario" Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
Pandemic	1	1.14
Equation with many unknowns	1	1.14
A lie	1	1.14
Total	3 1F+2M	3.44

As seen in Table 10, 3 different metaphors created by 3 participants (f 3) were placed under the category of "Global Warming as a Scenario". This category represents 3.44% of the participants in the research. No repeated metaphor was found in this category. $100.1 / 65 = 1.53\%$ of the total women referred to global warming as "Global Warming as a Scenario".

Among the total men, $100.2 / 22 = 9.09\%$ expressed global warming as "Global Warming as a Scenario".

Some expressions in this category are given below:

"Global warming is like a pandemic; because for years, although experts have talked about the risk of an epidemic, only when we can actually see its direct effects, we feel the need to start taking serious measures against it."

"Global warming is like an equation with many unknowns; because it is unclear exactly what to expect, even though there is data."

"Global warming is like a lie; because, as human beings, even though we are harming the world like a virus, I think the warming of the earth is a cyclical event."

Global Warming as Relating to Temperature

Table 11.

"Global Warming as Relating to Temperature" Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
A buried watermelon	1	1.14
Broken Oven	1	1.14
Tangible Warmth	1	1.14
Oven that's not fully hot	1	1.14
A living being	1	1.14

Table 11.*Continuation*

Metaphors	Frequency (f)	Percentage (%)
Desert	1	1.14
Seal	1	1.14
Sauna	1	1.14
Total	9 9F+0M	10.34

As seen in Table 11, 9 different metaphors created by 9 participants (f 9) were placed under the category of "Global Warming as Relating to Temperature". This category represents 10.34% of the participants in the research. No repeated metaphors were found in this category.

Among the total women, $100.9 / 65 = 13.84\%$ referred to global warming as "relating to temperature".

Among the total males, $100.0 / 22 = 0\%$ expressed global warming as "relating to temperature".

Some expressions in this category are given below:

"Global warming is like watermelon buried in the sand. Because watermelon completes its life in a short time and spoils with the effect of heat."

"Global warming is like a broken oven; because it warms up more than necessary."

"Global warming is like a tangible heat; because we feel the changes as extremely hot."

"Global warming is like an oven that is not fully warmed up; because it does not cook the food, but makes it dry."

"Global warming is like a desert; because it's hot and dry."

"Global warming is like a seal; because it is lonely, helpless and longing for colder temperatures."

"Global warming is like a watermelon buried in sand; the temperature of the sand increases and the watermelon gets warmer."

"Global warming is like a sauna; because in the sauna, people sweat and their fat melts from excessive heat much like how the ice caps will melt with global warming."

Global Warming as an Abstract Entity

Table 12.

“Global Warming as an Abstract Entity” Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
Shadow	1	1.14
Abstract	3	1.14
Total	4 4F+0M	4.59

As seen in Table 12, 2 different metaphors created by 4 participants (f 4) were placed under the category of "Global Warming as an Abstract Entity". This category represents 4.59% of the survey participants. The most frequently repeated metaphor in this category has been the "abstract" metaphor.

100. 4/65 = 6.2% of the total women refer to global warming as "Global Warming as an Abstract Entity".

Among the total men, 100.0 / 22 = 0% expressed global warming as "Global Warming as an Abstract Entity".

Global Warming as a Tangible Entity

Table 13.

“Global Warming as a Tangible Entity” Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
Tangible	4	1.14
Total	4 (3F+1M)	4.59

As seen in Table 13, 1 different metaphor created by 4 participants (f 4) was placed under the category of "Global Warming as a Tangible Entity". This category represents 4.59% of the participants in the research. The most frequently repeated metaphor in this category has been the "tangible" metaphor.

Among the total women, 100.3 / 65 = 4.61% referred to global warming as "Global Warming as a Tangible Entity".

100.1 / 22 = 4.54% of the total males expressed global warming as "Global Warming as a Tangible Entity".

Global Warming as an Illness/Disease

Table 14.

“Global Warming as an Illness/Disease” Frequency and Percentage Distribution of Metaphors Regarding This Category

Metaphors	Frequency (f)	Percentage (%)
Cancer	1	1.14
Total	1 (1M)	1.14

As seen in Table 14, 1 different metaphor created by 1 participant (f 1) was placed in the category of "Global Warming as a Disease". This category represents 1.14% of the survey participants. The most frequently repeated metaphor in this category was the "cancer" metaphor.

Among the total women, $100.0 / 65 = 0\%$ referred to global warming "as a disease".

$100.1 / 22 = 4.54\%$ of the total males expressed global warming "as a disease".

Some expressions in this category are given below.

“Global warming is like cancer; because it is a difficult disease to recover from for the atmosphere and the world”

Distribution of Women According to the Identified Categories for Global Warming

Table 15.

Percentage Distribution of Women According to the Identified Categories for Global Warming

Categories	% Percentage
As a threat	6.15
As a consequence of Humanity	18.46
As a cause and effect relationship	9.23
As a process of extinction	10.76
As an affecting factor	9.23
As a preventable problem	7.69
As a factor that disrupts the natural balance	3.07
As an irreversible process	9.23
As a scenario	1.53

As relating to temperatures	13.84
As an abstract entity	6.15
As a tangible entity	4.61
As an illness/disease	0.00
Total	100.00

According to Table 15, the metaphors created by women regarding global warming are the most frequent in the categories of "Global warming as a consequence of humanity" with 18.46%, "Global warming as relating to temperature" with 13.84% and "Global warming as a process of extinction" with 10.76% of women.

The least used metaphors by women were in the category of "Global warming as an illness/disease".

Distribution of Men According to the Identified Categories for Global Warming

Table 16.

Percentage Distribution of Women According to the Identified Categories for Global Warming

Categories	% Percentage
As a threat	18.1
As a consequence of humanity	9.09
As a cause and effect relationship	22.72
As a process of extinction	13.63
As an affecting factor	9.09
As a preventable problem	0,00
As a factor that disrupts the natural balance	0,00
As an irreversible process	9.09
As a scenario	9.09
As relating to temperature	0,00
As an abstract entity	0,00
As a tangible entity	4.54
As an illness/disease	4.54
Total	100.0

According to Table 16, the metaphors created by men regarding global warming are the most frequent in the categories of "Global warming as a cause and effect relationship" with 22.72%, "Global warming as a threat" with 18.1% and "Global warming as a process of extinction" with 13.63% of men.

The least used metaphors produced by men were in the category of "Global warming as a preventable problem", "Global warming as a factor that disrupts the natural balance" and "Global warming as relating to temperature".

Discussion and Conclusion

Global warming has been among the most discussed issues in recent years due to its global and local effects. The subject comes up on various platforms. This problem, which emerges as a human-induced environmental problem, affects many geographies, cycles, living things and ecosystems, as well as people's own social, economic and cultural psychological conditions. For example, soil losses, decrease in fertile agricultural lands cause migration and food shortage (Çukurçayır et al., 1997). It has been known since the 1970s that it is a human-induced problem (Kadıoğlu, 2001; Öztürk, 2002). In this context, in order to be a part of the solution of this problem, it is extremely important to understand what global warming means at the individual level.

As a result of this research, the participants' perceptions of global warming were revealed through metaphors. Furthermore their thoughts on global warming were aimed to be understood through metaphors. The study shows us which metaphors and the meaning of said metaphors (sentences starting with because) were present in all participants, as well as in women and men.

A total of 87 individuals, 65 females and 22 males, participated in the "Metaphor Analysis of Perceptions Regarding the Concept of Global Warming" study. 65 metaphors produced in this study were collected in 13 categories. From here, it is understood that global warming needs to be expressed with many metaphors due to its multi-dimensional effects. The most frequently repeated metaphors were "tangible entity (4); abstract entity (3); fire (3) metaphors. Some of the others were; (fire, threat, desert, alive being, fireball, pitbull, pandemic, covid-19 virus, pressure cooker, unexploded bomb, exploding volcano, destruction, monster, creature, watermelon buried in sand, death, sickness, suicide, genocide neglected house, broken refrigerator, rotten fruit, spoiled food, drought, knowledge.)

Among the metaphors, covid-19, pandemic, and the virus were frequently used to express global warming. According to my literature review these metaphors were not prominent in the previous studies conducted regarding this subject. This shows that the experiences of the current events have a visible effect on perceptions, since the study took place during the pandemic.

- In the study, the metaphors produced by all the participants were mostly gathered in the category of "global warming as a result of humanity" with 16.09%. Furthermore, the majority of women (18.46%), referred to global warming "as a result of humanity". This data among women indicates that women see this problem as a human-induced problem and are aware of their responsibilities.

- In the study, 13.84% of women reported global warming “as relating to temperature”, 10.76% as “a process of extinction”; 9.23% of them as “an irreversible process”; 9.23% as “an affecting factor” and 6.15% as “an abstract entity”.
- In summary, the above ratios show that 1/5 of women, ie 20%, see this problem as an important problem that will bring the end of humanity and approximately the same proportion of women attribute the cause of the problem to human activities.
- Metaphors produced by women and their corresponding expressions were the least frequent in the category of "Global warming as a disease". Although most of the women established relationships (similarities / differences) between global warming and diseases, they did not express it directly as a disease. It was seen that only a few statements were collected in the category of "global warming as a scenario". This situation shows that the majority of women do not perceive global warming itself as a vague statement whose effects are unknown.
- Other categories in which the metaphors created by women were least frequent were “global warming as a factor that disrupts the natural balance (3.07%)”; “Global warming as a tangible entity (4.61%)”; This shows that women do not have information about how the global warming problem affects their living spaces, what kind of problems it creates and therefore what measures should be taken.
- In the study, the metaphors produced by men were mostly in the category of "Global warming as a cause and effect relation” with 22.72%. Although this situation shows that the consequences of the problem in the perception of men can be attributed to a number of reasons, it is seen that more associations were made with the consequences of global warming and temperature increase. In addition, the two men explained this connection by establishing a mechanical connection in the "pressure cooker" metaphor. 18.1% of the expressions corresponding to the metaphors they produced in relation to global warming were placed in the category of "a threat” with 13.63% and 9.09% "an extinction process" and 9.09% "an irreversible process" shows. However, no statements regarding the existence of a preventable problem were found in the statements.

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