Investigation of Metaphorical Perceptions of University Students on the Concept of Sustainability

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Abstract

The aim of this study is to reveal the perceptions of university students, who will form the qualified manpower of their country and who are expected to use sustainability effectively in every field in the future, about the concept of "sustainability" through metaphors. In the study, the phenomenology design was used. The data of the research were collected from 337 university students studying at Kırklareli University Faculty of Science and Literature in the spring semester of the 2020-2021 academic year. The collected data were analyzed and interpreted with content analysis technique. According to the findings, university students produced 301 valid and 137 different metaphor images regarding the concept of "sustainability". These produced metaphor images were then categorized by considering their common features. When the common features of these metaphors were examined, 8 different categories were reached. These; sustainability in the context of continuity, sustainability in the context of need, sustainability in the context of stability/order, sustainability in the context of struggle, sustainability in the context of resource conservation, sustainability in the context of guide, sustainability in the context of innovation and sustainability in the context of value. When the categories of metaphor images created by university students for the concept of "sustainability" are examined, it is seen that sustainability is perceived most in the context of continuity. In addition, when the categories reached were evaluated as a whole, it was seen that the perceptions of university students regarding the concept of "sustainability" were generally positive.

Keywords: Sustainability, Higher Education, University Student, Metaphor

INTRODUCTION

Sustainability, which is used in different disciplines and has a wide range of applications, is based on the idea of consuming less resources than generally produced. The book "Sylvicultura Oeconomica", written by Hans Carl von Carlowitz in 1713, is shown as one of the oldest sources written in the field of sustainability. In this book, sustainability is used to explain the principle that "if you want to make a forest sustainable, you should not get more wood than grows in that forest". As a matter of fact, for 200 years, the term sustainability was used as a forestry term until the publication of the book "Limits to Growth" published by the Club of Rome in 1972 and the concept of sustainability being widely accepted in different fields (Fischler, 2014).

Sustainability in its current usage was first used in 1972 by Goldsmith, Allen, Allaby, and Avoll in an article published in The Ecologist. In this article, sustainability is discussed in the context of ecosystems that are necessary to sustain human existence (Cabezas & Diwekar, 2012). Sustainability was also on the agenda in the United Nations Environment Program in 1972. Then, as a common goal of the international committee, the United Nations Environment and Development Commission published the "Our Common Future" report in 1987, under the chairmanship of Norwegian Prime Minister Gro Harlem Brundtland. The concept of sustainability, defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987) in the Our Common Future report, describes the respectful use of natural resources to leave the world with the same or even better opportunities for future generations (Cabezas & Diwekar, 2012). This report, which has become an important resource for sustainability studies in the coming years, states that "sustainable development" should be promoted as the main remedy for the crises that humanity is facing in general (Ricketts, 2010).

The term sustainability is not only used to abuse the environment while carrying out commercial activities (Henderson, 2011: 247). Because it is seen that sustainability, which attracts increasing attention, can also be defined in the literature as organizational approaches that provide a balance between short-term corporate goals and long-term corporate and social responsibility (Pearce, Manz & Akanno, 2013).

Sustainability, which can be defined as everyone doing their part to build the world they want to live in and want their children and grandchildren to inherit, means recognizing the choices and behaviors that affect the complex balance of the social, ecological, and economic systems of this world, and expanding this awareness through conversations that can then lead to collaborative work (Ferdig, 2007). In this respect, it is of great importance that all individuals have a correct perception and sufficient awareness about sustainability.

Metaphors are one of the tools that individuals use in trying to explain how they see life, the environment, events and objects with different analogies (Cerit, 2008). Metaphors are not only seen as a rhetoric for embellishing the language we use in our daily life, because the most complex thoughts and meanings can be understood with the help of metaphors (Saban, 2008), which are mental models that enable people to see a certain phenomenon with another phenomenon (Yıldırım & Şimşek, 2013). The use of metaphors to explain sustainability, which is an abstract and complex concept, is common, and in studies conducted with different participant groups, it is seen that each of the metaphors used to conceptualize the concept of sustainability points to a different aspect of sustainability (Bektaş, 2022; Rout & Reid, 2020; Taşçı, 2022; Tavazar, Güzel & Esentaş, 2018). Based on this information, in this study, the metaphorical perceptions of university students, who are expected to make significant contributions to the sustainable development of their country and constitute the country's qualified individuals, were investigated.

Purpose of the Research

The purpose of this research; The aim is to collect the metaphor images created by undergraduate students studying in different departments at Kırklareli University Faculty of Arts and Sciences in the spring term of the 2020-2021 academic year for the concept of sustainability and to classify these metaphor images under various categories to determine the perceptions of university students. In the study, "What are the metaphor images that university students use regarding the concept of sustainability?" search for an answer to the question. Accordingly, the following sub-questions were created:

1) Which metaphor images do university students use regarding the concept of "sustainability"?

2) Under which categories can the metaphor images used by university students regarding the concept of "sustainability" be gathered?

METHOD

Research Design

This research was designed in the phenomenology pattern, one of the qualitative research designs. The phenomenological design focuses on phenomena that are not completely foreign but whose meaning cannot be fully understood (Patton, 2002). In phenomenological studies, data sources are individuals who experience the phenomenon that the research focuses on and can express this phenomenon (Yıldırım & Şimşek, 2013). Based on this information, the phenomenon focused on in the research process is how university students conceptualize their thoughts about the concept of "sustainability" with the help of metaphor.

Participants

Participants of the study were selected by convenient sampling method. The study group of the research is 337 university students studying in various departments at Kırklareli University Faculty of Sciences and Literature in the spring semester of the 2020-2021 academic year. Of these students, 211 (63%) were female, 126 (37%) were male, and 163 (48%) were between the ages of 18-20, 154 (46%) were between the ages of 21-23 and 20 were (6%) are 24 and older.

Data Collection Tool and Process

Data collection tool: It is a fill-in-the-blank form developed by researchers in which answers to demographic questions, metaphors to be produced and explanations about these metaphors are written (is like...; because ...). The real power of metaphors is in questions about adjectives. Everyone can attribute different meanings to the same metaphor. It is important to ask the question "why" in understanding these different meanings and for what purpose a metaphor is used (Yıldırım & Şimşek, 2013). In addition, the gender and age of the students were taken as demographic information.

Validity and Reliability Study

In qualitative research, validity and reliability are not considered as in quantitative research. In accordance with the paradigm of qualitative research, Lincoln & Guba (1985)

recommended using the concepts of "credibility" instead of internal validity, "transferability" instead of external validity, "consistency" instead of internal reliability, and "confirmability" instead of external reliability.

In this context, to ensure the credibility and transferability of the research, the collected data were presented as detailed as possible (frequency, number of participants, direct quotations, participant codes, etc.) and it was tried to explain how the results were reached. To ensure the consistency and confirmability of the research, the opinions of four experts were consulted to determine whether the metaphors obtained represent the determined themes, and as a result of the evaluations of the researcher and the experts, consensus and disagreement were calculated. Generally, rates of 70% and above are considered "sufficient", and rates above 90% are considered "good" (Miles & Huberman, 1994). As a result of this calculation, a reliability rate of 89% emerged. In addition, the steps followed in the research were reported in detail and clearly by the researcher.

Analysis of Data

In phenomenological studies, data analysis is aimed at revealing experiences and meanings. For this purpose, content analysis consisting of coding, finding the themes, organizing the data according to the codes and themes was used in the analysis of the data. The main purpose of content analysis is to reach concepts and relationships that can explain the collected data (Yıldırım & Şimşek, 2013). The metaphor images developed by the participants in relation to the question in the fill-in-the-blank form and their answers were analyzed in four stages. These are (1) coding the data, (2) creating the categories, (3) organizing the data according to the codes and categories, and (4) ensuring the validity and reliability. In addition, a number was given for each participant, and a code was given next to this number to be shown as "F" for female students and as "M" for male students. For example, 12M: The 12th person from whom the metaphor is taken, and this person is a male student.

FINDINGS

In this section, metaphor images produced by university students regarding the concept of sustainability and the frequencies of these metaphor images are given. Then, the categories created from these metaphor images were explained by supporting the quotations produced by the participants.

When the metaphor images used by university students regarding the concept of sustainability were evaluated, a total of 301 valid and 137 different metaphor images were obtained from 337 students. As seen in Table 1, the main metaphorical expressions of university students regarding the concept of sustainability are life (24), love (22), sun (13), love (8), driving (7), water (7) and blood (6).

Table 1. Metaphor Expressions of University Students about the Concept of Sustainability

Metaphor Images	f	Metaphor Images	f	Metaphor Images	f	Metaphor Images	f
Life	24	Relationship	2	Mountain	1	Bullet	1
Love	22	Human	2	Mountaineering	1	Fruit	1
Sun	13	Stability	2	Trouble	1	A happy child	1
Passion	8	Culture	2	Brushing teeth	1	A sweet lover	1
Driving	7	School	2	Nature climbing	1	River	1
Water	7	Read	2	To get a tattoo	1	Nutella	1
Blood	6	Willingness to learn	2	Feeling	1	Ocean	1
Education	5	Money	2	Idea	1	Teacher	1
Day and night	5	Patience	2	Universe	1	Immortality	1
Force	5	Prestige	2	Philosophy	1	Confidence	1
Book	5	Wheel	2	Past	1	Battery	1
Machine	5	Soil	2	Future	1	Rhythm	1
Wind	5	Space	2	Recycle	1	Novel	1
Food	5	Swimming	2	Playing guitar	1	Spirit	1
Road	5	Mind	1	Sky	1	Persistence	1
Time	5	Forehead sweat	1	Day	1	Politics	1
Information	4	Shopping	1	Trust	1	Piercing of stone by water	1
River	4	Mother's patience	1	Beauty	1	Phone that does not run out of charge	1
Learning	4	Mother-child	1	Hafiz	1	Waterfall	1
Family	3	Friendship	1	Error	1	History	1
Habit	3	Fire	1	Dream	1	Saving	1
Loop	3	Moon	1	Speed	1	Sweet	1
World	3	Loyalty	1	Betrayal	1	Experience	1
Energy	3	Honey	1	Interest	1	Thermal reactor	1
Fitness	3	Balloon	1	Business	1	Seed	1
Working iron	3	Gasoline	1	Generator	1	Train	1
Heart	3	Computer storage	1	Cosmos	1	Train track	1
Breath	3	Science	1	Pen	1	Turkish state	1
Chain	3	Lifeblood	1	Dark	1	Rain	1
Stream	2	Effort	1	Stability	1	Judgment	1
Mill	2	Study	1	Earning	1	Searching for new flavors	1
Nature	2	Circle	1	Goat	1	Talent	1
Friendship	2	Flower watering	1	Classic car	1	Star	1
Marriage	2	Cheetah	1	Sand watch	1	Walk	1
						Wheel of time	1
						Total	301

Reasons for Simulating the Metaphors Used by University Students Regarding the Concept of Sustainability

Reasons for comparing the metaphor images used by university students regarding the concept of sustainability; sustainability in the context of continuity (f=115), sustainability in the context of need (f=76), sustainability in the context of stability/order (f=48), sustainability in the context of struggle (f=32), sustainability in the context of protecting resources (f=11), sustainability in the context of the guide (f=8), sustainability in the context of innovation (f=6) and sustainability in the context of value (f=5) are given in Table 2 under the categories. These categories were revealed by examining the reasons for the metaphor images obtained.

Table 2. Reasons for Comparing the Metaphor Images Used for the Concept of Sustainability

Categories	Metaphor Images	f
Sustainability in the context of continuity	life (24), passion (8), road (5), book (5), time (5), river (4), information (4), learning (4), habit (3), world (3), marriage (2), read (2), prestige (2), stream (2), space (2), balloon (1), business (1), day (1), Turkish State (1), mother-child (1), lifeblood (1), trouble (1), persistence (1), betrayal (1), judgment (1), dream (1), bullet (1), cosmos (1), piercing of stone by water (1), star (1), walk (1), study (1), science (1), phone that does not run out of charge (1), rhythm (1), flower watering (1), experience (1), train track (1), confidence (1), river (1), thermal reactor (1), immortality (1), universe (1), politics (1), loyalty (1), future (1), fire (1), novel (1), shopping (1), Nutella (1), generator (1), interest (1), sand watch (1), ocean (1), sky (1)	115
Sustainability in the context of need	love (22), sun (13), water (7), blood (6), food (5), education (5), heart (3), breath (3), friendship (2), soil (2), battery (1), fruit (1), rain (1), honey (1), gasoline (1), spirit (1), sweet (1), trust (1)	76
Sustainability in the context of stability/order	driving (7), machine (5), day and night (5), loop (3), chain (3), mill (2), stability (2), wheel (2), human (2), culture (2), moon (1), dark (1), train (1), stability (1), idea (1), a happy child (1), computer storage (1), beauty (1), to get a tattoo (1), brushing teeth (1), hafiz (1), circle (1), seed (1), wheel of time (1), waterfall (1)	48
Sustainability in the context of struggle	force (5), working ıron (3), fitness (3), relationship (2), willingness to learn (2), patience (2), swimming (2), speed (1), nature climbing (1), a sweet lover (1), goat (1), cheetah (1), mountain (1), friendship (1), philosophy (1), mother's patience (1), effort (1), forehead sweat (1), mountaineering (1), earning (1),	32
Sustainability in the context of protecting resources	wind (5), nature (2), money (2), talent (1), saving (1)	11
Sustainability in the context of the guide	school (2), teacher (1), feeling (1), error (1), history (1), past (1), mind (1),	8
Sustainability in the context of innovation	energy (3), recycle (1), searching for new flavors (1), playing guitar (1))	6
Sustainability in the context of value	family (3), classic car (1), pen (1)	5
Total		301

Some participant statements regarding the categories seen in Table 2 are as follows:

a) Sustainability in the context of continuity

Some participant statements that sustainability is a phenomenon that requires continuity and that it continues continuously are given below:

"Sustainability is like life; because it continues until death" (72M).
"Sustainability is like a novel; because the more you read, the more you can read" (24F)
"Sustainability is like a habit; because once you start you can't quit" (52M)
"Sustainability is like the road; because it goes on all the time" (139M)

b) Sustainability in the context of need

Participant views that sustainability is a great need for both humanity and other beings and that the life cycle on earth depends on it are presented below:

"Sustainability is like love; because you cannot live without it" (12M)
"Sustainability is like gasoline; because a car needs it to travel" (51F)
"Sustainability is like blood; because it must continue" (63M)
"Sustainability is like a battery; because without the battery the operation will not continue" (97M)

c) Sustainability in the context of stability/order

Some of the participant views that sustainability functions as an important balance mechanism in maintaining order or stability in the universe are presented below:

"Sustainability is like night and day; because it goes on in constant transformation" (18F)
"Sustainability is like a chain; because the completion of the ring depends on each other" (87F)
"Sustainability is like the moon; because it is regulated" (243M)
"Sustainability is like a circle; because as you turn, you come to the same place" (109F)

d) Sustainability in the context of struggle

Here are some participant views that sustainability requires effort and that individuals should actively participate in sustainability activities despite some difficulties:

"Sustainability is like working iron; because working iron does not rust" (31M)
"Sustainability is a sweat; because it takes effort" (83F)
"Sustainability is like a goat; because it is necessary to be stubborn" (77M)

e) Sustainability in the context of protecting resources

Some of the participant's views on the need for conscious consumption of existing resources, which is the end of sustainability, and that future generations may need these resources are as follows:

"Sustainability is like money; because they want it to never end" (36F)
"Sustainability is like nature; because it always offers us something" (48M)

f) Sustainability in the context of the guide

Some of the participants that sustainability and sustainability principles can guide individuals for a more livable environment are as follows:

"Sustainability is like school; because it gives all kinds of information" (13M)
"Sustainability is like a teacher; because it provides more information" (39M)

g) Sustainability in the context of innovation

Some participant statements regarding sustainability as the ability to always follow developments closely, attach importance to innovation and thus maintain the existence of the system are presented below:

"Sustainability is like recycling; because even if it ends, it always starts again" (98M)
"Sustainability is like playing the guitar; because there are always different tones" (5M)

h) Sustainability in the context of value

The statements of the participants that sustainability is of great importance especially for living things and that it is a concept that adds value to life are presented below:

"Sustainability is like the classic car; because it is always valuable" (41M)
"Sustainability is like family; because it is with us for a lifetime" (227M)

DISCUSSION AND RESULT

In this study, which was conducted to determine the metaphorical perceptions of university students about the concept of sustainability, it was seen that a large part of the university students used the metaphors of "life, love and sun" out of 137 different metaphors produced. In similar metaphorical studies on sustainability, these metaphors were frequently emphasized by the participants. E.g; In a similar study conducted by Muşlu-Kaygısız (2020) with education faculty students, she found that the metaphors of life and sun are among the metaphors most used by pre-service teachers in explaining the concept of sustainable development. Similarly, in the research conducted by Tavazar, Güzel, and Esentaş (2018), the sun metaphor was among the metaphors emphasized by the participants. Meral, Küçük, and Gedik (2016) found that the participants mostly included metaphors such as "human, life, mother" in their research in which they examined the metaphorical perceptions of education faculty students regarding the concept of environment, which is one of the sub-dimensions of sustainable development. In this research on sustainable development, it was seen that teacher candidates benefited from these metaphors.

As the reasons for analogy with the metaphor images used by university students regarding the concept of sustainability in the research; "sustainability in the context of continuity", "sustainability in the context of need", "sustainability in the context of stability/order", "sustainability in the context of struggle", "sustainability in the context of protecting resources", "sustainability in the context of a guide", "sustainability in the context of innovation" and "sustainability in the context of value" categories were created.

It is thought that most of the university students participating in the research perceive the concept of sustainability as a state of continuity through the metaphors they have created, and this is due to the fact that sustainability in the most basic sense evokes the meanings of continuity. In similar metaphorical research on sustainability, Muslu-Kaygusuz (2020) classified the metaphors she collected in similar metaphorical research on sustainability under the category of continuity. Many of the students perceive sustainability as a need with the metaphors they reported. Here, too, it is thought that the publications and discourses that sustainability, which has a widespread and popular use in many different fields, is a necessary and important concept for the future (Curren & Metzger, 2017; Jickling, 2000; Kuhlman &

Farrington, 2010). Many university students participating in the research perceive sustainability as stability/order, struggle, and protection of resources. From these findings, it is understood that university students see sustainability as a long-term and responsible concept. As a matter of fact, stability/order and struggle are not immediate actions, and their effects appear in a long time (Lambert, 2011). As stated in Brundtland (1987) report, using, and protecting resources efficiently and effectively are among the most basic concepts of sustainability. This situation supports this finding of the research. Some university students participating in the research perceive sustainability as a guide, innovation, and value. Sustainability has become very important today, especially since existing resources must be consumed in a way that meets the needs of future generations, and it has become a concept that is used in many fields and whose value is increasingly felt today (Cohen, DeFrancia & Martinez, 2016). It is thought that this situation has an impact on the sustainability perceptions of the university students participating in the research. In addition, sustainability and its principles have guided people in providing sustainability in every field. Like this result of the research, Muslu-Kaygısız (2020) classified some of the metaphors she collected under the category of "guidance". When the metaphors and themes obtained from the research are examined as a whole, it can be said that the research findings are supported by the findings obtained from the existing literature and similar studies. However, the fact that most of the metaphors produced are concentrated especially under certain categories can be thought to be since the students do not have a comprehensive and in-depth knowledge of the concept of sustainability. As a matter of fact, Faiz and Bozdemir-Yüzbaşıoğlu (2019) found in their research with pre-service teachers that the perceptions of the participants on sustainable development were not very high.

Limitations

This research has some limitations. The research was carried out with Kırklareli University Faculty of Science and Literature students. Similar research can be done to cover different faculties and universities. Thus, it will be possible to examine the perceptions of students studying at different universities and different departments more comprehensively regarding the concept of sustainability.

Recommendations

Within the framework of the findings obtained from the research, the following recommendations can be developed for researchers and practitioners:

1. Necessary trainings can be organized for students to gain sufficient awareness about sustainability, and universities can also prepare elective courses on this subject.
2. Studies using the quantitative research method can be conducted to determine the attitudes and perceptions of university students towards the concept of sustainability.
3. Similar research can be conducted at primary, secondary and high school levels, and the students' perceptions of sustainability at different levels can be examined.

CONCLUSION

This research was conducted to reveal the perceptions of university students regarding the concept of "sustainability" through metaphors. As a result of this research conducted with 337 university students, it was found that students perceived the concept of sustainability mostly in terms of continuity, need, stability/order, struggle, protection of resources, guide, innovation, and value. In addition, when the categories reached were evaluated as a whole, it

was seen that the perceptions of university students regarding the concept of "sustainability" were generally positive.

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