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A Phenomenographic Study on the Concept of Nature and Alienation of Children from Nature *

Mustafa Kahyaoğlu [1], M. İkbal Yetişir [2]

Abstract

It is very difficult to instill a concept and interpretation of nature and a sense of responsibility to protect nature in the minds of children who are increasingly becoming disconnected and alienated from it.. TheFailure to integrate learning environments with nature, despite the continuous increase in the integration between learning environments andmodern technology, is complicating the task of creating perception of nature and awareness in children concerning the problems of nature. This study aims at shedding light on the way the teachers who are responsible for the design of the educational environments, perceive the concept of **"nature"** and **"alienation of children from nature".** The phenomenographic research design, which is one of the qualitative research methods, was used in this study. The sample of the study was selected using criterion sampling method, one of the purposive sampling methods. The participants of the study are 40 teachers, including 20 elementary school teachers and 20 science teachers, who are assigned to schools located in the center of Diyarbakır province and affiliated with the Provincial Directorate of National Education. 17 (42.5%) of these participants were female and 23 (47.5%) were male. The findings of the study revealed that the teachers interpret the concept of nature under three different categories: these are respectively physical/ visible features of nature, wholeness and function of nature and its importance for the human health. Consequently, inclusion of activities that have the contents of nature in the design of educational programs and relate to children who spend most of their time at school and design of learning environments with models, samples and visual tools which include contents of nature may make it easier for children to perceive and interpret nature.

Keywords

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[1] Siirt University, Education Faculty, Department of Computer and Instructional Technologies, Turkey, mustafa.kahyaoglu56@gmail.com

[2] Ankara University, Education Faculty, Department of Elementary Education, Turkey, mehmetikbal@yahoo.com

Introduction

The concept of nature is derived from the Latin word "natura", beyond that, the word "nasci" which means "birth". Two different meaning are attributed to the word. The first one is the character, quality and structure of things. Its second meaning is the concept that accommodates wild areas without human nature and it denotes wilderness (Louv, 2010). Turkish Language Institution defines nature as the wholeness of all the living and nonliving things, which develops continuously under its own rules or the environment which has not been subject to major changes from the hand of human beings and preserved its own character (Türk Dil Kurumu, 2015). The concept of nature is a complex concept to which different denotations are assigned according to the relevant time period, place, society, religious belief, ethical norms and aesthetical values. The word nature is defined, in a broad sense, as an open system that displays diversity, in terms of living and non-living inhabitants; has the ability to influence or be influenced, to alter things or be altered by them; and the ability to be renewed and create things. It was originally formed without human influence and intervention and can survive without it. It comprises very diverse elements, phenomena, creatures, relationships, interactions and processes and works with its own mechanisms and laws within obscure boundaries (Atasoy, 2005). The meanings implied to the concept of nature affect the way human beings construct relations with nature. While some societies place humanity in the center of their relationship with nature, others place nature itself in the center and adapt their life styles accordingly. In fact, comprehension of nature starts with its perception. This is to say that the process of interpreting and giving meaning to a sensation is realized through organization and interpretation of stimuli coming from external world and thus transfer of objective world to the subjective world, and mental interpretation of the stimuli coming from the external world. Perception is sensory information acquisition. In other words, perception is a subjective view of the world we live in. (Arkonaç, 1998; Bakan & Kefe, 2012; Baylan, 2009; Ingold, 1992; Hançerlioğlu, 1996; Morgan, 1993). Education, culture, beliefs, customs, habits and traditions are known to have a leading power on perception (İnceoğlu, 2010).

According to Kutru and Soran (2012), the relationship between human beings and nature depends on the way they perceive it. Türksoy (1991) argues that the more human beings realize and perceive the variety and diversity in nature, the better they comprehend the role and impact of their own species on nature. Özdemir (2010) underlines that nature- based environmental education program increases their environmental awareness and concerns of the elementary school students, and enhances their sense of environmental responsibility. Atasoy (2005) reported that nature education is acquired between the ages of three and seven in the family or preschool, and a basis for environmental awareness is formed between the ages of seven and fifteen. Erdogan (2011) defines nature education as an assignment of meaning to nature as a whole, going beyond organism and acquisition of awareness of nature, by individuals through their associations made in nature. Wilson (1996) mentions that the children spending time in nature and receiving nature education experience intensive feelings for nature such as curiosity, interest, admiration, love and fear. Kellert (2002) pointed out that the children spending time in nature and attending nature camps develop higher self-confidence and self-respect while dealing with the difficulties in nature. As for Palmerg and Kuru (2002), they stated that nature activities outside the school hours and environmental education activities help children directly communicate with nature and perceive the different dimensions of the natural environment.

In recent years, Turkish Scientific and Technological Research Council (TUBITAK) have been financing Ecology and Nature- Based Education Projects for children. It was reported that "Nature Education in Ihlara (Aksaray) Valley and Its Surrounding" implemented by Keleş, Uzun and Varnacı (2010) and financed by Turkish Scientific and Technological Research Council (TÜBİTAK) significantly affected the environmental consciousness, environmental attitudes and behaviors of prospective teachers and increased the permanence of their consciousness and attitudes. The Ecology-Based Nature Education Program, which was implemented by Erdoğan (2011) and also financed by TUBITAK, was reported to make a statistically significant contribution to the sense of responsibility shown by the elementary school students towards their environment. A similar finding came from the Hands-on Environmental Education and Water- Consciousness Project implemented by Cappellaro,

Ünal Çoban, Akpınar, Yıldız and Ergin (2011) and financed by TUBITAK. It was found that the Project significantly increased the environmental consciousness and awareness of the students. At the end of the implementation of Ecology- Based Nature Education Program implemented by Kıyıcı, Yiğit and Darçın (2014) and financed by TUBITAK, it was reported that the program had made positive contributions to the prospective teachers from different departments in terms of acquisition of environmental responsibility, the ability to transfer the information gathered to the new generations, and acquisition of scientific knowledge. A major part of the human personality is formed within the first years of early childhood (0-12). For this reason, the consciousness developed in the childhood is of a permanent nature, and will be sustained for the rest of their lives. In this context, nature education provided during childhood is very important. If children who spend most of their time at school, do not become connected with nature through their education programs, it can be difficult for the them to perceive nature, the diversity and variety in nature, and be concerned for the living things in nature, including their own species. From a review of the literature on nature education in Turkey, it can be seen that Parlakyıldız and Aydın (2004) underlined that preschool teacher's lack sufficient preliminary knowledge on nature education, and fail to effectively manage processes of nature education. Kıldan and Pektaş (2009) reported that physical equipment and design of classrooms in schools are not adequate for the nature education during early childhood. Gülersoy (2013) pointed out that the relevant curriculum is a long way from meeting the requirements of nature education. It is not possible to expect the children who cannot visualize or comprehend the importance of nature in their lives, of the living things and human beings, to realize problems concerning nature and be concerned about future of our species, by being troubled about the future of nature. In his book ***Last Child in the Woods,*** Louv (2010) shed light on the importance of child for nature, and of nature for child, by writing *"the child in nature is an endangered species and the health of children and health of earth are inseparable".*

Insufficient connectedness between the learning environments of children and nature may cause them to become further alienated from nature, fail to perceive nature efficiently and comprehend the importance of nature and thus making them become more insensitive towards the protection of nature. For an effective and efficient nature education, it is important to ascertain the perceptions of teachers who are the implementers of education programs and designers of learning environment about the concept of nature and the reasons of the alienation of children from nature. The objective of this study is to reveal the way the teachers conceptualize nature and alienation of children from nature.

Problem Situation

1. How do teachers conceptualize the concept of nature?
2. How do teachers perceive the reasons for children's alienation from nature?

Method

Design of the Study

Phenomenographic research design, which is a qualitative research methods, was used in this study. Phenomenography is a research method that investigates the ways people perceive, understand or experience the phenomena they encounter in the cosmos in which they live (Çekmez, Yıldız, & Bütüner, 2012). The aim of phenomenographic research is to define the different ways used by different people to experience, interpret, comprehend or conceptualize a specific aspect of a phenomenon (Çepni, 2007). In other words, phenomenographic research attempts to offer a qualitative explanation on how different phenomena are understood from different perspectives and consequently categorizes different insights systematically (Ashworth & Lucas, 1998). While there is similarity between phenomenography and phenomenographic content in terms of being focused and qualitative methods, they are different in that the purpose of phenomenography is to determine the changes in the perception of the phenomena that is the subject matter, while the purpose of phenomenographic research is to find out the existence and essence of the phenomena (Çekmez et al., 2012).

Study Group

In phenomenographic researches, data resources are gathered from the individuals or groups that experience the phenomena being the focus of the research and can externalize this phenomenon or can reflect them. The size of the study group may vary according to the number of the individuals experiencing the phenomena being the subject of the study. In this case our study group comprised 40 teachers, including 20 elementary school teachers and 20 science teachers, working in the schools to which they were located in the center of Diyarbakır, and affiliated to the Provincial Directorate of National Education in the academic year 2011- 2012: of the participants, 42.5% (n=17) were female and 47.5% (n=23) were male. The study group was selected using criterion sampling methods, which is one of the purposive sampling methods. In this sample method, the principle is to use a sample group meeting a series of criteria (Yıldırım & Şimsek, 2008). In selecting the sample group, the delivery of nature-related subjects in science classes was considered a criterion. The elementary school teachers participating to the study was coded between S1 and S20, while the science teachers were coded between F1 and F20.

Data Collection Tool

The data were collected using an interview form. The form including various characteristics of the participants such as branch and gender was semi-structured with open ended questions designed to illustrate how the participants perceived the concept of nature and the alienation of children from nature. The literature on the subject was reviewed before the preparation of the form (Demirkaya, 2007; Çekmez et al., 2012; Genç, Demirkaya, & Karasakal, 2010). Afterwards, in the light of the information gathered, the interview form was finalized according to the opinions and recommendations of two academicians, including one expert in the field. During the implementation, the participants were informed on the objective and content of the study and requested to fill the forms. The forms filled by the participants constitute the fundamental data source of the study.

Interpretation and Explanation of Data

Descriptive analysis method, which is one of the qualitative data analysis methods, was used in this study. In descriptive analysis, data is summarized and interpreted according to the themes revealed by the research questions (Yıldırım & Şimşek, 2008). The following stages were followed in the analysis and interpretation of the data. These are respectively:

1- *Formation of a framework for descriptive analysis:* A framework was formed on the basis of the research questions and the conceptual framework of the study.

2- *Processing the data according to the thematic framework*: The data acquired were read and arranged on the basis of the framework which was previously prepared. At this stage, the categories needed to reflect the objective of the study. In order to reach this objective, all the forms needs to be carefully analyzed. To this end, the responses of the teachers, in respect of the concept of nature and the reasons behind the alienation of children from nature, were read within one session. Then the same data were read for the second and third time and similar responses were taken into specific categories.

3- *Definition of findings:* At this stage, the organized data was defined with an easily readable and understandable language and supported with direct quotations. At this stage, particular attention was paid in order to avoid unnecessary repetitions.

4- *Interpretation of data:* At this stage the defined data were explained and interpreted.

In order to enhance the validity of the study, the literature on the subject was reviewed and opinions were obtained from the experts. In the data analysis, importance was placed on comprehensiveness and substantiality, to ensure that there were sufficient data to explain the concept of nature and children's' alienation from it. In addition, it was intended that the teachers would answer the questions according to the principle of voluntarism and in a manner that totally reflected the concept. The analysis was supported with direct quotations from the statements of the participants for the purpose of enhancing the reliability of the study.

Findings

In this section, the findings concerning the perceptions of the teachers, in respect to the concept of nature and alienation of children from nature, are presented. An analysis of the meaning attributed by the teachers to the concept of nature using the phenomenographic method revealed that the teachers conceptualized nature in three different ways. These categories are presented in Table-1, as a hierarchical order, from the simplest one to the most complicated one, along with the statements of the teachers, frequencies, and percentages of the teachers within these categories.

Concept of Nature

Category 1. Physical/ Visible Features of Nature

In this category, it was found that 12 teachers (including eight elementary school teachers and four science teachers) conceptualized nature according to its physical/ visible features. The teachers' mentioned about physical and visible characteristics/ elements of nature, such as living environment, untouched forests, seas, lakes, trees, rivers, streams, waterfalls, air, water, soil and green fields, etc. It was concluded that the teachers in this category conceptualized nature with concrete examples of nature.

Category 2. Wholeness and function of nature

In this category, 15 teachers (including nine elementary school teachers and six science teachers) conceptualized nature on the basis of its wholeness and function. In this category, the teachers gave responses with a reference to the idea that nature is a whole and perfect system, which covers living and non-living things, and should be protected. In thşs category it was seen that the teachers conceptualized nature in association with its complicated and abstract relations.

Category 3. Importance of nature for human health

In this category, it was seen that 13 teachers (including three elementary school teacher and ten science teachers) conceptualized nature on the basis of its importance for the health of human beings. In this category, it was found that the teachers referred to nature as open spaces where people find tranquility and health, feel healthy mentally and physically, and in which they take pleasure and joy while relaxing during their free time. In this category, it was concluded that the teachers conceptualized nature, taking into consideration the interrelations between nature and people.

Table 1. The Categories on the Concept of Nature and Teachers' Statements

Categories	Statements	Teachers (n)			Percent (%)
		Elementary	Science	Total	
Physical/ visible features of nature	Nature is a living space.	3	1	4	10
	Nature is untouched, gardens, trees, forests, seas, lakes, coasts, rivers, waterfalls, etc.	1	2	3	7,5
	Nature is the environment covering trees, grass, flowers and animals	1	-	1	2,5
	Everything that is natural, environment	-	1	1	2,5
	I would say nature is a creek flowing with a pleasant sound, the voice of a bird, grass and a shady tree, but there will not be shady trees any more, I guess	1	-	1	2,5
	Nature is air, water and soil	1	-	1	2,5
	Nature is the rivers, green areas, etc. that give us energy	1	-	1	2,5
Wholeness and Function of Nature	Nature is the environment where all living things live, natural areas	3	-	3	7,5
	Our source of life	2	1	3	7,5
	The most perfect system when undamaged	1	-	1	2,5

Table 1. Continue

Categories	Statements	Teachers (n)			Percent (%)
		Elementary	Science	Total	
Wholeness and Function of Nature	Nature is the environmental factors affecting life of living things	1	-	1	2,5
	A wholeness includes plants, human beings and animals and should be maintained as it is	1	-	1	2,5
	Nature renews and changes itself continuously and includes all living and non-living things	-	1	1	2,5
	Nature is a system where living and non-living creatures, events and phenomena come together and form their own sustainability	-	1	1	2,5
	Nature is the motion of all elements together in balance and harmony	-	1	1	2,5
	Nature is a big organism. I believe nature is alive and human being is a parasite living on this organism	-	1	1	2,5
	Nature is formation of appropriate conditions without the intervention of human hand.	-	1	1	2,5
	Source of oxygen	-	1	1	2,5
Importance of nature for human health	Nature is clean air, beauty, health and tranquility	2	1	3	7,5
	Nature is living environments of plants and animals where you can find tranquility	1	1	2	2,5
	It is naturality, simplicity, freedom and comfort.	-	2	2	2,5
	It is where a person feels himself to be at peace.	-	1	1	2,5
	Nature is an open area where a person feels himself to be healthy physically and mentally	-	1	1	2,5
	Nature is those environments where I can walk in clean air.	-	1	1	2,5
	Living space giving happiness and peace to people	-	1	1	2,5
	It is the environment where plants and animals live together and it has many benefits for human health	-	1	1	2,5
	It is place where people can rest with pleasure and joy, watch and spend their spare time	1	-	1	2,5
	Total	20	20	40	100

Alienation of Children from Nature

An analysis of the responses given by the teachers in respect to the alienation of children from nature reveals that they perceive the issue in four different categories. Statements of teachers, the frequency and percentages of these statements can be found in Table-2

Category 1. Decrease in the Amount of Natural Living Spaces

In this category, it was found that 31 teachers (including 12 elementary school teachers and 19 science teachers) perceived the alienation of children from nature as the decrease in the amount of natural living space. In this category, teachers, in their responses, referred to the increase of urbanization with the development of country, apartment life, a decrease in the amount of natural

living space, concretization, growing cities, destruction of forests, forest fires, and a decrease in the amount of green areas.

Category 2.Interaction with Technology

In this category, it was found that 21 teachers (including ten elementary school teachers and eleven science teachers) perceived alienation of children from nature as the increasing interaction of children with technology. In this category, teachers' statements associated alienation of the children from nature with developments in technology and their increasing interaction with cyber world. Furthermore, teachers mentioned the habits of using technological devices and equipment, such as computers, television, internet and mobile phones starting from very early ages as one of the reasons behind the alienation of children from nature.

Category 3. Migration, economic and social problems

In this category, it was found that 16 teachers (including ten elementary school teachers and six science teachers) perceived alienation of children from nature as migration, economic and social problems. In this category, the teachers associated alienation of children from nature with migration to cities from villages, cultural transformation, and insufficient amount of time spared by parents to their children, economic reasons and insecure social environment.

Category 4. Examination-oriented education system

In this category, it was seen that 12 teachers (including three elementary school teachers and nine science teachers) perceived the alienation of children from nature as an examination-oriented education system. In this category, in their statements teachers associated the alienation of children from nature with the idea that children are not able to spend enough time in nature due to the education system, starting school at an early age, children spending most of their time at school, examination-oriented policies and examination anxiety**.**

Table 2. Categories of Alienation of Children From Nature and Teachers' Statements

Categories	Statements	Teachers (n)			Percent
		Elementary	Science	Total	(%)
Decrease in the amount of natural living spaces	Increase in urbanization with growth of country, urbanization	3	5	8	9,0
	apartment life,	5	3	8	9,0
	destruction of nature, insufficient structures such as parks, gardens, forests, extinction of natural living environments	1	5	6	7,5
	Decrease in the amount of parks and green areas	1	3	4	5,0
	Destruction of forests, forest fires,	-	2	2	2,5
	Irregular, unplanned housing,	-	1	1	1,25
	Expanding city	1	-	1	1,25
	Urbanization	1	-	1	1,25
Interaction with technology	Advance of technology	4	3	7	8,75
	Technological devices, TV, computer,	1	3	4	5,0
	internet and mobile phone craziness	1	2	3	3,75
	Internet coffeehouses and computer games	1	1	2	2,5
	Advances in technological game devices	1	-	1	1,25
	Focus on only technology	1	-	1	1,25
	Television, computer, lack of secure play grounds	1	-	1	1,25
	Spending time with TV and computer	-	1	1	1,25
	Decrease of computer internet use habit among lower age groups.	-	1	1	1,25

Table 2. Continue

Categories	Statements	Teachers (n)			Percent
		Elementary	Science	Total	(%)
Migration, economic and social problems	Increase in the migration from village to cities	1	4	5	6,25
	Insufficient amount of time spared by parents for their children and busy work schedule	2	1	3	3,75
	Economic reasons	1	1	2	2,5
	Insecure social environment	1	-	2	2,5
	Underdevelopment of country and society	1	-	1	1,25
	Failure in cultural transfer	1	-	1	1,25
	Globalization and cultural transformations, comfort coming with modern life	1	-	1	1,25
	Preference of possessions over natural areas by society	1	-	1	1,25
	Poor family relations	1	-	1	1,25
Exam oriented education system	Starting school at early age	1	-	1	1,25
	Children's' spending most of their times at school	1	-	1	1,25
	Limited time to spend in nature (preparation to examination, etc)	1	-	1	1,25
	Delivery of environmental information in classroom at school	-	1	1	1,25
	Education system	-	1	1	1,25
	Starting school at early age, measurement of success with examinations, private teaching institutions and increase in private lessons	-	1	1	1,25
	Lack of time as each stage is passed through examinations	-	1	1	1,25
	Examination-oriented education policies	-	1	1	1,25
	Parents' raising children with focus on examination	-	1	1	1,25
	Insensitive education and training system	-	1	1	1,25
	Lack of time due to examination anxiety	-	1	1	1,25
	Lack of spare time	-	1	1	1,25
	Total	35	45	80	100

Discussion, Conclusion and Recommendations

The findings of this study revealed teacher's perceptions of the concept of nature and children's' alienation from nature are presented below.

This study identifies various differences between the meanings attributed by the teachers to the concept of nature. It was found that the teachers conceptualized nature in three different categories, namely physical and visible features of nature, wholeness and function of nature, and significance of nature for human health. In similar studies, Kahyaoğlu (2015) stated that elementary school students conceptualized nature in four different categories, including the vital functions of nature, the balance and rules of nature, diversity of nature, the aesthetic and the artistic features of nature. In their study Deniz Çeliker and Akar (2015) argued that elementary school students perceived the concept of nature as the place they live in and the source of life. Dervişoğlu and Kılıç (2013) in their study reported that young people perceived nature as living things, ecosystem and non-living things. Kutru and Soran (2012), in their study on university students', underlined that most of

the students associated nature with living things (plants, animals, trees). Köşker (2013) in her study on perceptions of prospective teachers and elementary school teachers about nature, reported that prospective teachers perceived the concept of nature as a living space and that elementary school students perceived it as botanical elements. Individuals form most of their impressions by what they see, in other words, visual perception. Visual perception is important in the way the individual perceives, gives meaning to, and conceptualize nature. For this reason, it can be said that teachers perceive and interpret and conceptualize nature with its physical and visible features due to the visual perception. However, according to Çağlar (2003), the individuals still cannot totally comprehend the concept of nature.

An analysis of the meanings attributed by the teachers to the concept of nature, according to their branch of specialization, shows that responses given by the elementary school teachers were related with the physical and visible features of nature such as living space, source of live, the environment where all living things live, untouched forest, seas, lakes, coasts and rivers, etc. While perceiving their environments, the individuals sometimes perceive something with another thing that represents it. In this case referred to as symbolic perception, various symbolic components such as trees, the greenery, forests can evoke the whole thing (like nature). Accordingly, the teachers' use of some representations and symbols in the class, while getting the students perceive nature or their design of learning environments including such symbols may make it easier to interpret the concept of nature.

It was found that the science teachers used general expressions with a focus on nature's significance for human health, such as health, tranquility, beauty, freedom, resting, entertainment, source of life and source of oxygen in their responses concerning nature. Accordingly, it can be contented that the science teachers perceive nature as spaces from which people obtain benefits within the human being-nature relationship and where human beings form the center. Pohl (2006) argues that as a result of urbanization the natural environment has remained only in the cultural spaces and thus concept of nature has been transformed into areas offering health and peace. In this context, nature's function to give health and tranquility can be underlined during the design of the learning environment. Specific teaching methods and techniques integrated with nature are needed in the learning environments, if we are to explain the concept of nature to children. For these reasons, more appropriate and updated education programs, which can be employed by teachers for nature education, should be developed. Keleş et al. (2010) underlined that nature education is learning about nature in a natural environments, and by using what has to offer as the subject matter, materials and tools of teaching. The stimulation of interest, curiosity and exploratory motivation are very important aspects of a child's learning. To this end, it is necessary to make school activities and out-off-school activities reinforce each other. The meaning of nature can be understood when in interaction with nature (Güler, 2009). Furthermore, nature is known to be environments that draws the attention and arises the curiosity of children (Atasoy, 2005). The literary review indicates that observation and exploration in the natural environment improves children's perception of nature and thus their level of knowledge concerning the concepts and processes of nature, their environmental awareness and their sense of responsibility towards nature (Cappellaro, Ünal Çoban, Akpınar, Yıldız, & Ergin, 2011; Erdoğan, 2011; Kıyıcı, Yiğit, & Darçın, 2014).

It is believed that students' experiences of nature are key to their perception of self, and sense of protection and and respect for the natural environment (Güler, 2009). It was reported that children living in cities, and away from nature, have a more superficial and naïve perception of nature (Aaron, 2009). It is said that children should not be imprisoned in the the classroom environment, and instead should perform activities in nature in terms of their relationship to nature (Köşker, 2013). Louv (2010), in his book "Last Child in the Wooden", said that in USA between the years 1997-2004, there has been a 50% decrease in nature- activities (trekking, fishing, etc.) in children aged between nine and twelve years. It is not possible for children who have become alienated from nature to be attentive to nature, wonder about it, understand its language, and have empathy with it. In this study, the teachers

perceived alienation of children from nature to come under four different categories: a decrease in the amount of natural living spaces, an increasing interaction with technology, an examination-oriented education system and migration, economic and social problems. An analysis of the responses of the teachers according to their specialization showed that most of the responses of the elementary school teachers and science teachers focused on the decrease in the natural living spaces and an increasing interaction with technology. In addition, elementary school teachers associated the alienation of children mostly with migration, economic and social problems, while the science teachers associated it mostly with an examination-oriented education system. The analysis of the categories of alienation of the children from nature revealed that the categories citing a decrease in the natural living spaces,, examination-oriented education system, migration, economic and social problems are non-relational concepts, which occurred as a result of other factors and without the will or control of children. On the other hand, the category of increased interaction with technology is a relational concept as it occurs as a result of a mutual interaction under the will and control of the children. It was found that most of the teacher responses regarding the alienation of children from nature fall under the non-relational categories. This indicates that the teachers do not adequately consider or discuss the issue of children's alienation from nature, in terms of a cause and effect relationship. The following recommendations are made on the basis of these findings:

- The teaching traids of teachers are important in enhancing the concept of nature. If the meaning attributed by the teachers to the concept of nature were positive, this would be reflected on their students. For this reason, the quality of nature education may be improved through the provision of in-service training for teachers on nature education.
- The findings concerning the concept of nature and the alienation of children from nature are limited to those belonging to the elementary school teachers and science teachers. Further studies should be conducted with teachers from different subject areas, parents, and students of different academic levels (primary, elementary and university).
- The concept of nature and its perception by both teachers and children should be the subject of further detailed studies and for this reason, studies could be conducted on the ways both teachers and students conceptualize nature.

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