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The Effect of Nature Education on Students' Motivations towards Science Learning and Socialization Skills

Doğa Eğitiminin Öğrencilerin Fen Öğrenmeye Yönelik Motivasyonları ve Sosyalleşme Becerilerine Etkisi

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The Effect of Nature Education on Students' Motivations towards Science Learning and Socialization Skills[1]

Abstract

The aim of this study is to investigate the effect of nature education on students' motivations towards science learning and socialization skills. The study was conducted on 7th-grade students in a state school in İstanbul. 14 nature education activities were performed. The data collection tools were: Students' Motivation toward Science Learning Scale conducted both before and after the implementation and a Socialization Skills Open-ended Form performed at the end of the implementation. Content analysis was applied to determine the opinions of the students in the socialization skills form. The codes and themes formed as a result of data analysis were demonstrated within the tables. The data collected by students' Motivation Scale for Science Learning was analyzed with T-Test. At the end of the study, results indicated that students found the nature education helpful for socialization skills. Moreover, it was revealed that students' scores of the motivations towards science demonstrated a meaningful change throughout the study.

Summary

Nature education is explained that the individual becomes aware of nature and creates changes in awareness, attitude, and behavior towards nature and nature problems in these ways. Within the concept of nature education, a broad education umbrella focusing on the environment is considered and attitudes, values, skills, knowledge, motivation, and efforts to solve environmental problems are included. Motivation is one of the important factors affecting learning and success. Because highly motivated students tend to show more effort and perseverance in activities than low motivated students. If students' motivation towards science is increased with nature education, students will be more successful in science class.

Many studies on nature education have been found in the literature. These studies emphasized the importance of nature education. There are studies showing that nature education facilitates the transformation of knowledge acquired into behavior when carried out through environmental studies in nature, is more permanent, and provides positive attitudes and values towards nature. No study was found to investigate the effect of nature education on students' socialization skills. In addition, the importance of ecological programs is emphasized in the positive change of individual behaviors towards nature. For this reason, at the end of this study, it is believed that students' motivation and socialization skills will increase. The

[1] This study was carried out within the scope of TUBITAK 4004 Nature Education and Science Schools Project.

aim of this study is to investigate the effect of nature education on students' motivations towards science learning and socialization skills.

In this study, teaching methods were used to realize permanent, meaningful and usable information for the students who are in 7th grade and efforts were made to create effective, educational and interesting learning environments. In this context, with the creation of the learning environments identified, the students will be able to identify the plants they consume in daily life by traveling, having fun, discussing, experimenting, questioning and conducting experiments and they will be able to understand the nature of scientific knowledge related to science such as biology and pharmacy.

In this study, a single group pre-test post-test design was used. In this design, its effect on the process is tested by a single group study. As the students work as a group in a social environment, their socialization skills were also examined qualitatively. Students' Motivation toward Science Learning Scale was conducted on students as the pre-test and post-test it was assessed if there was a difference in students' motivations. Socialization Skills Open-ended Form was also performed as the post-test, to determine student's views about their socialization skills. Single group pretest-posttest experimental design used in this research is applied to an independent variable, and measurement is made before and after the experiment.

The data were analyzed with the SPSS program to determine whether the change in students' motivation towards learning science was significant from pre-test to post-test. Paired sample T-Test was chosen for the analysis since the distribution of the data provided the assumption of normality. Content analysis was conducted to the data obtained from the socialization skills form.

The study was conducted in the spring semester of the 2018-2019 school year and implemented in five days. A five hours program was executed each day. Necessary permissions were obtained from the Bayrampaşa District Directorate of National Education (project number: 118B362). A five hours program was conducted each day.

It is important for the students to be conscious about useful plants and to be selective individuals about the information they acquire in the media when they are at middle school level. Throughout the activity week, many places were visited in Istanbul for nature education. In this study, 14 nature education activities were developed. These activities were implemented by experts in the field.

As a result of this study, it was found that students' motivation towards science learning increased after the implementation. Based on the findings of this study, it can be concluded that nature education affects the motivation of seventh-grade students towards science learning. According to the findings obtained from open-ended questions, students found the applied education useful in terms of socializing. In addition, it was seen that the

students had positive thoughts that nature education increased their socialization skills. In this study, where nature education is applied, students' concretization with observations and experiments related to nature, performing activities and learning with fun can be a reason that affects their positive thinking and increasing their motivation.

In the light of the study, students should be allowed to socialize with such activities by freeing them while giving nature awareness. Educators should be encouraging students to do group work. Practices and activities should be done to teach them that the affection of nature and the nature of science are similar. Various courses, seminars, and similar meetings should be organized in order to draw attention to nature issues and ensure active participation.

Keywords: Nature education, Motivation, Socialization Skills, Environment, Middle School Students.

Doğa Eğitiminin Öğrencilerin Fen Öğrenmeye Yönelik Motivasyonları ve Sosyalleşme Becerilerine Etkisi

Öz

Bu çalışmanın amacı doğa eğitiminin öğrencilerin fen öğrenmeye yönelik motivasyonları ve sosyalleşme becerileri üzerindeki etkisini araştırmaktır. Araştırma İstanbul'da bir devlet okulunda 7. sınıf öğrencileri üzerinde gerçekleştirilmiştir. Araştırma boyunca 14 doğa eğitimi etkinliği gerçekleştirilmiştir. Veri toplama aracı olarak öğrencilere uygulamadan önce ve sonra Fen Öğrenmeye Yönelik Motivasyon Ölçeği ve uygulama sonunda Sosyalleşme Becerileri Açık Uçlu Soru Formu uygulanmıştır. Öğrencilerin sosyalleşme becerileri formunda verdikleri cevaplara görüşlerini belirlemek amacıyla içerik analizi uygulanmıştır. Veri analizi sonucunda oluşturulan kod ve temalar tablolarda gösterilmiştir. Öğrencilerin Fen Öğrenmeye Yönelik Motivasyon Ölçeği yoluyla toplanan veriler T-Testi ile analiz edilmiştir. Çalışmanın sonunda, sonuçlar öğrencilerin doğa eğitimini sosyalleşme becerileri için yararlı bulduğunu göstermiştir. Ayrıca öğrencilerin bilime yönelik motivasyon puanlarının çalışma boyunca anlamlı bir değişim gösterdiği ortaya çıkmıştır.

Özet

Doğa eğitimi, bireyin doğanın farkına varması ve doğa ve doğa sorunlarına karşı bilinç, tutum ve davranışlarında değişikliklerin gerçekleşmesi olarak açıklanmaktadır. Doğa eğitimi kavramı çevreye odaklanan geniş bir eğitim şemsiyesi olarak düşünülmekte ve tutum, değerler, beceriler, bilgi,

motivasyon ve çevre sorunlarını çözme çabaları olarak tanımlanmaktadır. Motivasyon, öğrenmeyi ve başarıyı etkileyen önemli faktörlerden biridir. Çünkü yüksek motivasyonlu öğrenciler düşük motivasyonlu öğrencilere göre daha fazla çaba ve azim gösterirler. Doğa eğitimi ile öğrencilerin bilime yönelik motivasyonu artırılmasının, fen bilgisi dersinde öğrenciler daha başarılı olmasını sağlayacağı düşünülmektedir.

Doğa eğitimi ile ilgili literatürde birçok çalışma ile karşılaşılmıştır. Bu çalışmalar doğa eğitiminin önemini vurgulamıştır. Doğa eğitiminin, doğal alanlardaki çalışmalar yoluyla gerçekleştirildiğinde edinilen bilginin davranışa dönüştürülmesini kolaylaştırdığını, daha kalıcı olduğunu ve doğaya karşı olumlu tutum ve değerler sağladığını gösteren çalışmalar da bulunmaktadır. Doğa eğitiminin öğrencilerin sosyalleşme becerileri üzerindeki etkisini araştıran çalışmalara rastlanılmamıştır. Ayrıca literatürde, ekolojik programların doğaya karşı bireysel davranışların olumlu yönde değişiminde önemi vurgulanmaktadır. Bu nedenle çalışmanın sonunda öğrencilerin motivasyon ve sosyalleşme becerilerinin artacağına inanılmaktadır. Bu çalışmanın amacı doğa eğitiminin öğrencilerin fen öğrenmeye yönelik motivasyonları ve sosyalleşme becerileri üzerindeki etkisini araştırmaktır.

Bu çalışmada, 7. sınıftaki öğrenciler için kalıcı, anlamlı ve kullanılabilir bilgi elde etmek için öğretim yöntemleri kullanılmış ve etkin, eğitici ve ilginç öğrenme ortamları oluşturmak için çaba gösterilmiştir. Bu bağlamda, belirlenen öğrenme ortamlarının oluşturulması ile öğrencilerin günlük yaşamda tükettikleri bitkileri seyahat ederek, eğlenerek, tartışarak, deneyerek, sorgulayarak ve deney yaparak tanımlayabilecek ve doğayı anlayabilmeleri amaçlanmıştır.

Bu çalışmada tek gruplu ön-test son-test desen kullanılmıştır. Bu desende bağımsız değişkenin süreç üzerindeki etkisi tek bir grup çalışması ile test edilmiştir. Öğrenciler sosyal bir ortamda grup olarak çalışırken sosyalleşme becerilerinin gelişimi de nitel olarak incelenmiştir. Öğrencilerin Fen Öğrenmeye Yönelik Motivasyonu Ölçeği, öğrencilere ön test ve son test olarak uygulanmıştır ve öğrencilerin motivasyonlarında bir fark olup olmadığı değerlendirilmiştir. Sosyalleşme Becerileri Açık Uçlu Soru Formu, öğrencinin sosyalleşme becerileri hakkındaki görüşlerini belirlemek için son-test olarak uygulanmıştır..

Veriler SPSS programı ile analiz edilerek öğrencilerin fen öğrenmeye yönelik motivasyonlarındaki değişimin ön-testten son-teste kadar anlamlı olup olmadığı belirlenmiştir. Verilerin dağılımı normallik varsayımı sağladığı için analiz için eşleştirilmiş örneklem T-Testi seçilmiştir. Sosyalleşme becerileri formundan elde edilen verilere içerik analizi yapılmıştır.

Çalışma 2018-2019 öğretim yılının bahar döneminde yapılmış ve beş gün boyunca gerçekleştirilmiştir. Her gün beş saatlik bir program yürütülmüştür. Bayrampaşa İlçe Milli Eğitim Müdürlüğünden gerekli

izinler alınmıştır (proje numarası: 118B362). Her gün beş saatlik bir program uygulanmıştır.

Öğrencilerin faydalı bitkiler konusunda bilinçli olmaları ve ortaokuldayken medyada edindikleri bilgiler konusunda seçici bireyler olmaları önemlidir. Etkinlik haftası boyunca doğa eğitimi için İstanbul'da birçok yer ziyaret edilmiştir. Bu çalışmada 14 doğa eğitimi etkinliği geliştirilmiştir. Bu etkinlikler, alandaki uzmanlar tarafından uygulanmıştır.

Bu çalışma sonucunda öğrencilerin fen öğrenimine yönelik motivasyonlarının uygulamadan sonra arttığı tespit edilmiştir. Bu çalışmanın bulgularına dayanarak, doğa eğitiminin yedinci sınıf öğrencilerinin fen öğrenmeye yönelik motivasyonunu etkilediği sonucuna varılmıştır. Açık uçlu sorulardan elde edilen bulgulara göre, öğrenciler uygulanan eğitimi sosyalleşmeleri açısından yararlı bulmuşlardır. Ayrıca öğrencilerin doğa eğitiminin sosyalleşme becerilerini artırdığı konusunda olumlu düşünceleri olduğu görülmüştür. Doğa eğitiminin uygulandığı bu çalışmada, öğrencilerin öğrendiklerini doğa ile ilgili gözlem ve deneylerle somutlaştırması, aktivite gerçekleştirmeleri ve eğlenerek öğrenmeleri olumlu düşünmelerini etkileyen ve motivasyonlarını artıran bir neden olabilir.

Çalışmanın ışığında, öğrencilere doğa bilinci verilirken çeşitli aktivitelerle özgürleşerek sosyalleşmelerine izin verilmesi önerilmektedir. Eğitimciler öğrencileri grup çalışması yapmaya teşvik etmelidir. Öğrencilere, doğanın ve bilimin doğasının benzer olduğunu öğretmek için uygulamalar ve faaliyetler yapılmalıdır. Doğa konularına dikkat çekmek ve aktif katılımı sağlamak için çeşitli kurslar, seminerler ve benzeri toplantılar düzenlenmelidir.

Anahtar Kelimeler: Doğa Eğitimi, Motivasyon, Sosyalleşme Becerisi, Çevre, Ortaokul Öğrencileri

Introduction

Education contributes to the development of the individual by gaining environmental awareness, love of nature and animal love to human beings with its environmental aims (Kızıloluk, 2007:21). Environmental education is a continuous learning process that aims to enable individuals to be aware of their environment and to gain knowledge, skills, values, attitudes, and experience to solve environmental and environmental problems for future generations (Vaughan, Gack, Solorazano & Ray, 2003:12). It also includes processes such as information, awareness-raising, stimulation, balancing, development, protection and aims to create behaviors in this direction in people (Güler, 2009:32). With environmental education, it is ensured that people comprehend ecological balance and their roles in this balance, develop ideas about how they can live in harmony with the planet, and acquire the necessary skills for effective and responsible participation (Erol & Gezer, 2006:66).

Nature education is defined as the meaning of nature as a whole, and the understanding and realization of individuals by making various associations in nature (Erdoğan, 2011:2223). In other words, it is explained that the individual becomes aware of nature and creates changes in awareness, attitude, and behavior towards nature and nature problems in these ways (Erdoğan & Özsoy, 2007:22).

There are many lifelong learning environments in which environmental education can be taken. These environments are family, school, social environment, etc. as well as observations and experiments can be made in particular, especially for environmental education; forest, park, botanical gardens, trial-observation gardens, herbariums, and arboretums. These institutions open the plant samples of the country to visit and inform the individuals about the characteristics of these plants as well as create environmental awareness (Şat, 2006:254). Since our country is located in a critical place in the world in terms of fauna and flora, it is important to provide this awareness among individuals in our country.

The way to be successful in achieving the purpose of nature education is to create positive attitudes, behaviors, thoughts, and consciousness in individuals who form society (Keleş, Uzun & Varnacı Uzun, 2010:384). Different environmental education programs (field trips, hiking, camping and adventure activities) help students develop effective relationships with the natural environment, sensitivity to nature, outdoor behaviors and social relationships. (Palmberg & Kuru, 2000:32).

Although there are many learning styles models, Kolb learning styles model is one of the most widely used models based on experiential learning theory. The Kolb learning style model is based on the learning cycle model introduced by Jung in 1923. According to the experiential learning model, individuals learn from their own experiences (Kolb, 1984:66). It is considered

that socialization skills can develop as a result of interactive nature education experiences. Because nature education activities are important in raising awareness in science education, enriching and diversifying students' learning experiences, socializing students (Karademir, 2013:3). Socialization is the ability of the individual to establish appropriate communication ways in the process of adaptation to the environment and the power to cope with verbal-non-verbal conflicts (Alakır, 2006:15). Socializing skills are skills designed to help students interact with their peers, employers, parents, and teachers (Wilcenski, 1982:32).

Within the concept of nature education, a broad education umbrella focusing on the environment is considered and attitudes, values, skills, knowledge, motivation, and efforts to solve environmental problems are included (Aksoy, 2003:87). Motivation is a complex psychological structure that attempts to explain behavior and effort in different activities (Watters & Ginns, 2000:302). Motivation is one of the important factors affecting learning and success. Because highly motivated students tend to show more effort and perseverance in activities than low motivated students (Wolters & Rosenthal, 2000:804). If students' motivation towards science is increased with nature education, students will be more successful in science class.

Many studies on nature education have been found in the literature (Oweini & Houri, 2006:95-105; Makki, Khalick & Boujaoude, 2003:21-33; Bradley, Waliczek & Zajicek, 1999:17-21; Kuhlemeier, Van den Bergh & Lagerweij, 1999:4-14; Worsley & Skrzypiec, 1998:209-225). These studies emphasized the importance of nature education. There are studies showing that nature education facilitates the transformation of knowledge acquired into behavior when carried out through environmental studies in nature, is more permanent, and provides positive attitudes and values towards nature (Farmer, Knapp & Benton, 2007:34). In the relevant literature, Kulaklıgil (2016) found that out-of-school education increased motivation of students (p:60). However, no study was found to investigate the effect of nature education on students' socialization skills. In addition, the importance of ecological programs is emphasized in the positive change of individual behaviors towards nature (Bogner, 1998:27). For this reason, at the end of this study, it is believed that students' motivation and socialization skills will increase.

Although there are various views that the level of education in which children can receive nature education in the most efficient way is secondary education, positive attitudes, and behaviors to the nature can be improved systematically and regularly in pre-school and middle-school education process because many families do not have enough awareness to inform and educate their children about the nature (Şimşekli, 2004:84). In this study, it is aimed that middle school students combine scientific facts, experimental data, and daily life while creating scientific point of view about beneficial

plants and safe plant use. While doing this, increasing the interest of students in the science course, the importance of this course for our daily life and awareness of how much intertwined with our daily life is among the objectives. In this study, teaching methods were used to realize permanent, meaningful and usable information for the students who are in 7th grade and efforts were made to create effective, educational and interesting learning environments. In this context, with the creation of the learning environments identified, the students will be able to identify the plants they consume in daily life by traveling, having fun, discussing, experimenting, questioning and conducting experiments and they will be able to understand the nature of scientific knowledge related to science such as biology and pharmacy.

The research questions identified in this study are as follows:

1. Does nature education have a significant effect on the motivation toward science learning of 7th-grade students?

2. According to the students' views, what is the effect of nature education on the socialization skills of 7th-grade students?

Method

Research Design

In this study, a single group pre-test post-test design was used. In this design, its effect on the process is tested by a single group study. Since the change before and after the application was quantitatively examined, single group experimental design was used. As the students work as a group in a social environment, their socialization skills were also examined qualitatively. Students' Motivation toward Science Learning Scale was conducted on students as the pre-test and post-test it was assessed if there was a difference in students' motivations. Socialization Skills Open-ended Form was also performed as the post-test, to determine student's views about their socialization skills. Single group pretest-posttest experimental design used in this research is applied to an independent variable, and measurement is made before and after the experiment. The difference between the pre-test and post-test means after the measurement shows the effect of the independent variable on the dependent variable (Fraenkel, Wallen & Hyun, 2012:295). Table 1 shows model of the study.

Table 1: Model of the Study

Group	Pre-test	Procedure	Post-test
Middle school students	Motivation toward Science Learning Scale	Nature activities	Motivation toward Science Learning Scale Socialization Skills Open-ended Form

In the study, there are many disruptive variables such as motivation status of students, their readiness, the relationship between the teacher and the student, the physical conditions of the application area, and it is impossible to keep them under control. For this reason, weak pattern was used in the single-group pre-test post-test model of the experimental research method. Also, since this study was carried out within the scope of the project, activities were carried out with a single group for the purpose of the project.

The study was conducted in the spring semester of the 2018-2019 school year and implemented in five days. A five hours program was executed each day. Necessary permissions were obtained from the Bayrampaşa District Directorate of National Education (project number: 118B362).

Research Group

This study was conducted with 7th-grade students at a middle school in Istanbul, Turkey. Participants' ages ranged from 13 to 14 years. None of the participants had received nature education before. The research group of the study consists of five different middle schools in Bayrampaşa district, İstanbul. The schools were picked through random selection. Six students with restricted opportunities were detected by the management of each school. In total, the research group consists of 30 students. The reason for selecting 7th-grade students as a sample is that the students completed the 'Human and Environmental Relations' unit under the subject area 'Living and Life in the 7th-grade science curriculum. The aim of this unit is to enable students to explain ecosystem and related concepts, to question the causes and consequences of environmental problems, to gain knowledge and skills for biodiversity, endangered and endangered life forms and what needs to be done to protect these species (MEB, 2018:28).

Research Instruments

Tuan, Chin, and Shieh developed the first version of the Students' Motivation toward Science Learning Scale in 2005 in order to determine the motivation of middle school students. Then, Yılmaz and Huyugüzel Cavaş (2007) adapted this questionnaire to Turkish (p:430-440). In the Turkish version of the scale, Cronbach's alpha coefficient was found to be 0.87. This value shows that the scale is a valid and reliable measurement tool that can be used to reveal the motivation of middle school students towards science learning. This scale consists of six factors and 33 items. Reliability factors for these factors; self-efficacy (0.71), active learning strategies (0.85), the value of science learning (0.74), performance goal (0.54), achievement goal (0.77), and incentive in the learning environment (0.77).

Another data collection tool is Socialization Skills Open-ended Form. This form was developed to find out students' views on their socialization skills. It was prepared as open-ended questions to determine students' views

deeply. Open-ended questions give the researcher great flexibility in entering a detailed topic (Yıldırım & Şimşek, 2005:227). Questions of the form were checked by two faculty members who is expertise in science education and two science teachers. The individual learns social behavior in interaction with the members of the society (Başal, 1998:3). Since the friendship relations of students will affect their ability to socialize, questions related to their friendships are also included in the questionnaire. These questions are: "Did you make new friends during the activity week? What was the reason for making or not making friends? Why is that?", "Are you planning to contact your new friend later? Why is that?", "What did you learn from your friends during the activity week?" and "Do you think your socialization skills have improved at the end of the activity week? Why is that?".

Procedure

The study was implemented in five days. A five hours program was conducted each day. It is important for the students to be conscious about useful plants and to be selective individuals about the information they acquire in the media when they are at middle school level. Throughout the activity week, many places were visited in Istanbul for nature education. Thus, it is aimed that students learn with experience. Turkey's first medicinal plants in the garden during the project Zeytinburnu Medicinal Plants Garden and the Nezahat Gökyiğit Botanical Garden trips were arranged. During these trips, students participated in various activities in which they could observe different usage areas of plants as well as observing plants in their environment. ISTE ethnobotanics collections and herbarium collections were also seen and students gained ethnobotanical awareness. In addition to the trips, different experiments were performed in the laboratory. In the activities, different methods such as computer-aided visual education and games were used to ensure the active participation of the students.

In this study, 14 nature education activities were developed. These activities were implemented by experts in the field. While some activities were held in laboratories, others were done on trips or out of the school environment.

The activity places and aims of the activities were presented in Table 2.

Table 2: Activities implemented during the activity week

Activity name	Aim of the activity	Activity place
Getting to know plants	By observing the internal and external morphological characteristics of plants, to comprehend that plants have very different characteristics	Biology Laboratory
YTU Davutpasa campus plants	Recognize plants in general and gain awareness about safe plant use.	Campus Garden 1

How do we use plants: Ethnobotany collection	To understand how plants use and to see the ethnobotanical collection showing the properties of plants.	Faculty of Pharmacy
We collect our own plants	To learn how to collect and store plants while using them for health and other purposes.	Campus Garden 2
Health-friendly wools	Dyeing wool with natural methods using different parts of different plants and learn that plants can be used for various purposes.	Faculty of Pharmacy Laboratory
Let's learn about Herbarium	To see medicinal plant samples in the herbarium, to understand what herbarium is.	Herbarium
The first medical plants garden in Turkey	To recognize medical plants, to learn the effective and safe use of medicinal plants and to gain awareness of the use of medicinal plants.	Medical Plants Garden
I've been a gardener	Gain horticultural experiences such as cleaning dead leaves, planting seedlings, cleaning and decorating tree bowls, composting, watering, planting, reproduction of perennial plants and replacement of plants.	Medical Plants Garden
Art and plants	Gaining environmental protection awareness and developing artistic designs.	Medical Plants Garden
Which organ of the plant is it that I eat?	To understand that plants have various uses and to gain this awareness.	Botanical Garden
Let's make paper	To strengthen the awareness that trees are used in papermaking, one of the areas of plant use, and to learn paper making.	Medical Plants Garden
Hidden heaven in the middle of a highway	To ensure that the botanical gardens are perceived by scientific means and to visit the garden, to teach them different nature motifs, the effects of climate on plants and scientific studies done in the garden.	Botanical Garden
Let's make a collage	Gaining environmental protection awareness and developing creativity with artistic designs.	Faculty of Art and Design
Fragrant teas	Understand the points to be considered when using medicinal herbal teas and learn the benefits of these herbs.	Faculty of Education

The activity applied in this study was developed in order to raise the awareness of nature and to make the students use the plants correctly.

Data Analysis

The data were analyzed with the SPSS program to determine whether the change in students' motivation towards learning science was significant from pre-test to post-test. Paired sample T-Test was chosen for the analysis since the distribution of the data provided the assumption of normality. In order to test the normal distribution of the data, which is one of the assumptions of the T-Test, normality test was performed. In case the group size is less than 50, Shapiro-Wilks is used. Table 3 shows Shapiro-Wilks results.

Table 3: Shapiro-Wilks results

Statistics	N	p	Skewness	Kurtosis
0.953	30	0.124	-.64	.14

Content analysis was conducted to the data obtained from the socialization skills form. With content analysis, the concepts that are similar to each other are listed first, and are divided into codes, categories and themes according to the relationship between them (Yıldırım & Simsek, 2005:227). In the analysis of the open-ended questions of socialization skills, the students' responses were defined thematically. First the codes, then the categories and the latest themes were created. Content analysis of the data was performed by two researchers. Percentage of agreement is calculated as Compliance Amount /(Compliance Amount + Dispute Amount) x 100. When percentage of agreement is 70% in reliability calculation, percentage of reliability is considered sufficient. The interrater reliability coefficients between the two raters were found to be 0.95.

Findings

Quantitative analysis was used for data obtained from the motivation toward science learning scale and qualitative analysis was made for the data collected from open-ended questions about socialization skills. The findings obtained are presented in this section.

The Results Related to the Students' Motivation toward Science Learning Scale

After the distribution of the data provided the assumption of normality, paired sample T-Test was selected for the analysis of the data. Table 4 gives the T-Test results.

Table 4: Students' Motivation toward Science Learning Scale T-Test results

	N	Mean	S	sd	t	p
Pre-test	30	101.25	15.88	29	642.123	0.00
Post-test	30	127.30	17.66			

As shown in Table 4, nature education has a positive effect on students' science learning motivation.

The Results Related to the Socialization Skills Open-ended Form

Themes obtained as a result of data analysis of students' views on socialization skills are given in tables. As a result of data analysis, four basic themes are created. These are reasons for the friendship of students, reasons why students want to continue their friendship, friends' contributions to students and the reasons for the development of students' socialization skills. The responses of the students are presented by giving examples of student responses in categories. Figure 1 shows the status of making friends during the activity week.

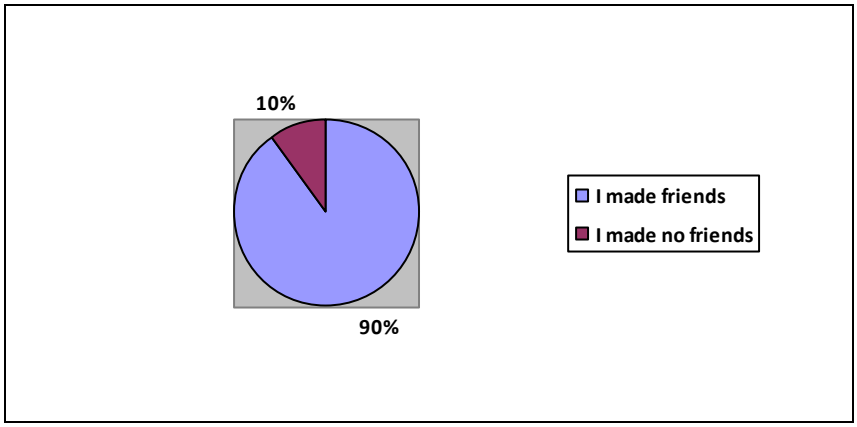

Figure 1: Students' friendship status

As shown in Figure 1, only 3 of the 30 students stated that they did not make friends during the activity week.

Table 5 presents the students' opinions about the reasons for making and not making friends during the activity week.

Table 5: Reasons for friendship of students

Categories	Codes	f
Positive thoughts	Making teamwork	25
	Playing games together	12
	Going on trips together	12
	Cooperating together	10
	Experimenting together	9
	Communicating	9
	Creating products together	5

Negative thoughts	Personal characteristics (feeling shy, disliking group work, etc.)	2
	Participants not having fun	1

As can be seen in Table 5, the majority of the students think that nature education has a positive effect on making friends. Only three students have negative thoughts. Some examples of student responses are:

"*We played a lot of games about plants during the activity week, so I made friends. I knew my team members closely while I was doing teamwork.*" (Student 27, girl)

"*I met new friends because we experimented together. We thought and decided together."* (Student 11, boy)

"*I didn't make many friends because I was shy, but I tried to get involved in group work*." (Student 20, boy)

Table 6 gives the reasons for whether or not the students want to continue their friendship after the activity week.

Table 6: Reasons why students want to continue their friendship

Categories	Codes	f
Positive reasons	Participants have fun personalities	25
	Desire to socialize	22
	Enjoying the same things	19
	Making social activity together	19
	Helping for lessons	3
	Participating in other scientific activities together	3
	Having common friends	1
Negative reasons	Finding no one fun	2
	Finding the meeting again unnecessary	1

As seen in Table 6, it is seen that the majority of students have positive opinions. The highest number of opinions stated is that the friends met during the nature education process are fun and therefore want to meet again.

"*It was nice to make friends from other schools. When I meet these friends, I can also meet their friends."* (Student 11, boy)

"*We gave each other our phone numbers to share our project ideas in the lessons. So we will continue to meet."* (Student 2, girl)

"*I don't think anyone I met during this event week was fun. So I don't think I'd want to see anyone again. "* (Student 7, boy)

In Table 7, the categories formed by the students' opinions about what they learned from their friends during the activity week were given.

Table 7: Friends' contributions to students

Categories	**Codes**	**f**
Contributions related to the content of events	Learning the properties of plants	21
	Learning to use plants safely	20
	Learning to paint rope	12
	Learning to grow plants	12

	Gaining plant awareness	12
	Gaining environmental awareness	10
	Loving plants	9
Individual Development	Gaining problem-solving skills	8
	Using creativity	8
	Using psychomotor skills	3
	Learning to think free	3
	The happiness of producing common products	3
	Learning to use time	2
Socialization skills	Gaining communication skills	25
	To be able to do group work	25
	Making friends	23
	Learning to help	20
	Sharing information	17
	Learning with fun	15

As Table 7 shows, students learned a lot from their friends during nature education. While working together, students think that they develop themselves personally and socially as well as learning about the content of the activities. Examples of student responses for each category are given below.

"*During one of our games I learned the characteristics of the plants with the help of my friend*." (Student 26, boy)

"*I solved the problem given to us thanks to my friend.*" (Student 2, girl)

"*First of all, I was a bit shy on the first day, but I learned to make friends as I continued to attend the activities.*" (Student 8, boy)

In Table 8, students' thoughts about the reasons for the development of socialization skills during the activity week are given.

Table 8: The reasons for the development of students' socialization skills

Categories	**Codes**	**f**
related to the content of the activities	Having interesting activities	5
	Having fun activities	3
	Having instructional activities	2
not directly related to the content of the activities	Making group work	22
	Playing games	20
	Conducting collaborative studies	17
	The necessity of putting the product together	17
	Making student-centered activities	9
	Willingness to have fun while learning	9
	The interest of instructors	1

As is seen in Table 8, students think that group work mostly makes them socialize. Examples of students' responses to these categories are as follows:

"*The topics covered at the activities were interesting, so we had the opportunity to work with our friends on topics that interest us. Had it not been an interesting topic, we would not have worked willingly and would not be friends.*" (Student 19, girl)

"*We practiced freely throughout all activities, which allowed us to learn by ourselves together. Teachers only helped where we had difficulty.*" (Student 10, boy)

"*We were able to socialize because he was taught as if he were playing. So we made friends easily.*" (Student 30, girl)

Discussion and Conclusion

As a result of this study, it was found that students' motivation towards science learning increased after the implementation. Based on the findings of this study, it can be concluded that nature education affects the motivation of seventh-grade students towards science learning. According to the findings obtained from open-ended questions, students found the applied education useful in terms of socializing. In addition, it was seen that the students had positive thoughts that nature education increased their socialization skills.

In this study, where nature education is applied, students' concretization with observations and experiments related to nature, performing activities and learning with fun can be a reason that affects their positive thinking and increasing their motivation.

The interaction of the students during the activity week and the studies related to nature together may have had a positive effect on their socialization skills. Palmberg and Kuru (2000), as a result of studies in which different environmental education programs (field trips, hiking, camping, and adventure activities) are implemented, have observed that experiences in nature enhance students' self-confidence, make them more willing to participate in future out-of-school activities, and show more social behaviors and moral judgments with strong and empathic relationships with nature (p:32-36).

In the literature, it was not encountered the study which examines the effect of nature education on students' motivation towards learning science and socialization skills. However, there are many studies that conclude that nature education has positive effects on individuals' behaviors. Keleş, Uzun and Varnacı Uzun (2010) found that as a result of the nature activities with preservice teachers, the nature education program has a significant impact on the environmental awareness, attitudes, and behaviors of individuals and ensures its retention (p:384-401). Güler (2009) observed that the teachers who participated in ecology-based education had significant positive changes in their attitudes towards the environment and their approach to environmental problems (p:30-43). Bogner (1998) found that the 5-day outdoors program caused positive changes in students' individual behaviors (p:17-29). Another nature education program was developed by Genc, Genc, and Rasgele (2018: 326-340). This study was carried out with seventh grade students. It was concluded that the students' affective tendencies towards nature improved with the nature activities held for 11 days.

Eaton (1998) found that outdoor learning experiences were highly effective in developing cognitive skills compared to in-class education (p:6). The activities that focus on the students in the center such as laboratory practices and outdoor education implementations can contribute the quality of environmental education (Uzun & Sağlam, 2007:176). Therefore, the activities carried out in this study may have improved students' motivation to learn science.

Students should be allowed to socialize with such activities by freeing them while giving nature awareness. Educators should be encouraging students to do group work. Practices and activities should be done to teach them that the affection of nature and the nature of science are similar. Various courses, seminars, and similar meetings should be organized in order to draw attention to nature issues and ensure active participation.

One of the limitations of this study is that the application is carried out only with seventh-grade students. Similar implementations can be carried out at other levels of education. Another limitation is the fact that only fourteen activities are carried out. Similar to these activities, out-of-school learning activities and excursions can be organized by educators. In addition, there was no control group in this study. A similar study can be conducted in two groups and the effectiveness of the application can be determined quantitatively.

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