

## ENVIRONMENTAL EDUCATION IN THE FOREST ENVIRONMENT AND ITS KEY FACTORS IN PRE-ELEMENTARY EDUCATION

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**Abstract:** The forest environment is a varied community consisting of plants, fungus, animals, as well as air, water, and soil resources. It is important in pre-elementary education for children to learn by direct observation and investigation. This approach to education is possible by integrating the methods of forest pedagogy. The research shows the results obtained through Delphi method about a perception of key factors, that condition the learning about the forest as well as creating a relationship of a child with its closest environment on a forest example.

**Keywords:** forest pedagogy, forest example, relationship of child and environment, Delphi method

### Introduction

The importance of environmental education and training as part of a lifelong learning is indubitable. Ultimately, this is also proven by the required goals of the Global Education Agenda 2030<sup>1</sup>, which focus on environmental education and sustainable development. The environment consists of several components that are interrelated. One of them is forests. According to Eliáš (2010), forests belong to the most important landscape ecological stabilizing elements. Marušáková, et al. (2019) also agree that forests also perform important economic and societal functions. Therefore, it is unquestionable that learning about forest ecosystems and leading to societal responsibility for this natural resource should be part of environmental education and training. Not only in terms of content, but also in terms of where the education itself takes place.

By regular contact of a preschool child with the forest environment, we lay the foundations of values for building his relationship to himself, to others, to living and inanimate nature. This is also indicated by the results of the *Green Public Health - Benefits of Woodlands on Human Health and Well-being study* (2013), according to which the physical and emotional benefits of living in nature are strongly reflected in childhood experiences. For the personal development of children, it is necessary to concentrate on nature, where materials, colors, shapes and scents are extremely important.

In our paper, we focused on the education of preschool children in environmental education, specifically in the forest environment. In preschool education, it is important that children learn by directly observing and exploring the surrounding reality. Such an approach to education is also possible by integrating forest pedagogy programs into education, both at its formal and informal level.

Forest pedagogy in kindergartens is such a pedagogical-didactic approach in which kindergartens can call experts to accomplish their educational goals. In the case of forest pedagogy we are talking about foresters - trained forest teachers. In Slovakia, we have kindergartens that cooperate with various institutions that

can provide them for specific topics with a forest teacher. One of them is the National Forest Center - Institute for Forest Consulting and Education (IFCE) in Zvolen, which as a contributory organization falls under the Ministry of Agriculture and Rural Development of the Slovak Republic. Kindergarten teachers are showing increasing interest in education in the field of forest pedagogy. They are aware that not only cooperation with foresters impacts the formation of a relationship with nature and the forest environment, but also other factors affect forming of a comprehensive development of the personality of a preschool child. As already mentioned, in our paper we focused on examining the factors of the part of environmental education that focuses on the forest environment and sustainability. The study presents the results of research using the Delphi method, where we were examining through expert opinions (experts in forestry, forestry politics, education, environmental education, forest pedagogy), which key factors determine informal pre-primary education of children in environmental education in the forest environment.

### 1 Forest environment as a means of education

Slovakia, located in the heart of Europe, can be proud of its beautiful nature. With a share of forest area of 41.2% of the total land area, we belong to the European countries with the highest forest cover (Zelená správa, 2019<sup>2</sup>). The forests of karpatský oblúk (the Carpathian arch) belong to the most valuable forest ecosystems in Europe. Within this entire geographical area, there is a relatively frequent occurrence of old-growth forests leftovers and natural forest communities. Čaboun (2008) reminds that Slovakia is a geographically diverse country, which largely spreads over mountainous and rugged territory. Highlands and mountains cover 60% of Slovakia and lowlands approximately 40%. It is important to appreciate the value of this irreplaceable wealth.

The forest environment is a diverse community of plants, fungi, animals, as well as air, water and soil. The forest as a means of education is becoming the research subject for children, because of its various changes. The forest is like a textbook that renews, enriches and changes every year. It also allows us to explain numerous natural phenomena by direct observation, but also to discover beauty and form a relationship, not only to the forest, but to all living and inanimate objects.

By thinking about education in nature, specifically in the forest environment, we need to know the answers to the questions under what conditions is this education possible and what comes into the play in this process.

Knowing the factors that affect the formal and informal environmental education of preschool children is one of the prerequisites for the successful integration of environmental education in the forest environment.

Environmental education in preschool education in Slovakia is a part of all educational areas of the State Educational Program (more on [www.statpedu.sk](http://www.statpedu.sk), 2016), but in primary education it is one of the cross-sectional subjects of educational areas. It is peculiar that the forest environment is in the program mentioned rather marginally. However, if we search in the topics, content standards or performance standards, the terms forest, forest environment, tree or needles, we will find only one reference. In reference to the educational area *Man and Society*, subarea *Geography and surroundings*, where the performance standards state that the child "should use terms such as hill, forest, field, meadow, river, lake and pond when talking about the landscape." In the content standards are also stated the proposed activities for the teacher, when "she conducts a guided interview on the topic of the natural beauty of our country; talks to children about their

<sup>1</sup> <https://unesdoc.unesco.org/ark:/48223/pf0000245656>

<sup>2</sup> Report on Forestry in the Slovak Republic for 2019

experiences with the landscape and how people change the landscape (for example, by building cities, dams, etc.). Here is a room for evaluation questions such as - How does the child perceive the diversity of the landscape? How does he or she describe the country? How does he or she perceive its transformation by man? (more on [www.statpedu.sk](http://www.statpedu.sk), 2016, p. 64). As emphasized by G. Imashey et al. (2020), environmental education is a continuous process of training, self-education, gaining experience, which leads to the personality development, because value orientations are formed by acquired specific knowledge about environmental protection and care for nature, that become standards of behavior in everyday life.

Forest pedagogy takes place in natural conditions, in a forest environment. There was developed the *Concept of Forest Pedagogy as a part of environmental education* (Marušáková, et al. 2010) in Slovakia. It was approved by the Ministry of Agriculture and Rural Development of the Slovak Republic no. 2824 / 2011-710. It defines the forest pedagogy as follows: *Forest pedagogy as a part of environmental education is learning about the forest ecosystem and educating for a long-term sustainable way of life on the example of the functioning of forest ecosystems. Forest pedagogy activities can be in the form of formal and non-formal education.*

The education of forest teachers together with the coordination of forest pedagogy activities is in Slovakia provided by the National Forest Centre (more on [www.lesnapedagogika.sk](http://www.lesnapedagogika.sk)). It is an accredited educational program Forest Pedagogy in the range of 80 hours, which can be completed by experts - foresters. At the request of kindergartens or primary schools within the frame of formal education, graduates of the Forest Pedagogy program can teach topics related to the forest environment - *animals in the forest, deciduous and coniferous trees, anthill, trees and fruits, living and inanimate nature, the profession of a forester, hunting bees, etc.* If the forester - forest pedagogue covers the topics of the National Educational Program and respects all didactic principles we can talk about forest pedagogy within the formal education. However, it has its place mainly in non-formal education. The kindergarten can contact a forest pedagogue also to pursue hobbies in the field of environmental education, or we can carry out various activities with foresters in cooperation with parents, or there can be established hobby departments (hunting, forestry, beekeeping) in leisure centers.

Since its establishment in 2006, the National Forest Centre has also been working actively in the field of environmental education. It cooperates with all types of schools. It has experience in implementing national and international projects that focus on environmental education and education for sustainable development. We can mention following nationwide projects – *Les ukrytý v knihe* (The Forest Hidden in the Book), *Detická lesnícka univerzita* (Children's Forestry University), *Lesná olympiáda* (Forest Olympics), etc. These projects have been conducted successfully for several years. That has probably caused a great interest of teachers in forest pedagogy and cooperation with forest pedagogues. The research carried out by the National Forest Centre in 2015 focused on finding out interest in experiential forest pedagogy programs, in which 81 kindergartens and primary schools participated, revealed, among other things, that 58% of respondents positively evaluate a stay in a forest natural environment with a forest pedagogue. In second place with 38% were experiential programs in a forest classroom that is located in a forest environment. Events for the public organized by foresters, a visit of a forester in a school facility were appreciated by 25% of respondents and multimedia educational programs about the forest were positively evaluated by 16% of respondents (Sarvašová et al., 2016).

Several classes have participated in walks with forest teachers in recent years. And their interest in such activities persists. The kindergarten teachers are showing great interest in forest pedagogy. This is also reflected in the number of teachers who registered for innovative education *Teaching about the forest*, by which the National Forest Centre has expanded its offer of

environmental education also to primary education teachers and educators.

In 2019, we started a research project in Slovakia. The core of it is applied pedagogical research - *Forest pedagogy and education for sustainable development in pre-primary and primary education*. We based its starting points also on the results of some of our and foreign pedagogical research (Kollárová, 2018, Warden, 2012) as well as the results of cooperation between the Faculty of Education of Constantine the Philosopher University in Nitra and the National Forest Centre - Institute for Forest Consulting and Education. The key idea of the project is to support new trends in education that aim at innovative and activating approaches, with an emphasis on linking theory to practice.

## 2 Research on identifying factors involved in environmental education of preschool children

To identify the key factors, we decided to use a quantitative-qualitative research strategy.

The aim of the research was to find out which factors affect the informal pre-primary education of children in environmental education in the forest environment. Since this is mainly a qualitative methodology, where we studied what subjective characteristics link the participants to factors affecting the child's knowledge and forming the relationship to nature - to the forest environment, we did not set hypotheses. We focused on the research question, based on the research goal - *Which factors influence the non-formal pre-primary education of children in environmental education in the forest environment*. Partial goals of the research, or more precisely the questions, were which factors we can consider positive and which negative.

### 2.1 Research methods

To get the answers to these research questions, we decided to use the Delphi method. The Delphi method is a method of qualitative research based on structured group communication. The basis is the "Syndrome of Groupthink" by gathering the opinions of selected experts on the issue (Cialkowski et al. 2008). As stated by the authors (McKenna 1994, Lynn et al., 1998), the goal is to reach a consensus, group viewpoint on a given research question. It should be noted that there is no consistent method when applying the Delphi method. There can be found several approaches in literature (Hasson, Keeney, McKenna, 2000). The principle of the Delphi method is based on using a teamwork, provided that when more experts - participants will give their opinion on the topic, they are less likely to make the wrong decision. There is a greater risk of incorrect decisions when expert works alone.

When applying this research method the selection of experts is crucial (Goodman, C.M., 1987; Baker, J et al. 2006). The experts answer the questions through multi-round inquiries with controlled feedback between rounds. During repeated inquiries, they can change or correct their opinion according to the feedback from other experts. It is important that their anonymity is maintained throughout the whole inquiry process. It removes concerns about expressing their own opinion. The number of experts is not limited. It is also taken into consideration that not all the experts will send their answers.

According to Palán (2002), this method is most often used to anticipate (predict) further developments in a certain area and to make prospective estimates. Novák (2007) indicated that it is appropriate to apply it for those areas of research where we need to obtain expert opinions on issues that are difficult to detect by statistical or other methods.

For the needs of our research, we have chosen three rounds of research. The research took place since March 2019 to April 2020. The research itself was preceded by a preparatory phase, where a research problem and a research question were identified and a panel of experts was selected.

Another research tool was a questionnaire. All items in the questionnaire were closed-ended. We needed to find out what level of influence the participants attribute to these factors, therefore the tool in each item was the Likert scale (Rod, 2012).

## 2.2 Research file

Qualitative research is characterized by the fact that the participants of the research group must have something in common. When compiling the research file - a panel of experts, we wanted to capture the widest possible range of diversity of perspectives and at the same time to link the theory to the practice and specific experiences of experts. The final panel of experts consisted of experts from forestry, forestry politics, education, environmental education and forest pedagogy. The criteria for selecting the experts - research participants were set as follows:

- the participant knows the system of environmental education, its goals, methods and forms;
- the participant has real experience with the practical implementation of environmental programs in the forest environment;
- the participant is an academic with knowledge of forestry sciences, environmental sciences.

The anticipated number of experts was 15. Each participant was addressed separately. After the initial electronic contact and informing about the research goals, 13 experts were involved in the further implementation. They worked in the following areas: university / academic environment (4 participants), school / kindergarten (2 participants), educational institution providing environmental education (5 participants), organization providing environmental education programs (2 participants). There were a total of 13 participants. We would like to remind that during each communication was maintained anonymity, it has been communicated exclusively electronically and the participants did not know the list of other participants - experts.

## 2.3 Research methodology

*The first round of an evaluation* took place in the following period: 01. 03. - 14. 03. 2019.

In the first round, the participants were asked an open-ended question: *"Indicate which factors do you think influence the non-formal pre-primary education of children in environmental education in the forest environment"*. The aim was to identify as many factors as possible - positive as well as negative, which have an impact on non-formal pre-primary education in environmental education in the forest environment.

The categorization of factors was not predetermined. The number of factors formulated by individual experts ranged from 4 to 46. The total number of answers to this question was 159. Many factors were the same, they were only formulated differently. Therefore, it was inevitable to make one list of factors as the intersection of all responses with minimal adjustments, in order to preserve the authenticity of the panelists' responses. The final list contained 67 factors, which were also used in other phases of the research.

The next step of this round was the definition of the so-called areas. An area is a group of factors with the same specification. Experts themselves predicted (anticipated) areas that correspond to the natural process of education, i.e. educator, learner, parent (in the case of preschool children) location, content, goals, methods, means.

For further research we identified 8 areas: 1. *Location*; 2. *Target group and its predispositions*; 3. *Parents / family environment*; 4. *Kindergarten teacher*; 5. *Environmental education, its goal and content*; 6. *Environmental education - methods and forms*; 7. *Educator for environmental education from the external environment*; 8. *External factors*.

Subsequently, the factors in each area were divided into two groups - positive and negative. The full overview of the areas and their factors is stated in Tables 1 - 16, which we present in the following part of the study.

## 2.4 Research results using the Delphi method

### *Results of the 1st round of research using the Delphi method*

The ratio of factors with positive and negative influence was relatively balanced, positive factors in the number of 35 slightly exceeded negative factors in the number of 32.

- *Factors with a positive impact* - most factors with a positive impact were in the areas of: Environmental education - methods and forms - 9; Environmental education, its goal and content -7; Location - 6. The least factors (2) had following areas: Target group and its predispositions and Parents / family environment.
- *Factors with a negative impact* - most factors with a negative impact occurred in these areas: External factors - 9; Educator for environmental education from the external environment - 6; Location - 6. We noticed one negative impact in the area: Environmental education, its goal and content.

Participants attach the highest importance to the field of environmental education as such in terms of methods, forms, goals and its content.

*The second round of evaluation* took place between 10.02 – 22.02 2020.

In this phase, we focused on the evaluation of the factors identified in the first round, in terms of the extent of their impact on non-formal pre-primary education of children in environmental education in the forest environment. As a research tool, we chose a questionnaire, which, unlike the first round, consisted of closed-ended questions. Given the goal of the inquiry, we used the Likert scale (Rod, 2012), which is frequently used to measure attitudes and opinions. Experts expressed their opinions on each factor using a five-point scale, with grade 5 indicating the greatest degree of influence of the factor and grade 1 indicating the least degree of influence of the factor. We sent the questionnaire to all the participants who answered in the first round. The return rate of the questionnaires was 100%. The data collection was then followed by its analysis. The mean and median were calculated for each factor. We assumed that all values 1 to 5 of the Likert scale have the same importance, therefore we calculated them using the following formula:

$$\bar{x} = \frac{\sum_{i=1}^5 x_i n_i}{\sum_{i=1}^5 n_i}$$

If the average is less than 3, then this factor is not important, if it is higher than 3, then this factor is important. If the average value is higher than 4, then this factor is a key factor. The results are interpreted in the following Tables 1-16. We distinguish between positive and negative factors and feature them separately.

In the following section, we graphically present by using tables the factors that *positively affect the informal pre-primary education* of children in environmental education in the forest environment. Positive factors are in Tables 1 - 8.

Table 1: Measure of impact – Location

AREA	IMPACT SCALE - $X_j$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
LOCATION	No. of votes from panelists						
	Absolute number - $n_j$						
It is important to choose a suitable route in terms of terrain and relief	0	1	2	3	6	4,17	4,5
Attractiveness of the forest environment with the possibility of direct observation, the presence of various objects (feeder, tree stand, nest, anthill)	0	0	2	6	4	4,17	4
Use of the kindergarten environment itself (kindergartens should be a real example of a positive attitude towards nature in their own processes)	0	0	3	6	3	4	4
Children's residence (city, town, village, dispersed settlement)	0	1	5	3	3	3,67	3,5
Visiting other places or events focused on environmental education (e.g. The Museum of Forestry and Wood Technology, Forestry Days, Forestry Open-Air Museum in Vydrovská dolina, etc.)	0	3	6	1	2	3,17	3
Type of forest (old forests, thicket stands, monoculture forests, mixed stands, commercial forests, protection forests, special purpose forests)	3	2	5	1	1	2,58	3

Table 2: Measure of impact - Target group and its predispositions

AREA	IMPACT SCALE - $X_j$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
TARGET GROUP AND ITS PREDISPOSITIONS	No. of votes from panelists						
	Absolute number - $n_j$						
Adequate length of stay in the forest according to the age of children	0	0	2	5	5	4,25	4
Alternation of short attention spans	0	1	4	4	3	3,75	4

Table 3: Measure of impact - Parents / family environment

AREA	IMPACT SCALE - $X_j$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
PARENTS / FAMILY ENVIRONMENT	No. of votes from panelists						
	Absolute number - $n_j$						
Supportive family environment (children go to nature with their parents from an early age, parents build children's relationship to responsible behaviour towards nature)	0	0	0	3	9	4,75	5
Parental support, involvement of parents in kindergarten activities, parental involvement	0	2	2	5	3	3,75	4

Table 4: Measure of impact - Kindergarten teacher

AREA	IMPACT SCALE - $X_j$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
KINDERGARTEN TEACHER	No. of votes from panelists						
	Absolute number - $n_j$						
Teacher's didactic ability (teacher's ability to engage, motivate, explain, listen, manage children's work, use appropriate experiential activities, games in the forest)	0	0	0	5	7	4	5
Teacher 's relation to environmental education, forest, forestry, forester' s work	0	0	2	3	7	4	5
Personal involvement of the teacher beyond his or her duties	0	0	2	4	6	4	4

Teacher's erudition in the field of environmental education, knowledge of natural processes of the forest environment	0	0	3	6	3	4	4
Teacher awareness of forest pedagogy programs	0	0	6	2	4	3	3

Table 5: Measure of impact - Environmental education, its goal and content

AREA	IMPACT SCALE - $X_j$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
ENVIRONMENTAL EDUCATION, ITS GOAL AND CONTENT	No. of votes from panelists						
	Absolute number - $n_j$						
Forming the foundations for building a positive relationship with nature (in the cognitive, affective and psychomotor areas) and the perception of oneself as its active part (learning to live in nature, with nature and for nature)	0	0	1	5	6	4,42	4,5
Linking non-formal education in the forest environment to the already learned subject matters and subject matters that are currently being studied within formal education	0	0	0	8	4	4,33	4
Forming the foundations of the perception of the relationship between nature and its positive impact on human health	0	1	1	6	4	4,08	4
A balanced ratio of educational and training goals appropriate to the age and individual predispositions of children	0	1	2	4	5	4,08	4
Systematic approach to information provision (logical structure, logical order)	0	0	4	4	4	4	4
Basics of developing key competencies	0	0	5	3	4	3,92	4
Forming the foundations of environmental protection and creation	0	0	5	3	4	3,92	4

Table 6: Measure of impact - Environmental education - methods and forms

AREA	IMPACT SCALE - $X_j$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
METHODS AND FORMS	No. of votes from panelists						
	Absolute number - $n_j$						
Natural activity and creativity of children, joy of games and movement in nature	0	0	0	3	9	4,75	5
Mediation of a personal experience with nature by using all the senses	0	0	2	0	10	4,67	5
Experiential nature of activities	0	0	0	4	8	4,67	5
The right choice of teaching methods and forms of teaching	0	0	1	5	6	4,42	4,5
The possibility of using forest as a source of ideas and source of raw materials for creative activities (use of leaves, fruits, moss, flowers to create works of art - contact with nature through natural materials)	0	0	2	6	4	4,17	4
Opportunity to observe some professionals while working. / loading and unloading of wood, planting tree seedlings, taking care of animals, etc./	0	1	1	8	2	3,92	4
Possibility to connect it with sport activities, culture, social phenomena	0	0	6	4	2	3,67	3,5
Effective involvement and enough teaching aids	0	1	5	4	2	3,58	3,5
The potential of modern technologies and their effective use in educational activities	0	1	6	5	0	3,33	3

Table 7: Measure of impact - Educator of environmental education (EE) from the external environment

AREA	IMPACT SCALE - $X_j$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
EDUCATOR OF ENVIRONMENTAL EDUCATION (EE) FROM EXTERNAL ENVIRONMENT	No. of votes from panelists						
	Absolute number - $n_j$						
Lecturer training, his erudition in pedagogical	0	0	1	2	9	4	5

procedures, appropriately chosen forms of education							67	
The willingness and ability of the forest pedagogue "to adapt to children's level of the mental maturity and their height."	0	0	1	4	7	4,5		5
Influence of external authorities (possibility of implementation of EE educators in the environment of kindergartens)	0	0	5	6	1	3,67		4

Table 8: Measure of impact - External factors

AREA	IMPACT SCALE - $X_i$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
<b>EXTERNAL FACTORS</b>	No. of votes from panelists						
	Absolute number - $n_i$						
It is important with which organizations dealing with environmental education the kindergarten cooperates	1	0	4	3	4	3,75	4
Financing of activities offered by commercial or contributory organizations or using projects funding	1	1	6	3	1	3,17	3

Results of the 2nd round of the Delphi research method for positive factors

Most factors with a *positive impact* with an average above the value of 4 occurred in the following areas: *Environmental education, its goal and content* – there were 7 factors and 5 of them reached the required value; *Environmental education - methods and forms* - there were 9 factors and 5 of them reached the value of 4.

Among all the factors, the highest value of influence was achieved by: *Natural activity and creativity of children, joy of playing games and movement in nature; Supportive family environment for children*. The factor of *Natural activity and creativity of children, the joy of games and movement in nature* was clearly attributed by the participants to a higher degree of influence over the factor of *The Potential of modern technologies and their effective use in educational activities*. The participants attributed identical requirements to the kindergarten teacher and the environmental education educator from the external environment. Factors with the highest value in the given areas: *Didactic ability of the teacher (the teacher's ability to engage, motivate, explain, etc. and The training of the lecturer, his erudition in pedagogical procedures, appropriately chosen forms of education*.

As for the *Place* area, the participants considered the factors of *Choosing a suitable route in terms of terrain and attractiveness of the forest environment with the possibility of direct observation, the presence of various objects (feeder, tree stand, etc.)* to be the most important. For informal pre-primary education of children in environmental education in the forest environment is that considered to be the key in developing their cognitive processes.

Similarly as we described the factors with a positive impact, in the following section we present *the factors that negatively affect* the non-formal pre-primary education of children in environmental education in the forest environment. They are presented in Tables 9 - 16.

Table 9: Measure of impact – Location

AREA	IMPACT SCALE - $X_i$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
<b>LOCATION</b>	No. of votes from panelists						
	Absolute number - $n_i$						
Accessibility of the forest environment to the kindergarten (it is far from the forest, there is no forest environment near the kindergarten)	0	1	3	2	6	4,08	4,5
It is necessary to pay attention to safety in the forest in terms of cleanliness (e.g. garbage)	1	2	2	5	2	3,42	4

There may be a restriction of entering the forest in terms of logging or other forestry activities	1	2	4	2	3	3,33	3
Lack of necessary infrastructure in the forest for rest (benches, rubbish bins, rest areas, nature trails, etc.)	3	0	5	3	1	2,92	3

Table 10: Measure of impact - Target group and its predispositions

AREA	IMPACT SCALE - $X_i$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
<b>TARGET GROUP AND ITS PREISPOSITION</b>	No. of votes from panelists						
	Absolute number - $n_i$						
Kindergarten daily schedule	0	2	2	6	2	3,67	4
Health status of children (allergies, children with behavioral disorders, etc.)	0	3	2	4	3	3,58	4
Physical fitness of children	0	2	3	5	2	3,58	4

Table 11: Measure of impact - Parents / family environment

AREA	IMPACT SCALE - $X_i$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
<b>PARENTS / FAMILY ENVIRONMENT</b>	No. of votes from panelists						
	Absolute number - $n_i$						
Negative relationship patterns in family towards nature, inappropriate upbringing in the family and the absence of developing responsibility for one's own behavior and actions	0	0	0	5	7	4,58	5
Social status of the family (possibility to get clothes and footwear suitable / of good quality for the forest environment	0	4	4	4	0	3	3
Parental consent and the demand to be informed in advance about the event is required	1	5	2	2	2	2,92	2,5

Table 12: Measure of impact - Kindergarten teacher

AREA	IMPACT SCALE - $X_i$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
<b>KINDERGARTEN TEACHER</b>	No. of votes from panelists						
	Absolute number - $n_i$						
Teachers' interest in knowledge of the forest, which may not always correspond to publicly presented facts, and a willingness to apply it and communicate it to children	0	0	2	6	4	4,17	4
Active or passive cooperation of teachers in the activities of forest pedagogy	0	0	4	6	2	3,83	4
Not sufficient number of kindergarten teachers	0	4	5	1	2	3,08	3
Excessive expectations of teachers from forest pedagogy programs	0	3	6	2	1	3,08	3

Table 13: Measure of impact - Environmental education, its goal and content

AREA	IMPACT SCALE - $X_i$					Mean	Median
	1 least impact ..... greatest impact 5						
	1	2	3	4	5		
<b>ENVIRONMENTAL EDUCATION, ITS GOAL AND CONTENT</b>	No. of votes from panelists						
	Absolute number - $n_i$						
The focus is on formal education	0	0	3	5	4	4,08	4

Table 14: Measure of impact - Environmental education - methods and forms

AREA	IMPACT SCALE - $X_i$					Mean	Median
	1 least impact ..... greatest impact 5						
METHODS AND FORMS	1	2	3	4	5	No. of votes from panelists	Absolute number - $n_i$
	Formality, use of monotonous "lecture" forms	0	0	0	3		
Education based on instructing, without examples of real activities (children imitate the behavior of adults) in a real environment	0	0	2	5	5	4,25	4
Lack of critical thinking when selecting activities ("pseudo environmental activities")	0	0	3	4	5	4,17	4

Table 15: Measure of impact - Educator of environmental education (EE ) from the external environment

AREA	IMPACT SCALE - $X_i$					Mean	Median
	1 least impact ..... greatest impact 5						
EXTERNAL ENVIRONMENTAL EDUCATION EDUCATOR	1	2	3	4	5	No. of votes from panelists	Absolute number - $n_i$
	Lack of qualified environmental education (EE) lecturers	0	0	3	4		
Forest teachers and EE workers are available only for limited amount of time (restrictions by the employer)	0	1	2	5	4	4	4
Insufficient staff capacity e.g. State Nature Conservancy for systematic cooperation with kindergartens	0	0	4	6	2	3,83	4
Availability of forest teachers near to kindergartens	0	0	5	4	3	3,83	4
In ethnically mixed areas, the ability of a forest educator and EE worker, to communicate with children in a language they understand.	1	3	3	3	2	3,17	3

Table 16: Measure of impact - External factors

AREA	IMPACT SCALE - $X_i$					Mean	Median
	1 least impact ..... greatest impact 5						
EXTERNAL IMPACTS	1	2	3	4	5	No. of votes from panelists	Absolute number - $n_i$
	Lack of projects for the involvement of this target group in non - formal education	0	2	3	6		
Weather (low temperatures, strong wind, wet terrain)	0	2	5	3	2	3,42	3
The problem of finding a suitable date with regard to kindergarten programs and the kindergarten daily schedule	0	2	6	2	2	3,33	3
It is necessary to pay for the transport of children to the forest	0	1	8	1	2	3,33	3
Random natural phenomena		2	7	1	2	3,25	3
Bad experience of kindergartens from the previous program focused on environmental education	1	2	3	5	1	3,25	3,5
It is required to pay for activities	0	3	5	2	2	3,25	3
Overexposure of offers of educational programs for kindergartens from external environment	1	1	8	2	0	2,92	3
The consent of the forest owner / forest manager to enter the forest is required	4	2	4	1	1	2,42	2,5

Results of the 2nd round of the Delphi research method for factors with a negative effect

There were significantly fewer factors *with a negative impact* in the second round of the Delphi method study, which reached a value of 4 than the positive factors with this value. Most factors with an average higher than 4 were achieved by the factors in the field of: *Environmental education - methods and forms* (all three mentioned factors reached the value of 4) - *Formality, the use of monotonous lecture forms; Education based on instructions,*

*without examples of real activities; The lack of critical thinking.* The last mentioned considered experts to be the most important of them. It is interesting that for the informal pre-primary education of children in environmental education in the forest environment, the factor of *The lack of the necessary infrastructure in the forest for rest* is negligible for them. Similarly, *The consent of the forest owner / forest manager to enter the forest* is a negligible factor for them. It should be emphasized that when talking about the *External Factors* area, which has the highest number of factors, none of its factors reached the value of 4.

*Evaluation of the 3rd round of research using the Delphi method* The third (final) round of research using the Delphi method was carried out in the following period: 08. 04. - 17. 04. 2020. The purpose of the third round was to review the order of factors in terms of their impact on informal pre-primary education of children from environmental education in the forest environment. As a research tool, we used a questionnaire in which the factors for each area were sorted in ascending order from the largest impact to the least impact. The order corresponded to the results achieved in the second round. The sums of the order for individual factors were calculated and for each area of factors also *Kendall's Coefficient of Concordance W* was calculated. With its help we could assess the degree of closeness of the relationships between the evaluation of the influence of individual factors by experts. The coefficient takes values from 0 (means no relationship) to 1 (indicates a strong relationship), according to the formula:

$$W = \frac{\sum X^2 - (\sum X)^2}{12 k^2 (n^3 - n)}$$

We sent the questionnaire to 13 participants, 12 of them were sent back. Based on the evaluation of the 3rd round, the final order of factors in individual areas was defined. The results are interpreted in the following tables. We proceeded in the same way as in the previous phases, i.e. we evaluated both the positive and the negative factors separately. The key factors from the second round, whose average value reached 4 and more, are highlighted in bold in the tables.

Positive factors obtained by the questionnaire survey:

Table 17: Sequence of factors – Location

FACTOR	Sum of order	Final order
<b>It is important to choose a suitable route in terms of terrain and relief</b>	24	1
<b>Attractiveness of the forest environment with the possibility of direct observation, presence of various objects (feeder, tree stand, nest, anthill)</b>	25	2
<b>Use of the kindergarten environment itself (kindergarten should be a real example of a positive attitude towards nature also in their own processes)</b>	39	3
Residence of children (city, town, village, dispersed settlement)	44	4
Visiting other places or events focused on environmental education (e.g. The Museum of Forestry and Wood Technology, Forestry Days, Forestry Open-Air Museum in Vydrovská dolina, etc.)	60	5
Type of forest (old forests, thicket stands, monoculture forests, mixed stands, commercial forests, protection forests, special purpose forests)	60	5
<b>Kendall's Coefficient of Concordance W - 0.51</b>		

Table 18: Sequence of factors - Target group and its predispositions

FACTOR	Sum of order	Final order
<b>Adequate length of stay in the forest according to the age of children</b>	16	1
Alternation of short attention spans	20	2
<b>Kendall's Coefficient of Concordance W - 0.11</b>		

Table 19: Sequence of factors - Parents / family environment

FACTOR	Sum of order	Final order
<b>Supportive family environment for children (children go to nature with their parents from an early age, parents build children's relationship to responsible behavior towards nature)</b>	13	1
Parental support, involvement of parents in kindergarten activities, parental involvement	23	2
<b>Kendall's Coefficient of Concordance W - 0,69</b>		

Table 20: Sequence of factors - Kindergarten teacher

FACTOR	Sum of order	Final order
<b>Teacher's didactic ability (teacher's ability to engage, motivate, explain, listen, manage children's work, use appropriate experiential activities, games in the forest)</b>	25	1
Personal involvement of the teacher beyond his or her duties	29	2
Teacher's relation to environmental education, forest, forestry, forester's work	35	3
<b>Teacher erudition in the field of environmental education, knowledge of natural processes of forest environment</b>	35	3
Teacher's awareness of forest pedagogy programs	56	4
<b>Kendall's Coefficient of Concordance W - 0,40</b>		

Table 21: Sequence of factors - Environmental education, its goal and content

FACTOR	Sum of order	Final order
<b>Forming the foundations for building a positive relationship with nature (in the cognitive, affective and psychomotor areas) and the perception of oneself as its active part (learning to live in nature with nature and for nature)</b>	28	1
<b>Linking non-formal education in the forest environment to the already learned subject matters and subject matters that are currently being studied within formal education</b>	30	2
A balanced ratio of educational and training goals appropriate to the age and individual predispositions of children	34	3
<b>Forming the foundations of the perception of the relationship between nature and its positive impact on human health</b>	51	4
<b>Systematic approach to information provision (logical structure, logical order)</b>	57	5
Basics of developing key competencies	64	6
Forming the foundations of environmental protection and creation	65	7
<b>Kendall's Coefficient of Concordance W - 0,39</b>		

Table 22: Sequence of factors - Environmental education - methods and forms

FACTOR	Sum of order	Final order
<b>Mediation of a living personal experience with nature by using all the senses</b>	24	1
Experiential nature of activities	31	2
Natural activity and creativity of children, joy of games and movement in nature	32	3
<b>The possibility of using a forest as a source of ideas and sources of raw materials for creative activities (use of leaves, fruits, moss, flowers to create works of art - contact with nature through natural materials)</b>	48	4
<b>The right choice of teaching methods and forms of teaching</b>	56	5
Opportunity to observe some professions at work / loading and unloading of wood, planting tree seedlings, taking care of animals, etc./	68	6
Possibility to connect it with sport activities, culture, social phenomena	84	7
Effective involvement and enough teaching aids	91	8
The potential of modern technologies and their effective use in educational activities	106	9
<b>Kendall's Coefficient of Concordance W - 0,79</b>		

Table 23: Sequence of factors - Educator of environmental education from the external environment

FACTOR	Sum of order	Final order
<b>The willingness and ability of the forest pedagogue "to adapt to children's level of the mental maturity and their height."</b>	18	1
<b>Training of the lecturer, his erudition in pedagogical procedures, appropriately chosen forms of education</b>	19	2
Influence of external authorities (possibility of implementation of EE educators in the environment of kindergarten)	35	3
<b>Kendall's Coefficient of Concordance W - 0,63</b>		

Table 24: Sequence of factors - External factors

FACTOR	Sum of order	Final order
It is important with which organizations dealing with environmental education the kindergarten cooperates	13	1
Financing of activities offered by commercial or contributory organizations or using projects funding	23	2
<b>Kendall's Coefficient of Concordance W - 0,69</b>		

During the third round, there was a minimal change in the order of factors positively influencing non-formal pre-primary education of children in environmental education in the forest environment compared to the second round. The most significant was the change in the field of *Methods and forms of environmental education*, where experts moved the factor of *Mediation of living personal experience with nature by using all the senses* to the first place before the factor of *Natural activity and creativity of children, joy of games and movement in nature*. In the field of Environmental Education Educator from the external environment, the factor - *The willingness and ability of the forest pedagogue "to adapt to children's level of the mental maturity and their height."* moved to the first place before *Training of the lecturer, his erudition in pedagogical procedures, appropriately selected forms of education*.

The values of the Kendall's Coefficient of Concordance show compatibility in the evaluation of the order of individual factors in terms of the impact on non-formal pre-primary education of children in environmental education in the forest environment. The greatest agreement was reached in the area of: *Methods and forms of environmental education* (W - 0.79), followed by the areas of *External factors* (W - 0.69); *Parents / family environment* (W - 0.69). On the contrary, the smallest agreement was reached in the area of the *Target group and its predispositions* (W - 0.11).

Negative factors, which were indicated by the questionnaire survey, are first presented graphically:

Table 25: Sequence of factors - Location

FACTOR	Sum of order	Final order
Accessibility of the forest environment to the kindergarten (it is far from the forest, there is no forest environment near the kindergarten)	13	1
There may be a restriction of entering in terms of logging or other forestry activities in the forest	32	2
It is necessary to pay attention to safety in the forest in terms of cleanliness (e.g. garbage)	34	3
Lack of necessary infrastructure in the forest for rest (benches, rubbish bins, rest areas, nature trails, etc.)	41	4
<b>Kendall's Coefficient of Concordance W - 0,60</b>		

Table 26: Sequence of factors - Target group and its predispositions

FACTOR	Sum of order	Final order
Health status of children (allergies, children with behavioral disorders, etc.)	21	1
Kindergarten daily schedule	25	2
Physical fitness of children	26	3
<b>Kendall's Coefficient of Concordance W - 0,05</b>		

Table 27: Sequence of factors - Parents / family environment

FACTOR	Sum of order	Final order
Negative relationship patterns towards nature in the family, inappropriate upbringing in the family and the absence of developing responsibility for one's own behavior and actions	15	1
Social status of the family (possibility to get clothes and footwear suitable / of good quality for the forest environment)	27	2
Parental consent and the demand to be informed in advance about the event is required	30	3
<b>Kendall's Coefficient of Concordance W - 0,44</b>		

Table 28: Sequence of factors - Kindergarten teacher

FACTOR	Sum of order	Final order
Teachers' interest in knowledge of the forest, which may not always correspond to publicly presented facts, and a willingness to apply it and communicate it to children	22	1
Active or passive cooperation of teachers in the activities of forest pedagogy.	24	2
Not sufficient number of kindergarten teachers	35	3
Excessive expectations of teachers from forest pedagogy programs	39	4
<b>Kendall's Coefficient of Concordance W - 0,29</b>		

Table 29: Sequence of factors - Environmental education, its goal and content

FACTOR	Sum of order	Final order
The focus is on formal education		
<b>Kendall's Coefficient of Concordance W -1 *</b>		

\* In the next analysis, we did not consider this Coefficient of Concordance as the highest, given that there was only one factor and the result would be quite distorting.

Table 30: Sequence of factors - Environmental education - methods and forms

FACTOR	Sum of order	Final order
Formality, the use of monotonous "lecture" forms	15	1
Lack of critical thinking when selecting activities ("pseudo environmental activities")	27	2
Education based on instruction, without examples of real activities (children imitate the behavior of adults) in a real environment	30	3
<b>Kendall's Coefficient of Concordance W - 0,44</b>		

Table 31: Sequence of factors - Educator of environmental education (EE) from the external environment

FACTOR	Sum of order	Final order
Lack of qualified environmental education (EE) lecturers	23	1
Forest teachers and EE workers are available only for limited amount time (restrictions by the employer)	28	2
Insufficient staff capacity e.g. State Nature Conservancy for systematic cooperation with kindergartens	33	3
Availability of forest teachers near to kindergarten	43	4
In ethnically mixed areas, the ability of a forest educator and an EE worker, to communicate with children in a language they understand.	53	5
<b>Kendall's Coefficient of Concordance W - 0,40</b>		

Table 32: Sequence of factors - External factors

FACTOR	Sum of order	Final order
Weather (low temperatures, strong wind, wet terrain)	41	1
The problem of finding a suitable date with regard to kindergarten programs and the kindergarten daily schedule	45	2
Lack of projects for the involvement of this target group in non - formal education	53	3
It is necessary to pay for the transport of children to the forest	55	4
Bad experience of kindergartens from the previous program focused on environmental education	63	5
It is required to pay for activities	63	5
Overexposure of offers of educational programs for kindergartens from external environment	63	5
Random natural phenomena	64	6
The consent of the forest owner / forest manager to enter the forest is required	93	7
<b>Kendall's Coefficient of Concordance W - 0,21</b>		

In the group of factors negatively influencing non-formal pre-primary education of children from environmental education in the forest environment, compared to the second round, there was a change of order in 4 areas. The most significant change of the order was in the area: *External factors*, where the factor *Lack of projects for the involvement of this target group in non - formal education* fell to third place and the factor *Weather (low temperatures, strong wind, wet terrain)* finished in first place. In

the area of the target group and its predispositions, the factor *Health status of children (allergies, children with behavioral disorders, etc.)* took first place before *Kindergarten daily schedule*.

From the point of view of key factors of individual areas, the order of the second round remained the same. According to Kendall's Coefficient of Concordance was the highest agreement reached in the *Location area* (W - 0.60).

## 2.5 Interpretation of research data results

The research carried out by the Delphi method, which addressed the research question: *What factors influence the non-formal pre-primary education of children in environmental education in the forest environment*, the following results have been obtained: Experts identified 67 factors, of which 35 were positive and 32 were negative. The most factors belonged to these areas: *Environmental education - methods and forms* - 12; *External factors* - 11; *Location* - 10. The participants consider these areas to be important. In both groups of factors, factors with a rating higher than 4 occurred. These can be considered to be the key factors. The experts identified the most key factors in the areas of *Environmental Education - methods and forms* - 8; *Environmental education, its goal and content* - 6; *Kindergarten teacher* - 5.

The *Place* area had 4 key factors, but in the area of *External Factors* with a high number of factors, none of them reached a value of 4. Therefore, the participants do not consider them to be important.

We can declare that the key factors influencing non-formal pre-primary education of children in environmental education in the forest environment, identified by the Delphi method are factors from the areas of *Environmental education - methods and forms* and *Environmental education, its goal and content*. We will list them as the participants named them:

- Mediation of a living personal experience of nature with all the senses;
- Experiential nature of activities;
- Natural activity and creativity of children, the joy of games and movement in nature;
- The possibility of using forest as a source of ideas and source of raw materials for creative activities (use of leaves, fruits, moss, flowers to create works of art - contact with nature through natural resources);
- Forming the foundations for building a positive relationship with nature (in the cognitive, affective and psychomotor areas) and the perception of oneself as its active part (learning to live in nature, with nature and for nature);
- Linking non-formal education in the forest environment to the already learned subject matters and subject matters that are currently being studied within formal education;
- A balanced ratio of educational and training goals appropriate to the age and individual predispositions of the children;
- Systematic approach to information provision (logical structure, logical order).

Other important factors that can be perceived as essential are:

- It is important to choose a suitable route in terms of terrain and relief;
- Attractiveness of the forest environment with the possibility of direct observation, the presence of various objects (feeder, tree stand, nest, anthill);
- The use of the kindergarten environment itself (kindergarten should be a real example of a positive attitude towards nature also in their own processes);
- Didactic ability of the teacher (ability of the teacher to engage, motivate, explain, listen, manage children's work, use appropriate experiential activities, games in the forest;



- Personal involvement of the teacher beyond his or her responsibilities;
- The teacher's relationship to environmental education, forestry, forest, forester's work;
- Teacher's erudition in the field of environmental education, knowledge of natural processes of the forest environment;
- The willingness and ability of the forest pedagogue "to adapt to children's level of the mental maturity and their height.";
- Training of the lecturer, his erudition in pedagogical procedures, appropriately chosen forms of education;
- Supportive family environment of children (children go to nature with their parents from an early age, parents build children's relationship to responsible behavior towards nature);

Defining the negative factors draws our attention to possible threats and problems in the implementation of non-formal pre-primary education of children in environmental education in the forest environment. The participants defined that the most factors with a negative impact on this education are in the area of External Factors - 9, but none of the factors can be considered as a key factor. The experts defined the most key negative factors again for the field of *Environmental Education - methods and forms*. These factors are:

- Formality, the use of monotonous "lecture" forms;
- Lack of critical thinking when selecting activities ("pseudo environmental activities");
- Education based on instructioning, without examples of real activities (children imitate the behavior of adults) in a real environment.

They also mentioned other, less significant factors that have a negative impact on the informal pre-primary education of children from environmental education in the forest environment:

- Lack of qualified lecturers focusing on environmental education;
- Forest teachers and EE workers are available only for limited amount of time (restrictions by the employer);
- The focus is on formal education;
- Teachers' interest in knowledge from the forest, which may not correspond to publicly presented facts, and a willingness to apply it and communicate it to children;
- Negative relationship patterns towards nature in the family, inappropriate upbringing in the family and the absence of developing responsibility for one's own behavior and actions;
- Accessibility of the forest environment to the kindergarten (it is far from the forest, there is no forest environment near the kindergarten).

Regarding the mentioned results, it is important to state that the factors formulated in the initial phase were not so clear in the later decision-making of the participants. Some were categorized, very clearly defined, others included a number of related factors. Therefore, it is possible that such factors had greater strength in the final evaluation. During the second round, one expert was concerned about the unclear formulation of the factor. Clearly, precision plays an important role in the initial specification of factors. To clarify, we declare that for maximum authenticity, we altered the formulation of factors to the least extent. It was found out during the research that experts did not perceive the differences between formal and non-formal education, or did not consider them to be important. Therefore, those that may not be directly related to informal environmental education and training have also emerged in the group of factors, e.g. lack of teachers in kindergarten, or enough or lack of teaching aids.

## 2.6 Research conclusions and recommendations

The use of the Delphi method in the expert determination of factors influencing non-formal pre-primary education, which

takes place in a forest environment, is of great importance for pre-school children. This approach to environmental education provides children with a direct personal experience through the senses and contact with nature. It was found out that children have the opportunity to get to know the nature through activity and experience, specifically the forest environment, which supports their emotional development (mostly emotions of joy - from movement, overcoming obstacles, from the sounds of nature), psychomotor development (movement in uneven natural terrain, overcoming obstacles in nature environment, which requires jumping, walking on tiptoes, finding balance, etc.). They learn to name and describe the observed natural phenomena and in the end develop their creativity. Experts also indicated that the attractiveness of the forest environment with the possibility of direct observation of various objects such as feeder, tree stand, nest or anthill, plays an important role in this type of education. These are some of the peculiarities that make the forest environment unique. Experts indicated that we do not need supporting teaching aids and modern digital technologies in this education. It must be said that the teacher himself has a crucial role in this process with his didactic skills, personal involvement, often beyond work responsibilities and his positive attitude towards environmental education, forest, perhaps also forestry and the work of a forester. Similar requirements apply also to the lecturer of environmental education from the external environment. On the other hand, as the results of the research revealed, for the success and effectiveness of environmental education, it is necessary to avoid teachers' formality and a lack of critical thinking when selecting activities. There is also no place for education based on instructions, without examples of real activities in a real environment. This reaffirms the need to illustrate subject matters in the real environment

It has to be reminded that the degree of risk from the point of view of environmental education educators, specifically forest pedagogy, is the insufficient number of qualified lecturers, the amount of time they can devote to these activities and certain restrictions on the part of the employer for the implementation of activities. Other factors that have emerged, could be certain restrictions on visiting the forest because of logging or other forestry activities. When entering the forest, it is necessary to think about increased safety of children, in terms of cleanliness of the environment, for example in the form of garbage or the lack of infrastructure in the forest for rest. However, experts did not consider this aspect to be that important. Similarly, they did not consider the need to finance the transport of children to the forest or the importance of the owner's consent to enter the forest, to be significant. The research results showed that the biggest risk for education in the forest appears to be its availability to kindergarten.

We can therefore state that the forest is a suitable place for the implementation of environmental education of preschool children, regardless of formal or non-formal environmental education. The research results also showed that the connection of formal and informal concepts has a synergistic effect. It is crucial to know the positive and negative aspects entering the process of education in all directions and to have effective concepts that will be able to enter this process. Miňová (2005) also points out that the possibilities of implementing environmental education in pre-school education are wide. From learning about scientific practices through observation, exploring the collecting and processing of information, to developing critical thinking and decision making.

## 3 Conclusion

One of the offered alternatives of effective environmental education in both school and out-of-school environment can be forest pedagogy. The core of forest pedagogy is learning about the forest ecosystem and educating people to a sustainable way of life on the example of the forest. It is based on experiential learning, sensory perception and a holistic approach to personality development. A forest teacher as an educator or lecturer of environmental education can be a helpful guide who can share wisdom and experience, while not robbing the child of

the process of his own research, knowledge and the experience in the forest itself. In the future, such an approach to education can also help to build and strengthen the child's value system, such as respect and responsibility for nature and the environment, as well as love and empathy for the living organisms and people around us. With its attractiveness and unique elements, the forest environment plays an important role in the process of education and personality formation, which was also shown by our research. In addition, a stay in the forest brings also other benefits. Cervinka et al. (2014) emphasize that the physical and emotional benefits of staying in nature are strongly reflected in childhood experiences. For the development of children, it is necessary to pay attention to nature. Materials, colors, shapes and scents are extremely important to them. Adults often go to nature, if they have become familiar with nature as children.

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#### Primary Paper Section: A

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