

Article

Opinions of Preschool Teachers and Pre-Service Teachers on Environmental Education and Environmental Awareness for Sustainable Development in the Preschool Period

Bengü Türkoğlu 

Department of Preschool Education, Ahmet Keleşoğlu Faculty of Education, Necmettin Erbakan University, 42090 Konya, Turkey; turkoglubengu@gmail.com; Tel.: +90-332-323-8220 (ext. 5631)

Received: 17 August 2019; Accepted: 5 September 2019; Published: 9 September 2019



Abstract: This research is a qualitative study to determine the opinions of preschool teachers and pre-service teachers on environmental education and environmental awareness for sustainable development. The phenomenology approach, which focuses on individuals' own experiences and the meaning of a phenomenon, was used in this direction. The study group of the research consisted of 68 preschool teachers and 72 pre-service preschool teachers. In the study, a semi-structured interview form consisting of open-ended questions was used as a data collection tool. The content analysis technique was used in the analysis of the data obtained from the interview form. According to the research results, it can be said that pre-service teachers have more theoretical knowledge than teachers and teachers have more practical knowledge than pre-service teachers. This can be explained by the fact that the knowledge that pre-service teachers obtain at university is quite new, they spend more limited time with children within the scope of applied courses, teachers communicate much more with children every day and they are more distant from theoretical knowledge. Furthermore, it can be said that teachers and pre-service teachers are sensitive towards environmental problems, interested in environmental education, willing and open to development.

Keywords: sustainable development; environmental education; environmental awareness; preschool teacher; pre-service teacher

1. Introduction

The concept of sustainability is one of the frequently used concepts nowadays. Although the word “sustainability”, which comes from the Latin word “Sustinere” in its origins, is used in many meanings in dictionaries, it is basically used with the meaning of maintaining, providing, sustaining, supporting and existing [1]. The concept of sustainability is defined as a participatory process that ensures the prudent use of social, cultural, scientific, natural and human resources of the society and that creates a social point of view on the basis of respecting this [2]. In its simplest terms, sustainability is to protect natural resources and make the most effective use of them [3]. The term “sustainable development”, which was first used in the mid-1970s, is defined as “the development that meets the needs of the present without compromising the ability of future generations to meet their own needs” in the report prepared by the Brundtland Commission. The main purpose of the Brundtland Commission, also known as the World Commission on Environmental and Development (WCED), was to help guide the world nations towards sustainable development goals [4]. Sustainable development consists of three components. These are the environment, society and economy. These three areas are intertwined and cannot be considered separately. Environmental responsibility is the ability to use natural resources without disturbing the balance and integrity of ecosystems. Environmental responsibility requires

trying to protect the environment, reduce environmental pollution and other negative effects on the environment, mitigate the effects of industrialization and human activities and ensure the sustainable use of resources. Social solidarity refers to equal opportunity and social cohesion that include the development of welfare, quality of life and sustainable human development for humans. Social solidarity aims to develop the education, health, housing and welfare of individuals and communities. Economic efficiency refers to the effectiveness of economic and technological activities, encouraging investment and productivity, economic growth and economic output potential. It seeks ways to eliminate income poverty with economic efficiency [4].

Education may contribute to a new sustainable global development vision [5]; in other words, high-quality education makes up the basis of sustainable development. As is explained in the Sustainable Development Goals (SDGs), individuals should be sustainability change-makers to create a more sustainable world [6,7]. Children are a common factor for all aspects of sustainable development. Therefore, in order to have a positive impact on the future, children must acquire the necessary skills from an early age. Sustainable development, which aims solely to support “the child in its entirety” can ensure real development progress by simultaneously promoting and protecting children’s emotional, social, physical and cognitive development and their basic life needs [8]. Children have the right to develop fully their potentials and live in a sustainable world [9]. To this end, children should have the knowledge, skills, values and attitudes that will enable them to contribute to sustainable development. Therefore, education is very important for achieving sustainable development. Sustainable development and education policies are becoming more and more compatible [6,10]. Nevertheless, not all kind of education supports sustainable development [5]. Education for Sustainable Development (ESD) means including the key sustainable development issues (climate change, reducing the risk of disaster, biological diversity, reducing poverty and sustainable consumption) in teaching and learning. ESD gives every person the opportunity to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future [6]. Furthermore, ESD should adopt innovative, participatory teaching and learning methods in order to reach and motivate all students for them to implement their creative and critical thinking skills and actively lead the sustainable development process [11,12]. As a result, ESD promotes competences such as critical thinking, imagining future scenarios and cooperative decision making. Sustainable development, which states that both values can be protected and development can be realized, is one of the most important tools for presenting the right to live to all humans in a healthy environment, which is one of the fundamental rights defined by the United Nations (UN) [6].

In recent years, environmental issues have become one of the most important issues on the world agenda. Pollution problems, degradation of nature, economic efficiency and national security, global warming, ozone depletion, loss of biodiversity have made humanity realize environmental problems. Therefore, it is very important to inform children about the environment from an early age in order to protect the environment and raise awareness of environmental issues. In light of the studies they conducted, Korhonen and Lappalainen [13] concluded that education plays a very important role in raising environmental awareness. Environmental awareness can be defined as emotional attitudes towards the environment that direct students in an emotional and conceptual way to respect the environment, worry about the environment and behave more properly towards the environment [14]. Environmental education is the process of recognizing values and clarifying concepts in order to develop the skills and attitudes necessary to understand and evaluate the relationship between human beings, their culture and the biophysical environment. Furthermore, environmental education is a process that helps individuals, communities and organizations to learn more about the environment, develop their research skills and make intelligent and informed decisions about how to deal with it. Environmental education also requires practice in making decisions about environmental quality issues and applying codes of conduct [15]. Environmental education, which is based on sustainability principles that focus on how people and nature can coexist in productive harmony, is a process that enables individuals to discover environmental problems, participate in solving these problems and act to improve the environment. In this way, individuals understand environmental issues better and

therefore develop their conscious and responsible decision-making skills. Environmental education does not support a particular point of view; it even teaches individuals how to discuss various aspects of a topic through critical thinking, develops their own problem-solving and effective decision-making skills. Environmental education uses processes that involve students in observation, measurement, classification, testing and other data collection techniques. These processes help students discuss, predict and interpret data on environmental issues [16,17].

The most important step in the attempt to define the term environmental education was taken at the International Working Meeting on Environmental Education in the School Curriculum held by the International Union for Conservation of Nature and Natural Resources (IUCN) in Nevada in 1970 [18]. United Nations Educational, Scientific and Cultural Organization (UNESCO) and United Nations Environment Programme (UNEP) later initiated the International Environmental Education Program (IIEP) in 1975 to share knowledge, experience and research, provide training of the personnel, develop curricula and materials, and promote international cooperation in the field of environmental education. The first international environmental education conference was held in Belgrade in 1975. The first Intergovernmental Conference on environmental education held by UNESCO in cooperation with UNEP was held in Tbilisi two years after the Belgrade Charter [19]. In the Belgrade Charter [20], the overall aim of environmental education was to produce environmental actions in order to “develop all ecological relations, including the relations of humanity with nature and people”. At the Tbilisi Conference [21], the purpose of environmental education is to (a) raise clear awareness of economic, social, political and ecological dependence in urban and rural areas; (b) provide everyone with opportunities to acquire the knowledge, values, attitudes, commitment and skills necessary to protect and improve the environment; and (c) that individuals, groups and society as a whole create new patterns of behavior towards the environment. The objectives of environmental education at the Tbilisi Conference are as follows; (a) awareness: helping individuals and social groups gain awareness and sensitivity towards the environment and environmental issues; (b) knowledge: helping individuals and social groups gain a variety of experiences and develop a basic understanding of the environment and environmental problems; (c) attitude: to help individuals and social groups to create value judgments about the environment and to motivate active participation in the improvement and protection of the environment; (d) skills: to help individuals and social groups acquire skills to identify and solve environmental problems; (e) participation: to provide individuals and social groups with the opportunity to participate actively at all levels in works for the solution of environmental problems. The guiding principles of environmental education determined at the Tbilisi Conference are as follows: Environmental education should (a) address the environment in its entirety—natural and artificial, ecological, political, economic, technological, social, legal, cultural and aesthetic; (b) be a lifelong process that continues both in and out of school; (c) be interdisciplinary; (d) emphasize active participation in the prevention and resolution of environmental problems; (e) examine important environmental issues in terms of the world, giving due consideration to regional differences; (f) focus on current and future environmental situations; (g) examine all development and growth from an environmental perspective; (h) promote the value and necessity of local, national and international cooperation in solving environmental problems. At the UN Conference on Environment and Development held in Rio de Janeiro in 1992, it was understood that education is a vital factor in developing people’s capacity to cope with the subjects related to the environment and development in addition to promoting sustainable development [22]. One of the most important documents that emerged after the 1992 Earth Summit was Chapter 36 of Agenda 21. This document emphasizes the need to “rethink of and reorganize education as a medium of knowledge, thinking patterns and values needed from preschool to university to build a sustainable world” [23]. Since 1992, the field of environmental education has been greatly influenced by the concept of sustainable development and many educators argue that environmental education should actually focus on achieving sustainable development goals. The World Summit on Sustainable Development (WSSD) organized in 2002 by the United Nations and which is the most important summit held by then, was held in Johannesburg. At

this summit, which is the first global conference of the 21st century, the developments and practices after the 1992 World Summit were evaluated and strategies were determined for Agenda 21 to be implemented more effectively [24]. With the adoption of decision No. 57/254 that announced 2005–2014 as the UN Decade of Education for Sustainable Development (DESD) in December 2002 by the United Nations General Assembly, the theme of ESD has gained international legitimacy and attractiveness. At UNESCO's World Conference on Education for Sustainable Development held in Bonn in 2009, education was turned into a much more important mechanism to ensure more sustainability in development. Those who participated in the ESD World Conference created an action plan and defined concrete steps to support achieving the DESD targets [25]. Environmental education emphasizes that knowledge, attitudes and skills are related to the environment and that the foundations of a sustainable environment can be established through advanced education [26,27]. The pioneer being Lucas [28], environmental researchers such as Fien [29], Fien [30], Gough [31], Tilbury [32], Palmer [18] and Palmer and Neal [33] and organizations such as UNESCO [34] and Curriculum Development Council (CDC) [35] emphasized that environmental education must include the following three dimensions to be regarded as meaningful education.

- EE as education about the environment
- EE as education in or through the environment
- EE as education for the environment

Environmental education means that an individual can interact with the environment, should undertake the role of helping to learn about one's own environment and finally, that the individual can use the knowledge and skills that are necessary to protect or care for the environment. In their study, Paredes-Chi and Viga-de Alva [36] present the importance of environmental education in the curriculum as a key element that must be implemented since it is not sufficient for students to learn only environmental problems, they should also know the reasons for and consequences of these problems and possible solutions on how they can help.

The earliest years of a child's life are viewed as a critical period for developing the foundations for thinking, behaving and emotional well-being. Early learning experiences are crucial determining factors for especially intellectual, social, emotional and physical development and will ultimately affect how well a child will perform in school and life [37–39]. European Commission [40] stated that early childhood education and care has the potential to give all young people a good start in the world of tomorrow and to break the cycle which transmits disadvantage from one generation to another, that's quality early education can produce important long-term improvements in the intellectual, social, emotional and physical development of children and has a profound and long lasting impact on a person's future [37,41,42]. Children learn in a completely different way from adults. Since young children are active learners, their best learning is not through being informed, but through hands-on, interactive play and self-discovery. In this respect, environmental education given to children must be designed to meet their developmental needs, interests, abilities and learning styles in order to be effective in this period [43–46]. It is important to raise environmental awareness for preschool children, but it is more important that environmental education programs are appropriate to children's perspective. Young children have an innate tendency to explore and connect to the natural world known as biophilia that's love of nature. Developmentally appropriate opportunities should be provided for children to continue these natural tendencies and learn about the natural world [47–53]. Teaching environmental issues abstractly in the classroom does not lead to pro-environmental behaviors in later life [54]. Providing information about abstract concepts such as rainforests' destruction, acid rains and ozone holes at a very early age may cause children to become anxious about these problems and develop phobia or biophobia, that's a fear of the natural world and ecological problems or a fear of just being outside [55–57]. There are many studies emphasizing the importance of environmental education in early childhood period. Eagles and Demare [58] stated that environmental education for children should be given at a very early age because even sixth graders children, aged 11–12 years,

may be too old to make a difference in their attitudes toward the environment and gain environmental awareness. White and Stoecklin [57] emphasized that environmental education in early childhood should primarily aim to develop empathy between the child and the natural world. Chawla, Keena, Pevac and Stanley [59] concluded that environmental education in natural areas enables children to escape stress, focus, build competence and form supportive social groups. In their study, Chawla and Hart [60], Cohen and Horm-Wingerd [61] revealed that early childhood environmental education increases children's environmental awareness and knowledge and positive childhood experiences encourage positive attitudes towards the natural environment.

Since ESD aims to create a more livable world for future generations of all living things in the world, it is very important to provide all children the necessary knowledge, skills, attitudes and values to shape a sustainable future. ESD is not only about raising environmentally aware and environmentally friendly children; it also requires developing children's life skills. Because children who have environmental skills and awareness as well as life skills play an active role in protecting the world's resources. Environmental education, which started in early childhood, improves children's environmental awareness. Family and school cooperation is very important in raising environmental awareness. The acquired knowledge should be applied by both teachers and families. Appropriate environments should be created for children to practice and experience what they have learned in the classroom. Because when new information is applied, it becomes a behavior. Thus, ESD can help change and improve our future.

Significance and Aim of the Study

It is observed that the research in recent years is aimed at the knowledge and perceptions of children and young people regarding the environment [62–69]. Again, research has shown that environmental education has a positive effect on students' greater interest in their environment [70–72]. Therefore, environmental education should start from preschool age and continue during the school years [73]. Hence, the perception and knowledge levels of teachers and pre-service teachers with regard to the environment are critical because teachers play an important role in developing children's environmental thoughts and environmental education. Improving and developing environmental education can only be achieved through qualified teachers in terms of environmental literacy [74,75]. The studies conducted show that teachers play an important role in developing children's thoughts about the environment and nature and in their environmental education [70–72]. Undoubtedly, preschool teachers are the first people who communicate with children and teach them new information after their family. As teachers raise environmental awareness among children through their behaviors and thoughts, teachers should be environmentally conscious individuals and they should possess the knowledge and skills regarding how to teach this awareness and environmental education to children. It is also very important that pre-service teachers are raised in a qualified manner at university, where they learn the knowledge and skills on how to teach environmental consciousness and give environmental education to preschool children. Undoubtedly, we cannot expect preschool teachers who do not have environmental awareness and responsibility to be environment-friendly teachers. In this context, the opinions of preschool teachers and pre-service preschool teachers, who are the teachers of the future, regarding environmental awareness and environmental education gain importance because it is believed that the perceptions and level of knowledge of preschool teachers and pre-service teachers regarding environmental education will shape children's perceptions and knowledge levels. As a result of the literature review, no comparative study that examines the opinions of preschool teachers working in different cities in seven different geographical regions of Turkey and pre-service teachers studying at the Department of Preschool Education in different provinces in seven different geographical regions of Turkey has been found. In this study, it has been tried to determine whether the teachers and pre-service teachers have enough awareness and knowledge about the environment and environmental education. Because if teachers and pre-service teachers have enough awareness and knowledge about the environment and environmental education, they will raise up the next

generation with this awareness. The main aim of this study is to examine the opinions of preschool teachers and pre-service teachers regarding environmental education and environmental awareness during the preschool period.

The answers to the following questions were sought within the scope of the main aim of the study:

1. What do you think about environmental education during the preschool period?
2. What are the issues that should be taken into consideration in environmental education practices to raise environmental awareness among children during the preschool period?

2. Materials and Methods

2.1. Research Design

This study, which aims to determine the opinions of preschool teachers and pre-service teachers about environmental education, is a qualitative study. Qualitative research is a descriptive and inductive method that aims to draw meaning from participants' point of view, which helps to collect and present data in detail with a holistic approach [76,77]. In this direction, the phenomenology approach that focuses on individuals' own experiences and their interpretation of a case [78] has been used. In phenomenological studies, it is aimed to describe individuals' experiences with regard to a specific phenomenon in-depth [78,79]. The phenomenon examined in this study is environmental education and the experiences of preschool teachers and pre-service teachers with regard to this subject.

2.2. Study Group

The study group of the research consisted of 68 preschool teachers and 72 pre-service preschool teachers. The criterion sampling method and maximum diversity sampling method, among purposeful sampling methods, were used in the determination of the study group of the research. In the criterion sampling method, the sample is composed of people, events, objects or situations with the qualifications identified in relation to the problem situation [80]. The main criterion determined in the selection of teachers and pre-service teachers is that they are knowledgeable about environmental education because, in this study, it was attempted to determine the general opinions and observations of preschool teachers and pre-service teachers who are knowledgeable about environmental education on environmental education practices and the issues that should be taken into consideration. Another method used in the selection of the study group is maximum diversity sampling. The purpose of maximum diversity sampling is to create a relatively small sample and to reflect the diversity of individuals who may be a party to the problem studied in this sample to a maximum extent [77]. For this purpose, the diversity was determined according to teachers' age, level of education, professional seniority, region, province, the settlement worked, type of institution, type of preschool education institution; pre-service teachers' age, type of university, grade level, the region and city of the university they studied. The demographic features of the teachers and pre-service teachers are shown in Table 1.

According to Table 1, it is observed that the majority of the preschool teachers who participated in the study consist of female (41–60%) teachers, in the age interval between 25 and 35 years old (27–40%), who have a bachelor's degree (47–69%), a professional seniority of 11–15 years (20–29%), who work in the Central Anatolia Region (14–21%), Konya province (7–10%), provincial centre (37–54%), at a state school (42–62%) and in an independent preschool (39–57%). As for the pre-service preschool teachers, it can be observed that the majority of them consist of female (49–68%) pre-service teachers, in the age interval between 22 and 24 years old (36–50%), studying at a state university (41–57%), at the fourth grade (43–60%), in the Central Anatolia Region (16–22%) and in Izmir (10–14%).

Table 1. Demographic information on teachers and pre-service teachers.

Demographic Information on Teachers		n	f	%
Gender	Female	68	41	60
	Male		27	40
Age	25–35	68	27	40
	36–45		22	32
	46–55		19	28
Education Status	Bachelor's degree	68	47	69
	Master's degree		21	31
Professional Seniority	1–5 years	68	12	18
	6–10 years		18	27
	11–15 years		20	29
	16–20 years		11	16
	21 years and higher		7	10
The Region Worked	Central Anatolia Region	68	14	21
	Black Sea Region		9	13
	Marmara Region		12	18
	Aegean Region		9	13
	Mediterranean Region		9	13
	Eastern Anatolia Region		7	10
	Southeastern Anatolia Region		8	12
The Province Worked	Konya	68	7	10
	Ankara		3	4
	Kırşehir		2	3
	Eskişehir		2	3
	Samsun		5	8
	Trabzon		4	6
	İstanbul		6	9
	Bursa		3	4
	Çanakkale		3	4
	İzmir		5	8
	Aydın		4	6
	Antalya		6	9
	Mersin		3	4
	Erzurum		4	6
	Malatya		3	4
Adıyaman	5	8		
Şanlıurfa	3	4		
The Settlement Worked	Provincial center	68	37	54
	District center		23	34
	Village		8	12
Type of Institution	State School	68	42	62
	Private School		26	38
Type of Preschool Education Institution Worked	Independent preschool	68	39	57
	Preschool class within a primary school		29	43
Means of Obtaining Information regarding Environmental Education	Learned during university education	68	47	69
	Having attended a seminar		12	18
	Having conducted research on the subject		9	13
Demographic Information on Pre-Service Teachers		n	f	%
Gender	Female	72	49	68
	Male		23	32
Age	19–21	72	33	46
	22–24		36	50
	25–27		3	4
Type	State	72	41	57
	Private		31	43
Grade Level of the University	3rd grade	72	29	40
	4th grade		43	60

Table 1. Cont.

The Region of the University Studied	Central Anatolia Region	16	22	
	Black Sea Region	12	17	
	Marmara Region	12	17	
	Aegean Region	72	10	
	Mediterranean Region	9	12	
	Eastern Anatolia Region	6	8	
	Southeastern Anatolia Region	7	10	
The Province of the University Studied	Konya	8	11	
	Ankara	6	8	
	Kırşehir	2	3	
	Kastamonu	7	10	
	Ordu	5	7	
	İstanbul	72	8	
	Bursa	4	6	
	İzmir	10	14	
	Antalya	9	12	
	Muş	6	8	
Gaziantep	7	10		
Means of Obtaining Information regarding Environmental Education	Learned during university education	72	61	85
	Having attended a seminar	72	8	11
	Having conducted research on the subject	72	3	4

2.3. Data Collection Tools

The interview method was used to examine in depth the views of teachers and pre-service teachers regarding the phenomenon in question. In order to prepare the semi-structured interview form, first, the literature was reviewed and four interview questions were prepared in addition to the personal information of the participants. The purpose of using the semi-structured interview form is to influence the flow of the interview with different sub-questions based on the flow of the interview and get detailed answers from the participants [77,81,82]. Indeed, the teachers and pre-service teachers who gave more general answers during the interviews were asked to make more detailed explanations. In order to determine the clarity of the questions in the interview form and whether the research served its purpose, opinions were taken from three domain experts. The questions were revised and made to serve the purpose in line with the suggestions of the domain experts. The interview form consisted of two open-ended questions that did not direct the participants. Open-ended questions are questions that allow participants to explain their thoughts, emotions, beliefs and tendencies [83]. As a preliminary trial of the interview form, two preschool teachers and two pre-service preschool teachers were interviewed to check if the questions in the interview form were correctly understood by the participants and whether the form was suitable for the purpose of the research once again.

2.4. Data Collection

Preschool teachers and pre-service preschool teachers who participated in the seminars or workshops held by the researcher in different cities were informed about the subject and aim of the study and interviews were conducted with the willing participants. Participation in the study was based on the principle of volunteering. Each of the 68 teachers and 72 pre-service teachers who volunteered was interviewed separately and face-to-face between 23 June 2018 and 18 May 2019. In order to prevent data loss, interviews were recorded by a voice recorder. Before the interviews, the participants were informed that a recording device would be used and it was emphasized that all records could be listened to by themselves at the end of the interviews and the records could be partially or completely erased upon their request in order to make the participants feel more comfortable. During the interviews, the researcher certainly avoided directing the participants. The interviews with the participants lasted approximately 30–40 min.

2.5. Data Analysis

The content analysis technique among qualitative data analysis methods was used in the analysis of the data obtained from the interview form. The main purpose of content analysis is to reach the concepts and correlations that can explain the collected data [77]. All of the interviews conducted with the teachers and pre-service teachers and recorded by a voice recorder were put in writing in the computer environment and then analyzed. In the content analysis method used in qualitative research, the data are analyzed in four stages. The first stage is the coding of data, the second stage is finding the themes, the third stage is editing codes and themes and the fourth stage is defining and interpreting the findings [77]. The researcher and an independent researcher read the written data and formed the codes based on important words and sentences. Considering the relationship between the codes, the codes were categorized and sub-themes were created. Then, the codes and sub-themes created by both researchers were compared and finalized. The sub-themes were correlated to the sub-objectives of the study and themes were created. The themes determined were reviewed in detail based on the sub-themes and codes. Furthermore, the frequency of the codes repeated under each sub-theme was calculated and indicated in tables with frequency values. The findings were supported by direct quotations in order to reflect the views of teachers clearly and fully.

2.6. Validity and Reliability of the Data Collection and Data Analysis Process

In order to ensure internal validity, first of all, codes were created and then codes were supported with direct quotations. In the analysis, preschool teachers were given code numbers as (T1, T2, T3...) and pre-service preschool teachers were coded as (PST1, PST2, PST3 . . .). The findings were presented with frequency values. The significance and completeness of the findings were continuously checked by the researcher. The consistency of the codes forming the sub-themes was checked with each other and with the other themes. The themes were explained by the induction method. In order to ensure the external validity of the study, all the processes in the study such as the research model, study group, data collection process and data analysis were explained in detail. In order to increase the internal reliability of the study, the data obtained from the interviews were coded separately by two different researchers and the correspondence percentage between the coders was calculated. The inter-coder reliability analysis formula developed by Miles and Huberman [76] was used for the inter-coder reliability analysis of the researcher. Accordingly, the inter-coder reliability is calculated by the following formula: $\text{Reliability} = \frac{\text{Consensus}}{(\text{Consensus} + \text{Dissensus})} \times 100$. The data obtained were subjected to content analysis by two researchers, separate codes were created and then these codes were compared. As a result of the comparison, consensus was reached in 68 codes, while 4 codes dissented. When the formula was calculated, $[\text{Reliability} = 68 / (68 + 4) \times 100 = 94.4]$, the inter-coder reliability was found to be approximately 94%. That the result of the reliability analysis was found to be above 70% is deemed as reliable for the researcher [76]. In this context, it can be said that the reliability coefficient between the coders is sufficient. In order to check the results of the study with other studies, the necessary explanations were made in detail and clearly and the external reliability was achieved by avoiding assumptions and prejudices. Furthermore, pilot interviews were conducted with two preschool teachers and two pre-service preschool teachers in order to ensure the content validity of the interview form. An unbiased approach was taken to determine the teachers and pre-service teachers during the research process, the participants were given detailed information about the aim and content of the study and the ethical findings were taken into consideration by not using the real identity information of the participants.

3. Results

In this part of the study, the findings obtained during the research process were categorized under two different themes. The sub-themes and codes on the themes were determined and the expressions of the participants were added to clarify the codes.

3.1. General Considerations Regarding Environmental Education during the Preschool Period

Six sub-themes were created as a result of the interviews held with the preschool teachers and pre-service teachers whose general opinions regarding environmental education in the preschool period were asked. As shown in Table 2, these sub-themes are “the necessity of environmental education”, “factors affecting environmental education”, “benefits of environmental education for the child”, “problems encountered in environmental education practices”, “the source of the problems encountered in environmental education practices” and “suggestions for environmental education practices”.

Table 2. General opinions of preschool teachers and pre-service teachers on environmental education in the preschool period.

Theme	Sub-Theme	Code	f (1) *	f (2) *	
	The necessity of environmental education	To raise environment protection awareness	56	50	
		To teach the environmental rules	49	33	
		To raise sensitivity and responsibility towards the environment	37	59	
		To become environment-friendly	22	9	
	Factors affecting environmental education		Teacher’s knowledge	51	43
			Child’s interest	45	54
			Teacher’s personality	38	39
			Teaching materials	35	21
			Number of students	29	33
			Curriculum	17	4
Family support			15	8	
The physical structure of the school/classroom			11	9	
Financing			8	2	
Administrative workload			5	0	
Climate	2	0			
General considerations regarding environmental education in the preschool period	Benefits of environmental education for the child	Love for nature	61	26	
		Social skills development	56	49	
		Development of motor skills	52	29	
		Permanent learning	48	51	
		Development of the sense of responsibility	41	64	
	Development of self-confidence	29	42		
	Problems encountered in environmental education practices		Crowded classroom	54	56
			Lack of knowledge of the teacher	43	41
			Lack of teaching resources	41	59
			The indifference of the child	34	20
The indifference of the family			30	38	
Inadequacy of in-service training			21	3	
Source of the problems encountered in environmental education practices		Inadequate support from the school administration	13	0	
		Administration	53	11	
		Parents	32	32	
		Teachers	44	48	
Suggestions for environmental education practices		Children	18	5	
		Being a role model	62	66	
		Arranging field trips	55	47	
		Gamification of environmental issues	48	61	
		Reading books about the environment and nature	40	24	
		Organizing in-service training for teachers	37	5	
Giving art training about nature	9	16			

* 1 = Teachers 2 = Pre-service Teachers.

3.1.1. The Necessity of Environmental Education

Preschool teachers expressed that environmental education is necessary to “raise environment protection awareness”, “teach the environmental rules”, “raise sensitivity and responsibility towards the environment” and “become environment-friendly”; while pre-service preschool teachers expressed that environmental education is necessary to “raise sensitivity and responsibility towards the

environment”, “raise environment protection awareness”, “teach the environmental rules” and “become environment-friendly”. The statements “to raise sensitivity and responsibility towards the environment” and “to become environment-friendly” resemble each other. But these statements have different meanings. While the first statement means to fulfill the duties to the environment, the second statement means not to harm to the environment.

Examples of the answers indicating that environmental education is necessary to raise environment protection awareness are as follows:

“I think environmental education is quite important during the preschool period because the sense of environment protection may only be developed at a young age”. (T47)

“I believe that environmental education given at the age of 4-5 years supports children’s environmental protection instincts”. (PST11)

Examples of the answers indicating that environmental education is necessary to teach the environmental rules are as follows:

“The environmental rules that are learned at an early age accompany the individual in adulthood, I believe that the perception of the rules will not be established after adolescence”. (T21)

“We can teach children all the rules we must obey in relation to nature with environmental education during the preschool period”. (PST56)

Examples of the answers indicating that environmental education is necessary to raise sensitivity and responsibility towards the environment are as follows:

“Just like all subjects, environment responsibility must be taught to children at a young age with environmental education”. (T7)

“I believe that environmental education is quite important to raise conscious individuals who are sensitive to nature”. (PST34)

Examples of the answers indicating that environmental education is necessary to become environment-friendly are as follows:

“I believe that the first step of environment-friendly adulthood is effective environmental education learned in early childhood”. (T50)

“I believe that children who are given environmental education are more conscious and environment-friendly individuals regarding the environment”. (PST18)

3.1.2. Factors Affecting Environmental Education

Preschool teachers expressed that the factors affecting environmental education are “the teacher’s knowledge”, “child’s interest”, “teacher’s interest”, “teaching materials”, “number of students”, “curriculum”, “family support”, “the physical structure of the school/classroom”, “financing”, “administrative workload” and “climate”; while the pre-service preschool teachers expressed that these factors are “the child’s interest”, “teacher’s knowledge”, “teacher’s interest”, “number of students”, “teaching materials”, “the physical structure of the school/classroom”, “family support”, “curriculum” and “financing”.

Examples of the answers indicating that the teacher’s knowledge is a factor affecting environmental education are as follows:

“If the teacher does not have sufficient knowledge regarding environmental education, he/she naturally remains incapable, but if he/she has previous knowledge, then he/she has the ability to fulfill the needs of children”. (T61)

“I believe that it is quite important for the teacher to be knowledgeable and competent in terms of the activities for environmental education”. (PST5)

Examples of the answers indicating that the child’s interest is a factor affecting environmental education are as follows:

“If the child is introduced to nature until he/she comes to a preschool education institution, then his/her interest and sense of curiosity are at a high level”. (T12)

“I believe that it is not quite possible to give effective environmental education if the child is not interested in nature”. (PST47)

Examples of the answers indicating that the teacher’s personality is a factor affecting environmental education are as follows:

“If the teacher has an environmentally sensitive and responsible character, this is definitely reflected on the students”. (T29)

“The children raised by teachers who love nature and who have the responsibility and awareness of protecting nature definitely have the same temperament, as well”. (PST69)

Examples of the answers indicating that teaching materials are a factor affecting environmental education are as follows:

“It is almost impossible to create sensitivity towards the environment in children who do not touch the soil, sand, leaf and stone”. (T43)

“Most schools do not possess materials such as microscopes, magnifying glass, but these materials are quite effective in activating the sense of curiosity of children”. (PST24)

“The number of students in a classroom is a very important factor for the activities of getting acquainted with nature. We generally have to give up this kind of activities if the number of students is high”. (T2)

“As the safety of children is the primary priority for teachers, the number of students in the classroom is quite important for outdoor environmental education practices. It is impossible for a single teacher to control many children in nature”. (PST29)

Examples of the answers indicating that the curriculum is a factor affecting environmental education are as follows:

“The curriculum should include arrangements for children to become more intertwined with nature, I am of the opinion that the curriculum is insufficient in terms of the achievements for environmental education”. (T17)

“I believe that environmental education should be included in any dimension of the preschool curriculum”. (PST71)

Examples of the answers indicating that family support is a factor affecting environmental education are as follows:

“Families are always worried that their children will be sick during outdoor activities. First of all, we need to change this mentality. I find it hard to make parents understand that the indoor environment contains more germs”. (T64)

“Teachers definitely feel the need to get approval from parents when they will make outdoor activities as they refrain from their reaction. I have witnessed this situation a lot in my teaching practices. It is a must that awareness is raised among parents regarding nature”. (PST15)

Examples of the answers indicating that the physical structure of the school/classroom is a factor affecting environmental education are as follows:

“It is very important that the school has a large garden for environmental education. In this way, children closely witness the growth of flowers, seedlings, the lives of ants, insects, the air, the soil, in other words, the life cycle”. (T24)

“Feeding a pet such as a bird in the classroom or growing various plants are classroom activities that can be done within the scope of environmental education, but the important point here is that the classroom should be large enough”. (PST25)

Examples of the answers indicating that financing is a factor affecting environmental education are as follows:

“Sometimes the budget of our school falls short of covering the fee of the materials and equipment we will use in environmental activities”. (T38)

“All arrangements for environmental education that must be performed in the school and the garden actually bring about a certain financial load”. (PST60)

Examples of the answers indicating that administrative workload is a factor affecting environmental education are as follows:

“The positive effect of organizing excursions on children is indisputable, but the permissions required from top management to be able to take these excursions are really weary”. (T63)

Examples of the answers indicating that climate is a factor affecting environmental education are as follows:

“Since our city and region have a cold climate, we find it difficult to organize outdoor activities”. (T5)

3.1.3. Benefits of Environmental Education for the Child

Preschool teachers expressed their opinion regarding the benefits of environmental education for the child as “the love for nature”, “social skills development”, “development of motor skills”, “permanent learning”, “development of the sense of responsibility” and “development of self-confidence”; while pre-service preschool teachers expressed their opinion regarding “development of the sense of responsibility”, “permanent learning”, “social skills development”, “development of self-confidence”, “development of motor skills” and “love for nature”.

Examples of the answers indicating that environmental education contributes to the love for nature of children are as follows:

“We can easily place the love for nature in children’s heart since a young age thanks to environmental education”. (T41)

“I think that children who receive environmental education at an early age will love and protect plants and animals and nature, in short, more”. (PST8)

Examples of the answers indicating that environmental education contributes to the social skills development of children are as follows:

“I observe that children try to make common decisions without breaking each other’s heart, they are more affectionate, more understanding, more compassionate and try to maintain their relationships in a healthy way in the education activities I apply”. (T57)

“One of the teachers frequently arranges activities in relation to environmental education at the school where I go for teaching practices. I observe that these activities enable children who are intertwined with nature to develop their cooperating with peers, empathy and coping with aggressiveness skills in a much more positive way”. (PST42)

Examples of the answers indicating that environmental education contributes to the motor skills of children are as follows:

“The time spent in nature, activities held and games played also support the physical development of children”. (T10)

“Children love being outdoors most as they can move freely. They run, jump, crawl, roll over and consequently develop”. (PST49)

Examples of the answers indicating that environmental education contributes to the permanent learning of children are as follows:

“Children who learn in nature never forget the knowledge and skills as they learn through experience”. (T68)

“We can teach children any new knowledge that we try to teach by using pages of activity worksheets in a much easier and permanent way using natural materials outdoors”. (PST1)

Examples of the answers indicating that environmental education contributes to the development of the sense of responsibility of children are as follows:

“The task of feeding an animal or growing a plant develops the sense of responsibility of children much more than we think”. (T45)

“Environmental education practices develop children’s skills of responsibility taking and fulfilling by performing the given tasks on time”. (PST27)

Examples of the answers indicating that environmental education contributes to the development of self-confidence of children are as follows:

“I closely witness the development of self-confidence of children who voluntarily participate in activities in outdoor applications and fulfill their responsibilities”. (T15)

“Children who properly perform their tasks in outdoor activities are more self-confident”. (PST64)

3.1.4. Problems Encountered in Environmental Education Practices

Preschool teachers indicated that the problems encountered in environmental education practices are “crowded classroom”, “the lack of knowledge of the teacher”, “the lack of teaching resources”, “the indifference of the child”, “the indifference of the family”, “inadequacy of in-service training” and “inadequate support of the school administration”; while pre-service preschool teachers stated “the lack of teaching resources”, “crowded classroom”, “lack of knowledge of the teacher”, “indifference of the family”, “indifference of the child” and “inadequacy of in-service training”.

Examples of the answers indicating that one of the problems encountered in environmental education practices is crowded classroom are as follows:

“There are 28 children in my class and I have a lot of difficulty in performing outdoor activities, I even always ask for the support of the mothers who are not employed”. (T27)

“When classes are crowded, it becomes quite difficult to control children; therefore, nature activities may not be organized”. (PST17)

Examples of the answers indicating that one of the problems encountered in environmental education practices is the lack of knowledge of the teacher are as follows:

“If the teacher did not receive any training for nature education or he/she is not interested in this subject, different activities about nature are never included in the daily flow”. (T53)

“That the teacher has knowledge about different activities aimed at nature is quite important for environmental education practices”. (PST13)

Examples of the answers indicating that one of the problems encountered in environmental education practices is the lack of teaching resources are as follows:

“The inadequacy or the lack of materials that can be used in activities within and outside the classroom (magnifying glass, magnet, plant pots) sometimes makes it impossible to perform that activity”. (T9)

“Based on my observations, I can say that the inability to find a natural material such as a seed, a shell, can prevent us from performing the activity”. (PST67)

Examples of the answers indicating that one of the problems encountered in environmental education practices is the indifference of the child are as follows:

“Children who are not raised consciously towards nature in the family are so indifferent and unwilling that we cannot draw them to the activity no matter what we do as teachers”. (T25)

“During practices, some children are quite indifferent towards nature activities and they do not want to participate in activities, including games”. (PST53)

Examples of the answers indicating that one of the problems encountered in environmental education practices is the indifference of the family are as follows:

“We request families to participate in nature education activities, but many parents do not participate in them. When children whose parents do not attend the activity see the parents of other children, their motivation drops”. (T49)

“Teachers who organize practices sometimes ask children to prepare an activity with their parents. However, very few parents prepare this activity with their children and bring them back to school”. (PST45)

Examples of the answers indicating that one of the problems encountered in environmental education practices is the inadequacy of in-service training are as follows:

“I can plan different activities as I have received environmental education at the university. It is quite important to organize in-service training for teachers who have received this training neither at the university nor after that. However, I have never come across such training”. (T20)

“My practice teacher has no knowledge of environmental education. As I have received training, I prepare practice plans and share them with my practice teacher. I think the Ministry of National Education should organize practical environmental education training for teachers”. (PST31)

Examples of the answers indicating that one of the problems encountered in environmental education practices is the inadequate support of the school administration are as follows:

“We wanted to create a space where children can grow vegetables and fruits in the school garden with my colleagues and asked for the help of the school administration in this respect. Unfortunately, they answered negatively based on the pretext of the lack of funds”. (T34)

3.1.5. Source of the Problems Encountered in Environmental Education Practices

Preschool teachers indicated that the source of the problems encountered in environmental education practices is “administration”, “parents”, “teachers” and “children”; while pre-service preschool teachers indicated that the source of the problems is “teachers”, “parents”, “administration” and “children”.

Examples of the answers indicating that the source of the problems encountered in environmental education practices is administration are as follows:

“We want to plan nature excursions at my school frequently. But this is almost impossible. There are so many administrative procedures that you decide not to organize any more excursions after the first one”. (T65)

“In fact, the teachers at my practice school are quite willing, but the school administration refuses any proposal from the teachers regarding nature education”. (PST33)

Examples of the answers indicating that the source of the problems encountered in environmental education practices is parents are as follows:

“Most parents never pay the required attention to the family participation activities we organize within the scope of environmental education”. (T36)

“What attracted my attention most during the practices was that the teachers definitely gave information to parents before performing the activity outdoors. Some parents even refused to allow their children to participate in outdoor activities on the grounds that they would become ill”. (PST3)

Examples of the answers indicating that the source of the problems encountered in environmental education practices is teachers are as follows:

“Some of my colleagues have no knowledge about nature education at all. Actually, this is not what I find strange, it is that they do not do anything to develop themselves”. (T22)

“None of the teachers at the school that I perform practices make any practice for environmental education. The garden is used only for the purposes of playing in the park”. (PST61)

Examples of the answers indicating that the source of the problems encountered in environmental education practices is children are as follows:

“Some children do not want to participate in outdoor activities as they are afraid of insects in nature, even flies”. (T3)

“During the practices, there were children who did not want to participate in nature activities at all and whom the teachers could not convince”. (PST10)

3.1.6. Suggestions for Environmental Education Practices

With regard to environmental education practices, preschool teachers made the suggestions of “being a role model”, “arranging field trips”, “gamification of environmental issues”, “reading books about the environment”, “organizing in-service training for teachers” and “giving art training about nature”; while pre-service preschool teachers made suggestions on “being a role model”, “gamification of environmental issues”, “arranging field trips”, “reading books about the environment”, “giving art training about nature” and “organizing in-service training for teachers”.

Examples of the suggestions regarding being a role model for environmental education practices are as follows:

“In order to introduce the love, interest and curiosity of nature to children, the teacher must first possess these characteristics”. (T30)

“In order to raise the awareness of the environment among children, first, teachers must show that they have the sense of the environment themselves”. (PST26)

Examples of the suggestions regarding arranging field trips for environmental education practices are as follows:

“Children should be accompanied in field trips and enabled to make observations”. (T55)

“Field trips are perfect opportunities to instill a love for nature in children and give them information about nature”. (PST58)

Examples of the suggestions regarding the gamification of environmental issues for environmental education practices are as follows:

“Games should be frequently included in the reinforcement of nature and environmental issues and children should be encouraged to play them”. (T13)

“Games are the most significant way that facilitates children’s learning by doing-experiencing in nature; therefore, the information should be transferred to children through games”. (PST22)

Examples of the suggestions regarding reading books about nature and the environment for environmental education practices are as follows:

“Children should be made to discover their environment by arousing curiosity among children regarding nature by reading books about the environment”. (T62)

“It should be ensured that children are interested and sensitive towards their nature and willing to discover it by reading books on science and nature to them”. (PST9)

Examples of the suggestions regarding organizing in-service training for environmental education practices are as follows:

“I believe that practical training should be organized for teachers who do not have sufficient knowledge about environmental education”. (T19)

“In my practice school, I have observed that some teachers do not perform nature activities because they do not have knowledge about environmental education. I believe that the Ministry should give nature education during the seminar period for teachers”. (PST32)

Examples of the suggestions regarding giving art training about nature for environmental education practices are as follows:

“Especially, now that waste materials and recycled materials are used as painting materials increases the sensitivity towards nature”. (T31)

“Performing arts activities with the natural materials collected in nature trips increases the love and interest of children for nature”. (PST30)

After the interviews held with the preschool teachers and pre-service teachers whose general opinions regarding environmental education in the preschool period were asked, codes determined firstly and then six sub-themes were created. The first sub-theme “the necessity of environmental education” consists of the codes “to raise environment protection awareness”, “to teach the environmental rules”, “to raise sensitivity and responsibility towards the environment” and “to become environment-friendly”. The second sub-theme “factors affecting environmental education” consists of the codes “teacher’s knowledge”, “child’s interest”, “teacher’s personality”, “teaching materials”, “number of students”, “curriculum”, “family support”, “the physical structure of the

school/classroom”, “financing”, “administrative workload” and “climate”. The third sub-theme “benefits of environmental education for the child” consists of the codes “love for nature”, “social skills development”, “development of motor skills”, “permanent learning”, “development of the sense of responsibility” and “development of self-confidence”. The fourth sub-theme “problems encountered in environmental education practices” consists of the codes “crowded classroom”, “lack of knowledge of the teacher”, “lack of teaching resources”, “the indifference of the child”, “the indifference of the family”, “inadequacy of in-service training” and “inadequate support from the school administration”. The fifth sub-theme “the source of the problems encountered in environmental education practices” consists of the codes “administration”, “parents”, “teachers” and “children”. The last sub-theme “suggestions for environmental education practices” consists of the codes “being a role model”, “arranging field trips”, “gamification of environmental issues”, “reading books about the environment and nature”, “organizing in-service training for teachers” and “giving art training about nature”.

3.2. Issues to Be Considered in Environmental Education Practices in the Preschool Period

Six sub-themes were created as a result of the interviews conducted with preschool teachers and pre-service preschool teachers whose opinions were asked regarding the issues to be considered in preschool period environmental education practices. As shown in Table 3, these sub-themes are “the subjects to include within the scope of environmental education”, “activities that should be performed within the scope of environmental education”, “methods that should be used in environmental education”, “materials that should be used in environmental education”, “the frequency at which environmental education should be applied” and “the time required for environmental education”.

Table 3. Issues to be considered in environmental education practices in the preschool period according to preschool teachers and pre-service teachers.

Theme	Sub-Theme	Code	f (1) *	f (2) *
Issues to be considered in environmental education practices in the preschool period	Subjects to include within the scope of environmental education	Environmental pollution	48	41
		Recycling	36	52
		Energy-saving	17	11
		Creatures living in nature	14	5
		Ways to protect nature	10	44
	Activities that should be performed within the scope of environmental education	Planting trees	56	26
		Examining plants and animals	49	18
		Organizing nature trips	42	68
		Collecting garbage	33	57
		Carrying out scientific experiments	28	45
		Examining recyclable materials	16	3
	Methods that should be used in environmental education	Watching documentaries on the environment	7	9
		Experiment/Observation	52	41
		Trips	49	51
		Drama	36	59
		Games	32	62
		Story-telling	21	23
		Music	19	27
	Materials that should be used in environmental education	Art	9	2
		Science materials	45	22
		Natural materials	32	47
		Books	27	30
	The frequency at which environmental education should be applied	Technology-supported materials	19	33
Once a week		34	37	
Twice a week		19	26	
Once a month		11	9	
The time required for environmental education	Once every term	4	0	
	2 h and more	31	39	
	Between 1 and 2 h	21	33	
	Up to 1 h	16	0	

* 1 = Teachers 2 = Pre-service teachers.

3.2.1. Subjects to Include within the Scope of Environmental Education

Preschool teachers ranked the subjects to be included within the scope of environmental practices as “environmental pollution”, “recycling”, “energy-saving”, “creatures living in nature” and “ways to protect nature”; while pre-service preschool teachers ranked them as “recycling”, “ways to protect nature”, “environmental pollution”, “energy-saving” and “creatures living in nature”.

Examples of the answers indicating that the subject of environmental pollution should be included within the scope of environmental education are as follows:

“Pollution is the most important problem in the world. In this sense, we should give detailed information to children about air pollution, water pollution and soil pollution that threaten our world”. (T16)

“Children must be definitely informed within the scope of environmental education as environmental pollution causes harm to all living things directly or indirectly by damaging nature”. (PST52)

Examples of the answers indicating that the subject of recycling should be included within the scope of environmental education are as follows:

“In order to prevent the unnecessary use of our resources, children should be taught the importance of recycling from an early age”. (T66)

“Reducing the amount of waste by means of recycling can only be achieved by teaching children the importance of recycling in the preschool period”. (PST23)

Examples of the answers indicating that the subject of energy-saving should be included within the scope of environmental education are as follows:

“We should teach children how we can use our energy resources efficiently without wasting them”. (T26)

“Energy consumption is increasing with each passing day, which poses a threat to future generations. Therefore, we must teach children how to use energy in an efficient way”. (PST50)

Examples of the answers indicating that the subject of creatures living in nature should be included within the scope of environmental education are as follows:

“We should make children understand that plants are alive just like animals and that all living things are worthy of protection”. (T51)

“We should inform children about endangered life forms and explain the importance of protecting our environment and the living things around us”. (PST35)

Examples of the answers indicating that the subject of the ways of protecting the environment should be included within the scope of environmental education are as follows:

“We should explain children in detail what we should and should not do to protect nature both at home and education institutions as of a young age”. (T46)

“We, adults, must be a role model for children with regard to what they can do to protect the environment”. (PST65)

3.2.2. Activities that Should Be Performed within the Scope of Environmental Education

Preschool teachers indicated the activities that should be performed within the scope of environmental education as “planting trees”, “examining plants and animals”, “organizing nature trips”, “collecting garbage”, “making scientific experiments”, “examining recyclable materials” and “watching documentaries on the environment”; while pre-service preschool teachers expressed those activities as “organizing nature trips”, “collecting garbage”, “carrying out scientific experiments”, “planting trees”, “examining plants and animals”, “watching documentaries on the environment” and “examining recyclable materials”.

Examples of the answers indicating the activity of planting trees within the scope of environmental education are as follows:

“In the preschool period, we must definitely have children plant a sapling and give them the responsibility to look after saplings”. (T23)

“Children should be encouraged to plant trees with their families at home and with their teachers and friends at school within the scope of nature activities”. (PST43)

Examples of the answers indicating that plants and animals should be examined within the scope of environmental education are as follows:

“Children should be especially kept outdoors in education activities and they should be encouraged to ask questions by having them examine the plants around them”. (T4)

“We should give children the opportunity to examine the leaves and insects that they probably encounter for the first time in nature”. (PST48)

Examples of the answers indicating that nature trips should be organized within the scope of environmental education are as follows:

“We should take children to zoos, nature centers, botanical gardens, parks. We should allow children to observe plants and animals in this way”. (T32)

“We should plan trips that will allow children to visit the natural environments of living beings”. (PST51)

Examples of the answers indicating that garbage should be collected within the scope of environmental education are as follows:

“We should try to increase the awareness of children by organizing a garbage collection activity with them at school, in the garden or a place visited in the outdoor trip”. (T28)

“Garbage collection activities can be organized frequently to attract the attention of children regarding cleaning the environment”. (PST46)

Examples of the answers indicating that scientific experiments should be carried out within the scope of environmental education are as follows:

“We should teach children to examine nature closely, carry out experiments and think about the experiment results”. (T1)

“We should help curious children, who search and question, access the information through interpreting it as a result of experiments and not through memorization”. (PST14)

Examples of the answers indicating that recyclable materials should be examined within the scope of environmental education are as follows:

“To protect our world, we need to raise children’s awareness of recycling. In this context, it is very important that children learn about recyclable materials”. (T44)

“Children should know recyclable materials in order to stay away from disposable products”. (PST70)

Examples of the answers indicating that documentaries on the environment should be watched within the scope of environmental education are as follows:

“Children should be made to watch documentaries on the natural life cycle and the subject should be discussed by talking about it”. (T8)

“One of the most effective ways of raising environmental awareness in the classroom is to make children watch documentaries on the environment and nature”. (PST7)

3.2.3. Methods that Should Be Used in Environmental Education

Preschool teachers indicated that the methods to be used within the scope of environmental education should be “experiment/observation”, “trips”, “drama”, “games”, “storytelling”, “music” and “art”; while pre-service preschool teachers indicated them as “games”, “drama”, “trips”, “experiment/observation”, “music”, “storytelling” and “art”.

Examples of the answers indicating that experiment/observation should be used as a method within the scope of environmental education are as follows:

“It is effective that many situations such as the growth of a flower, germination of a germ, nutrition of animals are taught through observation”. (T33)

“Children learn environmental activities through experiment in the best way”. (PST72)

Examples of the answers indicating that trips should be used as a method within the scope of environmental education are as follows:

“Trips are the most effective method used in environmental education as they enable the child to integrate with nature and know the environment he/she lives in better”. (T40)

“Trips are a method that enables children to learn by doing as they are in the form of practice”. (PST66)

Examples of the answers indicating that drama should be used as a method within the scope of environmental education are as follows:

“Children can understand natural events in an organized environment better with the drama method”. (T6)

“Children internalize the concepts of nature by making animations and learn more easily”. (PST19)

Examples of the answers indicating that games should be used as a method within the scope of environmental education are as follows:

“I observe that children’s exploration of nature through games gives them extraordinarily effective experiences”. (T42)

“If games are the way children experience life, they are undoubtedly the way to explore nature”. (PST63)

Examples of the answers indicating that storytelling should be used as a method within the scope of environmental education are as follows:

“The stories I read about animals, plants, environmental problems we have had affect children in a positive way and they do not forget what I have told, even a long time passes”. (T11)

“Children love stories about nature; I observe that talking flowers and animals really excite them”. (PST55)

Examples of the answers indicating that music should be used as a method within the scope of environmental education are as follows:

“Performing nature activities with songs enables children to participate in activities with much more pleasure”. (T48)

“Children are the happiest in outdoor nature activities when they dance freely with the music”. (PST57)

Examples of the answers indicating that art should be used as a method within the scope of environmental education are as follows:

“Using natural materials found in nature in art activities creates a nice bond between children and the environment”. (T14)

“Children look really happy when they make paintings of nature on the grass”. (PST44)

3.2.4. Materials that Should Be Used in Environmental Education

Preschool teachers ranked the materials that should be used within the scope of environmental education as “science materials”, “natural materials”, “books” and “technology-supported materials”; while pre-service preschool teachers ranked them as “natural materials”, “technology-supported materials”, “books” and “science materials”.

Examples of the answers indicating that science materials should be used as materials within the scope of environmental education are as follows:

“Children should use materials such as binoculars, magnifiers, magnets and microscopes when examining nature”. (T54)

“It is much more convenient for children to use special materials such as magnifying glass to better explore living things while exploring nature”. (PST68)

Examples of the answers indicating that natural materials should be used as materials within the scope of environmental education are as follows:

“Children should be left alone with nature to examine materials such as water, stones, leaves closely”. (T37)

“We should definitely include natural materials that we can easily see and touch in nature in the activities”. (PST20)

Examples of the answers indicating that books should be used as materials within the scope of environmental education are as follows:

“I am of the opinion that colorful books with large pictures should be used in the preschool period for nature education as they attract the attention of children”. (T52)

“I think that books that are explained with pictures for nature education are quite beneficial and effective for children”. (PST2)

Examples of the answers indicating that technology-supported materials should be used as materials within the scope of environmental education are as follows:

“Children enjoy computer animations about nature or animations that we watch on a smart board very much, so we need to include these practices in classrooms”. (T39)

“Children like learning with technological devices, so I believe this should be turned into an advantage for them. Both smart boards and materials such as the computer and projection should be used frequently in the classroom”. (PST16)

3.2.5. The Frequency at Which Environmental Education Should Be Applied

Preschool teachers indicated that the frequency of environmental education should be “once a week”, “twice a week”, “once a month” and “once every term”; while pre-service preschool teachers indicated that it should be “once a week”, “twice a week” or “once a month”.

Examples of the answers suggesting that environmental education should be implemented once a week are as follows:

“I believe that it is definitely necessary to plan a nature activity with children every week”. (T35)

“We should reunite children with nature at least once a week in order to instill a love for nature in them”. (PST39)

Examples of the answers suggesting that environmental education should be implemented twice a week are as follows:

“If we would like to instill a love for nature in children, we should especially plan outdoor activities once in fifteen days”. (T67)

“Nature trips can be planned with children twice a week as parents are not very happy with their child’s being outdoor with the worry that he/she becomes ill”. (PST54)

Examples of the answers suggesting that environmental education should be implemented once a month are as follows:

“I believe that environmental activities held outdoors or in the classroom once a month would be sufficient”. (T59)

“Regular environmental activities held once a month are both enjoyable for children and they do not get bored”. (PST37)

Examples of the answers suggesting that environmental education should be implemented once every term are as follows:

“I believe that it is sufficient to plan one nature trip each term as the process of getting a permit for nature trips is very frustrating”. (T46)

3.2.6. The Time Required for Environmental Education

Preschool teachers emphasized that the time required for environmental education should be “2 h and more”, “1–2 h” and “up to 1 h”; while pre-service preschool teachers pointed out that it should be “2 h and more” and “1–2 h”.

Examples of the answers suggesting that the time required for environmental education is 2 h and more are as follows:

“An activity that will have an impact on children should last for at least 2 h”. (T60)

“In practices, I observed that long-term environmental activities make children happier; therefore, activities should not be shorter than 2 h”. (PST36)

Examples of the answers suggesting that the time required for environmental education is 1–2 h are as follows:

“Activity durations should be neither too long nor too short. The duration of the activity may vary between 1 and 2 h depending on the subject of education”. (T56)

“I believe that 1–2 h is suitable as the duration of the activity for preschool children”. (PST62)

Examples of the answers suggesting that the time required for environmental education is up to 1 h are as follows:

“The duration of nature activities should not exceed 1 h as the attention span of children is quite short”. (T58)

“Based on my observations, I can say that 1 h is the ideal duration for environmental education practices”. (PST40)

After the interviews conducted with the preschool teachers and pre-service teachers whose opinions were asked regarding the issues to be considered in preschool period environmental education practices, codes were determined firstly and then six sub-themes were created. The first sub-theme “the subjects to include within the scope of environmental education” consists of the codes “environmental pollution”, “recycling”, “energy-saving”, “creatures living in nature” and “ways to protect nature”. The second sub-theme “activities that should be performed within the scope of environmental education” consists of the codes “planting trees”, “examining plants and animals”, “organizing nature trips”, “collecting garbage”, “carrying out scientific experiments”, “examining recyclable materials” and “watching documentaries on the environment”. The third sub-theme “methods that should be used in environmental education” consists of the codes “experiment/observation”, “trips”, “drama”, “games”, “story-telling”, “music” and “art”. The fourth sub-theme “materials that should be used in environmental education” consists of the codes “science materials”, “natural materials”, “books” and “technology-supported materials”. The fifth sub-theme “the frequency at which environmental education should be applied” consists of the codes “once a week”, “twice a week”, “once a month” and “once every term”. The last sub-theme “the time required for environmental education” consists of the codes “2 h and more”, “between 1 and 2 h” and “up to 1 h”.

4. Discussion

Answers given by teachers and pre-service teachers to the questions within the scope of this study conducted to determine the opinions of preschool teachers and pre-service teachers on environmental education and environmental awareness for sustainable development were presented separately and discussed in the light of the literature.

Environmental education is a key to developing environmental literacy that can help empower students in ensuring that they take pro-environmental decisions and take actions that will help to ensure a sustainable future [84]. Especially in the preschool period, environmental education positively affects children’s attitudes towards nature and increases children’s level of awareness [85–88]. As a result of the interviews on environmental education in the preschool period, both preschool teachers and pre-service teachers emphasized that environmental education is very useful and necessary training for children. In their study, Beringer et al. [89] concluded that schools and universities that play the role of educating the members of the society should take part in the movement of sustainability more actively. Than [90] stated that teachers play a very important role in determining the quality of education, especially in primary schools because children, who are sensitive towards the environment and have positive attitudes, can only be educated by teachers with these characteristics [91–93]. Therefore, providing environmental education at all education levels starting from preschool education institutions and at universities where teacher training is given is important and necessary to improve the society’s view of nature. During the interviews, teachers and pre-service teachers talked about various factors affecting environmental education, problems encountered before or during education and made various recommendations for environmental education.

Teachers and pre-service teachers stated that environmental education is necessary “to gain environmental protection awareness”, “to teach environmental rules”, “to gain sensitivity and responsibility towards the environment” and “to be environmentally friendly.” Teachers and pre-service teachers, who think that environmental education is necessary, believe that children who are close to

nature at a young age, who gain nature awareness and who participate in nature education will also become young people who love, protect and take responsibility for everything in their future lives. For this reason, it is very important to create a comfortable and convertible education environment that will arouse curiosity in preschool children whose attention is difficult to attract, where children can do research [94,95]. Teachers and pre-service teachers also stated that this education would benefit to children with regard to the “love for nature”, “social skills development”, “motor skills development”, “permanent learning”, “development of the sense of responsibility” and “development of self-confidence”. In their study, Bell and Dymont [96], Dymont [97], Zsóka et al. [27] stated that outdoor learning improves the intellectual, physical, moral and social aspects of students more than indoor learning, increases students’ participation and creativity and also contributes to their knowledge, skills and attitudes towards the environment. Despite all the difficulties encountered, there are studies that require teachers to incorporate nature and environmental studies into their curricula. In these studies, it was determined that the time spent in nature improves the stress levels and creative skills of children [98,99], positively affects their interest in science both at the moment and in the future [100–103], contributes to the welfare and development of children [104], increases environmental awareness [105,106], supports motor development [107], ensures gaining and maintaining abstract reasoning [108,109], contributes to scientific knowledge, scientific thinking process and word development [49,107,110–112]. In their study, Hine, Pretty and Barton [113] determined that the level of stress decreases, the mood improves, psychological wellbeing increases, attention and concentration rise to higher levels as a result of the contact with nature. In the study conducted, Jordan [114] revealed that being in natural environments makes emotional and mental health components more effective. It is obvious that the healing power of nature provides progress and development in many areas.

Teachers and pre-service teachers listed the factors affecting environmental education as “the teacher’s knowledge”, “child’s interest”, “teacher’s interest”, “teaching materials”, “number of students”, “curriculum”, “family support”, “the physical structure of the school/classroom”, “financing”, “administrative workload” and “climate”. The scarcity or abundance, adequacy or insufficiency, effectiveness or ineffectiveness of these factors according to where they are applicable affect environmental education positively or negatively. Especially the lack of knowledge of the teacher and pre-service teacher regarding environmental education causes problems in environmental education practices [115–117]. Therefore, comprehensive training focusing on ESD needs to be included in the teacher training program [118]. In their study, Ayvaci, Devocioğlu and Yiğit [119], Garbett [120] and Özbey [121] revealed that pre-service teachers do not feel self-sufficient in general both in terms of the level of knowledge in science and nature activities and the level of planning and implementation. In contrast with these findings, Tuncer et al. [75] found in their study that pre-service teachers with low environmental knowledge levels have positive attitudes towards the environment and are highly concerned with environmental problems. Again, in the same study, it was stated that teachers, who are knowledgeable about the environment, will also raise students who are environmentally literate, have positive attitudes towards the environment and who are worried about environmental problems. “Crowded classroom”, “lack of knowledge of the teacher”, “lack of teaching resources”, “indifference of the child”, “indifference of the family”, “inadequacy of in-service training” and “inadequate support from the school administration” are the most common problems faced by teachers and pre-service teachers in environmental education practices. Teachers and pre-service teachers think that these problems are caused by “administration”, “parents”, “teachers” and “children.” Teachers and pre-service teachers emphasized that the child- and parent-related problems can be solved more easily, but administration- and teacher-based problems are relatively more resistant and difficult to overcome. The study conducted by Sylva et al. [122] shows that the early home learning environment, i.e. parents and families, significantly contributes to the sustainable development understanding of children. In his study, Yusoff [123] explained the reason for the problem related to the development of environmental awareness as the lack of knowledge of the public regarding environmental problems

and inadequate education. The results of the study, such as inadequacy of in-service training on the subject of environmental education, insufficient knowledge of the teacher and the negative effects of the family's insensitivity towards the environment on the child, are consistent with the findings of this study. Furthermore, in the study by Özbek [124], the majority of the teachers stated that the number of children in the classroom should be between 10 and 15 in order for science and nature activities to achieve their purpose. In the studies carried out by Aslan, Zor and Cicim [125], Çınar [126], Kandır, Özbey and İnal [127], Kıldan and Pektaş [112], Özşirkintı, Akay and Yılmaz-Bolat [128], they concluded that teachers face problems such as the lack of teaching resources and equipment, insufficient knowledge, crowded classrooms and negative attitudes and behaviors of parents and administration. These results also support the findings of this study.

With regard to effective environmental education, teachers and pre-service teachers suggested "being a role model", "arranging environmental trips", "gamification of environmental issues", "reading books about the environment", "organizing in-service training for teachers" and "giving art training about nature". Knowledge becomes much more permanent for children when they are involved in environmental education, especially in entertaining ways. Children's awareness of ecological knowledge and environmental issues can be developed, making them more concerned about the environment, so that they are easily motivated to engage in pro-environmental behaviors [129,130]. Research shows that children play more in green areas, they give place to more creative and non-structured games [96], therefore, they become individuals who are healthier, happier and who get on better with others, have more knowledge and experience on plants and animals [131]. Since it is determined that children who have frequently spent the time outdoors during childhood have more positive attitudes towards environmental problems [106], it is important to create education environments enriched by applied training, enabling children to spend more time in nature [132,133]. At this point, the importance of teachers' having knowledge regarding activities for environmental education comes to the forefront. In their study, Karaer and Kösterlioğlu [95] emphasized that the knowledge of teachers is limited to their pre-service training, and therefore, they need in-service training.

According to preschool teachers and pre-service teachers, in environmental education practices, attention should be paid to the subjects to be included, the activities to be performed, the methods and materials to be used, the frequency of application and the time to be allocated, because environmental education is a whole that consists of these components.

According to teachers and pre-service teachers, children should have knowledge about "environmental pollution", "recycling", "energy-saving", "creatures living in nature" and "ways to protect the environment" as a subject within the scope of environmental education, because if future generations do not have sufficient knowledge and awareness regarding these issues and do what is necessary, human beings will not be able to find a place to live for themselves soon. Wals [134] explained the necessity of environmental education, which is a must for protecting nature and stated that subjects such as environmental degradation, environmental health, environmental pollution, and especially the subjects of nature, biological diversity and ecology, should be included in education. According to teachers and pre-service teachers, entertaining and engaging activities such as "planting trees", "examining plants and animals", "organizing nature trips", "collecting garbage" and "carrying out scientific experiments", "examining recyclable materials" and "watching documentaries on the environment" should be definitely included in education because, for adults, childhood nature experiences form the basis of their interest and curiosity about learning more about nature [135]. According to Robertson [136], it is very important to provide children with places to play outside, such as a park, farm, or beach, in shaping children's environmental attitudes.

According to preschool teachers and pre-service teachers, the methods to be used within the scope of environmental education are "experiment/observation", "trips", "drama", "games", "story-telling", "music" and "art"; while the materials to be used are "science materials", "natural materials", "books" and "technology-supported materials". While teachers preferred more traditional methods and materials such as "experiment/observation" and "science materials" in terms of the methods and

materials to be used, pre-service teachers preferred to use methods such as “games” and “drama” and “natural materials” that motivate children more easily. In the study conducted, Avcı [137] revealed that science activities are not given sufficient importance in preschool education institutions and preschool teachers do not have sufficient knowledge and skills regarding the objectives of science education and the methods and techniques used. In the studies carried out by Alabay [138], Karaer and Kösterlioğlu [95], Kıldan and Pektaş [112], Özbek [124] and Sansar [139], it was determined that preschool teachers frequently used experimental and observation methods in science and nature teaching, but they rarely included entertaining and enjoyable methods and techniques such as field trips, drama, and games. According to the results of the study conducted by Karaer and Kösterlioğlu [95], most of the teachers stated that they used common science teaching materials, while some of them stated that they used animals, plants and natural materials. Teachers also identified themselves as inadequate in material development. The results of this research also support the findings of the study in general.

In their study, Boca and Saraçlı [140] showed that students who have received academic education on the environment take part in activities related to the protection of the environment (volunteer, warning, participation, recycling of materials) and they are more environmentally friendly individuals. For this reason, using environmental education frequently within education programs through practices will increase children’s love for and awareness of nature. The frequency of applying environmental education varies as “once a week”, “twice a week”, or “once a month”, according to teachers and pre-service teachers. There are also teachers who replied as “once every term”. The time that should be allocated to environmental education is “2 h and more” or “between 1 and 2 h”, according to teachers and pre-service teachers. Nevertheless, some teachers think that “up to 1 h” is sufficient. The fact that all of the teachers who responded as “once every term” and “up to 1 h” consist of the teachers with seniority of 16 years and above shows that teachers who have more professional seniority need more positive motivation. In the study by Özbek [124], most of the teachers organize science and nature activities for a duration of 0–30 min at least once a week. Teachers and pre-service teachers stated that children have higher environmental awareness and have more positive views and attitudes towards the environment in classes where environmental education practices are used frequently and for longer periods. In addition, some teachers and pre-service teachers stated that this situation is true for them. So it is necessary to increase the educational studies aimed at gaining the philosophy of lifelong learning in the society [141].

In the research findings, preschool teachers and pre-service teachers listed the factors affecting environmental education, the benefits of environmental education, problems encountered in environmental education practices, the source of these problems and their suggestions for environmental education practices. In addition, teachers and pre-service teachers shared their views on subjects and activities that should be within the scope of environmental education, methods and materials that should be used in environmental education and the effective time and frequency for environmental education. These opinions are very valuable and important since they are the opinions of teachers working in the field and trainee teachers. In this respect, it is thought that these opinions and suggestions will be a guide and support for programs, curricula, laws, or policies to be prepared for environmental education. Because education is of prime importance for promoting sustainable development and helping people to develop competencies in order to solve environmental and development problems.

There are some limitations to the present study. In qualitative research, the generalization of the research findings is considered as a limitation. The reason for not being generalized is the nature of social events. Since it is not possible to relive the same social event, it is difficult to generalize the findings of a social event to other social events. In addition, it is not always possible to determine the level of sample that will represent the relevant universe in qualitative research [77,142]. Therefore, it is difficult to generalize the research findings and the views of preschool teachers and pre-service teachers in this study.

5. Conclusions and Suggestions

5.1. Conclusions

The majority of preschool teachers who believe in the necessity of environmental education aim “to raise awareness of environmental protection” among children, while pre-service preschool teachers aim to “raise awareness and responsibility towards the environment” among children. According to the majority of the teachers, environmental education benefits in that it instills the “love for nature” to children, while according to the majority of pre-service teachers, in that it “brings the sense of responsibility”. The main factor affecting environmental education is the “teacher’s knowledge” according to the majority of teachers, while it is “the child’s interest” according to the majority of pre-service teachers. The most important problem encountered in environmental education practices is “crowded classrooms” according to the majority of preschool teachers, while it is “the lack of teaching resources” according to pre-service teachers. Furthermore, most of the teachers said that the source of problems is “administration”, while the majority of the pre-service teachers said that they result from “teachers”. The majority of the teachers and pre-service teachers made suggestions for “being a role model” for children in environmental education practices.

The most important subject that must be emphasized within the scope of environmental education is “environmental pollution” according to the majority of teachers and “recycling” according to the majority of pre-service teachers; the indispensable, most important activity is “planting trees” according to the majority of teachers” and “organizing nature trips” according to the majority of pre-service teachers. The method to be used in environmental education practices is “experiment/observation” according to the majority of teachers and “games” according to the majority of pre-service teachers; the materials to be used are “science materials” according to the majority of teachers and “natural materials” according to the majority of pre-service teachers. According to the majority of preschool teachers and pre-service teachers, environmental education practices should be organized “once a week” and the time to be allocated for environmental education is “2 h and more”.

In general, it can be said that pre-service teachers have more theoretical knowledge than teachers and teachers have more practical knowledge than pre-service teachers. This can be explained by the fact that the knowledge that pre-service teachers gain in the “Environmental Education” course at university is quite fresh and they spend much more limited time with children within the scope of applied courses and that teachers communicate much more with children every day and are more distant to theoretical knowledge. It can also be said that both teachers and pre-service teachers are sensitive towards environmental problems, interested in environmental education, willing and open to development. Moreover, these results indicate that more efforts are needed to prepare pre-service teachers for their roles in environmental education. Finally, the study revealed that both preschool teachers and pre-service teachers in different provinces and regions do not have quite different ideas.

5.2. Suggestions

In order for the environmental education given in schools to achieve the determined goals and objectives, this education must be planned nationally. To this end, it can be suggested that a comprehensive and interdisciplinary curriculum should be prepared for environmental education as an independent activity and a course by the Ministry of National Education, from preschool to the end of high school, in a way that they complement each other.

The subjects of environmental education implemented at school can be integrated with different subject areas in a creative and functional manner. At this point, teachers need to be informed about planning and implementation strategies. For this purpose, it may be suggested that teachers working in this field should be supported through in-service training.

Partnerships can be developed between ministries, universities and non-governmental organizations. Under the leadership of these institutions and organizations, national workshops and symposiums can be organized for educators to understand and internalize the process better.

Information networks and web sites can be established to facilitate information sharing on environmental education.

More visual and written training materials can be prepared and material support can be provided to inform and educate all segments of the society on environmental education. Thus, it can be ensured that training activities reach a wider audience.

Collaborations can be developed within the framework of information sharing and project studies in local, regional and international areas.

In order for pre-service teachers to become more qualified educators on environmental education, new arrangements can be made by integrating environmental education programs for different education levels at universities in teacher training programs.

Since theoretical courses are not sufficient to improve the attitudes of pre-service teachers towards the environment, pre-service teachers should be given more environmental education courses in undergraduate education.

Environmental education given to teachers and pre-service teachers should be provided within a more interdisciplinary framework.

Funding: This research received no external funding.

Acknowledgments: The author wants to thank to Derya Çınar for her kind help. A part of this study was presented as a verbal presentation at the 5th International Conference on Lifelong Education and Leadership for All-ICLEL 2019 held in Baku, Azerbaijan on 9–11 July 2019.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Little, W.; Fowler, H.W.; Coulson, J. *The Shorter Oxford English Dictionary on Historical Principles*; Onions, C.T., Ed.; Clarendon Press: Oxford, UK, 1992.
2. Gladwin, T.N.; Kennelly, J.J.; Krause, T.-S. Shifting paradigms for sustainable development: Implications for management theory and research. *Acad. Manag. Rev.* **1995**, *20*, 874–907. [[CrossRef](#)]
3. Toytok, E.; Gürel, S. Does project children's university increase academic self-efficacy in 6th graders? A weak experimental design. *Sustainability* **2019**, *11*, 778. [[CrossRef](#)]
4. World Commission on Environment and Development—WCED. *Report of the World Commission on Environment and Development: Our Common Future*. UN Documents: *Gathering a Body of Global Agreements*; Oxford University Press: Oxford, UK, 1987.
5. UNESCO. Rethinking Education: Towards a Global Common Good? 2015. Available online: <https://en.unesco.org/news/rethinking-education-towards-global-common-good> (accessed on 13 August 2019).
6. UNESCO. Shaping the Future We Want—UN Decade of Education for Sustainable Development (Final Report), Sustainable Development Knowledge Platform. 2014. Available online: <https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=1682&menu=35> (accessed on 13 August 2019).
7. United Nations. The 2030 Agenda for Sustainable Development and SDGs—Environment—European Commission. 2015. Available online: <https://ec.europa.eu/environment/sustainable-development/SDGs/> (accessed on 13 August 2019).
8. UNICEF. A Post-2015 World Fit for Children: Sustainable Development Starts with Safe, Healthy and Well Educated Children. 2013. Available online: https://www.unicef.org/agenda2030/files/Post2015OWGreviewCR_FINAL.pdf (accessed on 13 August 2019).
9. Chan, M. Linking child survival and child development for health, equity, and sustainable development. *Lancet* **2013**, *381*, 1514–1515. [[CrossRef](#)]
10. Sachs, J.D. From millennium development goals to sustainable development goals. *Lancet* **2012**, *379*, 2206–2211. [[CrossRef](#)]
11. Sterling, S. A commentary on education and sustainable development goals. *J. Educ. Sustain. Dev.* **2016**, *10*, 208–213. [[CrossRef](#)]
12. UNESCO. Education for Sustainable Development Goals—Learning Objectives. 2017. Available online: <https://developmenteeducation.ie/resource/education-sustainable-development-goals-learning-objectives/> (accessed on 13 August 2019).

13. Korhonen, K.; Lappalainen, A. Examining the environmental awareness of children and adolescents in the Ranomafana Region, Madagascar. *Environ. Educ. Res.* **2004**, *10*, 195–216. [[CrossRef](#)]
14. Cui, J.; Jo, H.; Velasquez, M.G. The influence of christian religiosity on managerial decisions concerning the environment. *J. Bus. Ethics* **2015**, *132*, 203–231. [[CrossRef](#)]
15. UNESCO/UNEP. Nevada Conference of the International Union for the Conservation of Nature and Natural Resources. 1970. Available online: <https://www.iucn.org/about> (accessed on 13 August 2019).
16. KACEE. What Is Environmental Education? 2019. Available online: <http://www.kacee.org/what-environmental-education-0> (accessed on 12 August 2019).
17. National Environmental Education Advisory Council (U.S.). *Report Assessing Environmental Education in the United States and the Implementation of the National Environmental Education Act of 1990*; U.S. Environmental Protection Agency, Environmental Education Division: Washington, DC, USA, 1996.
18. Palmer, J. *Environmental Education in the 21st Century: Theory, Practice, Progress and Promise*; Routledge: New York, NY, USA, 1998.
19. Sinha, S.; Jangira, N.K.; Das, S. Environmental education: Module for pre-service training of social science teachers and supervisors for secondary schools. In *International Environmental Education Programme, Environmental Education Series 9*; UNESCO-UNEP: New Delhi, India, 1985.
20. The Belgrade Charter: A Framework for Environmental Education—UNESCO Digital Library. In Proceedings of the International Workshop on Environmental Education, Belgrade, Yugoslavia, 13–22 October 1975.
21. USSR. Final Report—UNESCO Digital Library. In Proceedings of the Intergovernmental Conference on Environmental Education, Tbilisi, Georgia, 14–26 October 1977.
22. Wals, A.E.J.; Kieft, G. *Education for Sustainable Development: Research Overview*; Sida: Stockholm, Sweden, 2010.
23. UNESCO/UNEP. UNCED: The Earth Summit. *Connect* **1992**, *17*, 1–8.
24. Hens, L.; Nath, B. The Johannesburg Conference. In *The World Summit on Sustainable Development: The Johannesburg Conference*; Hens, L., Nath, B., Eds.; Springer Netherlands: Dordrecht, The Netherlands, 2005; pp. 1–33.
25. UNESCO. World Conference on Education for Sustainable Development: Bonn, Germany: Proceedings—UNESCO Digital Library. 2009. Available online: <https://unesdoc.unesco.org/ark:/48223/pf0000185056> (accessed on 13 August 2019).
26. Moyo, N.; Masuku, F. Based on environmental education: The effects of environmental knowledge and awareness on the purchase intention of new energy vehicles in the Southern part of China. *ASSRJ* **2018**, *5*, 390–402. [[CrossRef](#)]
27. Zsóka, Á.; Szerényi, Z.M.; Széchy, A.; Kocsis, T. Greening due to environmental education? Environmental knowledge, attitudes, consumer behavior and everyday pro-environmental activities of Hungarian high school and university students. *J. Clean. Prod.* **2013**, *48*, 126–138. [[CrossRef](#)]
28. Lucas, A.M. Environment and Environmental Education: Conceptual Issues and Curriculum Implications. Ph.D. Dissertation, Ohio State University, Columbus, OH, USA, 1972.
29. Fien, J. *Education for the Environment: Critical Curriculum Theorising and Environmental Education*; Deakin University Press: Geelong, Australia, 1993.
30. Fien, J. Education for the environment: A critique—An analysis. *Environ. Educ. Res.* **2000**, *6*, 179–192. [[CrossRef](#)]
31. Gough, N. Thinking globally in environmental education: Implications for internationalizing curriculum inquiry. In *International Handbook of Curriculum Research*; Pinar, W.F., Ed.; Routledge: New York, NY, USA, 2013; pp. 53–72.
32. Tilbury, D. Environmental education for sustainability: Defining the new focus of environmental education in the 1990s. *Environ. Educ. Res.* **1995**, *1*, 195–212. [[CrossRef](#)]
33. Palmer, J.; Neal, P. *The Handbook of Environmental Education*; Routledge: New York, NY, USA, 1994.
34. UNESCO. *New Frontiers for Designing and Implementing Environmental Education Programmes: Report of a Roundtable, Colombo, Sri Lanka, 2–6 August 1992*; Unesco Principal Regional Office for Asia and the Pacific: Bangkok, Thailand, 1992.
35. Curriculum Development Council—CDC. *Guidelines on Environmental Education in Schools*; Education Department: Hong Kong, China, 1992.

36. Paredes-Chi, A.A.; Viga-de Alva, M.D. Environmental education (EE) policy and content of the contemporary (2009–2017) Mexican national curriculum for primary schools. *Environ. Educ. Res.* **2018**, *24*, 564–580. [[CrossRef](#)]
37. Scott, B. Snapping Synapses in the Early Years. 1998. Available online: <https://www.idra.org/resource-center/snapping-synapses-in-the-early-years/> (accessed on 1 September 2019).
38. Trawick-Smith, J. *Early Childhood Development: A Multicultural Perspective*, 6th ed.; Pearson: Boston, MA, USA, 2013.
39. Woolfolk, A.; Perry, N.E. *Child and Adolescent Development*; Pearson: Boston, MA, USA, 2012.
40. European Commission. *Early Childhood Education and Care: Providing All Our Children with the Best Start for the World of Tomorrow*; Communication COM 66; European Commission: Brussels, Belgium, 2011.
41. Heckman, J.J. Skill formation and the economics of investing in disadvantaged children. *Science* **2006**, *312*, 1900–1902. [[CrossRef](#)] [[PubMed](#)]
42. Van Laere, K.; Vandenbroeck, M. Early learning in preschool: Meaningful and inclusive for all? Exploring perspectives of migrant parents and staff. *Eur. Early Child. Educ. Res. J.* **2017**, *25*, 243–257. [[CrossRef](#)]
43. Berk, L.E.; Winsler, A. *Scaffolding Children's Learning: Vygotsky and Early Childhood Education*; National Association for the Education of Young Children: Washington, DC, USA, 1995.
44. Copple, C.; Bredekamp, S. *Developmentally Appropriate Practice in Early Childhood Programs Serving Children from Birth through Age 8*; The National Association of Education of Young Children: Washington, DC, USA, 2008.
45. Fromberg, D. Play. In *The Early Childhood Curriculum: A Review of Current Research*; Seefeldt, C., Ed.; Teachers College Pr: New York, NY, USA, 1992; pp. 35–74.
46. Smilansky, S.; Shefatya, L. *Facilitating Play: A Medium For Promoting Cognitive, Socio-Emotional And Academic Development in Young Children*; Psychosocial & Educational: Gaithersburg, MD, USA, 1990.
47. Chawla, L. Learning to Love the Natural World Enough to Protect It. *Barn* **2006**, *2*, 57–78.
48. Kellert, S.R. *Kinship to Mastery: Biophilia in Human Evolution and Development*; Island Press: Washington, DC, USA, 2003.
49. Kellert, S.R. *Building for Life: Designing and Understanding the Human-Nature Connection*; Island Press: Washington, DC, USA, 2005.
50. Miller, D.L. The seeds of learning: Young children develop important skills through their gardening activities at a midwestern early education program. *Appl. Environ. Educ. Commun.* **2007**, *6*, 49–66. [[CrossRef](#)]
51. Moore, R.C.; Marcus, C.C. Healthy planet, healthy children: Designing nature into the daily spaces for childhood. In *Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life*; Kellert, S.R., Heerwagen, J., Mador, M., Eds.; Wiley: Hoboken, NJ, USA, 2011; pp. 153–203.
52. Sobel, D. *Children's Special Places: Exploring the Role of Forts, Dens, and Bush Houses in Middle Childhood*; Wayne State University Press: Detroit, MI, USA, 2001.
53. Wilson, R. Starting early: Environmental education during the early childhood years. *J. Wildl. Rehabil.* **2000**, *23*, 23–25.
54. Schultz, P.W. New environmental theories: Empathizing with nature: The effects of perspective taking on concern for environmental issues. *J. Social Issues* **2000**, *56*, 391–406. [[CrossRef](#)]
55. Bixler, R.D.; Carlisle, C.L.; Hammlt, W.E.; Floyd, M.F. Observed fears and discomforts among urban students on field trips to wildland areas. *J. Environ. Educ.* **1994**, *26*, 24–33. [[CrossRef](#)]
56. White, R. Young Children's Relationship with Nature: Its Importance to Children's Development and the Earth's Future. 2004. Available online: <https://www.whitehutchinson.com/children/articles/childrennature.shtml> (accessed on 1 September 2019).
57. White, R.; Stoecklin, V.L. Nurturing Children's Biophilia: Developmentally Appropriate Environmental Education for Young Children. 2008. Available online: <https://www.whitehutchinson.com/children/articles/downloads/nurturing.pdf> (accessed on 13 August 2019).
58. Eagles, P.F.J.; Demare, R. Factors influencing children's environmental attitudes. *J. Environ. Educ.* **1999**, *30*, 33–37. [[CrossRef](#)]
59. Chawla, L.; Keena, K.; Pevec, I.; Stanley, E. Green schoolyards as havens from stress and resources for resilience in childhood and adolescence. *Health Place* **2014**, *28*, 1–13. [[CrossRef](#)] [[PubMed](#)]
60. Chawla, L.; Hart, R.A. The roots of environmental concern. *NAMTA J.* **1995**, *20*, 148–157.

61. Cohen, S.; Horm-Wingerd, D. Children and the environment: Ecological awareness among preschool children. *Environ. Behav.* **1993**, *25*, 103–120. [[CrossRef](#)]
62. Cars, M.; West, E.E. Education for sustainable society: attainments and good practices in Sweden during the United Nations Decade for Education for Sustainable Development (UNDESD). *Environ. Dev. Sustain.* **2015**, *17*, 1–21. [[CrossRef](#)]
63. Cheng, Y.-M.; Lou, S.-J.; Kuo, S.-H.; Shih, R.-C. Investigating elementary school students' technology acceptance by applying digital game-based learning to environmental education. *Australas. J. Educ. Technol.* **2013**, *29*, 96–110. [[CrossRef](#)]
64. Goralnik, L.; Millenbah, K.F.; Nelson, M.P.; Thorp, L. An environmental pedagogy of care: Emotion, relationships, and experience in higher education ethics learning. *J. Exp. Educ.* **2012**, *35*, 412–428. [[CrossRef](#)]
65. Kopnina, H. An exploratory case study of Dutch children's attitudes toward consumption: Implications for environmental education. *J. Environ. Educ.* **2013**, *44*, 128–144. [[CrossRef](#)]
66. Kopnina, H. Education for Sustainable Development (ESD): Exploring children's moral reasoning about sustainable development and environment through vignettes. *Stud. Educ. Eval.* **2014**, *41*, 124–132. [[CrossRef](#)]
67. Kopnina, H.; Cocis, A. Environmental education: Reflecting on application of environmental attitudes measuring scale in higher education students. *Educ. Sci.* **2017**, *7*, 69. [[CrossRef](#)]
68. Kudryavtsev, A.; Krasny, M.E.; Stedman, R.C. The impact of environmental education on sense of place among urban youth. *Ecosphere* **2012**, *3*, 1–15. [[CrossRef](#)]
69. Tseveni, I. Towards an environmental education without scientific knowledge: An attempt to create an action model based on children's experiences, emotions and perceptions about their environment. *Environ. Educ. Res.* **2011**, *17*, 53–67. [[CrossRef](#)]
70. Durmuş, Y.; Yapıcıoğlu, A.E. Kemaliye (Erzincan) ecology based nature education project in participants' eyes. *Procedia Soc. Behav. Sci.* **2015**, *197*, 1134–1139. [[CrossRef](#)]
71. Şimşekli, Y. An implementation to raise environmental awareness of elementary education students. *Procedia Soc. Behav. Sci.* **2015**, *191*, 222–226. [[CrossRef](#)]
72. Uzun, F.V.; Keleş, Ö. The effects of nature education project on the environmental awareness and behavior. *Procedia Soc. Behav. Sci.* **2012**, *46*, 2912–2916. [[CrossRef](#)]
73. Tsekos, C.A.; Christoforidou, E.I.; Tsekos, E.A. Planning an environmental education project for kindergarten under the theme of "the Forest". *Rev. Eur. Stud.* **2012**, *4*, 111–117. [[CrossRef](#)]
74. Esa, N. Environmental knowledge, attitude and practices of student teachers. *Int. Res. Geogr. Environ. Educ.* **2010**, *19*, 39–50. [[CrossRef](#)]
75. Tuncer, G.; Tekkaya, C.; Sungur, S.; Çakıroğlu, J.; Ertepinar, H.; Kaplowitz, M. Assessing pre-service teachers' environmental literacy in Turkey as a mean to develop teacher education programs. *Int. J. Educ. Dev.* **2009**, *29*, 426–436. [[CrossRef](#)]
76. Miles, M.B.; Huberman, A.M. *Nitel Veri Analizi (Qualitative Data Analysis)*; Akbaba Akgül, S., Ersoy, A., Eds.; Pegem Akademi: Ankara, Turkey, 2015.
77. Yıldırım, A.; Şimşek, H. *Sosyal Bilimlerde Nitel Araştırma Yöntemleri (Qualitative Research Methods in Social Sciences)*; Seçkin: Ankara, Turkey, 2011.
78. Creswell, J.W. *Nitel Araştırma Yöntemleri (Qualitative Research Methods)*; Bütün, M., Demir, S.B., Eds.; Siyasal Kitabevi: Ankara, Turkey, 2016.
79. Patton, M.Q. *Nitel Araştırma ve Değerlendirme Yöntemleri (Qualitative Research and Assessment Methods)*; Bütün, M., Demir, S.B., Eds.; Pegem Akademi: Ankara, Turkey, 2014.
80. Büyüköztürk, Ş.; Çakmak, K.E.; Akgün, Ö.E.; Karadeniz, Ş.; Demirel, F. *Bilimsel Araştırma Yöntemleri (Scientific Research Methods)*; Pegem Akademi: Ankara, Turkey, 2009.
81. Merriam, S.B. *Nitel Araştırma: Desen Ve Uygulama İçin Bir Rehber (Qualitative Research: A Guide For Pattern And Application)*; Turan, S., Ed.; Nobel: Ankara, Turkey, 2015.
82. Türnüklü, A. Eğitimbilim araştırmalarında etkin olarak kullanılabilir nitel bir araştırma tekniği: Görüşme (A qualitative research method that can be used effectively in pedagogy research: Interview). *Kuram ve Uygulamada Eğitim Yönetimi* **2000**, *24*, 543–559.
83. Ekiz, D. *Bilimsel Araştırma Yöntemleri (Scientific Research Methods)*; Anı yayınları: Ankara, Turkey, 2009.
84. Youngberg, M.C. A Qualitative Study of Three Outdoor Environmental Education Programs in Pasco and Hillsborough Counties in Florida. Ph.D. Thesis, Florida Gulf Coast University, Fort Myers, FL, USA, 2015.

85. Fetihi, L.; Gülay, H. Deprem bilinci artırma programının (DEBAP) 6 yaş çocukları üzerindeki etkisi (Effect of the earthquake awareness raising program (DEBAP) on 6-year-old children). *Int. Online J. Educ. Sci.* **2011**, *2*, 1–17.
86. Gülay Ogelman, H. Denizli’de 5-6 yaş grubu çocuklar için toprak eğitimi projesi: Tipitop ve arkadaşları ile toprağı tanıyoruz (Soil education project for 5–6-year-old children in Denizli: We get to know the soil with Tipitop and his friends). *Çocuk Çocuk. Anne-Baba Eğitimci Dergisi* **2012**, *97*, 26–29.
87. Özdemir, O.; Uzun, N. Yeşil sınıf modeline göre yürütülen fen ve doğa etkinliklerinin ana sınıfı öğrencilerinin çevre algılarına etkisi (Effect of the science and nature activities carried out according to the green classroom model on the environment perceptions of preschool students). *Çocuk Gelişimi ve Eğitimi Dergisi* **2006**, *1*, 12–20.
88. Yalçın, F.A.; Yalçın, M.; Bozan, S.; Gecikli, E. Preschool teachers’ views of environmental education. *Bayburt Eğitim Fakültesi Dergisi* **2016**, *11*, 633–642.
89. Beringer, A.; Wright, T.; Malone, L. Sustainability in higher education in Atlantic Canada. *Int. J. Sustain. High. Educ.* **2008**, *9*, 48–67. [[CrossRef](#)]
90. Than, N.T. Awareness of Vietnamese primary school teachers on environmental education. *Int. Res. Geogr. Environ. Educ.* **2001**, *10*, 429–444. [[CrossRef](#)]
91. Dada, D.O.; Eames, C.; Calder, N. Impact of environmental education on beginning preservice teachers’ environmental literacy. *Aust. J. Environ. Educ.* **2017**, *33*, 201–222. [[CrossRef](#)]
92. Powers, A.L. Teacher preparation for environmental education: Faculty perspectives on the infusion of environmental education into preservice methods courses. *J. Environ. Educ.* **2004**, *35*, 3–11.
93. Wilke, R.J. Mandating preservice environmental education teacher training: The wisconsin experience. *The J. Environ. Educ.* **1985**, *17*, 1–8. [[CrossRef](#)]
94. Brunton, P.; Thornton, L. *Science in the Early Years: Building Firm Foundations from Birth to Five*; Sage Publications: London, UK, 2010.
95. Karaer, H.; Kösterelioglu, M. Amasya ve Sinop illerinde çalışan okulöncesi öğretmenlerin fen kavramlarının öğretilmesinde kullandıkları yöntemlerin belirlenmesi (Determination of the methods used by preschool teachers working in Amasya and Sinop provinces to teach science concepts). *Kastamonu Eğitim Dergisi* **2005**, *13*, 447–454.
96. Bell, A.C.; Dymont, J.E. *Grounds for Action: Promoting Physical Activity through School Ground Greening in Canada*; Evergreen National: Toronto, ON, Canada, 2006.
97. Dymont, J.E. Green school grounds as sites for outdoor learning: Barriers and opportunities. *Int. Res. Geogr. Environ. Educ.* **2005**, *14*, 28–45. [[CrossRef](#)]
98. Davis, J.M. What is early childhood education for sustainability. In *Young Children and the Environment: Early Education for Sustainability*; Davis, J.M., Ed.; Cambridge University Press: New York, NY, USA, 2010; pp. 21–42.
99. Samuelsson, I.P. Why we should begin early with ESD: The role of early childhood education. *Int. J. Early Child.* **2011**, *43*, 103–118. [[CrossRef](#)]
100. Faber, T.A.; Kuo, F.E. Is contact with nature important for healthy child development? State of the evidence. In *Children and Their Environments: Learning, Using and Designing Spaces*; Spencer, C., Blades, M., Eds.; Cambridge University Press: Cambridge, UK, 2006; pp. 124–140.
101. Louv, R. Leave No Child Inside. *Orion Magazine*, 2007. Available online: <https://orionmagazine.org/article/leave-no-child-inside/> (accessed on 14 August 2019).
102. Maltese, A.V.; Tai, R.H. Eyeballs in the fridge: Sources of early interest in science. *Int. J. Sci. Educ.* **2010**, *32*, 669–685. [[CrossRef](#)]
103. Wells, N.M.; Evans, G.W. Nearby nature: A buffer of life stress among rural children. *Environ. Behav.* **2003**, *35*, 311–330. [[CrossRef](#)]
104. Elliott, S. Children in the natural world. In *Young Children and the Environment: Early Education for Sustainability*; Davis, J.M., Ed.; Cambridge University Press: New York, NY, USA, 2010; pp. 43–75.
105. Chawla, L. Life paths into effective environmental action. *J. Environ. Educ.* **1999**, *31*, 15–26. [[CrossRef](#)]
106. Ewert, A.; Place, G.; Sibthorp, J. Early-life outdoor experiences and an individual’s environmental attitudes. *Leis. Sci.* **2005**, *27*, 225–239. [[CrossRef](#)]
107. Hanscom, A.J. *Balanced and Barefoot: How Unrestricted Outdoor Play Makes for Strong, Confident, and Capable Children*; New Harbinger Publications: Oakland, CA, USA, 2016.

108. Duschl, R.A.; Schweingruber, H.A.; Shouse, A. *Taking Science to School: Learning and Teaching in Grades K-8*; National Research Council: Washington, DC, USA, 2007.
109. Metz, K.E. Narrowing the gulf between the practices of science and the elementary school science classroom. *Elem. School J.* **2008**, *109*, 138–161. [CrossRef]
110. Gelman, R.; Brennenman, K. Science learning pathways for young children. *Early Child. Res. Q.* **2004**, *19*, 150–158. [CrossRef]
111. Gerde, H.K.; Schachter, R.E.; Wasik, B.A. Using the scientific method to guide learning: An integrated approach to early childhood curriculum. *Early Child. Educ. J.* **2013**, *41*, 315–323. [CrossRef]
112. Kıldan, O.; Pektaş, M. Erken çocukluk döneminde fen ve doğa ile ilgili konuların öğretilmesinde okulöncesi öğretmenlerinin görüşlerinin belirlenmesi (Determination of preschool teachers' views regarding teaching science and nature subjects during the early childhood period). *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi* **2009**, *10*, 113–127.
113. Hine, R.; Pretty, J.; Barton, J. Research Project: Social, Psychological and Cultural Benefits of Large Natural Habitat & Wilderness Experience: A Review of Current Literature. Report for the Wilderness Foundation by University of Essex. 2009. Available online: https://www.childrenandnature.org/wp-content/uploads/2015/04/CNNRsrchVol_05.pdf (accessed on 13 May 2019).
114. Jordan, R. Stanford researchers find mental health prescription: Nature. *Stanf. CA* **2015**, *5*, 13–18.
115. Cutter, A.; Smith, R. Gauging primary school teachers' environmental literacy: An issue of 'priority'. *Asia Pac. Educ. Rev.* **2001**, *2*, 45–60. [CrossRef]
116. Knapp, D. The Thessaloniki Declaration: A wake-up call for environmental education? *J. Environ. Educ.* **2000**, *31*, 32–39. [CrossRef]
117. McKeown-Ice, R. Environmental education in the United States: A survey of preservice teacher education programs. *J. Environ. Educ.* **2000**, *32*, 4–11. [CrossRef]
118. Straková, Z.; Cimermanová, I. Critical thinking development—A necessary step in higher education transformation towards sustainability. *Sustainability* **2018**, *10*, 3366. [CrossRef]
119. Ayvacı, H.Ş.; Devocioğlu, Y.; Yiğit, N. Okul öncesi öğretmenlerinin fen ve doğa etkinliklerindeki yeterliliklerinin belirlenmesi (Determination of preschool teachers' competence in science and nature activities). In Proceedings of the V. Ulusal Fen Bilimleri ve Matematik Eğitim Kongresi, Orta Doğu Teknik Üniversitesi, Ankara, Türkiye, 16–18 September 2002.
120. Garbett, D. Science education in early childhood teacher education: Putting forward a case to enhance student teachers' confidence and competence. *Res. Sci. Educ.* **2003**, *33*, 467–481. [CrossRef]
121. Özbey, S. Okul öncesi eğitim kurumlarında görev yapan öğretmenlerin fen etkinliklerine ilişkin yeterliliklerinin belirlenmesi (Determination of the competence of teachers working at preschool education institutions with regard to science activities). Yayınlanmamış Yüksek Lisans Tezi [Unpublished]. Master's Thesis, Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara, Turkey, 2006.
122. Sylva, K.; Melhuish, E.; Sammons, P.; Siraj-Blatchford, I.; Taggart, B. *Early Childhood Matters: Evidence from the Effective Preschool and Primary Education Project*; Routledge: London, UK, 2010.
123. Yusoff, S. The need for emphasis on environmental education for national development in Malaysia. *Masalah Pendidikan Jilid* **2003**, *26*, 75–82.
124. Özbek, S. Okul öncesi öğretmenlerinin fen eğitimine ilişkin görüşleri ve uygulamalarının incelenmesi (Examination of preschool teachers' views and applications regarding science education). Yayınlanmamış Yüksek Lisans Tezi [Unpublished]. Master's Thesis, Çukurova Üniversitesi Sosyal Bilimler Enstitüsü, Adana, Turkey, 2009.
125. Aslan, O.; Şenel Zor, T.; Tamkavas Cicim, E. Okul öncesi öğretmenlerinin fen eğitimine yönelik görüşlerinin ve hizmet içi eğitim ihtiyaçlarının belirlenmesi (Determination of preschool teachers' views on science education and in-service training needs). *J. Int. Soc. Res.* **2015**, *8*, 519–530. [CrossRef]
126. Çınar, S. Okul öncesi öğretmenlerin fen ve doğa konularının öğretiminde kullandıkları etkinliklerin belirlenmesi (Determination of the activities used by preschool teachers in teaching science and nature subjects). *Eğitim ve Öğretim Araştırmaları Dergisi* **2013**, *2*, 364–371.
127. Kandır, A.; Özbey, S.; İnal, G. Okul öncesi öğretmenlerinin eğitim programlarını planlama ve uygulamada karşılaştıkları güçlüklerin incelenmesi (Examination of the difficulties faced by preschool teachers in planning and implementing education programs). *Uluslararası Sosyal Araştırmalar Dergisi* **2009**, *2*, 373–387.

128. Özsırkıntı, D.; Akay, C.; Yılmaz Bolat, E. Okul öncesi öğretmenlerinin okul öncesi eğitim programı hakkındaki görüşleri—Adana ili örneği (Opinions of preschool teachers on the preschool education program - The case of Adana province). *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi* **2014**, *15*, 313–331.
129. Kim, G.; Vaswani, R.T.; Kang, W.; Nam, M.; Lee, D. Enhancing ecoliteracy through traditional ecological knowledge in proverbs. *Sustainability* **2017**, *9*, 1182. [CrossRef]
130. Palmberg, I.; Berg, I.; Jeronen, E.; Kärkkäinen, S.; Norrgård-Sillanpää, P.; Persson, C.; Vilkonis, R.; Yli-Panula, E. Nordic–Baltic student teachers’ identification of and interest in plant and animal species: The importance of species identification and biodiversity for sustainable development. *J. Sci. Teach. Educ.* **2015**, *26*, 549–571. [CrossRef]
131. Burdette, H.L.; Whitaker, R.C. Resurrecting free play in young children: Looking beyond fitness and fatness to attention, affiliation, and affect. *Arch. Pediatr. Adolesc. Med.* **2005**, *159*, 46–50. [CrossRef] [PubMed]
132. Gülay, H.; Ekici, G. MEB okul öncesi eğitim programının çevre eğitimi açısından analizi (The analysis of national early childhood education curriculum in terms of environmental education). *Türk Fen Eğitimi Dergisi* **2010**, *7*, 74–84.
133. Olgan, R.; Kahriman Öztürk, D. An investigation in the playgrounds of public and private preschools in Ankara. *Educ. Sci.* **2011**, *36*, 84–96.
134. Wals, A.E.J. Learning our way out of unsustainability: The role of environmental education. In *The Oxford Handbook of Environmental and Conservation Psychology*; Clayton, S., Ed.; Oxford University Press: Oxford, UK, 2012; pp. 628–644.
135. Beery, T.; Jørgensen, K.A. Children in nature: Sensory engagement and the experience of biodiversity. *Environ. Educ. Res.* **2018**, *24*, 13–25. [CrossRef]
136. Robertson, J.S. Forming Preschoolers’ Environmental Attitude Lasting Effects Of Early Childhood Environmental Education. Master’s Thesis, Royal Roads University, Victoria, BC, Canada, 2008.
137. Avcı, N. Fen doğa eğitiminde proje yaklaşımı (Project approach in science and nature education). In *Erken Çocukta Gelişim Ve Eğitimde Yeni Yaklaşımlar 2*; Sevinç, M., Ed.; Morpa Yayınları: İstanbul, Turkey, 2005; pp. 359–365.
138. Alabay, E. Okulöncesi öğretmenlerin fen ve doğa eğitiminde kullandıkları öğretim metotları (Teaching methods used by preschool teachers in science and nature education). In Proceedings of the UMES’07-Ulusal Teknik Eğitim, Mühendislik ve Eğitim Bilimleri Genç Araştırmacılar Sempozyumu, Kocaeli, Turkey, 20–22 Haziran 2007.
139. Sansar, S.B. Okul öncesi öğretmenlerin fen öğretimine yönelik tutumları ile fen etkinliklerinde kullandıkları yöntemler arasındaki ilişkinin incelenmesi (Examination of the relationship between attitudes towards science education and methods used in science activities by preschool teachers). Yayınlanmamış Yüksek Lisans Tezi [Unpublished]. Master’s Thesis, Abant İzzet Baysal Üniversitesi Sosyal Bilimler Enstitüsü, Bolu, Turkey, 2010.
140. Boca, G.D.; Saraçlı, S. Environmental education and student’s perception, for sustainability. *Sustainability* **2019**, *11*, 1553. [CrossRef]
141. Poyraz, H.; Titrek, O. Türkiye’de hayat boyu öğrenmenin geliştirilmesi (Development of lifelong learning in Turkey). *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi* **2013**, *13*, 115–131.
142. Fraenkel, J.; Wallen, N.; Hyun, H. *How to Design and Evaluate Research in Education*; McGraw-Hill Education: New York, NY, USA, 2011.

