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İÇİNDEKİLER / TABLE OF CONTENTS

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Determining the Ecological Footprint Awareness of Vocational School Students

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Abstract

As a result of human influences through rapid population growth, industrialization, urbanization, and uncontrolled agricultural practices, nonrenewable resources are depleted. Humans are also destroying renewable resources. The ecological footprint concept refers to consumption habits, how much of a living area is used, and the amount of living space needed to reuse resources. An ecological footprint analysis determines how sensitive an individual is to the environment and contributes to increasing and developing environmental awareness. It is essential to measure ecological footprints to understand environmental problems and the individual effects that cause these problems. An ecological footprint is an indicator of sustainability. Therefore, its application in educational institutions contributes to improving individual behaviors. This research aimed to determine vocational school students' awareness of ecological footprints. Our study was carried out during the 2022–2023 academic year. The study used a quantitative screening method, and the "Ecological Footprint Awareness Scale" was used to obtain the data. The SPSS 22.0 package program was used for statistical analyses. The ecological footprint awareness levels of the students were compared according to gender and the program they studied. The study found a significant difference in the students according to gender and department. Students were most aware of waste, transportation, and shelter and least of food, energy, and water consumption.

Keywords: Ecological footprint, environment, sustainability

1. Introduction

Living things need natural resources such as air, water, and soil. Natural resources must continue to be available for future generations to survive. However, humanity's rate of consumption of natural resources is currently higher than the resources' self-renewal rate, which is one of the world's most critical problems. Humans' negative impact on the world is constantly increasing due to production and consumption activities. With the increase in consumption habits, environmental problems have become inevitable. Unless people change their consumption habits, future generations will not have a world to inhabit. Therefore, it is increasingly vital to protect natural resources, limit consumption, and adopt non-harmful technologies and behaviors (Çelik & Çam, 2022).

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The global population growth rate is higher than the renewal rate of natural resources, which creates many problems. Humanity's dominance over the environment causes us to consume natural resources unconsciously. Due to the increase in population, industrialization, urbanization, and uncontrolled agricultural practices, the depletion of non-renewable resources and the destruction of renewable resources is constantly increasing. If future generations are to survive in a sustainable world, production and consumption habits must change (Günal, Işıldar & Atik, 2018). The natural balance inherent to the Earth, which is harmed by exposure to excessive pollution, is gradually losing its ability to renew itself. This situation, caused by human's selfish attitudes towards the environment and lack of education, is an important problem (Blatchford, Smith & Pramling-Samuelsson, 2010; Edwards, 2005; Güngör & Kalburan, 2022). The threat of environmental problems to public health reveals the need to produce solutions to environmental problems in all societies. Therefore, environmental awareness must increase around the world. Comprehensive environmental education can promote environmental awareness (Akçay & Pekel, 2017). Environmental education can improve environmental knowledge, create positive attitudes toward the environment, and promote environmentally-friendly behaviors (Erten, 2012).

As understanding of the importance of developing environmental awareness in solving and reducing environmental problems has increased, sustainability education has gained importance (Oğuz, Çakcı & Kavas, 2011). Thinking habits can be formed through education and training. Many activities can help to create a better world for future generations, including being a role model for children from an early age, creating an educational environment that promotes sustainability, and interacting with nature. When schools undertake these activities, it helps to raise social awareness about sustainability, especially for children, staff, and families (Güngör, 2019).

Humans are the primary cause of ecological change. Therefore, it is vital to ensure that humanity understands its responsibility to maintain the Earth's natural balance (Yücel & Morgil, 1998). Seeing nature as a never-ending resource creates irresponsible consumption and constitutes the basis of environmental disasters. People are now helpless in the face of these disasters. Society needs awareness more than anything else (Karataş, 2016). As people inherit their environment from their ancestors, leaving a healthy environment for future generations and protecting the environment are basic responsibilities (İnce, 2015).

Environmental awareness and sustainability concepts are related to attitudes and behaviors that are acquired at an early age (Söylemez, 2007; Blatchford et al., 2010; Günşen, 2023). Raising children's environmental awareness is an essential investment in the future of sustainability (Blatchford et al., 2010; Kim, 2016; Günşen, 2023). Research has found that environmental education, which aims to develop environmental awareness and sensitivity and establish the environmental ethics of leading a sustainable life, should be provided to children from an early age (Blatchford et al., 2010; Edwards, 2005; Güngör & Kalburan, 2022). To protect the environment, improving knowledge is vital (İnce, 2015). In this context, the ecological footprint is an effective environmental education tool. İt demonstrates the extent of the pressure that individuals are putting on nature (Çetin, 2015). Environmental ethics can also develop with the creation of environmental awareness (Kahriman Ozturk, Olgan & Güler, 2012; Yalçın, 2013). Ecological footprint applications help develop individuals' sustainability practices (Güngör, 2019).

The concept of the ecological footprint is becoming popularised with the rise of sustainable living practices. All living things consume resources and produce waste material throughout their lives. Soil and water are necessary for resource consumption and waste generation (Keleş, Naim & Özsoy, 2008). How long can complex natural systems withstand our consumption? The concept of ecological footprint emerged due to the difficulty of answering this question (Tosunoğlu, 2014;

Güleç & Orhan, 2022). In the most general terms, the ecological footprint can be defined as a method of measuring the overall impact of human activities on the world (Wackernagel & Rees 1996:9). This concept assesses the total environmental area required for the absorption of emissions produced by a person (Keleş et al., 2008; Lambert & Cushing, 2017). This represents the area of resource generation required to sustain the individual's lifestyle and convert their waste materials into harmless ones. It also reflects the area of carbon dioxide absorption with certain ecological limits (Keleş et al., 2008).

The ecological footprint, a concrete indicator of sustainability, effectively promotes positive and sustainable behaviors when applied in educational institutions (Keleş, 2007; Cordero, Todd & Abellera, 2008; Çetin, 2015). Ecological footprint analysis increases qualities of life and reveals how to create a more sustainable lifestyle. It creates an "ecological facts checklist" by assessing individual lifestyles (Keleş et al., 2008). This feature helps the ecological footprint act as an effective educational tool by increasing students' environmental knowledge. The tool also provides a guide for students to improve their environmental behavior. Therefore, it positively impacts students' environmental, consumption, and spending behaviors (Çıkrık & Yel, 2019).

An ecological footprint, expressed in hectares, is calculated using consumption data from organizational reports (Food and Agriculture Organization of the United Nations, World Bank, etc.). The ecological footprints of individuals living in a country are obtained by calculating the ratio of the national footprint to the country's population. An individual footprint is adjusted using questions and answers about the individual's income, lifestyle, energy use, nutrition, and shopping routine. The tools used in ecological footprint analysis are used to calculate the environmental space needed to support an individual's lifestyle by estimating how many Earths would be required if all people living on Earth had the same lifestyle. An individual ecological footprint consists of four different components: housing, carbon, food, and goods and services (Lambert & Cushing, 2017). Today, Earth would require 1.7 equivalent planets to meet human needs. This makes sustainability impossible under current consumption levels (San-Francisco, Sopelana, Fernandez, Otegi & Minguez, 2020). The 2022 Global Risks Report states that five environmental problems in the top ten risk list are expected in the next ten years. In addition, the first three risks are related to the environment: failure to act for climate, extreme weather events, and biodiversity loss (World Economic Forum, 2022; Engin, Demiriz & Koçyiğit, 2023). Conducting ecological footprint analyses is vital to raise individuals' awareness about environmental problems.

The ecological footprint supports students in understanding their impact on nature by using their critical thinking and problem-solving skills. In addition, it allows them to use their achievements by integrating them with their social life and individual behaviors (Yorgun, 2022). Therefore, it is vital to consider how ecological footprints affect the individual lives of students. Many scientific studies have been conducted on the ecological footprint concept (Akıllı, Kemahlı, Okudan & Polat, 2008; Tosunoğlu, 2014; Çetin, Güven Yıldırım & Aydoğdu, 2017; Ünal & Bağcı, 2017; Kurt & Çavuş Göngören, 2020; Arslan & Yağmur, 2022; Demirkol & Aslan, 2022; Güleç & Orhan, 2022). Özgen and Aksoy (2017) aimed to determine consumers' Ecological Footprint awareness levels. They used the "Ecological Footprint Awareness Scale" as a data collection tool and found that consumers' average awareness was low. A study conducted by Demirkol and Aslan (2021) aimed to determine classroom teachers' ecological footprint awareness levels. They also used the Ecological Footprint Awareness Scale through a scanning method. The research identified no significant difference in classroom teachers' ecological footprint awareness levels according to educational status, gender, faculty, or seminar attendance. However, they found a significant difference between grade level taught, seniority, and the region where the school was located. Lambrechts and Liedekerke (2014) discussed the use of ecological footprint awareness in higher education. They stated that universities calculate their ecological

footprints to respond to the social call to integrate sustainability into their business and evaluate the sustainability of their activities. They also use the ecological footprint as an educational tool for students and to enhance their policy development. Baabou, Grunewald, Ouellet-Plamondon, Gressot and Galli (2017) assessed the ecological footprint of 19 coastal cities in the Mediterranean region. They stated that the differences between the ecological footprint values of the cities might be caused by socio-economic factors such as disposable income, infrastructure, and cultural habits. Engin et al. (2023) examined the ecological footprint awareness of preschool teachers, the application status of environmentally friendly activities, and their environmentally friendly behaviors. They also assessed the impact of different variables. They concluded that it did not differ according to the type of institution they were employed in.

An ecological footprint can be measured over many areas and groups (Eraslan & Seç, 2021). Notably, studies on this topic have mainly been conducted with teacher candidates (Yorgun, 2022). No research has examined the ecological footprint awareness of vocational high school students. Therefore, this research will contribute to the literature and fill this gap. Our study aimed to measure and evaluate the awareness of vocational school students studying in different programs about the ecological footprint. We sought answers to the following questions:

- ✓ Is there a significant difference between the participants' awareness of the ecological footprint according to gender?
- ✓ Is there a significant difference between the participants' awareness of the ecological footprint according to their study departments?

2. Methodology

Our research used surveys, which is a quantitative research method. We also used the scanning method due to its efficiency, generalizability, and versatility. Scanning is one of the most popular methods in educational research (McMillan & Schumacher, 2010).

2.1. Sampling and Participants

A total of 186 individuals, 124 girls and 62 boys, who are students at a vocational school at Kafkas University, constituted the study sample. The sample consisted of 1st- and 2nd-year students studying at a vocational school affiliated with Kafkas University. Sixty-seven students were studying in the Social Services program, 47 in the Pharmacy Services program, 36 in the Sports Management program, 22 in the Opticinary program, and 14 in the Health Institutions Management program (Table 1).

Table 1. Demographic Information about the Sample

Gender	**N**
Female	124
Male	62
Departments	
Social Services Program	67
Pharmacy Services	47
Sports Management	36
Opticianry	22
Management of Health Institutions	14

2.2. Data Collection Methods and Procedure

In the study, the "Ecological Footprint Awareness Scale" (Coşkun & Sarıkaya, 2014) was used to determine the awareness levels of students of the ecological footprint concept. The scale, which consists of 40 items and five sub-dimensions, assesses food, transportation and shelter, energy, waste, and water consumption. The reliability coefficients of the items in the scale were 0.70 for the food sub-dimension, 0.76 for the transportation and shelter sub-dimension, 0.86 for the energy sub-dimension, 0.81 for the wastes sub-dimension, and 0.68 for the water consumption sub-dimension. The reliability coefficient of the scale was 0.92. The scale was a 5-point Likert type, and the statements in the scale were "Strongly Agree," "Agree," "Partly Agree," "Disagree," and "Strongly Disagree."

2.3. Data Analysis

The data obtained in the study were statistically analyzed using the SPSS 22.0 package program. First, the data obtained from the "Ecological Footprint Awareness Scale" were examined. They were then transferred to the SPSS program. The Kolmogorov-Smirnov test was applied to determine the suitability of the data for normal distribution. The test showed that the data were not suitable for normal distribution. Therefore, the Mann-Whitney U test was applied to reveal the differences in participants' scores according to gender. The Kruskal-Wallis test was applied to determine the differences in the participants' scores according to their departments.

2.4. Permission of Scientific Ethics Committee

Ethical rules were followed during the conduct of our research, data collection, and analysis. Approval was obtained from the Social and Human Sciences Scientific Research and Publication Ethics Committee of Kafkas University (Date: 21/04/2022 Number: 32).

3. Results

In the first sub-problem of the study, the Mann-Whitney U test was applied to determine whether gender caused a significant difference in the ecological footprint awareness scale scores. The test results are shown in Table 2.

Table 2. Comparison of Students' Ecological Footprint Awareness Scale Sub-Dimension and Average Scores in terms of Gender (Mann-Whitney U Test)

Questions	Gender	N	Rank Average	U	P
Food	**Female**	124	98,19	3262,500	,09
	Male	62	84,12		
Transportation and Housing	**Female**	124	98,76	3192,000	,05
	Male	62	82,98		
Energy	**Female**	124	93,46	3839,000	,98
	Male	62	93,58		
Wastes	**Female**	124	103,42	2614,000	,00
	Male	62	73,66		
Water Consumption	**Female**	124	94,31	3743,000	,76
	Male	62	91,87		
Average	**Female**	124	82,14	2435,500	,00
	Male	62	116,22		

Table 2 shows that the gender factor did not cause significant differences in the food, energy, and water consumption sub-dimension scores in the Ecological Footprint Awareness Scale ($p>0.05$). Conversely, gender created a significant difference ($p<0.05$) in the waste, transportation, and housing sub-dimension scores and mean scores. The gender data suggest that the mean rank values of male students' ecological footprint awareness were higher than the female students' mean rank. This is outlined in Table 2. Furthermore, the average ranking of female students was higher in the sub-dimensions of waste, transportation and housing, food, and water consumption.

In the second sub-problem, the Kruskal-Wallis test was applied to identify whether the departments where the students studied influenced their ecological footprint awareness scale scores. The results obtained are shown in Table 3.

Table 3. Comparison of Students' Ecological Footprint Awareness Scale Sub-Dimension and Average Scores in terms of Departments (Kruskal - Wallis Test)

Questions	Departments	N	Rank Average	X^2	p
Food	Social Services Program	67	103,65	4,461	,34
	Pharmacy Services	47	87,9		
	Sports Management	36	87,81		
	Opticianry	22	81,77		
	Management of Health Institutions	14	96,79		
Transportation and Housing	Social Services Program	67	100,73	23,475	,00
	Pharmacy Services	47	116,86		
	Sports Management	36	70,43		
	Opticianry	22	64,43		
	Management of Health Institutions	14	85,46		
Energy	Social Services Program	67	90,14	2,967	,56
	Pharmacy Services	47	103,84		
	Sports Management	36	94,47		
	Opticianry	22	87,14		
	Management of Health Institutions	14	82,36		
Wastes	Social Services Program	67	93,54	26,963	,00
	Pharmacy Services	47	117,56		
	Sports Management	36	57,6		
	Opticianry	22	100,7		
	Management of Health Institutions	14	93,54		
Water Consumption	Social Services Program	67	84,36	5,969	,20
	Pharmacy Services	47	100,91		
	Sports Management	36	88,31		
	Opticianry	22	110,61		
	Management of Health Institutions	14	98,82		
Average	Social Services Program	67	90,13	40,64	,00
	Pharmacy Services	47	61,51		
	Sports Management	36	136,61		
	Opticianry	22	102,84		
	Management of Health Institutions	14	91,46		

The data in Table 3 show that the department factor did not cause a significant difference in the participants' food, energy, and water consumption sub-dimension scores in the Ecological Footprint Awareness Scale ($p>0.05$). However, there was a significant difference ($p<0.05$) between the waste, transportation, and shelter sub-dimension and mean scores. The average rank in the sub-dimensions of waste, transportation, and housing suggests that the rank average of the

Pharmacy Services department was higher than the other departments. The other sub-dimensions show that the ranking averages of different departments were high. The Social Services program had the highest average score in the food sub-dimension (X = 103.65), followed by the Management of Health Institutions program (X = 96.79). When Ecological Footprint awareness was evaluated according to the departments in the energy sub-dimension, the pharmacy services program had the highest average score (X = 103.84). This was followed by the mean ranks of the Social Services program (X =90.14), the Sports Management program (X = 94 .47), the Opticianary program (X = 87.14), and the Management of Health Institutions program (X = 82.36).

4. Discussion, Conclusion, and Recommendations

Our study aimed to determine the Ecological Footprint Awareness of students studying at a vocational school. It examined whether gender and department factors impacted Ecological Footprint Awareness. The study concluded that male students' Ecological Footprint Awareness rank averages were higher than female students. This suggests that male students are more sensitive than female students about environmental issues, and their knowledge about the subject is higher. Many studies in the scientific literature reflect this finding. Özgen and Aksoy (2017) found that men's total Ecological Footprint Awareness was higher than women's and that this difference was statistically significant. Eren, Parlakay, Hilal and Bozhüyük (2017) stated that men were more aware of the ecological footprint concept than women. In their study, Medina and Toledo (2016) stated that male participants had a significantly larger ecological footprint than female participants. However, Yıldız (2014) found that the Ecological Footprint Awareness levels of female pre-service teachers were significantly higher than male pre-service teachers. Furthermore, Coşkun (2013) found no significant difference between the Ecological Footprint Awareness levels of female and male teacher candidates.

Our study found that gender did not significantly affect the vocational school students' food, energy, and water consumption sub-dimension scores on the Ecological Footprint Awareness Scale. However, gender significantly impacted the waste, transportation, and housing sub-dimensions. The average ranks of female students in the waste, transportation, and housing sub-dimensions were higher.

Although some studies have found similar results, many different results have been found on this topic. For example, Yiğitkaya (2019)'s study on the level of ecological footprint awareness showed a significant difference in waste awareness in favor of women. Demirkol and Aslan (2021) concluded that the average rank of women in terms of food, energy, waste, and water consumption was higher than men. The difference between the studies may be due to the characteristics of the sample groups studied, the place of residence, and the differences in the habits of the sample group. In addition, the unequal numbers of male and female participants may influence the gender-based differences.

Our study concluded that the departments students studied in caused significant differences in mean scores on the Ecological Footprint Scale. The results suggest that low awareness in a sub-dimension likely contributes more to the ecological footprint. The higher the level of awareness in a sub-dimension, the lower the contribution of that sub-dimension to the ecological footprint. In other words, increases in awareness suggest that an ecological footprint is shrinking (Çıkrık & Yel, 2019).

Our study shows that the departmental affiliations of high school students did not create significant differences in the food, energy, and water consumption sub-dimension scores on the Ecological Footprint Awareness Scale. There was a significant difference in the waste and

transportation and shelter sub-dimension and mean scores. The average rank in the sub-dimensions of waste and transportation and shelter suggests that the average rank of the Pharmacy Services department was higher than the other departments. The mean rank of the other departments was high across the other sub-dimensions. This may be due to the impacts of course content. Supporting this finding, Şimşek (2020) stated that students are given implicit awareness-raising training in their curriculum content. Similarly, Günal et al. (2018) found that the tendencies of students in the biology department were significantly higher than those of students in the engineering department. They showed that this was because biology students study the environment during their undergraduate courses and acquire awareness about environmental problems. Disparities may also occur because students have different income levels and parental educational backgrounds. Temizkan and Ceyhanlı (2020) stated that students' income and parents' education levels create statistically significant differences in their awareness of their ecological footprint.

This section presents the research results and provides recommendations. The results showed a statistically significant difference between the total mean scores of the students and their gender and departments. These findings highlight several suggestions for improving students' awareness of their ecological footprints:

- ✓ Adding courses related to environmental education to the curriculum.
- ✓ Providing courses and seminars on this subject by experts.
- ✓ Creating public awareness about this issue.
- ✓ Delivering relevant documents to students to make them think about their lifestyles.
- ✓ Conducting more in-depth research with larger sample groups to increase awareness and knowledge about ecological footprints.

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Permission of Scientific Ethics Committee

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Opinions of Social Studies Teacher Candidates on Teaching Practice Process

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Abstract

The aim of this study is to reveal the views of pre-service social studies teachers about the teaching practice process. The data of this research, which was conducted as a qualitative study, were obtained from interviews with 13 volunteer pre-service social studies teachers selected by criterion sampling method in 2021-2022. The research data were collected with a 10-question interview form prepared by the researchers. Content analysis method was used to analyse the data obtained. The findings obtained as a result of the data analyses were presented under four headings: Prospective teachers' expectations from the teaching practice process, prospective teachers' relations with the stakeholders of the teaching practice process, problems of the teaching practice course and suggestions for solving the problems. Tables related to coding and categories are given under the headings and some of the opinions that are the source of these codes are presented as cross-sections. As a result, it was determined that pre-service teachers expected the teaching practice process to prepare them for the teaching profession, but this expectation was not fully met. Reasons such as insufficient time, indifference of the stakeholders of the process, and lack of co-operation between the university and the school were cited as reasons for this. In line with the findings obtained as a result of the research, suggestions were made to increase the duration of the teaching practice process and to strengthen stakeholder communication.

Keywords: Practical education, pre-service teacher, social studies education, teacher education, teaching practice

1. Introduction

Since the 1998-1999 academic year, a course called Teaching Practice has been conducted in Faculties of Education in order to enable pre-service teachers to apply and develop the knowledge and skills they have gained in a school environment and to acquire the professional characteristics required of them. In order to carry out this course effectively and to create favorable learning environments, the practice school coordinator, practice teacher, practice instructor and pre-service teacher take on a number of different roles and responsibilities (Çetintaş & Genç, 2005).

The Teaching Practice course is a course in which pre-service teachers gain experience in the profession they are being trained in. They observe, practice and evaluate the learning and teaching process in a specific school. Selçuk (2000) defines the school practice as a basic element for enabling pre-service teachers to understand the relationship between theory and practice and

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states that it is through this process that pre-service teachers develop their professional competencies, gain the ability to apply the theoretical knowledge required by the profession in educational environments and form positive attitudes towards the teaching profession. This course aims to provide pre-service teachers with skills such as planning and implementing learning activities, recognizing individual differences among students, and working efficiently and harmoniously with other teachers in the school. Teaching Practice is considered to be a very important course because the activities included in it go beyond observation and prepare pre-service teachers to actually teach. It therefore holds an important place in the process of pre-service teachers gaining professional knowledge and skills. In the Teaching Practice course, pre-service teachers have the chance to make observations in a real classroom and school environment. In this process, a pre-service teacher can observe how teachers manage a classroom and how they convey the course content to the students, allowing them to obtain useful information about the situations they may encounter in the future (Selçuk, 2000). Future Social Studies teachers also have their first teaching experiences in the Teaching Practice course. These experiences are very important for them, because they give the pre-service teachers the opportunity to apply the professional and subject knowledge they have received during their undergraduate education in the school and classroom environment. Thus, they are able to prepare themselves before they start teaching, see the areas in which they need to improve and to begin to address these.

The experiences and developments of pre-service teachers in Teaching Practice should be examined continuously and regularly. This allows the theoretical knowledge of pre-service teachers and the Teaching Practice course to be updated and developed in a satisfactory and appropriate manner. For this reason, it is important to examine the experiences of pre-service teachers in Teaching Practice. Various issues need be taken into account in order for pre-service teachers to gain meaningful experiences. During this process, the biggest disadvantage is often that pre-service teachers do not fully know how schools function and that they are lacking experience. The attitude of teachers and school administrators towards pre-service teachers is thus very important at this stage.

However, for both personal and professional reasons, some teachers do not like the participation of pre-service teachers as observers in their classrooms during the teaching practice (Selçuk, 2000). Lee, Walker, and Bodycott (2000) observed that many pre-service teachers have negative beliefs about school management. In addition, when the related literature is analyzed, it is seen that pre-service teachers face many problems. In their study, Karamustafaoğlu and Akdeniz (2002) stated that pre-service teachers were not fully provided with opportunities by the practice schools and teachers to use laboratory and instructional technologies, prepare evaluation materials and develop simple tools and equipment. Can (2005) emphasized in his study that instructors did not carry out the weekly activities and evaluation meetings with pre-service teachers in a continuous and systematic manner. Aksu and Demirtaş (2006) concluded in their study that this course aims to provide pre-service teachers with skills such as planning and implementing learning activities, recognizing individual differences among students, and working efficiently and harmoniously with other teachers in the school. In their study, Çetintaş and Genç (2005) emphasized that instructors and mentor teachers who are aware of their roles and responsibilities and use their knowledge and skills in this direction should be in constant communication; they should identify the problems experienced by the pre-service teachers and seek solutions together. In the study conducted by Akpınar, Çolak, and Yiğit (2014), in which the opinions of pre-service social studies teachers about their competences were examined, it was revealed that pre-service teachers felt themselves to inadequate in many subjects in terms of course variables, and the reasons for this were inexperience, reluctance and the limited time they spent in the practice school. The results of the study conducted by Çepni, Aydın, and Şahin (2015) on the other hand,

showed that most of the pre-service teachers gained useful experiences when they started teaching, saw how they could benefit from the knowledge they acquired during their undergraduate education, and had the opportunity to observe the use of appropriate strategies, methods and techniques in the classroom during the teaching process. In the study conducted by Çetinkaya and Kılıç (2017), it was concluded that pre-service teachers' attitudes towards the Teaching Practice course were generally positive, but it was revealed that pre-service teachers experienced problems such as overcrowded classrooms, the rigid attitudes of the school administration, lack of equipment in schools and the need to start the practice education earlier. In the study conducted by Ülger (2021), it was concluded that the most commonly repeated problem during the Teaching Practice course was the inadequacy of the practice teacher. In addition, when the relevant literature is examined, it is seen that many problems related to Teaching Practice have been identified (Akkoç, 2003; Bağcıoğlu, 1997; Bektaş & Can, 2019; Çetintaş & Genç, 2005; Çevik & Alat, 2012; Dursun & Kuzu, 2008; Gökçe & Demirhan, 2005; Güven, 2004; Kiraz & Uyangör, 1999; Paker, 2000; Paker, 2008; Saka, 2019; Sarıçoban, 2008; Sarıtaş, 2007; Sılay & Gök, 2004; Yavuz, 2019).

The focus of these studies was primarily on the challenges encountered in the Teaching Practice Course. However, there was a notable lack of adequate investigation of the recommendations provided by pre-service teachers for resolving these issues. This situation continues in current studies on the subject, and no study has been found that directly examines the problems faced by Social Studies teacher candidates and the solutions for them. This study thus aimed to address this gap by identifying the difficulties faced by pre-service Social Studies teachers during the Teaching Practice course and exploring their proposed solutions. By doing so, it is anticipated that this research will play a crucial role in filling a void in the current body of knowledge, while also offering valuable insights to educators, mentors, school administrators, and students involved in the Teaching Practice course.

This study aimed to examine the problems faced by pre-service social studies teachers during their teaching practice and their thoughts about the solutions to these problems. In line with this main purpose, the study aimed to determine the pre-service teachers' expectations about the teaching practice course, their thoughts about the adequacy of the course, their expectations of and communication processes with the administration, teachers and students in the practice school, their experiences with the university faculty member who oversaw the process, their thoughts about the contribution of the teaching practice course to the teaching profession, the problems encountered during the process and the solutions to these problems. The research set out to answer the following questions:

1. What expectations do the Social Studies teacher candidates have of the Teaching Practice course?
2. What are the views of pre-service teachers about the stakeholders in the Teaching Practice course?
3. What problems do pre-service teachers encounter in the Teaching Practice course?
4. What suggestions do the pre-service teachers have for solving the problems encountered in the Teaching Practice course?

2. Method

2.1. Research Model

This study utilized a qualitative approach. Qualitative study is an umbrella concept that covers a wide variety of complex, controversial, and variable methods and practices (Yıldırım & Şimşek,

2013). The purpose of a study and the research questions are determining factors reflecting which research model can be employed. In this sense, the qualitative study method was chosen with regard to the questions to be answered and the problems to be considered within the study.

2.2. Study Group

This study utilized criterion sampling, one of the purposive sampling methods. The basic aim of the criterion sampling method is to study all situations that meet a predetermined criterion or set of criteria. These criteria can be created by the researcher or a previously prepared list of criteria can be used (Yıldırım & Şimşek, 2018). In this context, in the selection of the participants, the main criterion was that the pre-service teachers were fourth-year Social Studies Teaching students who had taken all the theoretical and practical courses that would form the basis of Social Studies teaching. In accordance with this basic criterion, interviews were conducted on a voluntary basis with 13 pre-service social studies teachers, seven male and six female, out of 90 senior students studying in the Social Studies Teacher Education Program in the 2021-2022 academic year.

2.3. Data Collection

In this study, a semi-structured interview form prepared by the researchers was used as the data collection tool. The interview form was prepared as a result of a comprehensive literature review. In the draft stage, 15 questions were included in the interview form, but the number of questions was reduced to 10 in line with expert opinion. After the number of questions was reduced, expert opinion was obtained again and some questions were reorganized semantically. At the end of the revisions, the experts recommended obtaining the opinions of two specialists in the Turkish and English languages to assess the grammar and meaning. At the end of these grammar and semantic controls, the final version of the form was presented to the experts and the data collection process started. The two experts whose opinions were initially consulted in this process are lecturers in the Department of Social Studies Teaching at Marmara University, while the two experts whose opinions were subsequently consulted for the linguistic validity are teachers in the Ministry of National Education. Within the scope of the form, the aim was to reveal the opinions of the prospective teachers about their expectations regarding the teaching practice, the adequacy of the course, the teachers, principal, and students in the practice school, the technical competences of the school, and the solutions to any problems they encountered. In line with the interview form questions, interviews were conducted with the pre-service teachers in February and May 2022. During the interviews, a voice recorder was used to collect the data. The necessary permission was obtained from each participant before using the voice recorder.

2.4. Data Analysis

The research employed the content analysis method to analyze the data gathered. The primary aim of the content analysis was to identify and understand concepts and relationships that could elucidate the collected data. While descriptive analysis provides a summary and interpretation of the data, content analysis delves deeper, enabling the discovery of concepts and themes that may have been overlooked through a purely descriptive approach. The fundamental process in content analysis involves grouping similar data based on specific concepts and themes, organizing them, and presenting an interpretation that is comprehensible to the reader.

In this study, the data analysis commenced with an examination of the transcribed data. In the initial stage, the researchers independently coded the data, considering the research questions. Coding was carried out based on the concepts derived from the data, and the codes obtained were subsequently grouped into meaningful categories. In the following stage, themes were derived by analyzing the codes that had been developed by the researchers. The codes were then organized

and defined in accordance with the resulting themes. The data obtained during this stage were presented without interpretation. Lastly, the findings were interpreted, and conclusions were drawn. The research objectives guided the tabulation and presentation of the findings. In presenting the findings, numerical data were utilized to represent codes and themes. However, quantification was not employed for generalizations or to explore relationships between variables. A process of digitization was undertaken to enhance reliability and reduce bias. Additionally, to augment the reliability and credibility of the research, direct quotations from participants' statements were occasionally included. In presenting the participants' direct views, the pre-service teachers were identified by the codes "P1, P2, P3...".

2.5. Ethics Committee Permission

In this study all the rules stated in the directive of the Scientific Research and Publication Ethics of Higher Education Institutions were followed. Permission to conduct this study was given by the decision of the Ethics Committee of the Institute of Educational Sciences of Marmara University, dated 19.12.2022 and numbered 10-13.

3. Findings

In this section, the findings related to the analysis of the data obtained from the interviews with the pre-service teachers are given with regard to the purpose of the research.

3.1. Pre-Service Social Studies Teachers' Expectations of the Teaching Practice Course

The findings regarding the expectations of pre-service Social Studies teachers of the Teaching Practice course are presented in Table 1.

Table 1. Participants' Expectations for the Teaching Practice Course

Categories	Codes
Professional Development	Preparing for the teaching profession and acquiring professional experience Aiming to avoid difficulties in their future professional lives Adapting to the role of a teacher
Classroom Management	Developing classroom management skills
Relationship with the Student	Enhancing relationships with students Establishing meaningful connections with students Alleviating the stress and role ambiguity experienced as students
Effective Learning	Receiving a well-rounded education encompassing both theoretical and practical aspects Engaging in practical, hands-on learning

The findings obtained as a result of coding and categorizing the data obtained from the interviews with pre-service teachers are shown in Table 1. Examining Table 1, it is seen that the theme of expectations of the Teaching Practice course consists of four categories. All of the participants stated that it should prepare them for the teaching profession and that they had this expectation. In addition, the majority of the participants stated that the Teaching Practice course should prepare them for the difficulties they may encounter during their professional life in the future. Some of the teachers who expected to practice also wished to gain classroom management skills. At the same time, some of the participants thought that they would be able to receive practical training in addition to the theoretical training they had received through the Teaching Practice course. On the other hand, half of the participants thought that they would be able to develop positive relationships with students in the Teaching Practice course. Finally, one participant expected to

adapt to teaching and one participant expected to relieved of the stress and role confusion of being a student.

Some of the opinions expressing the expectations of the pre-service teachers regarding Teaching Practice were as follows:

P3: *"Our expectations are that it fully prepares us for teaching. The Teaching Practice course should prepare us pre-service teachers for the profession. We need to gain experience in schools. I think this should be the aim of this course"*. Another participant, P5, stated: *"I think we should learn how to manage the classroom [and] how to solve a crisis that may occur during the lesson with the Teaching Practice. There are good students and bad students in the classroom environment. Therefore, I think every teacher should have effective classroom management"*. P8 stated the following: *"There can be major problems when you start your professional life with only theoretical education, because the real classroom environment can be completely different. In fact, in the Teaching Practice, we see the difficulties that we may experience when we start our profession in the future, and in this way, we can easily overcome these difficulties by being prepared to teach. Of course, this is my expectation, I hope that's true"*. P1 stated the following: *"We have the opportunity to practice in the Teaching Practice course. As we practice, our self-confidence increases. In short, I can list my expectations as practicing and increasing my self-confidence"*. The participants stated that in addition to the theoretical education they received during their undergraduate education, the Teaching Practice course should also offer practical training opportunities. P10 expressed her expectation in this context as follows: *"We actually get more theoretical education at the faculty. But of course, in school and in the classroom, things may not be like they are in the books. For this reason, Teaching Practice is actually a very good opportunity to put the knowledge we have learned into practice and for practical training. I think the Teaching Practice course should provide this"*. In general, we can say that the pre-service teachers had expectations about preparing for the profession and gaining professional experience, gaining classroom management skills, not having difficulties in their professional lives, practicing, receiving practical training and improving their relationships with students.

3.2. Relations with the Stakeholders in the Teaching Practice

The findings regarding the opinions of the pre-service Social Studies teachers about the stakeholders in the Teaching Practice course are given in Table 2.

Table 2. Analyses of the Stakeholders in Teaching Practice

Categories	Sub-Categories		Codes
School Administrations	**Caring about the Process**	**Positively**	Follow-up for mentor teachers to carry out the process sensitively Review of internship files Regular discussion with faculty members about the process
		Negatively	They didn't take it seriously They considered it as extra workload
	Consultation	**Positively**	School introduction and orientation Introduction of Ministry of National Education Information Systems (MEBBIS) and Education Information Network (EBA) systems used by teachers
		Negatively	More guidance is needed Information on relevant regulations should be provided Information about the procedure should be provided Information about teaching should be given
	Communication	**Positively**	Demonstrate respectful and instructive behaviour Introduce all teachers in the teachers' room
		Negatively	Not being well received Pre-service teachers should be taken seriously Should be more involved
Mentor Teachers	**Professional Development**	**Positively**	Tips for classroom management Suggestions for the use of textbooks Suggestions for resources other than textbooks Introduction of useful websites that can be used in the course
		Negatively	The application is seen as a formality Do not leave the student teacher alone in the lesson
	Consultation	**Positively**	Sharing experience Processing of student grades to E-School system Informing about the problems to be encountered in measurement and evaluation
		Negatively	Not following the process No feedback Indifference of the practice teacher Taking care of their own personal affairs
	Communication	**Positively**	Building relationships with students Demonstrating helpful, instructive and understanding behaviors to student teachers
		Negatively	Failure to establish any communication Humiliation in front of students

Table 2. (continued)

Categories	Sub-Categories		Codes
Faculty Members	**Monitoring the Process**	**Positively**	Regular weekly visits to the practice school Interview with mentor teacher for pre-service teachers Requesting weekly report from teacher candidates
		Negatively	Indifference of the faculty member Visiting the practice school only once or twice during the process Thinking the teaching practice to be extra work Cursory examination of the internship file
	Consultation	**Positively**	He's a stickler for the rules. He follows the process seriously The guiding role is very big Very open to communication Helpful and understanding
		Negatively	Caused unnecessary stress Feeling inexperienced as a result of constant repetition of familiar things
	Communication	**Positively**	Open to communication Comfortable to ask questions Non-stressful
		Negatively	Officious Overreaction to questions Hypersensitivity to asking for help
Students	**In-Course**	**Positively**	Asking detailed questions on the subject Satisfaction with the use of different teaching techniques during the lesson Showing extra interest and participation in the lesson when different techniques are used
		Negatively	Testing the candidate's knowledge with detailed off-topic questions Off-topic questions aimed at disrupting class order They had no expectations Comparison with own subject teachers
	Communication	**Positively**	Was respectful and balanced Wishing to include the prospective teacher in collective activities and game organisations (carpet field match, picnic, school trip, etc.)
		Negatively	Make you feel that you have only come for a temporary period of time They see us as trainees and temporary

When the opinions of pre-service teachers about the stakeholders of the Teaching Practice course were analyzed, the statements were grouped under four categories. These were school principals, mentor teachers, faculty members and students. A total of 11 different sub-categories were coded under these categories.

Three categories were determined for school administrators. Under the determined categories, the opinions of the pre-service teachers were categorized as positive and negative and were coded. Some of the participants' views on school administrators were as follows: "*We were not really welcomed properly"* (P9). "*In the first days, there was only one meeting to get acquainted and we did not see them afterwards"*(P2). "*They just said 'Hello' and passed by"* (P5). "*Good relations were not established"* (P3). "*We were not taken seriously"* (P10). Participants who stated that

their communication with school administrations was good expressed their opinions as follows: *"The principal welcomed me warmly, saw me as a teacher"*(P1). *"A good welcome and a good relationship was established*". Some of the views of some participants on this issue were as follows: *"I think school principals should give information about the procedure at the beginning of the internship"* (P10). "*We do not receive much information about the regulations during our undergraduate education. Actually, we should learn something about the regulations in the Teaching Practice course. I think school administrations can provide this"* (P2). "*When we go to school, we only see the school administrations on the first day. I think they should be more interested. They should guide and direct us when we go into the school*" (P3). "*After all, the school principal is also a teacher. I think they should care and share their experiences about teaching at every opportunity. We go there to receive education"* (P5). "*They should take us a little more seriously, I personally feel that I am not taken seriously"* (P9).

The opinions of the pre-service teachers about mentor teachers were categorized under three categories. The statements related to these categories were categorized as positive and negative and were coded. As can be seen from data presented in Table 2, the communication between the pre-service teachers and the mentor teacher was generally positive. The participants mostly stated that their communication with the teachers was good and that the teachers provided guidance, support and insight. A participant who thought that she had good communication with her mentor teacher and that the mentor teacher was helpful and guiding expressed this situation in the following sentences: "*We've got on well with our mentor teacher since the first day. We have been with the same teacher for two semesters. The first semester was observation. She taught us many tactics to use in our relations with the students. Then, she helped us benefit from her experience and shared it with us. She gave us a lot of ideas and she was very friendly. In other words, she helped us to adapt very easily and to establish relationships very easily. She tried to integrate us with the students in the classroom. And she made us act as if we were in our own school, in our own classroom. She was very helpful and guided us well"* (P5). Participant 1 stated *"The teacher is very good. She was very understanding and had empathy"* and said that her communication with the mentor teacher was good and that the mentor teacher had an insightful nature. On the other hand, there were also statements with negative opinions. One participant stated: "*I can explain our relations with teachers as follows. I changed my internship teacher. My relationship with my first internship teacher was not good at all. Even my other friends are uncomfortable with him now. He has no dialog with us. I mean, he doesn't try to establish any relationship with us, he doesn't talk to us. We just said 'hello' and sat at the back. He doesn't deign to talk to us. I had to change my internship teacher later, not because of me but because of my other friend. When she left her teacher, I had to move to the other side"* (P3).

In line with the research objectives, the attempt was made to reveal the opinions of pre-service teachers about their communication with their mentor lecturers at the university. Information on the analysis of the data obtained from the participants' views on this issue is shown in Table 2. Examining Table 2, it is seen that three categories were formed. When the opinions that were the source of the categories and codings are analyzed, we can say that most of the participants had good communication with their supervisor in the faculty. On the other hand, some participants thought that the supervisor did not have sufficient knowledge and skills. In addition, one participant thought that the faculty member created unnecessary stress and bored them too much. Another participant stated that their communication with their supervisors was discreet. Some of the participants' views related to this subject were as follows: *"She helps us enough. I think she really puts her best effort into the practice course for us to be a good teacher. She also strictly adheres to the rules. She wants us to do everything we need to do as pre-service teachers. We are already doing it. The communication between us and our teacher is very good"* (P2). Participant 7 said, "*I had little communication with my advisor. I can say that the teacher was very formal"*.

In general, most of the Social Studies pre-service teachers, thought that their communication with the faculty member in charge of the practice course was good. On the other hand, some of the participants did have problems in communication.

Within the scope of the study, another aim was to assess the participants' communication with the students in the practice school and determine what kind of reactions they received. The findings obtained as a result of the analyses of the data obtained during the interviews are presented in Table 2. Reviewing Table 2, the participants' opinions about the students are gathered in two categories. Generally, the participants characterized their communication with the students as good, respectful and balanced. However, there were also participants who thought that students saw them only as temporary interns. In addition, some of the participants stated that the students did not have any expectations about them. Some participants also stated that they had no communication with the students in the schools where they practiced. Other participants stated that students stayed away and that therefore there was little communication. Some of the participants' views on the subject were as follows: Participant 1: "*There was no problem in my communication with the students. It was very good. Personally, I maintain a good balance because it is useful to be balanced. I see the benefits of the education I received during my undergraduate education. Of course, I also observed the teacher in the lessons during the practice. I also saw the benefits of this. My communication was not a problem. I can say it was quite good"* (P1). Participant 3 expressed that she had a respectful and balanced communication with the students in the following sentences: "*My communication with students was respectful and balanced. In my opinion, respect and balance are essential for healthy communication with students. We should ensure that students are respectful towards us"* (P3). Some participants stated that students saw them only as interns and as being temporary. In this regard, Participant 7, Participant 5 and Participant 4 stated the following: "*Since the school we go to has had interns before, they don't see us as teachers. They look at us as fourth-year intern students, not as teachers but as students. Since they know what we are, they think we are just students. There is very little communication and only when it is necessary"* (P7). "*They know that you are a trainee and they know that you are only there for one lesson. They know that you will be nervous, that you may be a beginner...they are very confident and they can easily pick up on the weaknesses of the person in front of them and act accordingly"* (P4). *"Sometimes I see that they don't take it very seriously – you know, in the early days when they are still getting used to us. There are some people who say, 'Don't worry, he's only a student too'. There are also those who say, 'Oh, who cares?!' and so on. Girls, for example, try to behave very respectfully, but the first time there were some situations when they were arrogant and didn't like or belittled the teacher*" (P5).

3.3. Problems in the Teaching Practice Course

The findings related to the problems the pre-service Social Studies teachers had regarding the Teaching Practice Course are presented in Table 3.

Table 3. Problems Identified During the Teaching Practice Course

Categories	Codes
General Structure	Theoretically good but practically dysfunctional Should be carried out over a longer period of time The Teaching Practice course should be staged as classroom functioning and paperwork
Quality of the Practice Teacher	Inadequacy and monotony of the practice teacher Traditional teaching techniques are frequently used Outdated information in terms of subject knowledge Occupational fatigue and boredom
Learning	Lack of a study on mainstreaming and students with learning difficulties Lack of differentiated instruction Not using alternative teaching methods and techniques in teaching
Material	Active use of smartboards Diversity in terms of audio-visual materials Diversity in terms of laboratory equipment Materials are old and kept under lock and key
Classrooms/Laboratories	Computer labs with one computer for two to three students, but not for every student Stuffy classrooms Overcrowded classrooms
Environment	Good in terms of recognizing the school environment and classroom environment Security measures The small size of the school garden
Time	Lack of time
Coordination	Communication breakdown between the supervisor faculty member and the mentor teacher

When the opinions of the pre-service teachers about the Teaching Practice Course were analyzed, it was found that they expressed many problems related to the process. These opinions were gathered under the categories of general structure, quality of practice teacher, teaching processes, materials, classroom and laboratories, environment, time and coordination. Some of the views that are the source of the categories and codings presented in Table 3 were as follows: Participant 3 stated that she saw the practice as inadequate and attributed the reason for this inadequacy to the duration as follows: *"For me, it's not enough, because the duration is so short. Both the weekly practice time and only in the last year, i.e., for only one year, are not enough. I think it should be throughout undergraduate education. There should be more weekly practice time in the last year. For example, two hours a week in the first year, four hours a week in the second year, six hours a week in the third year and four days a week in the last year. I think the duration should be increased"* (P3). Participant 7 attributed the inadequacy of the practice to a communication breakdown between the supervisor and the mentor with the statements such as "*I think the problem is the communication breakdown between the supervisor and the mentor"* (P7). Participant 2, on the other hand, attributed this inadequacy to reasons such as the practice being seen as a formality and the lack of interest of the supervisor and the mentor teacher with the sentences such as "*I think the practice is just a formality, that's why both the supervisor and the mentor teacher are not interested in it"* (P2). Participant 4 stated that the practice was partially sufficient with the following statement: "*I think the practice is not completely adequate. But it also has its benefits. So, we can say it is partially adequate"* (P4). In general, most of the participants did not see the Teaching Practice as adequate and attributed this inadequacy to reasons such as the lack of time, the lack of interest of the supervisor and mentors, and the practice being seen as a formality.

Participant 2 said: "*In terms of materials, I think there are plenty, because even at our university it is difficult to find a projector and a computer in the classrooms, whereas in our practice school we go to, there is a projector and a computer in every classroom and there are materials"* (P2). Participant 6, who stated that the practice school was technically inadequate, used the following statements regarding this issue: "*We believe that they are places where people with better income levels and more educated people are concentrated. But the school showed us the opposite. Like what? For example, there is no overhead projector in the school. There are a few maps in the classroom, but they are already unusable. There was only one TV in the classroom and it was locked. They built a ramp in the shape of a cage, it was locked. We couldn't use it anyway. We wanted to use the maps, but they were dusty and unusable. My school was inadequate in terms of technical materials"* (P6).

3.4. Suggestions for Solving the Problems Encountered in the Teaching Practice Course

The findings related to the opinions of the pre-service Social Studies teachers on how to solve the problems experienced in the Teaching Practice Course are presented in Table 4.

Table 4. Participants' Thoughts on Solving Problems Encountered in Teaching Practice

Categories	Codes
Teaching Practice Course	Increase the duration of the practice period. Introduce student teachers as teachers. Encourage student teachers to show care and concern during the practice. Provide opportunities for students to receive evaluations. Ensure proper supervision of the practice teacher's performance. Enhance the technical equipment and resources available in schools. Enhance the quality of field education. Teaching Practice course should have two phases as technical subjects and course operation Some of the university courses should be taught practically from the 1st grade. For example, classroom management, material design, etc. The supervisor faculty member should follow the weekly visits in full The ECTS rate of the course should be increased The reporting process should be followed more seriously on a weekly basis. The lectures of the teacher candidates should be video-recorded and then evaluated together with the lecturer.
Stakeholders of the Teaching Practice Course	Improve communication with the practice teacher. Increase communication with the advisor. Foster communication between the practice teacher and supervisor. Informing mentor teachers about the content of the Teaching Practice course Pre-service teachers' evaluation of practice schools with a scoring at the end of the process. Not sending teacher candidates to schools that do not show the necessary care and sensitivity regarding the Teaching Practice Course Submission of the evaluations made by the teacher candidates and faculty members about the practice school and mentor teachers to the District National Education Directorates by the university. Universities should look for specific criteria in mentor teachers who will accept teacher candidates. Mentor teachers should receive in-service training from faculty members related to the Teaching Practice course at the beginning of each academic year.

When the problems expressed by the pre-service teachers regarding the Teaching Practice course and their views on the adequacy of the course were examined, the participants' views were grouped under two categories. Some of the views that were the source of the categorization and coding were as follows, and Participant 10 and Participant 1 listed their suggestions for solving the problems encountered in Teaching Practice thus: "*As I said, I think that a three- or four-hour practice one day a week in practice schools is not enough. I think that this practice should be done more. For example, for two days a week and these days should be limited to four to five hours, and that the lecturer at the university should be interested in the school where we go on internship and take care of us, tell us how we should behave, how we can engage and connect students to the lesson. I also think that the teacher at the school where we go on internship should share with us their thoughts about the students, such as what kind of behavior would really motivate them and make them participate in the lesson"* (P10). *"First of all, our teachers at the practice schools should understand and take care of the pre-service teachers, because we go there as pre-service teachers and we only have theoretical knowledge about practice. They need to help us put this knowledge into practice. Also, the relations between our teachers at the school and the lecturers at our university should not be broken, because what happens between them affects us, the pre-service teachers"* (P1).

4. Discussion and Conclusion

This research aimed to reveal the expectations of the pre-service teachers who took the Teaching Practice Course regarding its implementation, their opinions about the stakeholders in the process and the problems experienced during it, and their suggestions regarding the problems determined.

The findings revealed that pre-service teachers expected the practice to prepare them for the teaching profession and provide valuable practical experience. However, most participants felt that it fell short of fully meeting their expectations. Factors such as limited time and lack of attention from instructors and practice teachers were identified as reasons for this dissatisfaction. Additionally, the effective utilization of theoretical knowledge gained at the university level was deemed inadequate in the school environment. Lack of cooperation between the university faculty and the practice schools, as well as insufficient physical resources, posed significant challenges.

The results of this study align with previous research conducted by Gündoğdu, Bay, Coşkun, and Albez (2010), which also highlighted the inadequacy of cooperation between faculty and practice schools, leading to various problems. Furthermore, the study revealed a lack of effective utilization of in-class activities and materials during the Teaching Practice, which is consistent with the findings of Akpınar and the others (2014), who observed difficulties in selecting methods, subject knowledge, and communication among pre-service teachers.

In terms of communication, the study identified insufficient interaction between pre-service teachers and administrators/teachers at the practice schools, hindering the acquisition of crucial information related to the teaching profession. This limitation prevented pre-service teachers from gaining comprehensive experience in school management. These findings echo the study by Ülger (2021), who highlighted administration-related inadequacies as a recurring problem in the Teaching Practice Course.

Overall, the study shed light on the challenges faced by pre-service Social Studies teachers during the Teaching Practice, emphasizing the need for enhanced cooperation, improved resource allocation, and better communication to address these issues.

In this study, the majority of the pre-service teachers expressed positive opinions about the lecturers' support and guidance during the Teaching Practice. They acknowledged that the

lecturers at the university provided the necessary information and assistance regarding the practice. Similar findings were reported by Çepni and the others (2015), who found that pre-service teachers were satisfied with the Teaching Practice process and gained valuable experience. However, it was noted that the prospective teachers did not have a structured planning process for implementing the current curriculum. This indicated a limitation in their ability to plan and prepare lesson plans aligned with the curriculum.

The participants also highlighted difficulties in communication with the mentor teacher, school administration and teaching staff. They suggested that solving the challenges faced during the Teaching Practice should involve tripartite coordination among the university, pre-service teachers, and practice schools. It is important to establish an effective communication network between university lecturers, practice school teachers and administrators. Regular meetings and seminars can facilitate cooperation and address the problems faced by the candidates.

Furthermore, establishing collaboration between schools and faculties can allow pre-service teachers to observe administrative and socio-cultural activities in the school, as well as actively participate in related activities during their time in the practice schools. Adequate monitoring and periodic evaluation of candidates' teaching activities by lecturers will enhance the quality of the teaching practice. Addressing one of the concerns raised by pre-service teachers, it is suggested that theoretical courses at the university should include practical training sessions, going beyond mere information transfer.

Regarding the adequacy of the Teaching Practice in preparing pre-service teachers for the profession, the findings indicated that most participants did not consider it sufficient. Reasons cited for this inadequacy included time constraints, lack of communication between the supervisor in the faculty and the practice teacher, inadequate and monotonous practice teachers, viewing the practice as a formality, and insufficient interest from both the practice teacher and the faculty member. To address this issue and improve the quality of the Teaching Practice, suggestions from pre-service teachers included increasing the duration of the practice, improving education in the subject, enhancing communication between the practice teacher and faculty member, establishing communication between the practice teacher and the mentor, introducing pre-service teachers as teachers, fostering a caring attitude towards the practice, providing opportunities for student evaluation, ensuring supervision by the practice teacher, and enhancing the technical resources of schools.

In summary, the study concluded that pre-service teachers have high expectations for the Teaching Practice Course, hoping that it will effectively prepare them for the teaching profession. However, most participants expressed dissatisfaction with the adequacy of the practice. Recommendations derived from the study's findings are presented below. Based on the research, the following recommendations can be made to address the issues identified issues in the Teaching Practice for pre-service Social Studies teachers:

- ✓ Increase the duration of the Teaching Practice: Recognizing that the current duration of the practice is insufficient, it is recommended that the duration of the Teaching Practicum be extended. This will provide pre-service teachers with more time to gain valuable experience and better prepare for their future profession. Furthermore, this extension should be implemented not only at the senior undergraduate level but also in other years of study to enhance practical training opportunities.

- ✓ Improve communication among stakeholders: To address the lack of communication between stakeholders, measures should be taken to enhance communication channels. In-service seminars and workshops should be organized specifically for teaching staff, practice

teachers, and school administrators to promote effective collaboration and exchange of information. Increasing inspections and monitoring will ensure that communication is prioritized and maintained throughout the Teaching Practice process.

- ✓ Improve how pre-service teachers are perceived: It is important to address the issue of pre-service teachers not being taken seriously by students in practice schools. Practice teachers and school administrators should actively work towards creating an environment that recognizes and values the role of pre-service teachers. This can be achieved through training and support for mentor teachers, raising awareness among students about the significance of pre-service teachers, and potentially making legislative changes to reinforce the importance of pre-service teachers' roles during their practice.

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Ethics Committee Permission

In this study all the rules stated in the directive of the Scientific Research and Publication Ethics of Higher Education Institutions were followed. Permission to conduct this study was given by the decision of the Ethics Committee of the Institute of Educational Sciences of Marmara University, dated 19.12.2022 and numbered 10-13.

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Investigation of Science Teachers' Level of Anxiety about Out-of-School Learning*

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Abstract

The purpose of the current study is to determine science teachers' level of anxiety about out-of-school learning environments and to investigate whether this level of anxiety varies significantly depending on different variables. The study employed the survey model, one of the quantitative research methods. The study was conducted in the spring term of the 2021-2022 school year. A total of 153 (110 female and 43 male) science teachers participated in the study. The participation was on a volunteer basis and the data were collected via Google Form. As the data collection tool, the "Science Teachers' Level of Anxiety about Out-of-School Environments Evaluation Scale" was used. In the analysis of the collected data, a statistical program was used and the data were interpreted by looking at the results of independent samples t-test and one-way analysis of variance (ANOVA). In this way, the participating teachers' level of anxiety about out-of-school learning environments and the correlations between this level of anxiety and different variables were revealed. The mean score for the science teachers' general level of anxiety about out-of-school learning environments was found to be 77.22. The participants stated that out-of-school learning environments make them partially concerned. No significant correlation was found between the science teachers' level of anxiety about out-of-school learning environments and the gender variable. On the other hand, significant correlations were found between the science teachers' level of anxiety about out-of-school learning environment and the variables of having received training on out-of-school learning environments, administrative attitude, frequency of visiting out-of-school environments, using out-of-school environments in science education and being able to prepare a plan for out-of-school teaching.

Keywords: Anxiety, out-of-school learning environments, teacher

1. Introduction

Science and technology are developing very rapidly in the 21st century, leading to changes in the needs of individuals and societies and the skills expected from individuals. In the 2023 Education Vision, it is aimed to educate individuals who are equipped with the skills of the age and who are interested in science. The skills expected from the individual in the science curriculum are defined as producing knowledge and transferring it to daily life, problem solving, critical thinking, being decisive and entrepreneurial, having communication skills and empathy and contributing to society and culture. In this context, the role of teachers is not to

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directly transmit knowledge to students, but to guide them in becoming critical thinkers and innovative individuals (MEB, 2018).

Some problems may be encountered during the teaching carried out for the goals desired to be achieved in science education. These problems are categorized into four groups by Balbağ, Leblebiciler, Karaer, Sarıkahya and Erkan (2016): teacher-related, student-related, environmental and physical conditions-related and curriculum-related. Communication deficiencies, lack of professional self-efficacy and adopting a traditional approach as the teaching and assessment technique can be teacher-related problems, while lack of preparedness and motivation, the perception that science lessons are difficult due to the requirement of certain mathematical skills and negative student behaviours in laboratory and other learning environments can be student-related problems. Although science subjects are intertwined with our daily lives, science lesson is seen as a difficult lesson thus less liked by students. It is very difficult to achieve goals such as arousing interest for the science lesson in students, accomplishing the objectives set in science curriculum and making their knowledge meaningful and permanent only through activities conducted in the classroom environment (Çiçek & Saraç, 2017). In fact, the formal education carried out in the school remains far away from the real dynamics and natural flow of life (Ramey-Gassert, 1997). Supporting science lessons, which are highly related to daily life, with out-of-school learning environments is important for students to develop in a versatile way and to acquire the skills of the age.

Out-of-school learning refers to the conduct of formal learning activities in informal environments. Out-of-school learning refers to the learning experiences that take place outside the school building, utilizing various locations and institutions, in a planned and adaptable manner throughout the academic year, and that are supportive of formal education. Museums and archaeological sites, national parks, zoos, botanical gardens, aquariums, science centres, industrial establishments, industrial facilities and school gardens are typical examples of learning environments suitable for out-of-school learning (Laçin Şimşek, 2020). Out-of-school learning, which contributes to the formal education carried out at school as a supplement and enrichment, is not independent from the school because its content is grounded on the curriculum. Out-of-school education, like in-class education, is conducted within a specific methodological framework (Şen 2019). In this regard, within the scope of the "2023 Education Vision" of the Ministry of National Education, a guidebook for out-of-school learning environments has been prepared to enable teachers and students in public and private pre-school, elementary and secondary education institutions affiliated to the Ministry of National Education to become more familiar with learning environments such as museums, science centres, art centres, historical and cultural sites, libraries, natural conservation areas and archaeological sites, techno-parks, open industrial establishments and universities. The aim is to contribute to students' learning by experiencing and applying the objectives set in the curriculum (MEB, 2019).

Since out-of-school learning also includes elements that can foster personal interest, it can increase intrinsic motivation in students (Eshach, 2007). However, until now, activities and visits conducted outside the school have not been perceived as learning opportunities; they have been regarded as activities where students would have fun, spend time with friends and explore new places. In our country's education system, activities such as end-of-year trips, picnics, museum visits and zoo visits have been primarily considered as opportunities for students to spend time with their friends, have fun and explore new places. In recent approaches, it is believed that these diverse and rich venues should be integrated with lessons and their potential should be utilized. It is expected that the conducted trips and visits are organized according to predetermined learning objectives and the achievement of these objectives is evaluated (Laçin Şimşek, 2020). Out-of-school learning activities are a process that needs to be skilfully

prepared, considering the pre-activity, during-activity and post-activity stages. Out-of-school learning environments play a crucial role in facilitating experiential learning, allowing for the firsthand experience of educational materials that are difficult to bring into the classroom (Şen, 2022).

It is noted that out-of-school learning activities, which have many positive contributions to science lessons, can be used to relate the lessons to daily life, make the lessons enjoyable and ensure permanent learning (Batman, 2020; Bozdoğan & Kavcı, 2016). In these learning environments outside the school setting, where individuals personally learn by being curious, researching, seeing, observing, and experimenting, the retention of knowledge increases (Sontay, Tutar & Karamustafaoğlu, 2016). Studies have shown that students find acquiring knowledge in out-of-school environments more enjoyable and engaging. It has also been found that the knowledge gained in these environments is more enduring, and the utilization of such environments helps students acquire higher-order learning skills (Avan, Gülgün, Yılmaz & Doğanay, 2019; Erten & Taşçi, 2016; Genç, Albayrak & Söğüt, 2019; Kılıç & Şen, 2014). Furthermore, the findings obtained from the literature indicate that out-of-school learning environments play a significant role in students' academic achievements (Randler, Kummer & Wilhelm, 2012), interests-curiosities (Behrendt & Franklin, 2014), attitudes (Yıldırım, 2018), motivations (Ramey-Gassert & Walberg, 1994), research skills (Katz et al., 2011), communication-social skills (Sözer & Oral, 2016), scientific process skills (Bodur, 2015), learning outcomes (Bozdoğan, Okur & Kasap, 2015) and fostering positive attitudes towards science (Kelly, 2000). Out-of-school learning environments are crucial in increasing students' excitement towards learning science and facilitating the understanding of abstract science topics by relating them to everyday life (Carrier, 2009; Çiçek & Saraç, 2017; Laçin Şimşek, 2020).

Teachers play a crucial role in the successful implementation of out-of-school learning activities. Kete and Horasan (2013) have reported that teachers play a key role in utilizing out-of-school learning environments to support the instructional process. It is crucial for teachers to demonstrate willingness, responsibility and sensitivity during the process of organizing out-of-school learning environments in order to create a successful learning environment (Bozdoğan, 2016). Therefore, revealing the thoughts of teachers, who are the implementers and essential components of the education system, regarding out-of-school learning environments will provide a foundation for activities that can support the use of these environments. According to the study conducted by Siegel (2007), teachers support out-of-school education and recommend its continuity. However, it is known from the literature that teachers tend to avoid using out-of-school learning environments (Kubat, 2017; Moseley, Reinke & Bookout, 2002; Pekin and Bozdoğan, 2021). In a study conducted by Sarışan Tungaç (2015) on science teachers, it was revealed that although teachers find out-of-school learning environments beneficial, they generally face obstacles and difficulties that prevent them from implementing these environments.

The number of studies investigating teachers' perspectives on out-of-school learning environments has significantly increased in recent years. In the literature, studies have been conducted on various aspects related to out-of-school learning environments, including teachers' and pre-service teachers' perspectives (Sarıoğlan & Küçüközer, 2017; Tatar & Bağrıyanık, 2012), self-efficacy beliefs (Fırat Durdukoca, 2023; Sarışan Tungaç, 2015), attitudes (Çığrık & Özkan, 2016; Özyıldırım & Durmaz, 2022), experiences (Çiçek & Saraç, 2017; Mertoğlu, 2019), students' views on this subject (Bakioğlu & Karamustafaoğlu, 2020; Sontay & Tutar, 2016), students' motivation related to this topic (Demirel & Özcan, 2020) and in-service training programs on out-of-school learning environments (Dönel Akgül & Arabacı, 2020). In addition, scales related to teachers' anxiety levels regarding the use of out-of-school learning environments have been developed (Arık & Bozdoğan, 2022; Üner, 2019). However,

studies specifically investigating the concerns of science teachers regarding out-of-school learning environments are limited (Arık & Bozdoğan, 2022). No studies have been found that specifically examine the concerns of science teachers regarding various variables related to the subject. In this context, this study aims to contribute to the literature by examining the general concerns of science teachers regarding out-of-school learning environments, their level of anxiety related to these environments and the variables that influence their level of anxiety. The purpose of the study is to determine science teachers' level of anxiety about out-of-school learning environments and to examine whether this level of anxiety varies significantly in relation to different variables:

- ✓ What are the descriptive statistics calculated for the variables related to the science teachers examined within the context of the study?
- ✓ What is the science teachers' level of anxiety about out-of-school learning environments?
- ✓ Does the science teachers' level of anxiety about out-of-school learning environments vary significantly depending on the variables of gender, having in-service training about out-of-school learning environments, administrative attitude, frequency of visiting out-of-school learning environments, using out-of-school environments in science education and preparing a plan for out-of-school learning?

2. Method

2.1. Research Model

The current study employed the survey model, one of the quantitative research methods. According to Karasar (2005), survey studies are studies conducted to describe a situation that exists at a certain time as it is.

2.2. Study Group

The study group consists of 153 (110 female, 43 male) science teachers working in middle schools affiliated to the Ministry of National Education in Denizli. While selecting the participants, the convenience sampling method, which is a non-random sampling method, was used.

2.3. Data Collection Tool

In the current study, a personal information form was used to elicit some demographic features of the science teachers and the "Science Teachers' Level of Anxiety about Out-of-School Learning Environments Scale" developed by Üner (2019) was used to determine the science teachers' concerns about out-of-school learning environments. In the personal information form, there are questions to elicit information about the participants' gender, having training about out-of-school learning environments, administrative attitude towards out-of-school teaching, frequency of visiting out-of-school learning environments, using out-of-school learning environments for science education and preparing a lesson plain for out-of-school learning. The scale developed by Üner (2019) consists of 25 items. The scale is a five-point Likert scale with the response options of "They do not make me anxious at all", "They do not make me anxious", "They make me partially anxious", "They make me anxious" and "They make me very anxious". The Cronbach Alpha reliability coefficient of the scale was found to be 0.94. The scale is a one factor scale and the highest score to be taken from the scale is 125. The score intervals for the level of anxiety in the scale are as follows as determined by Üner (2019):

Table 1. Score Intervals for the Level of Concern in the Scale

Item Score	Scale Total Score	Level of Concern
1.00 – 1.80	25-45	They do not make me anxious at all
1.81 – 2.60	45.01-65	They do not make me anxious
2.61 – 3.40	65.01-85	They make me partially anxious
3.41 – 4.20	85.01-105	They make me anxious
4.21 – 5.00	105.01-125	They make me very anxious

2.4. Data Collection Process

Science teachers working in schools located in the city of Denizli and its districts in the spring term of the 2021-2022 school year were tried to be reached. First school principals were contacted and then the telephone numbers of the science teachers were taken and the questionnaire was sent to the science teachers via Google Form. The data were collected by the researchers between May 1st and May 15th via Google form in a digital environment.

2.5. Data Analysis

A statistical program package was used in the analysis of the data. On the basis of the collected data, it was determined whether the science teachers' mean anxiety score varies significantly depending on gender, having training on out-of-school learning environments, administrative attitude, using out-of-school environments in science education and preparing a plan for out-of-school learning by conducting an independent samples t-test and one-way variance of analysis (ANOVA) was conducted to determine whether their mean anxiety score varies significantly depending on the frequency of visiting out-of-school environments.

Before looking at the t-test and ANOVA results from statistical analyses, it was tested whether the variances of the groups were equal. Levene's Test value was used to decide whether the variances of the distributions of the measurements in both groups were equal. Group variances are homogeneous when the p (significance) value of Levene's test is greater than .05 (Durmuş, Yurtkoru & Çinko, 2018).

First, Kolmogorov-Smirnov normality test was performed in order to test the assumption that the measurements of the dependent variable show a normal distribution in both groups. When the results of the Kolmogorov-Smirnov test are examined, it is seen that the data are normally distributed for the variable of "gender" (for males p= .200 and p> .05, for females p= .200 and p> .05) and that the variances are homogenous (p=.787 and p> .05), that the data are normally distributed for the variable of "having training on out-of-school learning environments" (for yes p= .200 and p> .05, for no p= .200 and p> .05) and that the variances are homogenous (p=.901 and p>.05), that the data are normally distributed for the variable of "administrative attitude" (for positive p= .200 and p> .05, for negative p= .200 and p> .05) and that the variances are homogenous (p=.658 and p> .05), that the data are normally distributed for the variable of "frequency of visiting out-of-school learning environments" (for never p= .200 and p> .05, for rarely p= .200 and p> .05, for frequently p= .200 and p> .05) and that the variances are homogenous (p= .470 and p> .05), that the data are normally distributed for the variable of "using the out-of-school learning environments for science teaching" (for yes p= .200 and p> .05, for no p= .200 and p> .05) and that the variances are homogenous (p=.783 and p> .05), the data are normally distributed for the variable of "planning a lesson plan for out-of-school learning environments" (for yes p= .200 and p> .05, for no p= .200 and p> .05) and that the variances are homogenous (p= .465 and p> .05).

For this reason, the t-test was used to investigate the effects of gender, having training on out-of-school learning environments, administrative attitude, using out-of-school environments in science education and preparing a plan for out-of-school teaching on the science teachers' level of anxiety about out-of-school learning environments. ANOVA was used to test the effect of frequency of using out-of-school environments in science teaching.

2.6. Reliability

In the reliability analysis of the "Science Teachers' Level of Anxiety about Out-of-School Learning Environments Scale", Cronbach Alpha internal consistency coefficient was checked. In the current study, Cronbach Alpha internal consistency was found to be .924.

2.7. Ethics Committee Approval

Ethics committee approval of the study was obtained with the decision of Pamukkale University Social and Human Sciences Scientific Research and Publication Ethics Committee dated 15/06/2022 and numbered E-93803232-622.02-221115.

3.Findings

The findings obtained in the study are given below in line with the sub-problems of the study.

3.1. Descriptive Statistics Obtained for the Science Teachers in relation to the Variables Examined in the Current Study

The descriptive information about the science teachers participating in the study in relation to the variables examined in the study is given in Table 1:

Table 1. Descriptive Statistics Obtained for the Science Teachers in relation to the Variables Examined in the Current Study

Variables	Categories	F	%
Gender	Female	110	71.9
	Male	43	28.1
Having Training on Out-of-School Learning Environments	Yes	63	41.2
	No	90	58.8
Administrative Attitude towards Out-of-School Teaching	Positive	124	81
	Negative	29	19
Frequency of Visiting Out-of-School Learning Environments	Never	30	19.6
	Rarely	99	64.7
	Frequently	24	15.7
Using Out-of-School Learning Environments in Science Education	Yes	113	73.9
	No	40	26.1
Preparing a Lesson Plan for Out-of-School Learning	Yes	71	46.4
	No	82	53.6

When the data are examined, it is seen that more than half of the teachers (58.8%) did not receive training on out-of-school learning environments. The percentage of teachers who frequently visit out-of-school learning environments is quite low (15.7%). It is observed that the majority of the teachers do not encounter negative administrative attitudes towards out-of-school learning (81%). Furthermore, it is seen that most of the participating teachers use out-of-school learning environments for science education (73.9%). More than half of the teachers stated that they are unable to prepare lesson plans for out-of-school learning (53.6%). In

addition, the majority of the science teachers participating in the study are female teachers (71.9%).

3.2. Science Teachers' Level of Anxiety about Out-of-School Learning Environments

It was determined that the mean anxiety score of the science teachers regarding out-of-school learning environments is 77.22 and their item mean score is 3.09. Accordingly, the participants stated that out-of-school learning environments partially worried them.

3.3. Investigation of Whether the Science Teachers' Level of Anxiety Varies Depending on Different Variables

Below are given the results of the analyses conducted to determine whether the science teachers' level of anxiety about out-of-school learning environments varies significantly depending on the variables of gender, having training on out-of-school learning environments, administrative attitude, frequency of visiting out-of-school environments, using out-of-school environments in science education and preparing a lesson plan for out-of-school learning.

3.3.1. Investigation of Whether the Science Teachers' Level of Anxiety Varies Significantly Depending on Gender

The findings obtained from the analysis of whether the science teachers' level of anxiety about out-of-school learning environments varies significantly depending on gender are given in Table 2.

Table 2. Results of the t-Test Conducted to Determine Whether the Science Teachers' Level of Anxiety about Out-of-School Learning Environments Varies Significantly Depending on Gender

Gender	N	$\bar{X}$	Ss	T	Sd	P
Female	110	78.33	14.08	1.58	151	.115
Male	43	74.37	13.25			

As seen in Table 2, the science teachers' level of anxiety about out-of-school learning environments does not vary significantly depending on gender ($t=1.58$, $p>.05$).

3.3.2. Investigation of Whether the Science Teachers' Level of Anxiety Varies Significantly Depending on Having Training on Out-of-School Learning Environment

The findings obtained from the analysis of whether the science teachers' level of anxiety on out-of-school learning environments varies significantly depending on having training on out-of-school learning environments are given in Table 3:

Table 3. Results of the t-Test Conducted to Determine Whether the Science Teachers' Level of Anxiety on Out-of-School Learning Environments Varies Significantly Depending on Having Training on Out-of-School Learning Environments

Having Training on Out-of-School Learning Environments	N	X̄	Ss	T	Sd	P
Yes	63	74.35	14.18	-2.155	151	.033
No	90	79.22	13.47			

As seen in Table 3, the science teachers' level of anxiety on out-of-school learning environments varies significantly depending on having training on out-of-school learning environments (t =-2.155, p<.05). The mean anxiety score of the teachers having training on out-of-school learning environments ($\bar{X}$= 79.22) is higher than that of the teachers not having taken training on out-of-school learning environments ($\bar{X}$ = 74.35).

3.3.3. Investigation of Whether the Science Teachers' Level of Anxiety Varies Significantly Depending on Administrative Attitude

The findings obtained from the analysis of whether the science teachers' level of anxiety on out-of-school learning environments varies significantly depending on administrative attitude are given in Table 4:

Table 4. Results of the t-Test Conducted to Determine Whether the Science Teachers' Level of Anxiety on Out-of-School Learning Environments Varies Significantly Depending on Administrative Attitude

Administrative Attitude towards Out-of-School Learning Environments	N	X̄	Ss	T	Sd	P
Positive	124	75.53	13.48	-3.183	151	.002
Negative	29	84.41	13.74			

As seen in Table 4, the science teachers' level of anxiety on out-of-school learning environments varies significantly depending on administrative attitude towards out-of-school learning environments (t=-3.183 p<.05). The mean anxiety score of the teachers having administrators with a positive attitude towards out-of-school learning environments ($\bar{X}$= 84.41) is higher than that of the teachers having administrators with a positive attitude ($\bar{X}$ = 75.53).

3.3.4. Investigation of Whether the Science Teachers' Level of Anxiety Varies Significantly Depending on Frequency of Visiting Out-of-School Learning Environments

The findings obtained from the analysis of whether the science teachers' level of anxiety on out-of-school learning environments varies significantly depending on frequency of visiting out-of-school learning environments are given in Table 5:

Table 5. Results of the ANOVA Conducted to Determine Whether the Science Teachers' Level of Anxiety on Out-of-School Learning Environments Varies Significantly Depending on Frequency of Visiting Out-of-School Learning Environments

Source of the Variance	Sum of Squares	Degree of Freedom	Mean Square	F	P	Significance
Between-Groups	3048.346	2	1524.173	8.648	.000	Never-frequently
Within-Groups	26437.536	150	176.250			Never-rarely
Total	29485.882	152				

As seen in Table 5, the science teachers' level of anxiety on out-of-school learning environments varies significantly depending on frequency of visiting out-of-school learning environments ($F(2.150) = 8.65$, $p<.05$). Scheffe test was conducted to find the source of the difference. The mean anxiety scores of the teachers frequently visiting out-of-school learning environments ($\bar{X}= 71.96$) and the teachers rarely visiting ($\bar{X}= 75.89$) are lower than that of the teachers never visiting ($\bar{X}= 85.80$). The calculated eta-square value is 3048.346/ 29485.882= 0.10. Accordingly, approximately 10% of the variance observed in the teachers' level of anxiety depends on the "frequency of visiting out-of-school learning environments".

3.3.5. Investigation of Whether the Science Teachers' Level of Anxiety Varies Significantly Depending on Using Out-of-School Learning Environments for Science Education

The findings obtained from the analysis of whether the science teachers' level of anxiety on out-of-school learning environments varies significantly depending on using out-of-school learning environments are given in Table 6:

Table 6. Results of the t-Test Conducted to Determine Whether the Science Teachers' Level of Anxiety on Out-of-School Learning Environments Varies Significantly Depending on Using Out-of-School Learning Environments

Using Out-of-School Environments for Science Education	N	$\bar{X}$	ss	T	Sd	P
Yes	113	75.78	13.89	-2.171	151	.031
No	40	81.28	13.39			

As seen in Table 6, the science teachers' level of anxiety on out-of-school learning environments varies significantly depending on using out-of-school learning environments for science education ($t =-2.171$ $p<.05$). The mean anxiety score of the teachers not using out-of-school learning environments for science education ($\bar{X}= 81.28$) is higher than that of the teachers using out-of-school learning environments for science education ($\bar{X} = 75.78$).

3.3.6. Investigation of Whether the Science Teachers' Level of Anxiety Varies Significantly Depending on Preparing a Lesson Plan for Out-of-School Learning

The findings obtained from the analysis of whether the science teachers' level of anxiety on out-of-school learning environments varies significantly depending on preparing a lesson plan for out-of-school learning are given in Table 7:

Table 7. Results of the t-Test Conducted to Determine Whether the Science Teachers' Level of Anxiety on Out-of-School Learning Environments Varies Significantly Depending on Preparing a Lesson Plan for Out-of-School Learning

Preparing a Lesson Plan for Out-of-School Learning	N	X̄	Ss	T	Sd	P
Yes	71	73.37	13.23	-3.282	151	.001
No	82	80.55	13.73			

As seen in Table 7, the science teachers' level of anxiety on out-of-school learning environments varies significantly depending on preparing a lesson plan for out-of-school learning (t=-3,282 p<.05). The mean anxiety score of the teachers who cannot prepare a lesson plan for out-of-school learning (X̄= 80.55) is higher than that of the teachers who can prepare a lesson plan (X̄ = 73.37).

4. Discussion, Results and Suggestions

In the study, the science teachers were found to be partially concerned about out-of-school learning environments. This result is parallel to the studies by Üner (2019) and Şahin (2022). Ince and Akcanca (2021) examined parental views on the use of out-of-school learning environments in early childhood education. In their study, parents stated that the risks and hazards combined with discipline and control difficulties are disadvantages of utilizing out-of-school environments. Kisiel (2005) examined the motivations of primary school teachers towards out-of-school learning environments. The study reported that teachers' concerns regarding students taking on responsibilities and maintaining discipline in these environments were significant factors that led to the avoidance of such practices. Tatar and Bağrıyanık (2012) also stated that teachers are concerned about the use of out-of-school learning environments for the safety of students. Bozdoğan (2012) evaluated out-of-school learning practices with pre-service teachers and showed that one-third of the pre-service teachers may be worried for safety reasons. Another study revealing that teachers are concerned about safety is the one conducted by Sarışan Tungaç (2015) in which science teachers' opinions about out-of-school learning environments were obtained. It is difficult for the teacher to control the teaching carried out in out-of-school learning environments, and for this reason, it may cause the concern that the teaching will not be effective for students' acquiring the intended content (Sarıoğlan & Küçüközer, 2017). Teachers have been found to be concerned about certain negative factors related to students, such as lack of interest, presence of hard-to-control students, lack of motivation and students' viewing the environment as purely the source of entertainment. Additionally, factors such as large number of students and insufficient attention from other stakeholders also caused anxiety among teachers (Dönel Akgül & Arabacı, 2020; Ocak & Korkmaz, 2018; Özgan & Aydın, 2010).

In the current study, it was found that the science teachers' mean anxiety score does not vary significantly depending on the variable of gender. Şahin (2022) conducted a study on pre-service primary teachers and revealed that gender had an effect on the level of anxiety. It was concluded that the female pre-service teachers' level of anxiety is significantly higher than that of the male pre-service teachers.

Another result of the current study is that receiving training on out-of-school learning environments reduces the level of anxiety towards these environments. In the literature, it was determined that teachers expressed their concerns about having insufficient knowledge and lack of self-efficacy about trips to out-of-school environments, and that they thought that they were

not sufficient in guiding students on these trips (Bozdoğan, 2012; Griffin & Symington, 1997; Kisiel, 2005; Orion & Hofstein, 1994; Thomas, 2010). Şahin (2022) also examined the effect of the variable of taking training on out-of-school learning and concluded that the pre-service teachers who did not take training were more concerned than the pre-service teachers who took the training. The result obtained by Şahin (2022) supports the result of the current study. Individuals tend to avoid unfamiliar practices, and when they do engage in such practices, they may develop negative emotions due to their perceived inadequacy. Well-planned training is needed to support the use of necessary applications in education. Moseley et al. (2002) stated that the self-efficacy of pre-service teachers who participated in the three-day environmental education program was high before and after the program, but decreased after a certain period of time. Updating the training on out-of-school learning environments over time will support the preference of such environments in teaching.

In the current study, it was concluded that the science teachers' level of anxiety about out-of-school learning environments is correlated with their ability to prepare lesson plans for these environments. It was observed that the level of anxiety of the teachers who stated that they could prepare a lesson plan is lower for these environments. Kablan (2012) emphasized the significant impact of the mediating variable role of lesson planning skills on the implementation of lesson plans. The study concluded that there is a strong correlation between the process of lesson planning about cognitive skills and the implementation of the prepared lesson plan. Being able to plan for a subject to be taught enhances teachers' implementation skills by strengthening their abilities to effectively manage time and have command over the subject matter, the learning environment and the students. This, in turn, reduces feelings of anxiety. These results show the importance of training programs that can be organized about out-of-school learning environments.

As a result of the current study, it was seen that the attitude of the school administration towards organizing trips to out-of-school environments affects the science teachers' level of anxiety. It was concluded that the mean anxiety score of the teachers whose administrators have a negative attitude towards organizing trips to out-of-school learning environments is higher than that of the teachers whose administrators have a positive attitude towards out-of-school environments. In their study, Tatar and Bağrıyanık (2012) stated that teachers faced difficulties arising from the administrative attitude towards the use of out-of-school learning environments. School administrators think that the use of out-of-school learning environments poses financial constraints, creating conflicts between the administrator, teacher and parents (Aydemir & Toker Gökçe, 2016). The negative attitude of administrators towards the use of out-of-school learning environments increases teachers' concerns and reduces their motivation to utilize these learning environments.

In the current study, it was observed that one of the other variables affecting the teachers' level of anxiety is the frequency of visiting out-of-school learning environments. It was concluded that the teachers who never visit these environments have higher level of anxiety about out-of-school learning environments than the teachers who visit these environments frequently and rarely. Gürsoy (2018) emphasizes the importance of teachers visiting out-of-school learning environments, stating that these environments should be assessed and necessary precautions should be taken in order to prevent potential negative outcomes before the visit.

The current study finally concludes that the teachers who utilize out-of-school learning environments in science education exhibit lower level of anxiety about these environments compared to the teachers who do not utilize out-of-school learning environments in science education. Büyükkaynak, Ok and Aslan (2016) emphasized that out-of-school learning environments have positive effects on students; however, they highlighted that science teachers

do not use these environments extensively during the school year. The study conducted by Sarıoğlan and Küçüközer (2017) supports the findings of the current study by stating that pre-service teachers are able to overcome their existing concerns through the experiences they have in out-of-school learning environments. Experiences allow for the formation of clarity in the mind, providing individuals with the opportunity to take precautions against certain difficulties and disadvantages. This, in turn, reduces teachers' concerns about out-of-school environments and encourages them to use these environments more frequently.

In light of the findings of the current study, the following suggestions can be made:

- ✓ Science teachers can be provided with examples of project, seminar and workshop activities that are related to out-of-school learning, as well as examples of activities that can be conducted in out-of-school learning environments.
- ✓ By analyzing the responses given by science teachers to specific items on the scale, qualitative research can be conducted to investigate the underlying reasons for their concerns expressed in these items.
- ✓ Parent-teacher-school administration cooperation can be established in order to address the items in the scale which the science teachers found concerning.
- ✓ Science teachers' concerns can be examined by using different anxiety scales.

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Ethics Committee Approval

Ethics committee approval of the study was obtained with the decision of Pamukkale University Social and Human Sciences Scientific Research and Publication Ethics Committee dated 15/06/2022 and numbered E-93803232-622.02-221115.