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The Metaphoric Perceptions of Gifted Students towards "*Environment*" Concept (Ankara Sample-Turkey)

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ABSTRACT

This research was carried out to put forward the metaphors produced by gifted students' towards "environment" concept. A total of 156 primary school students participated in the research in Ankara BİLSEM schools in 2010-2011 academic year. The analysis and interpretation of the data was done with the phenomenological science design, content analysis technique of qualitative research method. The research data was gathered by completing "Environment is like ..... Because ....." statement. According to the findings of the research; gifted students have created 59 different and acceptable metaphors related to environment concept. (2) These metaphors were classified under 6 different conceptual categories after studied carefully in relation with their common qualities. At the end of the research, It was understood that 44% of the gifted students perceived environment as a way of "sensitivity", 16% as a way of expressing "life", 12 % as a way of "importance", 11% as a way of expressing "reflection", 8.5% as a way of expressing "happiness and peace" and 8.5% perceived it as a way of expressing "pollution". As a result, metaphors can be used as a important research tool in understanding and explaining the perceptions of gifted students towards environment.

Keywords: Metaphor, Gifted Students, Environment, Environment Education.

INTRODUCTION

Gifted people that have an important role in the community in developed countries are in the center of developments of many fields including the political, economic, military and technological areas of the countries. Thus, senior managers in these countries, political and economic decision-makers in areas of Research units in those directions, inventors and guides of the innovations are often gifted and skilful people. When considering the place of gifted and skilful people in such an important role in the society, these people and their families should be given appropriate areas of guidance services through the breakdown in society by examining the determination of care, training, intelligence or ability to make referrals [1].

Ministry of National Education (Turkey), began to operate a project for the education of gifted children in 1993. As a result of these studies, training centers suitable for the grouping method towards the training of gifted children that the students thought to be educated in a few days a

week and in this way be able to develop their skills. In these training centers, gifted children receive education both in the field of science and art. Therefore, the names of these institutions have been recognized as Science and Art Centers. Although this kind of education for gifted children in our country initiated, It has not been given too much emphasis on the education of gifted children's teachers. Teachers working in this field graduate without taking a course about the education and characteristics of gifted students during the pre-service training. In addition, it is considerable that there is not a systematic and programmatic activity towards the selected teachers and professional development in this area as well as the selection of teachers [2, 3].

Some of the definitions of ***"metaphor"*** that means a person's perceiving a concept or phenomenon meaning that expressing them using similes as follows: metaphors are recognized as "a fundamental vehicle of human thought" [4], [5] explains "metaphors way of thinking and perceiving", [6] explains "it as a material to think". He explains it as not only a shape of understanding of human and a figure of words but also a figure of thought. [7] explains "mapping two often incompatible domains into one another"

It is necessary answer three questions to accept a notion as a metaphor. These are: (1) What is the subject of the metaphor? (2) What is the source of the metaphor? (3) What are the characteristics thought to be attributed to the subject of the metaphor source? [8]. Saban (2004:2) states this relationship with an example: the subject of the metaphor (for example, "teacher" word in "The teacher is a gardener". sentence), the source of the metaphor (gardener), and the metaphor source thought to be attributed to the subject of metaphor features (such as a gardener deals separately with the plants, classroom teacher takes students' individual differences into account) in the form explaining the source of the metaphor, understanding the subject of the metaphor from a different perspective, in other words as a filter or strainer [9].

Recently "metaphors" that drew attention of educators have become the subject of both national and international literature. [10-31] are some of the related researches. The researches put forth how the concepts or phenomena as *"teacher"*, *"student"*, *"knowledge"*, *"director"*, *"geography"*, *"world"*, *"gifted students"*, *"earthquake"*, *"climate"*, *"inspector"* or *"culture"* were expressed using metaphors in general.

There has been no study putting forward gifted students' metaphors towards *"environment"* concept with content analysis technique. But, some examples of the studies about metaphors towards *"environment"* concept in recent years. For example; Aydın (2011) in his study; (1) University students have created 92 different and acceptable metaphors related to *"environment"* concept. (2) These metaphors were classified under 10 different conceptual categories after studied carefully in relation with their common qualities. At the end of the research; 27% of the university students perceived environment as a way of *"expressing life"*, 21% as a way of expressing *"importance";* 15% as a way of *"reflection"*, 9% as a way of expressing *"place"* , 8% as a way of expressing *"protection"*, 7% as a way of expressing *"happiness and peace"*, 5% as a way of expressing *"love"*, 3% as a way of expressing *"beauty"*, 2% as a way of expressing *"pollution"* and 1% perceived it as a way of expressing *"variation"* [14]. Kaya, Coşkun and Aydın (2010) in our study, high school students have produced a total of 60 valid metaphors towards *"environment"* concept. These metaphors were examined in terms of common characteristics and classified into 7 different conceptual categories (environment as the expression of *pollution, beauty, life, space, importance and diversity*) [20].

Gifted students' perceptions towards *"environment"* concept change according to school education they receive throughout their lives, experiences, and characteristics of their

environment, media, concerns of family and people about the environment etc. It is thought that finding out gifted students' perceptions towards the environment offer important information and perspectives in this area, providing training to educators and the program writers. There has not been a research on how gifted students' state their perceptions towards *"environment"* concept. From this perspective, this research has been the first in this area and completing the gap in the field of environmental education.

The aim of this study is to put forth the gifted students' perceptions towards "environment" through metaphors. Within the framework of this overall objective, this study was guided through the following questions:

1. Which metaphors were used to explain gifted students' perceptions towards *"environment"*?
2. Which categories were gifted students' metaphors towards "*environment"* concept were classified in terms of their common characteristics?

MATERIALS AND METHODS

The Design of the Study

The qualitative research method with "*phenomenological scientific design"* has been used in this research. Phenomenological design focuses on the phenomena that we know but we do not have deep and detailed knowledge about. Phenomenological design forms a suitable study ground for having researches on the phenomena which are not so distant for us and the ones that we could not grasp their meanings exactly [32].

Study group

Primary students at Ankara (Turkey) BİLSEM (Center of Science and Arts) schools in the first term of 2010-2011 academic year participated in the research. Total number of students is 156 in the research. 70 of these students (45 %) are girls and 86 are boys (55 %). 34 of the research students are third grades, 43 of them are fourth grades, 40 are fifth grades, 24 are sixth grades and 15 of them are 8th grade students.

Data Gathering Phase

So as to determine the perception of gifted students regarding the concept of *"environment"* each of the students was demanded to complete the statement: "*Environment is like……, because …"* on a sheet. In the instructions part, students were asked to focus on just one metaphor and write down their opinions about it. [10-20] stated that metaphors were taken as a working tool, *"like"* term is generally used to associate the relation between *"the subject of the metaphor"* and "*the source of the metaphor"* clearly. He also stated that the word "because" used for the participants' grounds for their own mental images. The statements that were written by the students were the basic sources of the research. 20 minutes were given the students to write their metaphors related to *"environment"* concept. These compositions written by the students constituted the basic source of datum of this research.

The analysis and the evaluation of the data

In the evaluation of the gathered datum, "content analysis" technique was used in this research. The main purpose of content analysis to reach the concepts and relations in explaining the gathered datum. The summarized and interpreted datum in descriptive analysis was investigated deeply and the concepts and themes that cannot be realized in the descriptive analysis found out after this analysis. The process in the base of content analysis was put together the data which

resembled each other in the framework of certain concepts and themes and to organize and evaluate them in a way that they can be understandable by the reader [32].

At first, a temporary list of the metaphors produced by the students was formed. According to the purpose of the research, it was checked if the metaphors were expressed in the students' writings clearly. The metaphor in every student's paper was coded. The papers in which any metaphors were not written were marked. Then the metaphors written by the students revised one by one again and analyzed in terms of (1) The subject of the metaphor (2) The source of the metaphor and (3) The relation between the subject of the metaphor and the source of the metaphor.

In this research, due to having no metaphors in 7 papers, 8 empty papers and having no connection between the resembling metaphor and the correspondence image in 34 students' papers, a total of 49 papers were eliminated and left out of the research. The metaphors produced by the students were examined in terms of their common features towards *"environment"* concept in the process, regarding the metaphor list especially about 59 metaphors. It was examined how every metaphor conceptualize *"environment"* phenomenon. To do this totally 6 conceptual categories relating each metaphor with a particular theme according to *"environment"* concept determined.

Table 1. Valid Metaphors produced by gifted students towards "environment" concept.

NO	Name of the Metaphor	Frequency (f)		Total	NO	Name of the Metaphor	Frequency (f)		Total
		Girls	Boys				Girls	Boys	
1	Tree	2	2	4	31	A soap with a nice smell	1	-	1
2	Family	1	-	1	32	Life	2	4	6
3	Lung	1	1	2	33	People	5	12	17
4	Antique	-	1	1	34	Paper	1	-	1
5	Shoes	-	1	1	35	Heart	1	3	4
6	Mirror	-	1	1	36	Cat	2	-	2
7	Maid	1	-	1	37	Clothes	-	1	1
8	Baby	4	2	6	38	Book	1	-	1
9	Me	1	1	2	39	Polar bear	-	1	1
10	Us	-	1	1	40	Stork	1	-	1
11	Plant	1	-	1	41	Oxygen	1	-	1
12	Glass	1	-	1	42	Toy	1	1	2
13	Heaven	-	1	1	43	Angle fish	-	1	1
14	Flower	2	2	4	44	Daisy	1	-	1
15	Grass	-	1	1	45	Market place	1	-	1
16	Kids	1	1	2	46	Picture	-	1	1
17	Waste baske	-	2	2	47	Health	1	1	2
18	Rubbish	1	5	6	48	A dog without an owner	-	1	1
19	Twig	1	-	1	49	Art	-	1	1
20	Sea	1	-	1	50	Love	1	-	1
21	A slice of apple	1	-	1	51	Innocent people	1	-	1
22	The World	-	1	1	52	A tedious aunt	1	-	1
23	Diamond	-	1	1	53	Seed	-	1	1
24	Domestic Animals	2	-	2	54	Paper written something on by ball - point pen	1	-	1
25	House	-	1	1	55	Uranium	-	1	1
26	Plant	-	1	1	56	An injured bird	1	-	1
27	Future	-	1	1	57	Living area	1	-	1
28	Glasses	1	-	1	58	Green	-	1	1
29	Bow	1	-	1	59	Home	1	-	1
30	Rose	1	-	1		Total	50	57	107

To ensure the reliability of the research experts were consulted whether the metaphors in the seven conceptual categories represent the related category or not. In the comparison, agreeing and disagreeing numbers were determined and the reliability of the research assessed using Miles and Huberman's (1994:64) formula *(Reliability=agreement/agreement+disagreement)* [33].. In qualitative studies, If the harmony between the evaluation of the expert and the researcher is at or over %90, it is accepted as reliable at an accepted level [9, 10, 11, 12]. It was obtained %95 reliability level in this study. The consulted experts put 3 metaphors in a different category which was different from the researcher. Thus, reliability was: *59(59+3) =0.95*. After determining the 59 metaphors in total and after developing 6 conceptual categories, all the datum transferred to computer program. After this stage the number of participants reflecting metaphors and categories were calculated.

Findings

1. Through which metaphors do gifted students put forth their perceptions about *"environment"* concept?

Gifted students developed 59 valid metaphors towards "environment" concept. 44 of the 59 metaphors were formed only by one student. The rest of the students are between 2 and 12. As seen students used so many metaphors about *"environment"* concept. Table 1 points out the metaphors that the participating students developed their frequencies and percentages.

2. Categories formed by the metaphors of gifted students towards *"environment"* concept.

Gifted students' metaphors towards *"environment"* concept were classified under 6 categories and shown in Table 2.

Table 2: Categories, numbers of metaphors, total number of metaphors and percentages of metaphors produced by gifted students towards *"environment"* concept.

Categories	Metaphors	Total Frequency of Metaphors	Number of Metaphors	Percentage (%)
1. Environment as the expression of ***importance***	Lung (2), Antique (1), Family (1), Heart (4), Oxygen (1), Health (2), Seed (1), Uranium (1)	8	13	12
2. Environment as the expression of ***reflecting***	Mirror (1), Me (2), Us (1), Domestic animals (2), Paper (1), Cat (2), Art (1), Innocent people (1), Paper written something on by ball - point pen (1)	9	12	11
3. Environment as the expression of ***life***	Tree (4), Maid (1), The world (1), Life (6), Market place (1), Shoes (1), Living area (1), Home (1)	9	17	16
4. Environment as the expression of ***sensitivity***	Baby (6), Plant(1), Glass (1), Flower (4), Grass (1), Kids (2), Twig (1), A slice of apple (1), Diamond (1), House (1), Plant (1), Future (1), Glasses (1), Man (17), Clothes(1), Stork (1), Toy (2), Angle fish (1), An injured bird (1), A dog without an owner (1), A tedious aunt (1)	21	47	44
5. Environment as the expression of ***peace and happiness***	Heaven (1), Skybox (1), Rose (1), A soap with a nice smell (1), Book (1), Daisy (1), Picture (1), Love (1), Green (1)	9	9	8.5
6. Environment as the expression of ***pollution***	Waste basket (2), Rubbish (6), Sea(1)	3	9	8.5
	Total	57	107	100

Conceptual Categories

Category 1: Environment as the expression of "importance and value"

This category that emphasize the importance and value of environment for our world is consisted of 8 metaphors *(Lung, Antique, Family, Heart, Oxygen, Health, Seed, Uranium)* and 13 students (12 %). Some examples of students related to this category were given below:

"Environment is like our lungs. Because we can breathe by the use of our lungs. Environment provides us breathe like the elements (like trees) it contains inside"

"Environment is like a heart. As our body needs a heart, the world needs a beautiful environment. In order to have a healthy environment we should protect nature. Otherwise life ends as the cease of the heart."

Category 2: Environment as the expression of "Reflecting"

The metaphors in this category state that every kind of positive or negative interventions towards environment has or will have an effect. This category is consisted of 9 metaphors *(Mirror, Me, Us, Domestic animals, Paper, Cat, Art, Innocent people, Paper written something on by ball - point pen)* and 12 students (11 %). Some examples of students related to this category were given below:

"Environment is like a Mirror. Because the environment behave us as we treat nature. Environment reflects everything whether good or bad."

"Environment is like a human being. Because human beings do not want to get harmed neither does the environment."

"Environment is like a cat. Because if you do not care the cats they get offended to you, does not care you. It is touchy and bad tempered. So as the environment, it needs interest."

"Environment is like a domestic animal. Because if you do not care, it may run away, die or leave you. You understand its value when you lost it, so as the environment."

Category 3: Environment as the expression of "Life"

This category that relates environment with life involves 9 metaphors *(Tree, Maid, The world, Life, Market place, Shoes, Living area, Home)* and 17 students (16 %). Some examples of students related to this category were given below:

"Environment is like life. Because all lives take place in the environment."

"Environment is like a maid. Because environment takes care of trees, animals and living things and provide their survivals."

"Environment is like living. Because it is impossible to live without environment. The whole life takes place in this environment and meets their needs from this environment."

Category 4: Environment as the expression of "sensitivity"

The students that produce these metaphors stated that environment is so valuable and it should be protected. This category contains 21 metaphors *(Baby, Plant, Glass, Flower, Grass, Kids, Twig, A slice of apple, Diamond, House, Plant, Future, Glasses, Man, Clothes, Stork, Toy, Angle fish, An injured bird, A dog without an owner, A tidious aunt)* and 47 students (44 %). Some examples of students related to this category were given below:

"Environment is like a slice of apple. Because a slice of apple gets darker through time. If any precautions are not taken it gets darker like an apple."

"Environment is like an angle fish. Because angle fish are very sensitive animals. They necessitate care and attention. Environment should be protected as the angle fish."

"Environment is like baby. Because as the baby needs us so does the environment. We should be careful and conscious towards environment."

"Environment is like a diamond. Because they found rarely and should be protected with care. Environment needs to be protected with sensitivity."

"Environment is like glass. Because as the pieces of broken glass are not composed again, environment is so sensitive as this."
"Environment is like flower. Because flowers are so delicate and necessitate care. Environment is delicate as well, it should be treated with care."

Category 5: Environment as the expression of "happiness" and "peace".
The metaphors in this category emphasize the happiness and peace that environment present for people. This category contain 9 metaphors *(Heaven, Skybow, Rose, A soap with a nice smell, Book, Daisy, Picture, Love, Green)* and 9 students (8,5 %). Some expressions of some students were given below.
"Environment is like heaven.. Because people find peace and become happy. A protected and clean environment gives peace to people."
"Environment is like a sky bow. Because Environment is full of colourful flowers, plants and animals."

Category 6: Environment as the expression of "pollution".
The students forming this category produced metaphors taking the environment pollution into consideration. This category is consisted of 3 metaphors (*Waste basket, rubbish and sea*) and 9 students (8,5 %).Some expressions of some students were given below.
"Environment is like Rubbish. Because environment is being made dirty in other words it turned to be rubbish by the unconscious people."

RESULT AND DISCUSSION

This research was conducted to reveal and classify the gifted students' metaphors under particular conceptual categories towards *"environment"* concept selected from Ankara BİLSEM (Science and Arts Center) schools. The finding of this research focuses on some significant points.

According to the findings of this research the gifted students in the research group produced 59 different metaphors towards *"environment"* concept. Gifted students used different metaphors as *"lungs", "angle fish", "plant", "rose", rubbish", "cat"* and *"heart"* towards *"environment"* concept. This condition indicates that it is not possible to explain *"environment"* concept with only one metaphor. This finding supports the findings of some studies related to *"environment"* concept. In their studies, 92 valid metaphors [14] and 60 valid metaphors [20] towards *"environment"* concept.

Besides, according to the findings of this research supports the findings of some studies related to different concepts. In their studies; [13] determined 44 valid metaphors towards *"geography"* concept, [16] 39 valid metaphors towards *"climate"* concept, [18] 55 valid metaphors towards *"earthquake"* concept, [11] 166 valid metaphors towards *"student"* concept, [12] 111 valid metaphors towards *"teacher"* concept, [10] 106 valid metaphors towards *"knowledge"* concept and [26] determined 28 metaphors towards *"teacher"* concept.

The reason for students forming so many metaphors towards "*environment"* concept is based on the fact that *"environment"* concept is so broad, complex and abstract. Metaphors can be considered as a strong tool for understanding and explaining an individual's high level abstract, complex and conceptual phenomenon [10-20]. Metaphors are not the phenomena, they are the symbols of these phenomena. If they were the phenomena themselves then metaphors would not be necessary. Because of this metaphors are different from the phenomena they refer to, even

they present a strong perspective about the phenomena they have less correspondence. To compensate this condition, so many metaphors should be involved [34]. Taking this thought into consideration, student's use of metaphors towards "environment" concept has a dimension through completing the whole picture.

According to the findings of the research; gifted students have created 59 different and acceptable metaphors related to *"environment"* concept. These metaphors were classified under 6 different conceptual categories after studied carefully in relation with their common qualities. At the end of the research, It was understood that 44% of the gifted students perceived environment as a way of *"sensitivity"*, 16% as a way of expressing *"life"*; 12 % as a way of *"importance"*, 11% as a way of expressing *"reflection"*, 8.5% as a way of expressing *"happiness and peace"* and 8.5% perceived it as a way of expressing *"pollution"*. In a study that support this result [20] high school students produced 60 valid metaphors towards *"environment"* concept. These metaphors were classified into 7 conceptual categories *(environment as the expression of pollution, beauty, life, place, importance, reflection and variation)*. In a study that support this result [14] university students produced 92 valid metaphors towards *"environment"* concept. These metaphors were classified into 10 conceptual categories *(environment as the expression of expressing life, importance, life, reflection, place, protection, happiness and peace, love, beauty, pollution, variation)*.

The categories with the highest metaphors towards *"environment"* concept were determined as *"sensitivity"*, *"life"*, *"importance"* and *"reflecting"*. Gifted students emphasized that natural environment is of great importance for the whole living things including human beings. They stated that the natural environment must be protected and a clean environment is significant for them. In order to raise the gifted and other students' sensitivity, student centered teaching methods that are based on constructive approach in the lessons where environmental issues are taught can be applied. There are teaching approaches that provide students be able to establish relations with the known things and the new ones and be able to observe their learning and observation in new areas so that they adopt their learned knowledge. Student centered teaching methods are getting more significance in Turkey as well as in the world and contained in the curriculums. It was put forth with the experimental studies that using student centered teaching methods in the teaching environmental issues increase the students' success and attitudes in the lessons. For example [35, 36, 37, 38] concluded that student centered teaching methods in the teaching of environmental issues increase the students' success and attitudes more than teacher centered methods in the lessons.

Individuals that make up society should be provided access to accurate information and education should be given according to this figure. Environmental education should be given shape to provide people to accept responsibility to preserve the environment by bringing people environment-related knowledge, awareness, skills and values. Environmental education is not just an element of the learning process, an element of an individual's entire life cycle. Therefore, environmental education should be addressed and considered in the model of lifelong learning [39].

Metaphors can be used as a strong tool in comprehending, finding out and explaining gifted students' perceptions towards *"environment"* concept. Handling the findings included only in this research that attained from the metaphors towards *"environment"* concept, course books, curriculum and teaching process may lead a way for the *"environment"* concept. The metaphors that were found out in the study may be a source for the researchers that plan to prepare likert type scale.

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