



Primary School Students' Perceptions and Experiences regarding Plants in Their near Environment¹

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Abstract

This research was conducted to examine the perception and experience of primary school students regarding plants in their near environment. The research pattern of phenomenology (phenomenology) involved in qualitative research was used in the study. The perception and experiences of the primary school students regarding the plants in their near environment were treated as a phenomenon and the students' opinions were tried to be revealed on this subject. The study was conducted with the criterion sampling method, one of the purposeful sampling methods included in the qualitative research approach, with 120 primary school students attending the third grade of 3 public schools at lower, middle and upper socio-economic levels in the city center of Afyonkarahisar. Written interview form was developed in line with the acquisitions emphasizing plant love and sensitivity to plants included in the "Life in Nature" unit of the 1st, 2nd and 3rd grade Life Studies Curriculum. The data obtained in the study were analyzed using content analysis technique, the responses of the students were examined in depth, tabulated using descriptions and supported by direct quotations from the views of the primary school students. According to the findings obtained as a result of the research, it was determined that primary school students attach importance to the plants and trees around them and have behaviors to protect them. Students want to have green and large playgrounds, parks, gardens, woodlands and areas where they can live with plants and animals in their city. Students think that it is important to have plants and trees in the city or in their homes from an aesthetic and psychological point of view. A large majority of students stated that they protected plants by giving examples from their own lives with the words "I do not crush, I do not pluck, I do not harm, I warn those who do harm." The fact that they make emotional statements such as "plants are also living, they are part of our house" suggests that students are sensitive to plants. Students who think people should grow plants to increase sensitivity to plants and trees; they recommended that social responsibility projects should be carried out, school programs should include courses that will give sensitivity to plants and trees, and activities should be carried out.

Keywords

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Introduction

The century we left behind has claimed its place in history books as the time of urbanization, industrialization, knowledge, and development in which many great inventions and breakthroughs occurred in the field of science and technology and many global changes were experienced. One of the most striking phenomena in this century is perhaps the transformation of the struggle between humankind and nature into a power struggle between ecology and economy. As a result of these, environmental problems have left their mark on this century via humans who have reached the stage of destroying their kind (Atasoy and Ertürk, 2008).

In the historical process, the human-nature relationship has been in the form of safety, exploitation, and protection. The human, who constantly contends with nature and adjusts his/her environment to survive, has tried to dispose of the limitations of her/him by creating a new and artificial living space for themselves. S/he forgot that s/he is also a part of nature, kept her/him separate from her/his own existence in her/his struggle with nature, and shaped it to meet her/his needs and destroyed it constantly. By using nature in accordance with her/his needs, the human destroying it has become threatening her/his own life. They must remember that they are a part of nature and should live in harmony. On account of these threats, nature education will create substantial opportunities in terms of getting to know the nature, protecting it, and raising awareness. Building a relationship with nature at an early age enables individuals to develop a meaningful attachment to nature throughout their lives (Akyüz, 1979).

The relationship between education and environmental problems has been scrutinized particularly, in the last quarter of the century. The convenience of teachers, schools, and curricula for raising individuals with high environmental and ecological awareness has been queried again. While questioning the necessity, importance, function, and effects of education for the environment; the issue of environmentalization of education and promoting adequate environmental awareness to students in schools has started to be discussed in many countries. It is aimed to raise new world citizens as the new eco-individual of XXI. century, who live in harmony with nature, reconcile ecology and economy, and embrace our planet (Atasoy and Ertürk, 2008). Practices of environmental education that will ensure raising environmentally friendly and conscious people have gained critical importance in this period in which environmental degradation has reached a level that could threaten life on earth (Özdemir, 2010).

Education has a determinant role in embodying the child's perception of the environment and nature. It serves an effective function in the transformation of love of nature and environmental protection into permanent behaviors and lifestyle (Atasoy and Ertürk, 2008). Environmental education should be given starting from early childhood when the personality is getting formed. Starting it at an early age is very important to develop empathy in a relationship with nature and to nurture love for it (Erten, 2004).

One should remember that the success of the search for political, economic, and technological solutions in solving global environmental problems and restoring the harmony between humankind and nature is dependent on educated individuals. Since the future of our planet is in the hands of today's children, who are tomorrow's adults, the "environment (nature) education investment" to be made for children should be perceived as an investment in our world. While this investment is made, firstly, child-nature interaction needs to be discussed extensively; secondly, educational activities and curricula that will provide positive environmental attitudes and behaviors in children need to be reassigned; and last but not least, national and international education policies should be revised to raise world citizens with high ecological culture and environmental awareness. The realization of all these rests upon the environmentalization of theoretical and practical courses in schools and the prevalence and effectiveness of nature education (Atasoy and Ertürk, 2008). Education has a considerable role and influence on germinating and settling environmental awareness in children, the transformation of nature love and environmental protection into permanent behaviors and lifestyles. Education is one of the most outstanding determinants of the transition from conservative environmentalism rooted in predestinarianism to contemporary environmentalism guided by science and reason and shaped by logic, thought, and tolerance (Ergun, 1993).

Research and experiences reveal that environmental education carried out in the classroom, isolated from nature do not have sufficient impact on students to recognize their natural environment correctly and behave consciously (Rost, 2002; cited in Özdemir, 2010). This situation brings out the necessity to include learning experiences, which will give an opportunity to students to learn about living and nonliving things by directly interacting with nature and to comprehend the relationality and integrity in nature, in environmental education. Regarding that, a natural experience approach based on rich learning experiences enabling individuals to discover the environment with direct interactions and to interiorize environmental values becomes prominent (Özdemir, 2010).

The point to be considered in nature education is to promote experiences in nature that will especially enable children to discover it by integrating in-class and out-of-class education. The knowledge acquired through in-class training remains intangible when compared to experiences in nature. Children recognize the image of nature, not its being. However, children should distinguish nature through direct experiments by seeing, touching, hearing, smelling, and feeling. Thereby, conducting nature education in-class training, and in a disconnected way from nature will prevent the establishment of meaningful connections with nature (Köşker, 2013). Children should be regularly out of classrooms, make observations and practices in an accurate nature education program. The experiences in nature allow students to be confident and to constitute empathic relationships with nature. These acquired knowledge and skills are the key to both understanding themselves, protecting and respecting the natural environment. Therefore, after the necessary safety precautions are taken, children should be free to explore the natural world first hand and learn through their own experiences. As a consequence, teachers, who will organize learning opportunities in out-of-class environments such as various natural areas, parks, and gardens, become a significant part of nature education. Teachers can support children's knowledge and awareness of the environment and help them develop these skills considering their natural curiosity and interests (Doğan, 2007; Haktanır, 2007).

By taking care of plants and animals, the child can feel love, sympathy, and trust towards these creatures. By observing the slow germination of the seed thrown into the soil, s/he will get used to being patient and waiting. When the child finds out that the life of the plant s/he has planted depends on watering it and an animal is waiting to be fed, s/he will realize that s/he has a role in life. Besides, the child will develop the habit of self-education since s/he will do all these duties instinctively without the teacher's enforcements (Akyüz, 1979).

In our country, acquisitions in nature or environmental education in primary school are mainly given through Life Studies, Social Studies, Science and Technology lessons. There is no unit titled as nature education or environmental education in these courses. The acquisitions of nature education are included in the units of these courses. This condition stems from the interdisciplinary feature of nature education. Nevertheless, the fact that nature education has only a cognitive dimension which will prevent the targeted behavioral change. To gain the love of nature and nature consciousness as a value and self-control over his/her behavior will prove the success of education (Köşker, 2013).

The conducted studies show that environmental education practices based on nature experience are effective in various ways and it is specifically emphasized that there is a close relationship between educational experiences in nature and children's perception of the environment. Nature observation and experiences of children in the near environment increase environmental awareness and knowledge. It is stated that long-term contact with nature positively affects the shaping of children's environmental knowledge and perception (Özdemir, 2010). Furthermore, many studies have revealed that nature-based environmental education in childhood facilitates establishing intimacy with nature. Additionally, it has been demonstrated that children's active experiences in nature are more effective in perceiving their natural environment correctly when compared to learning in-class experiences (Özdemir & Uzun, 2006). Şahin, Aktaş, Bacak, and Düz (2016) carried out a study observing students plant growing and selling them in school gardens. As a result of the study, it was identified that school gardening has a significant contribution to students' motivations and especially self-confidence. Kefeli et al. (2018) implemented a nature education project to ensure that children learn agriculture both by having fun and by practicing. In their studies, they concluded that students obtained new information about agriculture and agronomic practices and became conscious of them. Moreover, they learned entertainingly during the application and increased their interest in nature. In

the research conducted by Uzun, Sağlam, and Varnacı Uzan (2008), the “Applied Environmental Education Project” carried out based on the Green Class Model considerably increased the environmental awareness of students and ensured their permanence. As stated by Erduran Nemutlu (2017) in her study, students are happy to have lessons in nature and recognize plants. All these findings underline that nature education programs based on nature experience are influential in students’ acquisition of positive attitudes and behaviors towards the environment. Considering these results, the purpose of the study was to investigate the primary school students’ perceptions and experiences regarding plants in their near environment. In line with this purpose, answers to the following research questions were sought:

1. Do you participate in activities to protect the plants around you? If so, what are you doing?
2. Do you think that the people in your neighborhood are sensitive to the plants around you?
3. What do you think can be done to increase sensitivity to plants and trees?
4. What is the importance of having plants in your city or home?
5. Do you have any information about the necessary conditions for a plant to survive? Where did you get this information?
6. Do you think there are enough plants in the city where you live? What kind of areas would you like to have in the city where you live?

Method

Research Design

Qualitative research is a demonstrative and an interpretative process (Creswell, 2012) that explains core elements of individual and social events and phenomena experienced by people, and for the researcher to examine the formation processes of events and phenomena. It allows the researcher to find out how the studied people see the world from their aspect, how they define the situation, or what the situation means to them (Neuman, 2010).

Phenomenological method design, within the scope of qualitative research tradition, was used as this research aimed to understand the perceptions and experiences of primary school 3rd grade students about plants in their near environment. The phenomenological design focuses on the phenomena that we are aware of, yet for which we do not have a profound and detailed awareness. Phenomena can appear in various forms such as events, experiences, perceptions, orientations, concepts, and situations in the world we live in (Yıldırım and Şimşek, 2018). Hence, this study aspired to discuss the perception and experiences of students about plants in their near environment as phenomena and to reveal the students’ opinions on the subject. The researcher illustrated how people interpret an event from their point of view in phenomenological design. In addition, the people’s perspectives were examined in this pattern (Johnson and Christensen, 2014).

Study Group

The study group of the research was identified through using criterion sampling which is one of the purposeful sampling methods included in the qualitative research approach (Yıldırım and Şimşek, 2018). The specified criteria in the research are:

- 3rd grade primary school students studying in the spring semester of 2018-2019 academic years
- Students studying at a public school at upper, middle, and lower socio-economic levels in the center of Afyonkarahisar city.

In the light of specified criteria in the research, the study group consist of 52 students studying at a public school at the upper socio-economic level, 41 students studying at a public school at middle socio-economic level, and 27 students studying at a public school at the lower socio-economic level in the center of Afyonkarahisar city. 10 foreign students studying at a public school at lower socio-

economic level were not included in the study group due to insufficient reading and writing skills in Turkish. A total of 120 students from all three schools participated in this study.

The demographic information of the study group is included in Table 1.

Table 1. Distribution of Demographic Information of the Study Group

		f	%
Gender	Female	60	50
	Male	60	50
Socio-Economic Level of School	Upper	52	43
	Middle	41	34
	Lower	27	23
Plant growing situations	Growing plant	112	93
	Not growing plant	8	7
Total		120	100

The study group participating in the research consists of 60 female and 60 male students. 52 students study at upper socio-economic level, 41 students at middle socio-economic level, and 27 students at the lower socio-economic level in the study group. 112 of the students participating in the study stated that they grew plants, while 8 of them stated that they did not grow plants. The students, who grew plants, indicated that they grew vegetables such as beans, tomatoes, peppers; cereals such as chickpeas, sunflowers; fruits such as strawberries, watermelons, melons; and flowers such as roses, daisies and violets, and trees.

Data Collection Tool

Written interview form was used as a data collection tool in the study. According to Yıldırım and Şimşek (2018), the analysis of written documents is a data collection method in qualitative research used as a support to the obtained data either by itself or through interview and observation. Written interview forms provide both a fixed choice answer and detailed information in the relevant field (Büyüköztürk, Çakmak, Akgün, Karadeniz and Demirel, 2014). Before preparing a written interview form, the literature related to the subject and the previous studies were examined. The form was developed regarding the acquisitions that emphasize the plant love and sensitivity to plants in the unit of "Life in Nature" in Life Studies Curriculum of 1st, 2nd and 3rd grades. In the preparation of the questions developed by the researcher, the principles such as easy understanding of the questions and not being multidimensional and not guiding the respondent were paid attention (Bogdan and Biklen, 1992; cited in Altunay, Oral and Yalçınkaya, 2014). The prepared form was submitted to the evaluation of two field experts to determine its suitability for the students' level. According to the feedback from field experts, article expressions were edited and the form was put in its final form.

Data Analysis

Primary schools were visited in order to apply the written interview form. First, the school principal and then, 3rd grade teachers were interviewed and informed about the study. The classes of the two teachers who voluntarily accepted to participate in the research were visited, and the students were instructed about the application to be carried out in their classes. It was noted that this research was not an exam or an activity that measures success, and the given answers would not be used for an evaluation. After written interview forms were distributed, how students should answer the form was shown through a sample item. Enough time was given to fill up the form and the completed ones were received by hand.

Data analysis was performed by using the content analysis technique, which is one of the qualitative data analysis methods. The data is described and the facts that may be hidden within the data are revealed through content analysis. The fundamental action in content analysis is to assemble similar data within the framework of certain concepts and themes and to arrange and interpret them in a way that the reader can understand (Yıldırım and Şimşek, 2018). In the presentation of the data, the criteria of striking (different opinion), explanatory (suitability to the theme), diversity, and extreme examples were taken into consideration for the selection of citations (Ünver, Bümen, and Başbay, 2010).

The data were transferred to the Microsoft Office program and read several times. The codes were generated and following this, they were gathered together. The themes constituting the outline of the research findings were elicited to conduct the content analysis. The statements that students expressed their opinions were quoted directly. An expert made a confirmation review on the consistency of the relations established between raw data, their results, and the comments on them to ensure reliability, and it was verified by the expert. Frequencies related to the generated codes were presented. Direct quotations were also included to reflect the views of the participants. There were expressions in students' responses that can be listed in multiple themes. In consequence, the number of the frequencies in the themes obtained during the analysis was more than the total number of the participants. In the presentation of the findings, the participants were coded with numbers to protect their privacy in compliance with ethical principles. The codes S1, S2, S3... were used while referring to the students' expressions.

Findings

Primary school students' perceptions and experiences regarding plants in their near environment were revealed with the conducted study. In this part, the data obtained from the students' views on the topic was interpreted by using the tables.

Applications Performed by Primary School Students to Protect the Plants in Their Environment

The students' views were analysed based on the question of *“Do you participate in activities to protect the plants around you? If so, what are you doing?”* The themes, conceptual codes generated under the themes, and the frequency of use of codes are shown in Table 2.

Table 2. Applications performed by primary school students to protect the plants around them

Themes		Codes	f
I protect the plants in the environment	Caring Aspect	Watering plants/trees	53
		Planting or sowing trees / saplings / plants / seeds	21
		Caring for plants around / aeration	16
		Making sure they receive sufficient sunlight	6
		Cleaning flowers / picking up trash from tree edges	4
	Protection Aspect	Protecting plants / warning annihilators	24
		Not crushing / plucking / breaking	7
Love Aspect	Showing love and respect for plants	6	
	Making a flower out of paper	1	
I do not protect the plants in the environment	Demand Aspect	Not protecting the plants around	16
		Wanting to protect the plants but not performing it	5
	Animal Sensitivity Aspect	Lack of an activity to protect plants at school	3
		Putting a water/food bowl on the street	2
Total			164

Considering the analysis of the students' answers, 94 students stated that they protect the plants in their environment, on the other hand, 26 of them noted that they do not protect the plants on the grounds that *“I want to do so but I don't because there was no such activity at school”*. As demonstrated in Table 2, in the theme 'I protect', the themes of care, protection, and love aspect were specified; in the theme 'I do not protect', the themes of demand and animal sensitivity aspects were designated. Some students stated their actions to protect the plants by saying: S105: *“If I see a tilted branch or flower, I protect the plants by supporting them with sticks.”* S111: *“I do not pick plants, I warn those who do.”*, S71: *“I do not crush plants and flowers, I do not damage trees, we water them. We must show them love and respect.”*, and S119: *“I warn those who harm plants and trees.”*

The Views of Primary School Students on the Sensitivity of People to the Plants in Their Environment and the Reasons They Based These Opinions on

The students' views were analysed based on the question "Do you think that the people in your neighborhood are sensitive to the plants around you?" 5 theme groups were categorized as "Love, Sensitivity, Benefit, Protection, and Environmental Awareness". The themes, conceptual codes generated under the themes and the frequency of use of codes are shown in Table 3.

Table 3. The views of primary school students about the sensitivity of people to the plants in their environment and the reasons they based these opinions on

	Themes	Codes	f
Yes	Love Aspect	People love plants / flowers	24
		People plant/ grow flower / tree	10
		Plants beautify our world	1
		Plants are part of our home	1
		Plants are living things as well	4
	Sensitivity Aspect	People are sensitive to the plants in their environment	1
		People who love and protect plants are good people	1
		People found associations aimed at protecting plants	1
	Benefit Aspect	Some plants are means of income for some people	1
		Plants provide clean air	1
		The use of some herbs in medicine	1
		The use of plants and trees in papermaking	1
		Plants are very important to people	1
		Plants prevent earthquakes	1
Protection Aspect	People protect plants	4	
	People warning those who mistreat plants	3	
Sensitivity Aspect	People in the environment causing damage to plants / trees	28	
	People cut down trees	5	
	We need to love and count plants	1	
No	Environmental Awareness Aspect	People's not protecting / loving nature	2
		People being insensitive	1
		Cigarette butts' damaging plants	1
Undecided	Some people behave sensitively, some do not	1	
	Some people protect plants, some do not	1	
Total			101

As demonstrated in Table 3, while 68 students stated that people are sensitive to the plants, 50 of them said people are not sensitive, and 2 students could not reach a definite judgment by saying "some people are sensitive, some people are not sensitive". Considering the analysis of the students' answers, the love, sensitivity, environmental awareness, benefit, and protection aspects were formed; sensitivity was used in both positive and negative terms.

Some students explained how people are sensitive to plants by saying; S26: "I think people are sensitive to plants because there are flowers on our doorstep and our neighbors' doors." S32: "People are sensitive to plants, they have lots of benefits for our lives. We use plants for our nourishment, and even in the production of medicine, plants are used." S48: "Plants make our world beautiful", S71: "We love plants, plants are a part of our home because they are also alive. There are people who take care of their plants as they do it for themselves." Some thought that people are insensitive to the plants by saying S37; "I don't think people are sensitive to plants because everybody smokes and the cigarette butts harm plants." S79: "I don't think they are. Because they don't like and protect nature. So, plants, animals, living things die." S80: "I don't think they are. Because while everyone is walking, they smash plants, break trees and they don't care about plants", and S89: "Some pluck flowers and use them as a gift. I don't consider them as sensitive people about plants." S97 got confused about earthquakes and floods as s/he said "Plants prevent earthquakes."

The Views and Suggestions of Primary School Students on Increasing the Sensitivity towards Plants and Trees

The students' views were analysed regarding the question "What do you think can be done to increase sensitivity towards plants and trees?" Four theme groups were categorized as "Plant Care, Social Responsibility, Environmental Sensitivity and Awareness". The themes, conceptual codes generated under the themes and the frequency of use of codes are shown in Table 4.

Table 4. The views and suggestions of primary school students on increasing the sensitivity towards plants and trees

Themes	Codes	f
Plant Care Aspect	Growing/ planting plants/trees	45
	Watering plants	23
	Ensuring that people consider plants and trees as living things	4
	Providing sunlight for plants	2
	Taking care of plants and trees	3
	Having people love plants and trees much	2
	Disinfecting plants	1
Social Responsibility Aspect	Organizing projects / campaigns / events to increase sensitivity to plants and trees	11
	Ensuring the increase in the number of associations and institutions that protect plants / trees	6
	Preparing posters / brochures and hanging / distributing them where people will see	6
	Informing people about plants and trees	3
	Being a member of plant-protection organizations	2
	Finding slogans to protect plants and trees	2
	Adding lessons / activities that will raise awareness for plants and trees in school programs	3
	Preparing surveys to measure the sensitivity of people to plants and trees	1
	Founding an organization that distributes plants to anyone who wants	1
	Having people do their best to increase sensitivity towards plants and trees	1
Environmental Sensitivity Aspect	Avoiding waste of paper	2
	Installing filters in factories' chimney	1
	Recycling	1
	Preventing littering around the trees	1
Awareness Aspect	Warning people who damage plants and trees	26
	Asking people to be sensitive towards trees, plants and animals	7
	Preventing cutting of trees	6
	Putting signs as "keep off the flowers", "do not pluck flowers"	2
	Helping damaged plants and trees	1
	Being a role model in showing sensitivity towards plants and trees	1
I Have No Suggestion	Fining on tree and plant damage	1
		6
Total		171

As a result of the analysis of the views and suggestions of primary school students on increasing the sensitivity towards plants and trees, the aspects of "Plant Care, Social Responsibility, Environmental Sensitivity and Awareness" were created. The students constantly repeated growing plants, planting trees, watering them, carrying out social responsibility projects, and warning people who damage plants. The students made suggestions by saying; S58: "Very good projects can be done about plants and trees. Trees are very important because they protect animals, allow us to breathe and

beautify nature.”, S117: “*Related activities should be held in schools, and more lessons on this subject should be added to school schedule.*”, S102: “*Paper shouldn’t be wasted, it should be recycled.*”, P61: “*I think an organization should be founded and everyone should get plants there.*”, and S60: “*It can be requested to have empty lands tree planted.*”. They also set a personal example with their behavior by saying; S74: “*Sometimes people break tree branches on purpose when I see them I warn them ‘Be careful, Uncles!’*”, S67: “*I don’t litter trees and I warn those who treat trees badly.*”, and S91: “*I do not hurt the branches of the trees, I do not pluck their leaves.*” Additionally, they emphasized the need to empathize with plants and trees in their own words: S89; “*We should think that they are as alive as we are.*” S100: “*If a person was sent to a dry zone, s/he would say ‘I wish there was water and some green area’ and s/he would never damage trees and plants again. S/he would take lessons from it.*”

The Views of Primary School Students on the Importance of Having Plants and Trees in Their City or House

The students’ views were analysed considering the question “*What is the importance of having plants in your city or home?*” 4 theme groups were listed as “Environmental Benefit, Human Benefit, Psychological Impact and Negative Aspect”. The themes, conceptual codes generated under the themes and the frequency of use of codes are shown in Table 5.

Table 5. The views of primary school students on the importance of having plants and trees in their city or house

Themes	Codes	f
Environmental Benefit Aspect	Trees cleanse the air	41
	Beautify environment/nature	23
	Source of oxygen	21
	Smell nice	11
	Beautify the house	11
	Look nice	4
Human Benefit Aspect	Plants and trees produce vegetables/fruits	20
	Plants are necessary/important for people	8
	They prevent natural disasters	8
	Provide healthy nutrition	5
	Taking responsibility for daily care of the plants in our house	1
	Creams can be made using plants we grow in the house	1
	Animals have a place to sleep	1
	Cause harms if they are in bedroom	1
Psychological Impact Aspect	It has positive effect on human psychology	9
	Love of plants and trees	3
	Being sensitive towards plants and trees	1
	They seem friendly to people	1
Negative Aspect	I have no idea	8
	It doesn’t matter	1
Total		179

As a result of the analysis of the views of primary school students on the importance of having plants and trees in their city or house, 4 theme groups were assigned as “Environmental Benefit, Human Benefit, Psychological Impact, and Negative Aspect”. The students underlined the importance of having plants in their homes or the city they live in by stating that trees cleanse the air; plants, and trees create an aesthetic appearance; and produce fruits and vegetables; and they also affect human psychology positively. They indicated the environmental benefits of plants by saying; S19: “*Plants and trees absorb bad air and give off fresh air.*” S37: “*Some people throw garbage in front of their houses, it causes unpleasant smell and view. If it were a flower or a tree, it would look beautiful.*” and S96: “*They help us breathe.*” The primary school students also emphasized the contribution of plants and trees to human life and said; S101: “*The trees we planted prevent landslide and beautify the*

nature.”, S72: “We couldn't eat honey if there weren't any plants.”, S22: “They are good for people's psychology.”, S49: “We water Aloe Vera, we make a cream of it.”, and S82: “They beautify our environment, give off a nice smell, protect us from natural disasters, and become homes of animals. We eat some kind of plants.”

The Knowledge of Primary School Students about the Living Conditions of Plants and the Resources They Learn about These Conditions

The students' views on the question “Do you have any information about the necessary conditions for a plant to survive? Where did you get this information?” are shown in Tables 6 and 7.

Table 6. The knowledge of primary school students about living conditions of plants

Themes	Codes	f
I know	Water	43
	Sunlight	32
	Soil	27
	Proper weather conditions	19
	Protection	6
	Care	3
	Oxygen	3
	Life cycle	2
	Love	2
	Humidity	1
	Shadow	1
	Photosynthesis	1
	Fertilizer	1
I have no idea		16
Total		157

As demonstrated in Table 6, while 104 students stated that they know some information about the living conditions of plants, 16 students noted that they do not. Students emphasized that plants need water, sun, soil, and suitable weather conditions to survive. They expressed their knowledge about the conditions required for plants to survive by saying; S19 “First, I plant it, then water it, and it grows.”, S42: “Plants grow by getting nutrition from the soil.”, S52: “A plant needs to do photosynthesis in order to survive.”, S16: “A plant needs life cycle to survive.”, S15: “For a plant to survive, you need to take care of it.” and S73: “The essential conditions for a plant to survive are watering them, protecting them, and not breaking its twigs.” Even though S31 does not know anything about plants' living conditions, s/he remarked that s/he knows the resources to find out information about them by saying “I don't know the basic requirement for a plant to survive, but I can look it up on the internet or learn from books.”

Table 7. The resources of primary school students learn about living conditions of plants

Codes	f
School	54
Family	24
Life Science Lesson	18
Science Lesson	16
Books	4
Nature	1
Internet or books	1
Total	118

As seen in Table 7, students underscored that the resources they learn about living conditions of plants are predominantly school, family, Life Science, and Science Lessons. They explained their resources by saying; S29: “I know the required conditions for a plant to survive. I learned them by

growing plants in Science and Life Sciences lessons at school.” S46: “I learned the required conditions for a plant to survive in the activities we did at school.” S89: “I do not know exactly the required conditions for a plant to survive. I learned what I know from nature and the lessons we have at school.” and S37: “I know the required conditions for a plant to survive. My family helps me a lot on this subject.”

The Views of Primary School Students on Having Enough Plants and Trees in the City They Live in and Their Suggestions about Green Areas They Want to be in the City where They Live

The students' views were analysed regarding the question “Do you think there are enough plants in the city where you live? What kind of areas would you like to have in the city where you live?” 4 theme groups were assigned as “Satisfaction, Forest and Woodland, Park and Garden and Animal Aspects”. The themes, conceptual codes generated under the themes and the frequency of use of codes are shown in Table 8.

Table 8. The views of primary school students on having enough plants and trees in the city they live in and their suggestions about green areas they want to be in the city where they live

	Themes	Codes	f	
I think there are enough plants and trees	Satisfaction Aspect	Having enough green areas and flowers in the city where I live	9	
		Having flowers and trees in the garden of our house	3	
		Having green areas and flowers in school gardens	2	
	Forest and Woodland Aspect	If there were more forests	10	
		If there were more woodland in the city	7	
		If there were city forests	3	
	Park and Garden Aspect	If there were botanical gardens	6	
		If there more parks	6	
		If home gardens were a greener / bigger / more beautiful area	8	
		If there were more beautiful school gardens	4	
I don't think there are enough plants and trees		If there were more flowers / more areas with flowers	2	
		If there were more parks and green areas	25	
		If there were multicolored flowers	10	
		If the houses had bigger and greener gardens	8	
		If there were botanical gardens	5	
	Park and Garden Aspect	If there were plants everywhere	5	
		If there were green and wide school gardens	3	
		If there were fields / greenhouses in the city where I live	2	
			If there were entertainment centers / towers in green areas	2
			If the roadsides were more beautiful	1
			If there were libraries in the green areas	1
			If people do not damage the nature they live in	1
			If there weren't national parks	1
	Forest and Woodland Aspect	If there were more trees	20	
		If there were more forests	11	
Animal Aspect	If there were more city forests	5		
	If there were animals living nearby me	3		
	If there were places like bird sanctuary / zoo	2		
		If there were animal shelters	1	
		If endangered animals were taken under protection	1	
Total			167	

As seen in Table 8, while 65 students think that there are not enough plants and trees, 55 of them think there are enough plants and trees. Yet, the students, who think that there are enough trees and plants, suggested increasing the numbers of forests, woodlands, parks, and gardens. Considering the results of the analysis of the student's answers, satisfaction, forest and woodland, park and garden, and animal aspects were created. The students wanted to have forest areas, parks, and gardens in their living areas, and areas where they could live with animals. They stated the green areas they want to be in the city where they live by saying; S17: “I think there are enough plants and trees. However, I would love to have more beautiful gardens and much bigger and greener school gardens.” S19: “There are enough plants and trees in the city where I live, not playgrounds. I want to have green

areas where we can play.” S48: “There are many green areas in Bursa, I would like such green areas to be in Afyonkarahisar too.”, S39: “I don't think there are enough plants and trees in the city where I live. Because trees are cut down to build houses, houses are built instead of fields. It would be nice if there was more green area.”, and S101: “I think there should be no more house-building, and cutting down trees.”

Discussion, Conclusion, and Suggestions

In this study, which aimed to identify the perceptions and experiences of primary school students regarding plants in their near environment, it was found that students care about the plants and trees in their environment and have awareness towards them. Speaking of emotional things such as “Plants are also living things, they are a part of our home” shows that students are sensitive to plants. Most of the students stated that they protect plants by giving examples from their lives; “I don't crush, pluck or damage plants, I warn those who do.” As stated by Özsoy (2012), the experiences of children in daily life have a significant effect in shaping their perceptions. The most substantial determining factor in considering plants and trees as a value in adulthood is activities carried out in the garden during childhood (Blair, 2009; cited in Karatekin and Çetinkaya, 2013). To Köşker (2013), it is noteworthy that the thoughts expressed by the students about protecting plants and trees drive in their behaviors and in this point the importance of nature education is indisputable. Birinci (2013) developed nature education activities for the primary school 3rd grade life studies lesson and examined the effect on students' perception of nature. As a result of the study, it has been designated that the students' knowledge of the subject has increased and they have positive thoughts about the activities. Ersoy (2002), in his study that investigated the effect of teaching “Biodiversity and Erosion” subjects in life studies lesson of primary school 3rd grade students based on Meaningful Learning Theory on their academic success, conducted out-of-school teaching activities and found out that the academic success of the students increased. In another study carried out by Ürey and Kaymakçı (2020), it has been identified that primary school teachers mostly focus on nature education as the types of out-of-school learning environment they use in life studies lessons. To Ürey and Kaymakçı (2020) when the basic skills that teachers focus on in out-of-school education are examined, it is noteworthy that the nature protection skill and sensitivity to the natural environment in terms of values stand out the most. As this situation may be derived from the fact that life studies lessons are structured around the individual, society, and nature; it may also be due to the intensity of the subjects in the units and the themes of the Life Studies Lesson Curriculum such as “Living Beings Around Us, Yesterday, Today, Tomorrow; Nature and Environment; Life in Nature”.

The students who think people should grow plants to increase sensitivity to plants and trees, suggested organizing social responsibility projects, including lessons that will raise awareness for plants and trees in school programs and carrying out activities. Nowadays urbanization has been increasing rapidly, as a consequence of it, children's interaction with nature has been limited and the time spent in the open air has started to decrease gradually. Thus, educational environments with natural elements are even more essential for children living in big cities. It is pointed out that the physical, mental and social development of children who are deprived of outdoor playgrounds and have to play indoor spaces, are affected negatively (Yılmaz and Bulut, 2002). According to Tuncel (2018), the practices based on environmental education at school are of prime importance for individuals to gain environmental responsibility from a young age. Although environmental skills and values have been prioritized and environment-society relationships have been integrated into the content of all subjects with the changing programs, in practice, it is unlikely to say that a learning environment intertwined with nature was provided for children. Environmental education given to children, which should take place in nature, is carried out in classrooms, which are an artificial environment. As children drift apart from nature, their physiological and psychological senses gradually decrease, therefore, this situation restricts their experiences with nature. On the other hand, there will be improvements in curiosity, imagination, creativity, observation and communication skills of children who have positive experiences while interacting with nature. In order to advance these skills of children and their environment/nature perceptions, it is recommended that the subjects with appropriate contents should be performed outside the classroom in touch with nature (Özsoy, 2012). Tatar and Bağrıyanık (2012) indicate that students remembered for years the outdoor activities they

participated in during their education. According to the study conducted by Elliot and Davis (2009), the activities carried out outdoors and in natural areas achieved a renewal and increase in the mental attention level of the students. Moreover, they ensured relaxation and a decrease in stress, besides creating a sense of curiosity and research (Aynal Öztürk, 2013). To Tepe et al. (2020), instructional designs that include outdoor learning activities are important that they make students more enthusiastic and ensure permanent learning. As a result of the study by Lekies and Sheavly (2007), the skills that children acquire in the garden, spending time in there, taking part in various organizations are effective in arousing their interest towards outdoor spaces. The studies about gardening in schools can be successful in increasing children's relationships with nature. Considering the findings, it can be concluded that nature-related activities in schools are mostly cognitive and are not sufficient enough to allow children to integrate with nature. Therefore, it is necessary to rearrange the nature education practices in our country and to create environments that will enable children to learn in nature with their own experiences.

The students consider having plants and trees in the city they live in or in their homes as an important thing in terms of aesthetics and psychology. Yardımcı (2009) found in her study that plants take place as aesthetic creatures in children's minds. In Güngör Cabbar (2020)'s study "Metaphoric Perceptions of Fourth Grade Primary School Students against the Concept of Tree", it is seen that trees make children feel happy and peaceful. The statements determined by Güngör Cabbar (2020) in her research such as "My tree likes to be watered on Tuesdays.", "My tree is my confidant, she listens to what I tell.", "I feel like I am in my grandmother's lap next to the tree, full of affection ..." show that tree is a concept interpreted by the students both emotionally and socially. The connection established with the tree actually exemplifies the connection with nature. As stated by Köşker (2013), children find nature relaxing and pleasing. Children's interaction with nature should be evaluated psychologically. Planning activities for children's interests and curiosities that they will enjoy being in nature will influence the perception of nature and reinforce the integration with nature (Köşker, 2013).

The research data demonstrate that the students want to have green and large playgrounds, parks, gardens, forests, and areas where they can live with plants and animals in the city they live in. The availability of green areas, city parks, and places specially designed for kids in the city have a significant place in progressing the development of children (Zomervrucht et al. 2005; Tandoğan, 2014). The conducted studies indicate that the environments in which children live and the places where they spend time affect children's behavior more than their intelligence or personality traits (Uzunali, 2021). Pestalozzi specified the classroom and school gardens as the active living spaces for the child. He specifically referred to the classroom as the living room of the child, and the school garden as the resting and playground (Büyükalan Filiz, 2018). Şişman and Gültürk (2011) stated that almost the whole time the school-age kids spend outside is in the garden of the school, and they accentuated the importance of school gardens especially for the physical and mental development of children such as doing sports, recognizing nature and establishing social relations. Moore and Wong (1997) in their study conducted in the school where a natural design, some of whose gardens were made of trees, bushes, flowers and water elements, found that the students of the school were more engaged in social relations, outgoing, successful, and played more creative games (Moore & Wong, 1997; cited in Eminel Kutay, 2019). To Tandoğan (2014), school and school gardens must develop students' social relations, teach them nature visually, aurally and tactually, and provide sufficient physical activities.

According to Erten (2004), taking care of plants and animals and getting to know them progress the love and preservation feeling towards them. Introducing plants and animals, arousing interest in them and overcoming the phobias of animals are the basic starting point in developing environmental awareness. In the conducted studies, it has been revealed that people who were interested in plants and animals and had a life in nature in their childhood are more sensitive to environmental problems in the coming years compared to those who did not experience the same childhood (Chawla, 1998).

Based on the research results, the following suggestions can be made:

- There should be practical, out-of-classroom activities such as planting plants and saplings in order for students to gain the value of love for nature and to learn with their own experiences in developing environmental awareness.
- Students' awareness and sensitivity towards the environment can be increased by organizing activities within the scope of nature education in schools.
- Nature education should be given theoretically and practically, in association with all lessons and, if necessary, with all subjects in schools. Thereby, children should be encouraged to develop positive feelings towards nature by increasing their interest and awareness towards nature in the early period.
- School gardens can be designed ecologically by considering them as learning spaces. Some activities that allow children to meet different plants, animals and soil can be planned. Students' interest and love towards nature and living creatures can be enhanced through bird houses, bird feeders, food and water bowls for cats and dogs made by students.

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