



Classroom Teachers' In-Class Ecological Footprint Awareness Raising Practices

Sınıf Öğretmenlerinin Sınıf İçi Ekolojik Ayak İzi Farkındalığı Arttırma Uygulamaları¹

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Keywords

1. Environmental education
2. Ecological footprint
3. Classroom teacher
4. Classroom practices

Anahtar Kelimeler

1. Çevre eğitimi
2. Ekolojik ayak izi
3. Sınıf öğretmeni
4. Sınıf içi uygulamalar

Received/Başvuru Tarihi

06.05.2021

Accepted / Kabul Tarihi

15.06.2022

Abstract

Purpose: This research aims to determine the practices of classroom teachers to increase awareness of ecological footprint in the classroom.

Design/Methodology/Approach: The study group of this research, shaped by the basic qualitative research model among the qualitative research methods, consists of 28 classroom teachers who work in Diyarbakır city centre in the 2019-2020 academic year and are determined by the purposeful-criterion sampling method. During the data collection process of the research, interviews were done with classroom teachers. In the interviews, questions prepared with semi-structured interview techniques were used, and content analysis was used in the analysis process of the data obtained with these questions.

Findings: As a result of the interviews with the classroom teachers, it was stated to teachers that ecological footprint practices should be given from primary school. It has been concluded that the practices of classroom teachers to reduce the ecological footprint include components of the ecological footprint. These activities provide children with the development of environmental awareness, a sense of responsibility and cooperation, a love of nature and animals, and a sense of protection and ownership. It was determined that classroom teachers faced difficulties such as limited school facilities, lack of sufficient support from parents and administrators, insufficient curriculum and crowded class sizes during ecological footprint practices and activities to develop sustainable living opportunities.

Highlights: The field was discussed in the light of the literature. Suggestions were made about ecological footprint practices in the classroom.

Öz

Çalışmanın amacı: Bu araştırma ile sınıf öğretmenlerinin sınıf içi ekolojik ayak izi farkındalığı arttırmaya yönelik yaptıkları uygulamaları belirlemek amaçlanmaktadır.

Materyal ve Yöntem: Nitel araştırma yöntemlerinden temel nitel araştırma modeli ile şekillenen bu araştırmanın çalışma grubunu 2019-2020 eğitim öğretim yılı Diyarbakır il merkezinde görev yapmakta olan ve amaçlı-ölçüt örneklem yöntemi ile belirlenen 28 sınıf öğretmeni oluşturmaktadır. Araştırmanın veri toplama sürecinde sınıf öğretmenleri ile görüşmeler yapılmıştır. Yapılan görüşmelerde yarı yapılandırılmış görüşme tekniği ile hazırlanmış sorular kullanılmış ve bu sorular ile elde edilen verilerin analiz sürecinde içerik analizinden yararlanılmıştır.

Bulgular: Sınıf öğretmenleri ile yapılan görüşmeler sonucunda; Ekolojik ayak izi uygulamalarının ilkokuldan itibaren verilmesi gerektiği, öğretmenler tarafından ifade edilmiştir. Sınıf öğretmenlerinin ekolojik ayak izini azaltmaya yönelik yapmış oldukları uygulamaların ekolojik ayak izi bileşenlerini kapsadığı ve bu etkinliklerin çocuklarda çevre bilincinin, sorumluluk ve yardımlaşma duygusunun, doğa ve hayvan sevgisinin, koruma ve sahiplenme duygusunun gelişmesini sağladığı sonuçlarına ulaşılmıştır. Sınıf öğretmenlerin, ekolojik ayak izi uygulamaları ile sürdürülebilir yaşam fırsatları geliştirmeye yönelik yaptıkları etkinlikler sürecinde, okul imkanlarının kısıtlı olması, veli ve yöneticilerden yeterli desteğinin olmaması, öğretim programının yetersiz ve sınıf mevcutlarının kalabalık olması gibi zorluklarla karşılaştıkları tespit edilmiştir.

Önemli vurgular: Alan yazın ışığında tartışılmıştır. Sınıf içi ekolojik ayak izi uygulamaları hakkında önerilerde bulunulmuştur.

¹ This study was produced from a master thesis (Thesis No: 662367)

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INTRODUCTION

Being a living thing in need of nature, human beings have been struggling to exist by using the resources in nature like other living things since ancient times. Initially given to survive for generations, this struggle has turned into human domination over nature over time (Gül, 2013). Although this dominance may seem like an advantage for people who are fond of living comfortably, it has turned into a disadvantage for humanity, which constantly wants more, takes itself at the centre of nature, and ruthlessly destroys nature for its interests (Kırıktaş, 2019). It is stated that the first steps of the process of man's domination of nature started with the transition of human beings into the agricultural society (Chachra, 1992). Although it aimed to meet the basic needs by cultivating the soil initially, the increase in the food and energy needed due to the increase in the population over time necessitated acceleration in the production process (Sulak, 2018). This acceleration gained momentum with the industrial revolution, and humans, unlike other living things, went so far as to interfere with the functioning of nature and this situation caused irreversible destruction (Birel, 2019).

According to the Living Planet report, Only 25% of the land in the world has not been exposed to human activities, and it is estimated that this rate will decrease to 10% by 2050. (WWF, 2018). It is known that forests protect the soil and climate, regulate water flow, and contribute significantly to nature with the large and small creatures they contain. A study conducted on forests located in the tropical and subtropical zone between 2000 and 2010 stated that 40% of forest areas were destroyed, and the main reason for this extinction was human activities (FAO, 2016). It is stated that due to the melting of the glaciers in the poles with global warming, the sea level rose by 12-25 cm in the 20th century and continued to rise by 2 mm every year (Aksay, Ketenoğlu, & Kurt, 2005). This rise brought along dangers such as flooding coastal countries such as the Netherlands and Bangladesh, mixing seawater with freshwater resources, and destroying fertile agricultural lands (Neubert, 2001; cited in Kılıç, 2008). This destruction of natural life causes global climate change, which increases threats to soil, air and water. It was stated in various international meetings that the solution to all these problems could be possible by changing the human behaviours that cause these problems in the desired direction and that education should be used as an essential tool at this point (Bülbül, 2007). In its 2001 report, the European Union commission said, "The Education System has a vital role in ensuring a better understanding of the purpose of sustainable development. The education system encourages behavioural changes by improving individual and collective sense of responsibility. "(European Council, 2001). The solution to the problems faced by humanity in the present age will be possible with practical educational approaches in early childhood. Non-governmental organizations such as UNESCO and UNICEF also state that education is essential in increasing the quality of life in social, economic and environmental issues and ensuring sustainability (Toran, 2017). In this context, the environmental awareness of teachers, which is an essential element of education, is critical.

Considering the environmental education programs in the world, it is seen that the global goals and values of environmental education are given in the first level of primary education, especially in all European Union countries (Stokes, Edge, & West, 2001). For example, in Finland, local programs are developed based on the decisions of the national education board. Accordingly, all schools must act according to the aim of promoting sustainable development and ensuring the improvement and protection of the environment. Developing a positive attitude towards the place where people live in Bulgaria since 2003 from 5th grade to 8th grade; Achievements such as assuming roles against society, nature and the protection of nature have been emphasized. It is stated that environmental literacy is given under six headings [environmental knowledge, socio-political knowledge, knowledge of environmental issues, affective characteristics, determination of environmental responsibilities, mental skills and environmental responsibility behaviours] (Erdoğan, Kostova, & Marcinkowski, 2009). In the Bavaria region of Germany, environmental education is compulsory for all children at the first level of primary education. According to the educational program, environmental education begins with the children's environment (school, family, home, etc.) and daily experiences (walking tours, educational trips, etc.). It was emphasized that, especially in primary school, children should be based on the knowledge they have acquired before the age of starting school, have positive experiences about nature and should be offered the opportunity to increase their environmental awareness. The environmental education program in England, another European country; undertakes the responsibility to provide a sustainable environment for future generations, to understand the existence of humans in nature, to understand our responsibilities for other species, to justify development, to maintain balance and diversity in nature wherever possible; It is based on values such as protecting beauty and interests for future generations. As in Turkey, environmental education in Spain is carried out by integrating it into all levels (Stokes, Edge, & West, 2001).

When the primary education programs in Turkey were examined, the subject of environmental education was started to be taught in 4th and 5th grades of primary schools alternately for one hour a week with the decision number 274 of the Board of Education and Discipline in 1992. However, this lesson was taken from the program because the desired results were not achieved. In the Regulation on Primary Education Institutions prepared in 1997, It has been determined that one of the primary education institutions aims to provide students with the awareness and habits of protecting themselves, their family and society, and the environment. Although the acquisitions related to environmental education are tried to be taught in different units in Life Science, Chemistry Geography, Science / Science and Technology, Biology, Health Science and Social Studies courses, the importance and broad scope of environmental education make it compulsory to teach environmental education as a separate course (Tanrıverdi), 2009). With the change made by the Board of Education and Discipline in the Weekly Course Schedule of Primary Education Institutions (Primary and Secondary Schools) in 2012, 'Environment and Science' course was allowed to be taught as an elective course in the 7th and 8th grades of secondary schools (MEB, 2012). In 2015, the Environmental Education course started as an elective in secondary schools. Elective Environmental Education course; The balance of nature, Matter cycle and natural balance,

limitation of resources and ecological footprint, Global environmental problems, environmental-friendly solutions and technologies consist of five units and 38 gains (MEB, 2015). From the 2016/2017 academic year until the 2020/2021 academic year, the Environmental Education course is presented to the selection of the students as an elective course every year with the writings of the Board of Education regarding the compulsory and elective courses. However, in the study conducted by Tuncer and Özütlü (2017) with teachers and administrators working in Bingöl and Elazığ provincial centres and schools in some districts of these two provinces, it was seen that the name of the Environmental Education course did not even exist in the table they gave regarding the selection rates of elective courses. Again, according to the same study, it was observed that the most important factor considered in determining the elective courses was school facilities, and most of the teachers took elective courses outside their branches.

It can be said that environmental education is included in the teaching-learning area of an elective or a compulsory course in education programs in Turkey. It is seen that it is aimed at sustainable development. For example, the third particular purpose of the science teaching program applied in primary education (to realize the mutual interaction between the individual, the environment and the society; to develop an awareness of sustainable development regarding society, economy and natural resources) and some of the achievements in the Life Studies program (Be sensitive to nature and the environment, It develops the ability to use resources efficiently.) (MEB, 2018).

In order for future generations to continue their lives in a healthy world, it can be said that it is of great importance to be a suitable role model for children from an early age and to organize educational environments where sustainability elements are taken into account for them, and to implement well-prepared environmental education programs that will ensure more interaction of children with nature. Practices carried out within this framework in schools are essential elements that raise awareness about social sustainability, especially for children, school staff and families (Güngör, 2019). Considering this situation, this study aimed to determine what practices classroom teachers used in the classroom to increase awareness of ecological footprint.

METHOD

Research Model

In this research, basic qualitative research model was used. The basic qualitative research model is the participants' interpretation of a phenomenon or event from their own perspective and the researcher tries to make sense of the fact or event from the interpretations. In basic qualitative research, data are collected through interview, observation or document analysis. The researcher decides on the questions to ask within the scope of the theoretical framework, the situation he will observe or the documents he finds relevant (Merriam, 2013).

Working group

The working group of this research consists of classroom teachers working in primary schools affiliated to Diyarbakır city center in the 2019-2020 academic year. The classroom teachers in the study group were determined by criterion sampling method and random sampling method, which are among purposeful sampling methods. The basic understanding in the criteria sampling method is to study all situations that meet a predetermined set of criteria. The criteria can be determined by the researcher or a previously prepared criteria list can be used (Yıldırım & Şimşek, 2013). In this study, making classroom practices to increase ecological footprint awareness is used as the sampling criterion. 28 classroom teachers were determined using the criterion sampling method. The demographic information of the classroom teachers interviewed is given in Table 1 below.

Table1. Demographic characteristics of classroom teachers participating in the interview

| Interviewee | Gender | Age | Seniority | Education status | Faculty | Region where the school is located | Class size | Seminar Receiving Status |
|-------------|--------|-----|-----------|------------------|-----------------------|------------------------------------|------------|--------------------------|
| I1 | F | 30 | 8 | License | Faculty of Education. | Countryside | 25 | No |
| I2 | M | 46 | 22 | License | Faculty of Education. | Countryside | 40 | No |
| I3 | M | 34 | 12 | License | Faculty of Education. | Town center | 22 | No |
| I4 | M | 35 | 10 | License | Faculty of Education | Countryside | 22 | No |
| I5 | F | 30 | 3 | License | Faculty of Education. | Countryside | 18 | No |
| I6 | F | 34 | 9 | License | Faculty of Education. | Town center | 32 | No |
| I7 | M | 34 | 10 | License | Faculty of Education. | Countryside | 14 | No |
| I8 | M | 35 | 11 | License | Faculty of Education. | Town center | 30 | No |
| I9 | M | 30 | 7 | License | Faculty of Education. | Town center | 28 | No |
| I10 | M | 28 | 5 | License | Faculty of Education. | Town center | 29 | No |
| I11 | M | 27 | 4 | License | Faculty of Education. | Countryside | 12 | No |

| | | | | | | | | |
|-----|---|----|----|-----------------|-----------------------|-------------|----|-----|
| I12 | M | 32 | 8 | License | Faculty of Education. | Town center | 29 | No |
| I13 | F | 38 | 15 | License | Faculty of Education. | Town center | 22 | No |
| I14 | M | 25 | 1 | License | Faculty of Education. | Town center | 27 | No |
| I15 | M | 36 | 10 | License | Faculty of Education. | Countryside | 28 | No |
| I16 | M | 33 | 7 | License | Faculty of Education. | Countryside | 19 | No |
| I17 | M | 34 | 9 | Master's degree | Faculty of Education. | Town center | 40 | No |
| I18 | M | 38 | 15 | License | Faculty of Education. | Countryside | 40 | No |
| I19 | F | 30 | 8 | License | Faculty of Education. | Countryside | 22 | Yes |
| I20 | F | 28 | 3 | License | Faculty of Education. | Town center | 40 | No |
| I21 | F | 33 | 11 | License | Faculty of Education. | Town center | 28 | No |
| I22 | F | 34 | 12 | License | Faculty of Education. | Town center | 37 | No |
| I23 | F | 24 | 1 | License | Faculty of Education. | Countryside | 20 | No |
| I24 | M | 30 | 4 | License | Other | Countryside | 19 | No |
| I25 | F | 29 | 5 | License | Faculty of Education. | Town center | 10 | No |
| I26 | F | 32 | 5 | Master's degree | Faculty of Education. | Town center | 16 | No |
| I27 | F | 25 | 2 | Master's degree | Faculty of Education. | Countryside | 21 | No |
| I28 | F | 32 | 5 | Master's degree | Faculty of Education. | Town center | 16 | No |

Table 1 shows the distribution of teachers participating in the interview according to gender, seniority, educational status, the region where the school is located, the type of education, the status of receiving seminars, the faculty they graduated from and the class sizes. According to the table, 13 of the participants were women and 15 were men; Ten teachers' seniority is 0-5 years, 10 teachers' seniority is 6-10 years, 6 teachers' seniority is 11-15 years, 1 teacher's seniority is 16-20 years and 1 teacher's service period is 21 years or more; 22 of the teachers were undergraduate and 6 of them graduate; 13 of the teachers were working in the rural area and 15 were working in the city center; all teachers participating in the interview teach an independent classroom; Only 1 of the teachers who participated in the interview took a course to improve the awareness of ecological footprint, 27 of them did not take a course in this direction; It was determined that 27 of the teachers were graduates of education faculties and 1 of them graduated from other departments. It was determined that the class size of 14 of the teachers participating in the interview was between 10-22, 9 of the class size was between 25-35 and 5 of the class size was between 36-48.

During the data collection process of this research, interviews were made with classroom teachers. Interview is a data collection tool that helps individuals reveal what, why and how they think, what their feelings, attitudes and thoughts are towards an event or phenomenon, and the situations that direct their behavior (Ekiz, 2009). The questions prepared during the interview process were prepared with the semi-structured interview technique. In the semi-structured interview, the questions are open-ended. Important data are collected from each participant. Participants answer the questions based on their own thoughts (Turan, 2013).

In this study, in order to ensure the content validity of the questions prepared with the semi-structured interview technique, the opinions of two experts who had a doctorate in the field of Education Programs and Instruction and the other in the field of Classroom Education were taken. In line with expert opinions, necessary corrections were made on the interview questions and the questions were made ready for implementation. In addition, in order to check the suitability of the interview questions to the purpose of the research before the application, two volunteer classroom teachers working in Diyarbakır city center were interviewed before the application. After the interview, the consistency between the answers received from the classroom teachers and the questions was confirmed by taking expert opinion. With the final form of the interview questions, firstly, the opinions of the teachers about whether they deem it appropriate to implement the activities for ecological footprint practices in primary schools were taken. Subsequently, it was asked what activities the teachers did in the classroom. After the in-class activities, teachers were asked what changes they observed in students. The problems faced by the teachers before, during and after the activities were asked and their opinions were taken. Finally, teachers were asked to make suggestions for in-class ecological footprint practices.

Interviews with classroom teachers were carried out face-to-face and by taking audio recordings, following the rules of social distance and wearing masks due to the Corona Virus (Covid-19) Outbreak that appeared in our country in 2020. The audio recordings obtained after the interview were put into writing and then put into the analysis process.

Data Analysis

Content analysis was used in the analysis process of the data obtained as a result of interviews with teachers. Yıldırım and Şimşek (2013) define content analysis as the job of gathering similar data under certain codes and themes and organizing and interpreting them in a way that the reader can understand. Kumar (2011) mentions that while analyzing the content, firstly, it is necessary to create broad themes that reflect the meanings of the answers, then assign the codes to the main themes and classify

the responses under the main themes, and finally, the themes and report texts should be integrated. The same way was followed when analyzing the data in this study.

In order to determine the reliability of the data obtained through qualitative research, the reliability between the coders was examined. In order to ensure the reliability of the study, expert opinion was sought to confirm whether the opinions obtained in the study represented the determined themes or not. The number of "consensus" and "disagreement" was determined by comparing the researcher's and the expert's evaluations regarding the opinions that should be included in the themes. Then, the reliability formula [Reliability = Agreement / (agreement + disagreement)] of Miles and Huberman (1994) was used. In this study, the reliability rate, which shows the consistency between the encodings made by the two coders, was determined as 92%.

FINDINGS

In this section, findings obtained from teachers' opinions on the appropriateness of footprint practices in primary schools are included. The findings obtained are shown in Table 2.

Table 2. Opinions on the appropriateness of EAI applications to be delivered in primary schools

| | | f |
|-----------------|---|----|
| Appropriate | To create environmental awareness | |
| | • Environmental awareness | 11 |
| | • An individual in harmony with her/his environment | 10 |
| | • Nature love | 3 |
| | Suitability for the teaching process | |
| | • Permanent learning can take place | 12 |
| | • Adequate level of readiness of the child | 8 |
| | • Easier acquisition can occur | 7 |
| | • Preparation for the next level | 4 |
| | • Suitable for all ages | 2 |
| Not Appropriate | Developmental dissonance | |
| | • Concrete period | 1 |
| | • Unreadiness | 1 |

When the opinions of the teachers about the appropriateness of the implementation of ecological footprint practices from primary schools are examined; It is observed that they have the idea that ecological footprint practices should be taught in primary schools. The teachers; To create environmental awareness, to raise individuals who are compatible with their environment, to gain a love of nature, gain can be achieved more easily at a young age, there is no specific age, it can be given at any age, their perception is clear at a young age, it is necessary for preparation for the next level. Two teachers stated that the students were in the concrete period and their level of readiness was insufficient. The sample opinions of teachers about giving ecological footprint practices starting from primary school are as follows.

In our changing world, bringing ecological footprint practices to primary school students accelerates the adaptation of the individual to his / her environment. These practices should be gained to individuals at the earliest ages. I do not think that there is a certain age to teach these applications. As a result, the individual can learn ecological footprint practices at a young age, since he is intertwined with the environment he / she lives in. (Participant- 3)

The primary school process is a breaking point for people to acquire certain behaviors. Experiences gained at this age can turn into habits that can be used lifelong. And if we can grasp the importance of this situation to students in primary school, both the society will become increasingly conscious and the students will be trained from the core (Participant-15).

Ecological footprint practices should take place in primary schools. Of course, here should be taken into consideration the age characteristics of the children. It should be conveyed with basic lines without over-comprehending and detailing the children (Participant 16).

Participant 1, 2, 5, 7, 13, 24, 25, 26, 27 and 28 stated that ecological footprint practices should be given starting from primary school in order to create environmental awareness and increase the level of awareness, while participant 4, 9,10, 14, 15, 20 and 21 stated that since permanent and easy learning can take place in primary school, ecological footprint practices should be given from primary schools. Participants 2, 3, 6, 8, 11, 18, 19 and 23 stated that ecological footprint practices should be given from primary schools in order to raise individuals who are compatible with their environment. Participant 22 stated that it is not appropriate to give ecological footprint practices in primary schools because children are in a concrete period, and participants 5, 16 and 17 stated that the developmental characteristics of my children should be taken into account in planning the activities. When the teachers' opinions are examined, the majority of the participants find it necessary to implement ecological footprint practices in the primary school age, which is the age when easier and permanent learning takes place, in order to create environmental awareness, sensitivity and love of nature in students. Two participants stated that such activities are not appropriate due to the developmental characteristics of the students.

Findings Regarding In-Class Ecological Footprint Practices

In this section, findings about the activities that teachers have done to develop sustainable living opportunities with ecological footprint practices are included. The findings obtained are shown in Table 3.

Table 3. Teachers' opinions about their EFP activities

| | | f |
|--|---|----|
| In-class activities | Activities to protect and develop natural elements | |
| | • Garden activities | 7 |
| | • Planting | 6 |
| | • Growing flowers | 4 |
| | • Feeding animals | 4 |
| | • Building bird nest | 3 |
| | • Cleaning school garden and classroom | 3 |
| | • Making taps with sensory | 1 |
| | Recycling activities | |
| | • Recycle bins | 12 |
| | • Collection of waste batteries | 3 |
| | • Designing from waste material | 2 |
| | Information studies | |
| • Trip observation | 5 | |
| • Giving seminars, lecturing, watching a documentary | 4 | |
| • Exhibition | 2 | |
| • Drama | 2 | |
| • Poster works | 1 | |

When the answers given by the teachers to the 2nd question are examined; It was determined that teachers carried out various activities such as encouraging recycling, developing environmental awareness in practice gardens, planting saplings, empathizing by feeding animals, drama, exhibitions and posters to develop sustainable living opportunities through ecological footprint practices. Sample opinions of teachers about the activities they have done are as follows.

In our school, we organize various activities in order to raise environmental awareness and to give children a love of nature. First of all, children plant saplings themselves in the designated areas in the schoolyard every year. We give the children the responsibility to take care of the saplings they planted (Participant 2).

We met with environmental associations and provided recycling bins for our school. And we introduced this to all classes. In addition, he cleaned the school garden and its surroundings several times with teachers and students, and materials that could harm the nature were bought and recycled, and other household wastes were thrown into the municipality's garbage container (Participant 7).

We had the opportunity to watch nature more closely by organizing a trip to the forest area around our school. During the trip, we felt by touching, seeing and hearing that trees, birds, ants and squirrels were alive with broad expressions, like us, plants and animals, and that they need clean water, air and living spaces (Participant 10).

We organized an exhibition of newspaper, TV and internet news at the school about the disasters that may arise as a result of the destruction of forest areas and the unconscious deforestation, water and air pollution. The documents obtained as a result of the researches carried out by the students for a semester were displayed in the school corridor. The students exhibited their works in groups of two (Participant 11).

To reduce energy consumption; We tried to raise awareness by preparing small notes such as "Don't drain the water, put it out if unnecessary" and stick it to suitable places in our classroom, school and students' homes (Participant 23).

Participant 1, 2, 3, 4, 6, 8, 12, 13, 14, 17 and 20 carried out activities of planting saplings and growing plants in order to develop sustainable living opportunities with ecological footprint practices in the education process; participants 2, 3, 7, 9, 13, 15, 18, 20, 21 and 23 organized activities to disseminate recycling and to utilize waste materials; Participant 2, 4, 8, 18, 20 and 23 animals made their nesting activities and left water and food in suitable places for feeding; The participants 2, 3, 4, 8 and 10 organized nature trips to help students understand the importance of nature; 6, 7, 15 and 23 participants stated that they organized activities to save energy; 9, 11, 13, 16 and 26 of the participants stated that they did information (posters, exhibitions, etc.).

When the activities are examined, it is seen that teachers carry out various activities on the protection and development of natural life, providing energy saving and popularizing recycling.

Findings Regarding the Changes Observed in Students as a Result of Ecological Footprint Activities.

In this section, the findings about the changes observed in students as a result of the activities that teachers have done to develop sustainable living opportunities with ecological footprint practices are included. The findings obtained are shown in Table 4.

Table 4. Changes observed in students as a result of EFP activities

| | | f |
|--------------------------------------|---|----|
| Observed changes in student behavior | Environmental awareness | |
| | • The importance of living things and nature | 25 |
| | • Animal love | 6 |
| | • What recycling is and its importance | 5 |
| | • Sense of protecting and owning natural elements | 5 |
| | • Using resources efficiently | 3 |
| | • Environmental | 2 |
| | Social, affective development | |
| | • Sense of responsibility | 12 |
| | • Cooperation | 4 |
| | • Self-confidence | 3 |
| | • Friendship ties | 3 |
| | • Being able to empathize | 2 |
| | • Socializing | 2 |
| | Academic achievements | |
| | • • Learning can be adapted outside of school | 4 |
| | • • Active participation in the lesson | 2 |
| | • • Increasing awareness of environmental education | 1 |

When the answer given by teachers to the question of how students' behaviors changed as a result of their practices aimed at developing sustainable living opportunities with in-class ecological footprint practices, it was observed that changes such as the students' environmental awareness, love of animals and sense of responsibility developed, and the importance of living things and nature was understood. In addition to these, it was also stated that there were changes such as cooperation developed, academic success increased, self-confidence improved, sense of protection and ownership developed. Teachers' views on these changes are as follows.

As a result of these activities we have done; children became more sensitive to the environment, animals and plants. The children developed a sense of empathy. We have seen that children develop a sense of friendship. Owning a sapling, growing it, giving it water gave children a sense of responsibility (Participant 2).

I think that the activities we do contribute to the social, emotional and academic development and ecological awareness of children (Participant 19).

With the activities, I got effective results for students to become more conscious individuals in daily life. Environmental awareness developed. They became more sensitive individuals. In addition, their sense of taking responsibility developed by realizing that they are a part of the society they live in. First of all, this sensitivity started in the classroom, and continued with the changes in the school and home environment, and we got visible results (Participant 27).

Participant; 1, 2, 4, 5, 6, 10, 11, 12, 14, 18, 21, 26 and 27 stated that environmental awareness developed in students as a result of the activities and that students understood why nature and living things are important. Participants 7, 9, 12, 13, 17 and 23 stated that the sense of responsibility developed in the students; Participants 2, 10, 23 and 26 stated that students' love for animals developed; 2, 3, 8, 9, 10, 15, 16, 19, 20, 24 and 25 stated that students were more social, more helpful and their academic success increased.

When the teachers' views were examined, it was observed that students were more conscious of the environment, gained love of nature and animals, students developed a sense of responsibility, empathy, solidarity and their academic success increased as a result of the activities performed.

Findings Concerning the Problems Encountered in the Process of Ecological Footprint Practices

In this section, findings related to the difficulties faced by teachers during the activities they have done to develop sustainable living opportunities with ecological footprint practices are included. The findings obtained are shown in Table 5.

Table 5. Difficulties encountered in the EAI implementation process

| | | f |
|--|--|----|
| Problems Encountered | Problems with the school environment | |
| | • Insufficient school facilities (economic, physical, equipment) | 14 |
| | • Parents' indifference | 11 |
| | • Not enough environmental issues in the curriculum | 7 |
| | • Lack of knowledge in teachers | 6 |
| | • School administrations not providing sufficient support | 5 |
| | • Excessive class sizes | 3 |
| | • Readiness level of students | 2 |
| | • Slow progress of bureaucracy | 2 |
| | • Teaching does not turn into life | 1 |
| | • Schools do not have environmental policies | 1 |
| | Social Problems | |
| | • Peer bullying | 5 |
| | • Language problems | 1 |
| | Geographic problems | |
| • Geographical inadequacies | 2 | |
| • Limited transportation possibilities | 1 | |

When the opinions of the teachers about the difficulties they face in the process of making activities aimed at developing sustainable living opportunities with ecological footprint practices at school are examined; In general, school facilities are insufficient, parents and school administrations are indifferent to such activities. Besides these; They stated that they faced difficulties such as high class size, bureaucratic obstacles, social environment, insufficient education program on this issue and lack of knowledge on these issues. The views of the teachers about the difficulties they faced are as follows.

Geography itself was more of a challenge for us. Because the region we are in is also called the Karacadağ region and is almost all covered with stones, when you want to dig, the soil is very likely to encounter a stone without hitting the shovel or the Pickaxe. The vicinity of Karacadağ is the incarnation of the word "geography is destiny" (Participant 7).

The insufficient level of readiness of children is one of the problems we face. The language problems we experience in our region and the limited opportunities in the institution are the most difficult issues. The reasons for these difficulties can be counted as economic problems, the inability to fully establish the education system, and the inability to provide an equitable education system (Participant 18).

Since the insensitivity and indifference of the parents, being aware of this situation and exhibiting wrong example behaviors to the students prevented my activities from becoming concrete, I had a hard time in terms of the permanence of the process. In addition, the fact that the school is not organized accordingly, the indifference of other teachers, the inconsistent behavior of the administration (one day supports the activity and not another day) causes me to have difficulties (Participant 21).

School facilities for such activities were very limited. It was difficult to find someone we could do with technically skilled work to even make containers for animals. We couldn't find anyone who could take the garbage we separated and recycle it. Our activity became meaningless. The little notes we prepared to save electricity and water lasted for a week. Students in other classes removed these notes from their places (Participant 23).

Participant 1, 3, 6, 8, 9, 11, 12, 14, 17, 20 and 21 stated that the basis of the difficulties they face in the process of developing sustainable living opportunities with ecological footprint activities in schools is the attitudes of the parents. Participant 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 19, 23 and 25 stated that the facilities of schools are limited. Participants 1, 3, 4, 9 and 20 stated that school administrators' approaches were a challenge they faced. According to the participants 1, 2, 3, 10, 11, 18, 19 and 20, the education programs are insufficient. Participants 4, 13, 20 and 21 stated that the gains were negated by the social environment. Participants 5 and 15 stated that the lack of information is the most important difficulty. Participants 7 and 24 stated that they faced geographical difficulties. And participants 26 stated that not having an overall activity on these issues as a training policy as a difficulty they faced.

Findings Regarding Suggestions for Ecological Footprint Activities

In this section, findings related to the suggestions of teachers for developing sustainable living opportunities with ecological footprint activities are included. The findings obtained are shown in Table 6.

Table 6. Teachers' suggestions for EFP activities

| | | f |
|--------------------|---|---|
| Suggestions | Suggestions for the teaching process | |
| | • Education programs should be enriched | 9 |
| | • Environmental education should be given as a lesson | 8 |
| | • Regional differences should be taken into account in activities | 1 |
| | • Activities should be done in nature | 3 |

| | |
|--|---|
| Suggestions for school stakeholders | |
| • Environmental education should be given to teachers | 7 |
| • Environmental education should be given to parents | 5 |
| Suggestions for the school administration | |
| • Opportunities for schools should be increased | 6 |
| • Activities should be school-based | 5 |
| • Removal of bureaucratic obstacles | 1 |
| • Teachers should be supported in classroom activities. | 1 |
| Recommendations for researchers | |
| • The number of researches on ecological footprint should be increased | 2 |

When the suggestions of teachers for developing sustainable living opportunities with ecological footprint activities in school are examined, in general; Suggestions such as enriching the curriculum, teaching environmental education as a lesson, providing teachers with in-service training on ecological footprint practices, raising awareness of parents on environmental issues, improving school facilities, and making school-centered practices come to the fore. In addition, teachers expressed their suggestions such as providing students with the opportunity to learn by doing and living, alleviating bureaucracy, supporting teachers' activities to increase environmental awareness, and conducting more research on environmental issues. The various suggestions of the teachers are as follows.

It may be suggested that every school has a practice garden or even a lesson related to the environment to be added to the program. More than ever, we must turn our face to Nature (Participant 6).

In order to realize activities that will encourage students to take responsibility, both the education program and school administrations should be supportive (Participant 11).

I suggest giving priority to family education before schools. Since the first teachers are mothers and fathers and households, it will be more effective and sustainable for adults to receive education first and to be good examples for children (Participant 13).

This subject should be covered more in the training program. If possible, it will be useful to teach it as a separate course (Participant 20).

First of all, teachers should clear their misconceptions on this issue and make it a way of life and then pass it on to their students.

Participant 1, 2, 3, 10, 11, 18, 20, 23 and 27 suggested that the curriculum should be enriched to develop sustainable living opportunities with ecological footprint activities in schools. 2, 3, 6, 7, 8, 12 and 20 of the participants suggested that environmental education should be taught as a separate course. Participants 2, 3, 4, 6, 10 and 23 suggested improving school facilities. Participants 1, 5, 8, 13, 15, 22, 23, 26 and 27 recommended training for parents and teachers. 19, 20, 23 and 26 participants suggested that inclusive studies on the environment should be carried out. 24 and 26 participants suggested further research on environmental issues.

CONCLUSION AND DISCUSSION

Earth is the only planet known to have living life on it. The fact that it provides suitable living conditions for living things has enabled the diversity of living things on Earth. Problems such as the rapid depletion of natural resources, the adverse effects of global warming on the ecological balance, and the rapid rise of the sea level cause a rapid decrease in the diversity of living things and threaten the lives of the people who are the source of these problems. It is widely accepted today that suitable living conditions have been destroyed due to various human activities. This situation has been expressed a lot in national and international meetings. (Çamur and Vaizoğlu, 2007). In these meetings, the aim of ensuring more sustainable living conditions by reviewing human activities, minimizing the destruction of nature and living life, and providing more sustainable living conditions were prioritized, and decisions were taken in this direction. The opinion that it is vital to educate individuals from an early age was included in the concluding statements of these meetings. In this section, the opinions of teachers about the implementation of these practices in primary school, the practices they have made to develop ecological footprint practices and sustainable living opportunities, the changes they observed in the students as a result of the practices, and their views about the problems they encountered during the implementation process and various suggestions will be discussed.

It is also stated in some studies that providing environmental education in primary school, which is the period when children's basic attitudes and values are formed, is necessary for effective and permanent learning (Hirst, 2019). In parallel with these studies, it is deemed appropriate by classroom teachers to teach ecological footprint practices in primary schools, and the idea that these practices should be given starting from the preschool period is expressed. Teachers justified their thoughts that EFP practices should be given from primary school with statements such as that permanent and more accessible learning will take place, that children take role models early, and that their perceptions are more open at younger ages. Onur, Çağlar, and Salman (2016) concluded that due to their studies aiming to raise awareness of waste paper utilization in preschool children, positive changes occur in children toward waste disposal. Güngör (2017) stated that he observed positive behavioural changes in preschool students due to his study. These results justify the views of the teachers. The idea that a course called "Environmental Education" should be taught was also widely expressed by teachers. In parallel with teachers' views, Can and Serençelik (2014) concluded in

their study that crucial importance is not given to environmental education and that environmental education should be included in the program as a class.

The activities that teachers have done to increase the awareness of students' ecological footprint and to develop sustainable living opportunities are generally; disseminating recycling, growing plants, enabling children to empathize with animals, organizing nature trips, and using resources efficiently and informative (posters, dramas, exhibitions, etc.) can be classified as activities. It is possible to correlate the activities performed with EFP components directly. Sapling planting activities are an activity aimed at reducing our forest area footprint, activities such as recycling or reusing waste materials for another purpose, collecting waste batteries are aimed at reducing our carbon footprint, activities for agricultural activities in the unused areas of the schoolyard. It can be said that it is an activity aimed at reducing our footprint. Activities aimed at saving water and energy and protecting animals are activities aimed at reducing our structured area footprint. Considering that the share of the mentioned footprint components in total footprint components is 95% (WWF, 2012), it can be said that teachers are doing suitable activities to reduce the ecological footprint.

Regarding student changes due to their activities, classroom teachers stated that children developed environmental awareness, a sense of responsibility and cooperation, a love of nature and animals, and a sense of protection and ownership. It is seen that these achievements of students are among the achievements of Science and Life Sciences courses (MEB, 2018). In line with teachers' views, Onur (2016) and Bakar (2019), in their studies with preschool children, concluded that environmental education has a positive effect on children's cognitive structures about the concept of environment and that environmental awareness has developed in their students as a result of activities carried out within the scope of environmental education. In parallel with the opinions of the classroom teachers who participated in the study; Jaus (1982), in his study with 5th graders and Jaus (1984) with 3rd graders, concluded that children who received environmental education had more positive environmental attitudes than children in the control group who did not receive an education.

Teachers pointed to the negative attitudes of parents, social environment and administrators regarding the difficulties they face in implementing ecological footprint practices and practices for developing sustainable living opportunities. It was determined that most participants who stated they had problems due to inadequate school facilities and geographical reasons were teachers working in rural areas. The reasons for this may be the inadequacy of school facilities in the village schools compared to the schools in the city centre, or the difficulties in transportation and accommodation. Fidan (2008) also stated that there is a shortage of equipment in village schools. It was determined that most of the participants who stated the source of the most common problems as parents were teachers working in city centres. Teachers stated that it was a problem because parents were indifferent, and parents thought that EFP activities were unnecessary because they would not contribute to the student's academic success. In parallel with the teachers' opinions in our research, Babaođlan, elik, and Nalbant (2018) stated in their research that teachers ask parents to take care of their children, support them, meet the needs of the child, support their homework, and fulfil their responsibilities. zpinar and Sarpkaya (2010) stated that their parents always respect teachers working in village schools. This situation can be shown as why the teachers working in the village did not express their parent's attitudes as a difficulty they encountered. The positive environmental attitudes of the parents, upper-class students and teachers, whom the children take as role models, shape how children view the environment. The fact that the adults, whom they see as role models, are concerned with nature and exhibit a protective and beautifying attitude will cause their children to develop environmental awareness in this direction (Atasoy, 2005). Otherwise, it can be said that children will resist activities aimed at developing environmental awareness, making it difficult for teachers. The classroom teachers whose opinions we received expressed the adverse effects of parent and the social environment approaches on students' environmental awareness development process as the difficulties they encountered. Inadequacy of school facilities, insufficient curriculum and large class sizes were expressed as difficulties. The education that started in the family continues in a planned way in school. In this respect, the school plays a vital role in improving the family's misbehaviour and attitudes and gaining new knowledge and skills. Factors such as the small number of classrooms, the school garden's ability to give positive environmental messages, and the ability to conduct environmental education activities at school are very effective in helping children gain positive behaviours towards the environment (Atasoy, 2005).

As suggestions on ecological footprint practices and developing sustainable living opportunities at school, teachers stated that it is necessary to improve school facilities, raise the awareness of parents and teachers, enrich the curriculum, and include a lesson named "environmental education" in the curriculum. These suggestions are consistent with the factors that teachers have identified as difficulties. Elimination of these difficulties constitutes the most recommended issue. Educating teachers about environmental awareness, enriching the curriculum in units related to environment and nature, and increasing school opportunities should be seen as steps to make environmental education successful. In addition to the development of environmental awareness of students, students' acquisition of scientific process skills, freeing them from memorization and information burden, and raising students as individuals who are aware of their responsibilities can only be achieved through teachers who are knowledgeable about environmental issues, sensitive and conscious about ecological problems (Atasoy, 2005).

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, author-ship, and/or publication of this article.

Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

Dicle University Rectorate, Social and Human Sciences Ethics Committee, Number: 14679147-663.05/34072

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