


Kindergarten Teachers' Perceptions of Ecological Education Programs in Preschoolers – A Focus Group Approach

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Abstract

Keywords:

ecological education; kindergarten teachers; qualitative study; reflections.

The purpose of ecological education (EE), in addition to promoting understanding of environmental issues and the motivation to deal with them, is to ensure that preschoolers understand that humans are part of the biosphere and that they have the ability to impact its functionality in various levels. Kindergarten teachers are important agents of change in terms of creating opportunities for children to experience and internalise values based on ecological education. The objective of this study is to investigate teachers' perceptions of the EE programs in preschoolers, i.e. activities focusing on the direction of developing environmentally friendly behaviors and attitudes in children. Focus group methodological approach was used in order to collect the reflections of five kindergarten teachers in Romania. The focus group was guided by specific questions. Group members were convened online, being informed that the entire meeting would be recorded and that the data would be confidential and used strictly for research purposes. Following the thematic qualitative analysis of the transcript, the identified themes indicate that teachers expressed openness and readiness to implement ecological educational activities in their own classes with the aim of fostering a friendly behavior of children with the environment.

Zusammenfassung

Schlüsselworte:

ökologische bildung; kindergartenslehrer; qualitative studie; reflexionen.

Der Zweck der ökologischen Bildung (EE) besteht darin, neben der Förderung des Verständnisses für Umweltfragen und der Motivation, sich mit ihnen auseinanderzusetzen, sicherzustellen, dass Vorschulkinder verstehen, dass Menschen Teil der Biosphäre sind und dass sie die Fähigkeit haben, deren Funktionsweise auf verschiedenen Ebenen zu beeinflussen. Kindergartenlehrer sind wichtige Akteure des Wandels, wenn es darum geht, Möglichkeiten zu schaffen, damit Kinder Werte auf der Grundlage der ökologischen Bildung erleben und verinnerlichen können. Ziel dieser Studie ist es, die Wahrnehmungen der Lehrerinnen und Lehrer zu den EE-Programmen für Vorschulkinder zu untersuchen, d.h. Aktivitäten, die darauf abzielen, umweltfreundliches Verhalten und Einstellungen bei Kindern zu entwickeln. Die Fokusgruppenmethodik wurde verwendet, um die Reflexionen von fünf Kindergartenlehrern in Rumänien zu sammeln. Die Fokusgruppe wurde anhand spezifischer Fragen geleitet. Die Gruppenmitglieder wurden online einberufen und darüber informiert, dass das gesamte Treffen aufgezeichnet wird und die Daten vertraulich sind und ausschließlich für Forschungszwecke verwendet werden. Nach der thematischen qualitativen Analyse des Transkripts zeigen die identifizierten Themen, dass die Lehrerinnen und Lehrer sich offen und bereit zeigten, ökologische Bildungsaktivitäten in ihren eigenen Klassen umzusetzen, um ein umweltfreundliches Verhalten der Kinder zu fördern.

1. Introduction

The main goal of ecological education is the formation of attitudes and behaviours that lead to the protection of the environment. Starting from this premise, it is considered appropriate for ecological education to be offered as early as possible, i.e. from the preschool age, because this is the period when the cognitive, emotional and moral formation of the future responsible human beings starts (Ferreira et al., 2016).

The first interactions between the preschool children and nature should be as meaningful as possible and it should cause emotional experiences

that foster the formation of a moral conscience towards the environment and to the development of environmentally friendly behavior. In order for this to happen, it is necessary for the ecological activities to be attractive and practical, adapted to the level of communication and understanding of preschoolers, and to take place as often as the preschool programs allow (Kahriman-Öztürk, 2010; Kahriman-Öztürk et al., 2012; Ahi & Balcı, 2017; Alıcı, 2013; Cengizoglu, 2013; Evans et al., 2018; Ernst & Burcak, 2019; Melis et al., 2020).



Preschool teachers have the responsibility to design, organize and implement ecological activities in ways that arouse the enthusiasm of children and the desire to get involved in the problems that the environment is currently facing, as well as to try to find sustainable solutions to preserve the environment (Wilson, 2002).

2. Theoretical foundation

Recent literature reviews indicate that ecological education is recognized as very important in these current times, because humanity is facing numerous environmental problems (e.g. Marin & Rusu, 2023). Numerous researchers have come to the conclusion that ecological education must start from early ages, in which characters starts to form and attitudes develop in association with moral conscience (Broyles, 2011; Ferreira et al., 2016; Evans et al., 2018; Ernst & Burcak, 2019; Melis et al., 2020;)

Kavaz et al. (2021) investigated the children's perceptions of the environment. The researchers used the 7R ecological model proposed by World Organisation for Early Childhood Education in 2011 (WOECE, 2011). Through this study, it was found that preschoolers are not familiar with all the dimensions of the 7R model, but rather with only two dimensions of the 7R model, namely the dimensions "reduce" and "respect".

Biber et al. (2021) conducted a descriptive study in which they examined the environmental awareness and behavior of 5-6-year-old children attending private nature-centered kindergartens and public kindergartens. Following the study, the researchers concluded that the awareness of the existence of the environment and the friendly behavior towards the environment of preschool children from private nature-centered kindergartens were significantly higher than that of preschoolers from public kindergartens.

Tümer and Temel (2021) conducted a descriptive study aiming to develop an environmental scale to measure the environmental awareness of preschoolers aged between 48-72 months. Gökçeli & Kandir (2015) carried out a qualitative study with the aim of testing the impact of an Environmental Education Program on preschool children aged between 48 - 66 months. The researchers concluded that the Environmental Education Program was effective and increased children's awareness of the environment. More than that, Gökçeli (2022) carried out a quasi-experimental study aiming to find out if language activities integrated with ecological education within the

Environmental Education Program have a positive or negative impact on the awareness of both the environment and environmental problems in preschoolers aged between 4-6 years. The researcher concluded that there are differences between the experimental and control groups, thus indicating that the Environmental Education Program had a positive impact on the investigated variables.

Karakaya et al. (2022) performed a qualitative study that included activities for preschoolers to understand the existence of a group of living organism and activities to evaluate the newly formed knowledge about this group. The aim was that preschoolers in the age of 4-6 years old discover this different group of species (*Fungi*), as well as the role of this group of organisms in the composition of the environment.

Taking into account that the first experiences of children regarding education toward nature in general is lived in the family, Kroufek et al. (2016) conducted a qualitative study with the aim of describing the link between the attitudes and ecological behavior of preschool children and their parents. The conclusion developed at the end of the study was that there is a positive correlation between the parental level of education and their attitudes towards the environment and the children's attitudes towards the environment.

Both education in general and ecological education offered to preschoolers must be in continuous innovation and development, and teaching must be carried out using innovative and original methods that lead to the achievement of educational goals. Starting from this consideration, Kabadayi and Altinsoy (2018) conducted an experimental study with the aim of comparing traditional methods and technological methods to measure the degree of awareness and behavior of preschoolers towards the environment. They concluded that technological methods are more innovative and effective in terms of teaching concepts.

The need to include ecological education in kindergartens is also felt by kindergartens in the Romanian education system. Thus, the Ministry of Education decided in 2023 to introduce a program called "Green Week". This program runs over a period of 5 days where only ecological activities are taught. These activities carried out as part of the "Green Week" program aim to train children to be able to research, identify, make decisions and find solutions regarding the environmental problems that today's society faces.

The aim of this current study is to investigate in a qualitative manner the perceptions of preschool teachers in a Romanian kindergarten in relation to environmental education and the cultivation of environmentally friendly attitudes and behaviors in preschoolers. The focus group method represents a carefully constructed discussion with the aim of understanding the participants' perceptions of a topic and issuing hypotheses on that topic (Krueger & Casey, 2014). The method implies the creation of a group made up of 5-12 people, which is focused on a specific theme, being guided by specific questions (Carey, 1994). In the focus group, the discussion is led by a moderator, and the group, space and time being set beforehand. Group members are convened in a specially arranged space, or in an online context, being informed that the entire session will be recorded, the data being confidential and used strictly for research purposes (Krueger & Casey, 2014). The reflections of the participants are later on analysed by specific protocols in the area of qualitative thematic analysis.

3. Research methodology

3.1. Participants

The invitation to participate in the study was sent to 7 teachers from a public kindergarten in Timis county, Romania, where about 850 children between the ages of 3-6 attended the kindergarten in the 2022-2023 school year. All 7 teachers confirmed their participation, but due to personal reasons, i.e. lack of time, only 5 of the 7 teachers participated in the study (Table 1). All the participating teachers were women, with the age between 40 and 55 years old and with a experience in preschool teacher between 10 and 25 years. The teaching staff gave their informed consent to participate. They were informed about the data recording and the confidentiality of the data usage.

Table 1. The demographic information about the participants.

Nr.	The initials of the teacher's name	Gender	Seniority in education	Parent	The profession	Education level
1	B.L	F	25 years	Yes	Preschool teacher	Higher education
2	P.G	F	24 years	Yes	Preschool teacher	Higher education
3	L.S	F	25 years	Yes	Preschool teacher	Higher education
4	A.M	F	10 years	Yes	Preschool teacher	Higher education
5	J.A	F	22 years	Yes	Preschool teacher	Higher education

3.2. Procedure

The focus group took place online on the Google Meet platform. A pleasant and safe environment was created for the development of the discussion. There were no restrictions in terms of dialogue, as well as no right or wrong answers. The date, time and place of the focus group were communicated in advance to the study participants.

The duration of the focus group was 60 minutes, and for each teacher was allocated a time of 3-5 minutes for each answer to the question. The discussion was led by a moderator (A.M.). The answers from the focus group were recorded and transcribed verbatim by the authors. The data obtained were analyzed according to the method described by Erlingsson & Brysiewicz (2017), having the following three steps: transcribing the text, condensing the text by identifying meaningful units (codes), identifying the themes and the categories.

The questions in this focus group were:

- Have you implemented environmental education activities in the classroom? Please describe them.
- How did you feel when you implemented environmental education activities in the classroom?
- How do you think preschoolers perceived these environmental education activities?
- What do you think is necessary for ecological activities to be an adequate pedagogical and didactic resource to instill ecological behavior in preschoolers?
- What skills do you think preschoolers develop as a result of participating in environmental education activities in kindergarten?
- In what ways do you think parents and/or relatives of preschoolers could contribute to environmental education activities in kindergarten?
- In the future, would you like to participate in trainings for the implementation of environmental education activities in the group? How do you think these should go?

4. Results

The results are presented according to the research questions of the study.

1. Have you implemented environmental education activities in the classroom? Please describe them.

The collected data indicated that all the preschool teachers carried out various ecological activities aiming to instill in preschoolers love and care for the environment. More than that, they integrated

ecological activities with other types of educational activities, such as language education activities, practical activities housekeeping or mathematical activities (table 2).

Table 2. Theme, codes and categories of the answers to the research question 1

Theme	Category	Codes	Informational units from the transcript
Have you implemented environmental education activities in the classroom?	Informational and engaging materials	Handouts	<p>“I implemented sheets with requirements about the ecological activity beneficial for the Earth, visits to the greenhouse with flowers, recycling activities with containers of different colors, collecting and recycling colored caps, watching an educational video about recycling and the importance of plants and animals in our lives” B.L.</p> <p>“I have made games from cardboard boxes, recyclable bins for the four categories - household waste, glass, plastic and papers, eco-mathematical games, games from 5-liter PET bottles” P.G.</p> <p>“I planted flowers with the children, I whitewashed the trees in the yard of the kindergarten, I participated with the children in contests with an ecological theme” L.S.</p> <p>“We recycled batteries, we talked about how to recycle used batteries, we played ecological board games, we collected and we recycled the colored caps together with the children and made toys, paintings and little trains from the caps” L.S.</p> <p>“I went with the children to collect the waste around the kindergarten, I wrote the children's names on the plastic cups from which they drink water and I put the ones that we should have used separately. At the end of the week. I showed how much we managed to save and collected, recycled batteries, we discussed how we can recycle and help nature” A.M.</p> <p>“I planted wheat, I used corks as stamps in the plastic activities, I brought two trash cans to the classroom, one yellow and one black, and since then, we have been collecting trash selectively”. J.A.</p>
		Videos about recycling	
	Gardening activities	Ecomathematical games.	
		Flower planting Taking care of the trees in the kindergarten yard	
	Waste related activities	Games and toys from recyclable materials	
		Recycling bins	
		Collecting waste from around the kindergarten,	
	Selective garbage collection		

2. How did you feel when you implemented environmental education activities in the classroom?

Table 3. Theme, codes and categories of the answers to the research question 2

Theme	Category	Codes	Informational Units from the transcript
How did you feel when you implemented environmental education activities in the classroom?	Positive affects	Happiness	“I felt happy”B.L.
		Satisfaction	“I felt very good and I felt satisfaction from the results I had” L.S.
	Instrumental value	Usefulness	“I felt useful to the environment, useful to generations, useful to the planet” A.M.
		Creativity	“I felt like a drop from the fountain of creativity” J.A.

Analyzing the obtained data, we noticed the fact that all the teachers carried out the ecological activities with great enthusiasm and reported positive emotions, managing to instill these feelings in the children, thus bringing them even closer to caring for the environment. Also, the teachers reported a strong feeling of usefulness and creativity while being involved in meaningful ecological activities with the children.

3. How do you think preschoolers perceived these environmental education activities?

Analyzing the answers of the teaching staff, we noticed that, according to the teachers, the preschoolers experienced positive attitudes towards the ecological activities carried out by the teaching staff, and they participated in the activities with enthusiasm, happiness, joy, amazement, delight, excitement, and pleasure (table 4).

Table 4. Theme, codes and categories of the answers to the research question 3

Theme	Category	Codes	Informational Units from the transcript
How do you think preschoolers perceived these environmental education activities?	Positive affects	Enthusiasm	“On the part of the preschoolers, I felt enthusiasm and a lot of involvement from both the children and the parents” B.L.
		Happiness	
		Joy	“I saw a happiness, a joy on the part of the children to get involved, to create by themselves certain sheets, games or even animals” P.G.
		Amazement	
		Delight	“The children were very enthusiastic, they participated with great pleasure in every activity we did with them and with enthusiasm. I saw in the children the pleasure with which they carried out the activity itself. So, they like it and they felt very good” L.S.
	Motivation	Excitement	
		Pleasure	
		Involvement	“The children in my group were amazed by the things they found out. They started to turn off the light bulbs when they saw that the sun was coming out, in the bathroom I could hear them discussing turning off the water because the fish will die if water is wasted. The children were very happy to do ecological activities” A.M.
		Awareness	“I noticed that preschoolers are very excited about ecological activities” J.A.

4. What do you think is necessary for ecological activities to be an adequate pedagogical and didactic resource to instill ecological behavior in preschoolers?

Analyzing the answers of the teachers, we noticed that in order for the ecological activities to be an adequate pedagogical and didactic resource for instilling ecological behavior in preschoolers, it is necessary to design the activities to be oriented towards nature and to be designed according to the age level of the preschoolers. It is also necessary that the activities have a positive impact for preschoolers (table 5).

Table 5. Theme, codes and categories of the answers to the research question 4

Theme	Category	Codes	Informational Units from the transcript
What do you think is necessary for ecological activities to be an adequate pedagogical and didactic resource to instill ecological behavior in preschoolers?	Engaging nature-oriented activities	Ecological contexts	“To organize more ecological contests” B.L.
		Examples of practical works	“To use the exhibition of practical works and didactic videos for ecological activities” P.G.
	Age-appropriate activities	Didactic videos	“Make more use of board games on ecological themes, personal example, and various contests and group games that can be played with children” L.S.
		Games on ecological themes	“Involving children in small projects and making children aware that there is a result of their work” J.A.
		Adaptation to specific age categories	“Adaptation of ecological activities to the child's age level, and the examples should be impactful” A.M.

5. What skills do you think preschoolers develop as a result of participating in environmental education activities in kindergarten?

According to the content analysis, the ecological activities carried out by the teaching staff were very well accepted by the preschoolers and they developed competencies related to the following aspects: nature preservation, moral reasoning, artistic expression, social interactions and self-development. Moreover, these ecological activities helped the preschoolers to develop their ability to capitalize on the beauty of their lives (table 6).

Table 6. Theme, codes and categories of the answers to the research question 5

Theme	Category	Codes	Informational Units from the transcript
What skills do you think preschoolers develop as a result of participating in environmental education activities in kindergarten?	Competencies related to nature preservation	Ability to protect the environment	“The skills they develop are: the skill, the ability to protect the environment, to selectively collect waste” B.L.
		Ability to selectively collect waste	“First of all, they will love the environment more by protecting it and develop their taste for beauty and aesthetic taste” P.G.
		Responsibility	
		Love for nature	

	Moral competencies	Moral values in action	<p>“A very important skill is responsibility and how they can become thrifty, and they will be able to understand that the environment will look beautiful or ugly depending on how they take responsibility for the paper thrown on the floor or the paper that ends up in the trash.” L.S.</p> <p>“I believe that ecological education develops both the moral side of children and the artistic-plastic side” J.A.</p> <p>“The skills they develop are multiple, from scientific skills, social skills and the discovery of certain passions, for example for biology, for the environment, for hydrology, to social skills in the sense that they become responsible adults” A.I.</p> <p>“...and the necessary skills to capitalize on the beauty in their lives” B.L.</p>
	Artistic competencies	Appreciation of beauty	
	Social competencies	Artistic abilities	
	Self-development competencies	Aesthetic taste	
		Communication abilities	
		Appreciation of others	
		Ability to capitalize on the beauty of their lives	

6. In what ways do you think parents and/or relatives of preschoolers could contribute to environmental education activities in kindergarten?

The responses of the participants showed us that for the success of ecological activities is necessary to establish a good collaboration between the kindergarten and the parents. Thus, parents, through their attitude towards the teaching staff and towards the kindergarten, can influence the formation of different behaviors of children towards the environment. Parents can support teachers through involvement, developing responsibility, helping to carry out ecological activities and ensuring the continuity of ecological learning at home (table 7).

Table 7. Theme, codes and categories of the answers to the research question 6

Theme	Category	Codes	Informational Units from the transcript
In what ways do you think parents and/or relatives of preschoolers could contribute to environmental education activities in kindergarten?	Family-school partnership	Parental involvement	“Through our involvement and support in ecological activities” B.L.
		Support	“Through responsibility, involvement in ecological projects and help in the procurement of materials” P.G.
		Developing responsibility	
		Helping	“Through their involvement, our support in ecological activities and the continuation of work at home” L.S.
		Assuring continuity of ecological learning	

			<p>“By involving primarily the parents who have jobs in these fields and continuing the work of the teaching staff at home” A.M.</p> <p>“By involving them in ecological activities and ensuring continuity at home” J.A.</p>
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7. In the future, would you like to participate in trainings for the implementation of environmental education activities in the group? How do you think these should go?

Analyzing the answers of participants to the last question, we noted the fact that all the teaching staff are willing to participate in specialization training in the field of ecological education. According to the teachers, these forms of EE training should take place more in the form of experiential learning, examples of successful EE programs, and they should be accessible in an online environment, because in this way teachers from different areas and even countries can connect and exchange ideas and good practices (table 8).

Table 8 Theme, codes and categories of the answers to the research question 7

Theme	Category	Codes	Informational Units from the transcript
In the future, would you like to participate in trainings for the implementation of environmental education activities in the group? How do you think these should go?	Need for parental training in ecological practices	Continuous training	“Of course yes, any training is welcome. I would like it to take place online” B. L.
		Learning by doing	“Yes, I gained more knowledge because my colleagues came with good practices” P.G.

	Type of training	Online environment Good practices Free discussions Exchange of ideas	<p>“Yes, I would like to participate in the trainings to implement these activities and I think they should be conducted through practice, symposiums and competitions” L.S.</p> <p>“Yes, I would also like to participate in such trainings and meetings, but I would like them to be more free discussions like today's, not just speeches. I agree that this practical part should also be addressed at the symposia, where we can talk about what we do with the children in class and exchange ideas” J. A.</p>
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5. Discussions

Following the analysis of the data obtained during the focus group, we noticed that preschool teachers want to be continuously trained regarding to the implementation of ecological activities and they have a positive attitude regarding ecological education activities.

The teachers' perception of the ecological activities is a positive one and full of enthusiasm and dedication. The ecological activities described by the participants were carried out with many pedagogical techniques in order to bring the children closer to the environment and to the care of the environment by preschoolers. As a result of the ecological activities carried out by the teaching staff involved in the study, the preschoolers developed many positive skills and abilities regarding the environment and everyday life.

It was observed that the preschoolers participated with great enthusiasm and joy in the ecological activities and were actively involved in the development of the ecological activities. They developed competencies related to nature preservation, moral competencies, artistic competencies, social interactions and self-development competencies, such as ability to capitalize on the beauty of their lives. As indicated by the kindergarten teachers, the preschoolers developed abilities to protect the environment, ability to selectively collect waste, responsibility for the nature, love for and all this contributes to the formation of environmentally friendly behavior in preschoolers.

Through the pedagogical techniques used, the teaching staff managed to develop a partnership with the parents of the preschoolers, thus the teaching staff received support from the parents of the preschoolers in carrying out the ecological activities and the parents ensured the continuity of ecological learning at home.

More than that, the answer of one of the teachers to the last question *“Yes, I would also like to participate in such trainings and meetings, but I would like them to be more free discussions like today's”*, confirms the fact that the focus group has achieved its goal and took place in a pleasant way, facilitating a safe space for discussions and reflections.

According with this study, the preschool teachers participating in the study carried out by Radu (2020) show curiosity and a clear desire to explore the environment, and through their attitudes towards the environment, they also convey to the children the desire to explore and understand the environment in which they live. Preschool teachers consider the environment to be a healthy environment for a full and harmonious emotional development of children. Preschool teachers also mention the positive impact of nature on children in terms of physical and mental health, as well as compassion, self-confidence and general well-being.

Robertson (2008) in his study, believes that the formation of a positive image of ecological education in preschoolers also depends on the way in which the teacher perceives and makes the environment aware.

It is also important that the education system promotes practical activities both in the classroom and in nature so that preschool teachers can build a holistic image of ecological education activities. This will support teachers in designing and teaching ecological education activities (Karakaya et al., 2022).

The findings of the study made by Gökçeli & Kandir (2015) show that when preschoolers are faced with environmental problems, preschoolers begin to form positive behaviors in relation to the environment and they activate their spirit of saving the environment.

In another study carried out by Kabadayi & Altinsoy (2018), the authors come to the conclusion that the more innovative methods the preschool teacher uses in teaching ecology, the more the child learns about the environment and becomes aware of the role of the environment in his life.

Flogaitis et al. (2005) conducted a study after which it was concluded that preschool teachers are of

two types: technocentric who adopt the measures and practices supported by EE and ecocentric, i.e. those who develop new solutions and actions to support the environment.

6. Conclusions

The aim of this study was to investigate in qualitative manner the perceptions of preschool teachers in a Romanian kindergarten in relation to environmental education and the cultivation of environmentally friendly attitudes and positive behaviors in preschoolers.

The preschool teacher must be a good facilitator of the teaching-learning process. This role is a mandatory condition in the process of raising children's awareness in relation to the environmental problems facing humanity today. The preschool teachers participating in the study showed that they try to fulfill the objectives of EE during the act of teaching ecology and showed a clear desire to be trained in the field of EE. Through their actions and methods of teaching ecology, preschool teachers built the foundation of ecological education among their preschoolers.

Analyzing the results of this study, we can conclude that the focus group can be an appropriate method of analyzing the readiness of kindergarten teachers to be trained to implement EE with the aim of creating preschoolers that are able to reflect, think, search for and implement solutions to give the environment the rightful place in everyday life of the humanity. Preschoolers should be trained in relation to EE objectives starting from the premise that they are not the masters of nature and they must live in harmony with nature. The identified themes and categories in this study will allow to further design and implement kindergarten teachers' training programs in the direction of promoting ecological education for preschoolers, of encouraging preschool teachers to implement ecological education activities in their classes, having as final goal the instilling of ecological and environment-friendly mindset and behaviors in preschoolers.

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