

Oksana Fushtei

Vinnitsia Mykhailo Kotsiubynskyi State Pedagogical University,

PhD in Pedagogy, Associate Professor (Ukraine)

fyshtey5@gmail.com

<http://orcid.org/0000-0002-2330-6745>

FORMING NATURAL AND ENVIRONMENTAL COMPETENCE OF CHILDREN OF SENIOR PRESCHOOL AGE

Стаття розглядає роль природничо-екологічної компетентності дітей старшого дошкільного віку. Здійснений у процесі дослідження теоретичний аналіз наукової літератури дав змогу уточнити поняття: "екологічна компетентність" щодо дошкільника – як здатність дитини, на основі засвоєних знань, умінь, навичок та індивідуального досвіду, вирішувати екологічні проблеми відповідно до своїх потреб і можливостей, з якими вона зустрічається в повсякденному житті.

На основі аналізу теоретичних підходів визначено сутність формування екологічної компетентності як цілісного процесу, спрямованого на формування сукупності знань, умінь, навичок, емоційно-ціннісних орієнтацій, які допомагають людині усвідомити місце природи в її житті, обов'язок і відповідальність перед природою.

Мета статті: теоретично обґрунтувати та експериментально визначити рівні сформованості природничо-екологічної компетентності дітей старшого дошкільного віку

У процесі дослідження було з'ясовано, що формування екологічної компетентності особистості – це складний та довготривалий процес, який має свою структуру (когнітивний, ціннісний, мотиваційний, емоційно-вольовий, поведінково-діяльнісний компоненти).

Загрунтовуючись на результатах теоретичного аналізу значного масиву науково-методичних джерел, передового педагогічного досвіду ми визначили сутність поняття «природничо-екологічна компетентність дитини старшого дошкільного віку», виокремили компоненти її внутрішньої структури, визначили критерії, показники та рівні сформованості цього особистісного феномену. У структурі означеної компетентності виокремлено когнітивний, емоційно-ціннісний та діяльнісний компоненти, що ідентифікуються за такими критеріями: когнітивним, аксіологічним, емоційним і поведінковим. Ступінь прояву показників за кожним із названих критеріїв дозволяє судити про рівень сформованості критерію природничо-екологічної компетентності, а на підставі сукупності проявів критеріїв вирізняти та описувати рівні сформованості компетентності. Визначили три рівні сформованості природничо-екологічної компетентності дітей старшого дошкільного віку: високий, середній та низький, вирізнення та характеристики яких стали можливими завдяки діагностиці знань та уявлень дітей про природу, роль людини в ній, дослідженню емоційних переживань, спостереженню за поведінкою дітей у дошкільній та їхньою ігровою діяльністю. Експериментальне дослідження було реалізовано у три етапи: після теоретичних узагальнень наукових відомостей щодо природничо-екологічної компетентності дітей старшого дошкільного віку і вибору діагностичного інструментарію для виокремлення критеріїв, показників і рівнів сформованості досліджуваного феномену було проведено констатувальний експеримент, який дозволив судити про стан сформованості природничо-екологічної компетентності дошкільників.

Ключові слова: природничо-екологічна компетентність, діти старшого дошкільного віку, сформованість екологічної компетентності, екологічне виховання.

The article considers the role of natural and environmental competence of senior preschool children. The theoretical analysis of scientific literature carried out in the course of the study allowed to clarify the concepts: 'environmental competence' in relation to preschool children as the ability of a child, on the basis of acquired knowledge, skills and individual experience, to solve environmental problems in accordance with their needs and opportunities that they encounter in everyday life.

Based on the analysis of theoretical approaches, the article defines the essence of environmental competence formation as a holistic process aimed at forming a set of knowledge, skills, emotional and value orientations that help a person to realise the place of nature in his/her life, duty and responsibility towards nature.

The purpose of the article is to theoretically substantiate and experimentally determine the levels of natural and environmental competence of senior preschool children.

In the course of the study, it was found that the formation of environmental competence of an individual is a complex and long-term process that has its own structure (cognitive, value, motivational, emotional and volitional, behavioural and activity components).

Based on the results of the theoretical analysis of a significant array of scientific and methodological sources, advanced pedagogical experience, we have defined the essence of the concept of 'natural and environmental competence of the senior preschool child', identified the components of its internal structure, defined the criteria, indicators and levels of formation of this personal phenomenon. In the structure of this competence, the cognitive, emotional, value and activity components are identified, which are identified by the following criteria: cognitive, axiological, emotional and behavioural. The degree of manifestation of indicators for each of these criteria allows us to judge the level of formation of the criterion of natural and environmental competence, and on the basis of the totality of manifestations of the criteria to identify and describe the levels of competence formation. Three levels of senior preschool children's natural and environmental competence were identified: high, medium and low, the identification and characteristics of which became possible due to the diagnosis of children's knowledge and ideas about nature, the role of man in it, the study of emotional experiences, observation of children's behaviour in the environment and their play activities. The experimental study was implemented in three stages: after theoretical generalisations of scientific data on the natural and environmental competence of senior preschool children and the choice of diagnostic tools to identify criteria, indicators and levels of formation of the studied phenomenon, a confirmatory experiment was conducted, which allowed to judge the state of forming the natural and environmental competence of preschool children.

Keywords: natural and ecological competence, children of senior preschool age, forming of ecological competence, ecological education.

Formulation of the problem. Ecological education of the individual in the context of the technogenic challenges of the modern world is becoming one of the most topical issues of pedagogical science. Consumer attitudes towards the environment, lack of understanding of global environmental risks by representatives of different segments of the population are the result of a low level of environmental awareness, lack of relevant competencies among all members of the civilisation community. All of this makes the problem of forming natural and environmental competence of all generations of humanity - especially children, youth and young people - extremely urgent.

From the earliest childhood years, parents and teachers should take care that the child learns to respond emotionally to the natural charm of the world around him or her as a source of beauty and life on Earth. Under the guidance of an adult, children should realise the need to preserve natural treasures and cultivate the desire to protect and enhance them. In view of this, there is an urgent need to form an appropriate set of knowledge, values, and methods of environmental protection in preschool childhood, which at the level of the State Standard of Preschool Education is expressed in the urgent need to develop children's natural and environmental competence.

The natural and environmental competence of a personality, its social functions and peculiarities of formation have been repeatedly studied by domestic and foreign scientists. The formation of natural and environmental competence of students, their environmental education is the subject of research by O. Maksymova, O. Hroshovenko, N. Horopakha, O. Kolonkova, K. Krutii, I. Karuk, O. Maksymova, T. Ponimanska, I. Stakhova and others [1; 2; 3; 4; 5].

The task of forming and developing certain personal qualities, personal and psychological phenomena, including the phenomenon of competence, involves the primary determination of the structure and content of the components of the phenomenon under study.

Scientists G. Belenka, T. Naumenko and O. Polovina argue that 'preschooler's ecological and natural competence - a component of his/her life competence - is specific knowledge about nature, positive emotional and value attitude to its components, awareness of the rules of nature management and their observance, in other words, it includes three components: intellectual (cognitive), emotional and value, and activity-practical' [6, p. 11].

The study of the theoretical foundations of the formation of natural and environmental competence of preschool children, analysis of scientific works and educational practices makes it possible to define the phenomenon of natural and environmental competence of senior preschool children, which is interpreted as a component of their life competence and is a system of specific knowledge about nature, positive emotional and value attitude towards it, awareness of the rules of nature management and their observance, and consists of three components: cognitive, emotional and value, and activity.

The Basic Component of Preschool Education also defines three components of natural and environmental competence: cognitive (knowledge of the laws of nature), emotional and value, and activity (unity of cognitive, research, labour, and play activities) [7].

C. Shmaley, for his part, notes that natural and environmental competence ‘...implies the unity of the following components: cognitive, activity (practical), emotional and motivational’ [8, p. 320]. V. Danilenkova argues that the cognitive component of preschoolers' natural and environmental competence includes “...an individual's knowledge of: the ecological state of the environment of the native land, the cause and effect of environmental problems”, and S. Nikolaieva notes that “the activity component includes: environmental protection activities, the ability to follow the rules of behaviour in nature and the ability to comply with safety rules in natural or man-made emergencies” [9, p.104-108].

Outline of the main material. The study is based on the components defined by the Basic Component of Preschool Education [7] (Fig. 1.1):

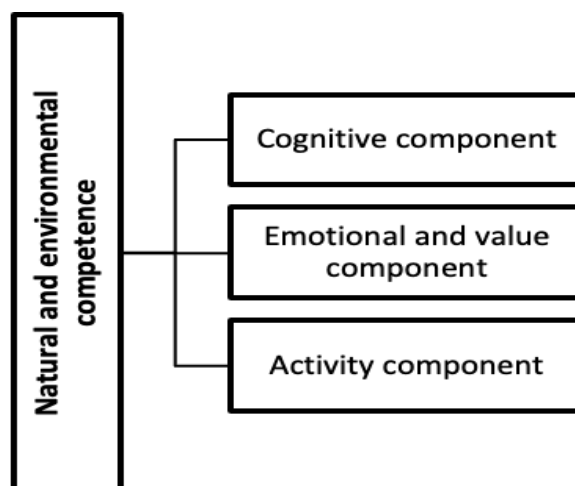


Fig. 1.1. Structure of natural and environmental competence of senior preschool children

The Basic Component of Preschool Education also defines programme outcomes for natural and environmental competence that preschool children should develop:

- has a general understanding of the nature of the planet Earth and the Universe;
- understands that the Earth is a part of space and that all its objects (stars, planets, comets, etc.) are far away;
- has elementary ideas about human exploration of space;
- knows that there are living and non-living objects of nature on planet Earth;
- realises the connection between plants and animals, their functions in nature;
- establishes the dependence of natural objects on environmental factors;
- understands the features and conditions of plant development (developmental phase, environmental factors, soil nutrition, care), animal existence (developmental stages, dependence on habitat, reaction to seasonal changes);
- is aware of the division of plants and animals into groups;
- knows that there are wild and cultivated plants;
- knows that there are wild and domestic animals;
- knows the rules of behaviour with them;
- has knowledge of the basic properties of inanimate objects of nature (air, water, sand, clay, stones), which can be identified during elementary experiments;
- understands the meaning of names - characteristics of individual properties of objects and physical phenomena of the world (hardness, softness, flowability, viscosity, buoyancy, solubility; speed, direction, etc;)
- knows the names of artificial materials made by humans from natural raw materials (metal, rubber, fabric, plastic, paper, etc.)
- knows the signs of seasons and natural phenomena [7].

It becomes obvious that natural and environmental competence is an integral part of the educational process, which is formed during the implementation of environmental education, whose task is to provide younger generations with empirical knowledge about the relationship between nature and society.

In our opinion, the content of the cognitive component also includes environmental beliefs ('we should treat nature responsibly, protect all living things'; 'we should help as much as we can'; 'environmental problems can only be solved by joint efforts, based on knowledge of the laws of nature'). Important components of the cognitive, activity and value-motivational components of preschoolers' natural and environmental competence are: knowledge about the Earth's natural environment and interactions in the natural environment; awareness of being a part of the great natural world; ability to carry out feasible environmental activities: preservation, care and protection of the natural environment; readiness to follow the rules of appropriate environmental management, cleanliness of the natural environment, economical use of natural resources.

Emotional and value component of natural and environmental competence of senior preschool children. A child of the fifth or seventh year of life is quite capable of volitional acts and actions related to the struggle of motives - internal and external, self-restraint, is able to exercise moral and ethical self-control, consciously subordinate his or her activities to environmental expediency. For ecologically appropriate behaviour, a child needs to develop such volitional qualities as discipline, organisation, independence, perseverance, and initiative [8].

It is also important to fill the child with positive emotions from communicating with nature, to teach the preschooler to focus on these emotions, to identify and name them: joy, delight, enthusiasm, pleasure, surprise, happiness, pride, etc. 'The experience of positive emotions from interaction with nature will encourage the child to repeat the actions that caused his/her positive mood' [10, p. 79].

The process of forming natural and environmental competence is strongly influenced by the system of values of the child's immediate environment, which is why we distinguish the value component of the analysed component and propose to describe its content through socio-natural, moral and ethical, ecological and aesthetic, and humanistic and environmental values. Under the value orientations of the individual we understand 'the child's choice of certain material and spiritual values as objects that determine his/her lifestyle, purposeful activities to preserve the environment' [11, p. 11].

The third distinguished component of natural and environmental competence is the activity component. Its content includes: environmental protection activities (caring for plants, cleaning the playground, feeding birds in winter, making feeders, caring for green spaces, flowers during walks, in particular with parents); observance of the rules of appropriate behaviour in nature (environmentally appropriate use of resources (economical use of water, light, paper); ability to assess the nature and direction of the negative impact of plants and factories on natural complexes and their components; ability to respect the rights of the environment; ability to respect the rights of the people and the environment. In general, this component reflects the child's attitude to the natural environment and represents the final result of environmental education.

According to domestic researchers N. Kolesnyk, O. Maksymova, Z. Plokhyy, senior preschool children can demonstrate the formation of natural and environmental competence in the following activities: 1) role-playing game, which reflects various events in nature or environmental activities of adults; 2) practical activities to create or maintain the conditions of living objects of the green zone of the IPE (work in nature); 3) activities to restore objects (repair of toys, books, etc.); 4) creation of products in the field of fine arts based on impressions of nature or human activity in nature; 5) communication with nature, arbitrary communication with objects of flora and fauna (this is a complex activity that includes observation, evaluation judgments, dog training, etc. Experimentation with living objects is a positive activity only if the search actions are carried out taking into account the needs of a living being and do not have a destructive effect; 7) speech activity (questions, messages, participation in a conversation, dialogue, exchange of information, impressions, clarification of ideas about nature with the help of words); 8) observation (independent cognitive activity, provides information about the nature and activities of people in nature); 9) viewing books, paintings, television programmes with natural history content (activity that contributes to obtaining new and clarifying existing ideas about nature) [1; 12; 13].

Observation of children's independent activity, analysis of its content allow the educator to analyse individual characteristics of children, the level of their natural and environmental competence. The structural interrelation of the components of the studied competence of a senior preschool child can be presented as follows: the need to live, self-development encourages the establishment of harmonious relations with nature, encourages practical environmental activities.

Based on domestic pedagogical researches and theoretical generalisations, we define the functions of senior preschoolers' natural and ecological competence as follows

- gaining experience of emotional contact with the natural environment, the ability to determine the mood and state of nature through weather conditions, peculiarities of the season;
- stimulating the expression of own feelings towards nature through artistic means;
- mastering the normative environmental rules;
- learning the principles of appropriate behaviour in the environment, developing curiosity and observation;
- developing interest in nature, understanding the need for its preservation;
- fostering an appreciative attitude to natural phenomena and objects, to the ecological state of nature in their region, to their own and others' attitudes towards the environment;
- development of the need to preserve and protect nature;
- development of the ability to solve problematic situations of environmental content [14].

Based on the above, we argue that the natural and ecological competence of senior preschoolers is of an active nature and involves the ability to use the child's existing ecological knowledge, as well as the readiness to implement it in a specific environmental situation in appropriate behaviour, accompanied by positive emotional experiences and constituting a system of environmental and moral and ethical values of the child.

Experimental part. Determining the structure of natural and ecological competence of senior preschool children allowed us to select criteria for each of the identified components of the analysed phenomenon and prompted us to conduct a confirmatory stage of the experiment to determine the level of formation of the studied competence in children.

We assumed that the criterion for the formation of the cognitive component of natural and environmental competence is the child's knowledge and beliefs about the natural world and human life in it, therefore, this criterion was called cognitive (availability of a system of knowledge about the natural environment appropriate to the child's age, conviction in the expediency of environmentally friendly behaviour, understanding of the need to take care of nature and be a part of it);

The emotional and value component of senior preschool children's natural and environmental competence is revealed, in our opinion, with the help of axiological and emotional criteria. In accordance with the semantic content of the term 'axiological' ('considering something from the point of view of its value for someone, something; value'), we believe that this criterion allows us to identify the child's value attitude to nature and to track whether this attitude is accompanied by positive emotions (can be described through the following indicators positive emotional perception and value response to the natural environment, attitude to nature as the greatest common value that needs to be preserved and restored).

The emotional criterion of senior preschooler's natural and environmental competence is manifested in the child's emotional attitudes towards the environment, in the feelings that arise in the child's psyche in relation to objects of animate and inanimate nature - admiration for its beauty, empathy for animals and birds, joy at the opportunity to help a living being and resentment towards those who harm the environment.

We define the activity component of natural and environmental competence of senior preschool children through the behavioural criterion, which is described by the following indicators manifestation of caring and friendly attitude to nature during different types of activities (play, learning, creative) in the environment; manifestation of personal initiatives for the conservation of natural wealth and resources, sustainable state of the environment; responsible attitude to their actions, desire to correct their own behaviour and actions of their peers that have a negative impact on the environment.

The tasks of the ascertaining stage of the experiment were as follows:

1. To identify the levels of formation of natural and environmental competence in senior preschool children according to the criteria of the structural components of this competence.
2. To determine, on the basis of the obtained results, the directions of educational work in the IPE, which are implemented through didactic games and contribute to the formation and development of preschoolers' natural and environmental competence.
3. To substantiate and experimentally test the effectiveness of pedagogical conditions of using didactic games for the formation of natural and environmental competence of senior preschool children.

The first task was implemented in three sub-stages.

A) Determination of criteria and indicators of the formation of structural components of senior preschoolers' natural and environmental competence and, in accordance with the defined criteria, identification of the level of knowledge of the participants of the experiment about the world of animals

and plants, objects of animate and inanimate nature, seasons and climatic characteristics of the seasons (cognitive criterion).

B) Determination of emotional and value attitudes of senior preschoolers towards nature objects (axiological and emotional criteria).

C) Determination of children's skills of caring attitude to the objects of animate and inanimate nature (behavioural criterion).

The components of the criteria are indicators that reflect their content, i.e., knowledge, understanding, and activity of the child in relation to nature. Based on the analysis of the essence of the content and age peculiarities of senior preschoolers' natural and environmental competence, we have identified the following indicators of the levels of criteria formation.

Cognitive: knowledge about flora; knowledge about fauna; knowledge about inanimate objects; knowledge about seasons and their climatic characteristics; knowledge about the rules of behaviour in nature, about ways to preserve and increase natural resources and wealth;

Axiological criterion: respectful attitude to flora and fauna; basic formation of value orientations towards the world around us (recognition of nature as the highest value for a person, recognition of one's own responsibility for the environment, respect for environmental protection).

Emotional criterion: this criterion determines the nature of the child's emotional attitude to the environment, which is manifested, first of all, in the child's own evaluative judgements, and allows adults to understand what the child likes and dislikes in nature (or what scares him/her - 'I am afraid of bugs, spiders, nettles', 'I am afraid of lightning and thunder', 'I do not like rainy weather', 'I do not like when a strong wind blows', etc. etc.), which causes positive (negative) experiences, attracts (repels). Indicators of this criterion are: adequate emotional response to various situations of human activity in nature (joy about preserving the environment, admiration for its beauty, sadness, resentment, anger about causing damage to the environment); interest in natural phenomena, objects of living and non-living nature, the need to preserve the environment, positive emotions in the process of performing tasks of ecological and natural content or during didactic games of ecological content.

Behavioural: implementation of natural and environmental knowledge, skills and abilities in behaviour; adherence to value orientations in life, in particular through responsible environmentally appropriate behaviour in the environment; formation of sustainable forms of caring and responsible behaviour in nature, which children demonstrate in everyday life.

The degree of formation of the criteria of structural components of natural and environmental competence of senior preschool children according to the defined indicators made it possible to describe in detail the levels of development of the studied quality in children. We have identified and characterised three levels of development of children's natural and ecological competence, namely: high, medium, low. The characteristics of the levels are presented in Table 1.1.

Table 1.1.

Characteristics of the levels of formation of natural and ecological competence of senior preschool children by criteria

Criteria of structural components of natural and environmental competence of senior preschool children	Levels of formation of natural and environmental competence of senior preschool children		
	High	Medium	Low
Cognitive	Age-appropriate systematic knowledge of the plant and animal world, objects of inanimate nature, seasons, their climatic	Age-appropriate awareness of objects and phenomena of living and inanimate nature; make minor mistakes when	Children with a low level of criterion development have limited knowledge of flora and fauna, living and nonliving objects, seasons; perform tasks

	<p>characteristics, higher living and non-living nature; a high level of development of this criterion is manifested in the correct performance of tasks of game activities, confident and correct answers to questions, the ability to prove one's opinion</p>	<p>performing learning tasks; cannot always justify their answers</p>	<p>incorrectly, make mistakes; cannot answer the teacher's questions about environmental conservation and protection</p>
Emotional	<p>Adequate emotional response to various situations of human activity in nature (joy at preserving the environment, admiration for its beauty, sadness, resentment, anger at causing damage to the environment); There is a strong interest in natural phenomena, objects of living and non-living nature, positive emotions in the process of performing environmental and natural tasks or during didactic games of environmental content</p>	<p>Children with an average level of development of the emotional criterion do not always demonstrate an adequate emotional response to various situations of human activity in nature, their interest in natural phenomena is situational, they experience positive emotions during didactic games of environmental content, but do not always perform tasks of an environmental and natural nature with joy, mostly doing it to get praise from adults - educators, parents</p>	<p>The low level of emotional criterion formation is inherent in older preschoolers who do not demonstrate an adequate emotional response to human activity in nature, have no interest in natural phenomena, are mostly passive when participating in didactic games with environmental content, do not want to perform environmental and natural tasks, even if they receive rewards or praise</p>
Axiological	<p>Children with a high level of development of the axiological criterion are characterised by a strong interest and positive emotional attitude to objects of animate and inanimate nature; positive emotions about environmental protection activities, negative - about the actions of other people that harm the environment. Children demonstrate a valuable personal attitude to nature in verbal statements and products of their activities -</p>	<p>Older preschoolers with an average level of criterion formation show selective interest in objects and phenomena of nature; they know how to care for pets and inhabitants of the nature corner, plants, but this knowledge is not always experienced with positive emotions, they do something without much interest, often under the coercion of adults; they show a valuable attitude to nature occasionally -</p>	<p>Older preschoolers with an average level of criterion formation show selective interest in objects and phenomena of nature; they know how to care for pets and inhabitants of the nature corner, plants, but this knowledge is not always experienced with positive emotions, they do something without much interest, often under the coercion of adults; they show a valuable attitude to nature occasionally - mainly in answers to the</p>

	stories, fairy tales, drawings, crafts.	mainly in answers to the teacher's questions to say what is expected of them	teacher's questions to say what is expected of them
Behavioural	Developed skills and abilities to care for nature; demonstrate understanding of the need to care for plants and animals, perform it efficiently and responsibly; enjoy helping animals and plants	Children have insufficiently developed skills of caring for natural objects; in everyday activities related to caring for animals and plants, they are mostly interested in the process rather than the quality of the result; they occasionally express a desire to care about the environment, but are happy to join collective activities with environmental content, including environmental games	Senior preschoolers with a low level of criterion development do not have skills of careful attitude to nature, they do not fulfil the relevant tasks of the teacher; in everyday life they demonstrate indifference to environmentally appropriate behaviour

The ascertaining stage of the experiment allowed us to conduct an input diagnostics of the levels of formation of natural and environmental competence of senior preschool children. As diagnostic tools we used conversations, solving environmental tasks and observing children.

The ascertaining and subsequent stages of the experiment took place in the educational process of the Novoobodivske preschool educational institution 'Rosinka' of the Obodiv village council of Vinnytsia region. The experiment covered 54 preschoolers.

The diagnostics of the formation of the cognitive component of natural and environmental competence according to the cognitive criterion was carried out using the methods 'Conversation about water' and 'Seasons', the didactic game 'Guess the rule' (modified version - L. Garashchenko [15, p. 47]) was also used.

The purpose of these methods is to determine the level of knowledge about the natural world and its phenomena in preschool children. Based on a series of the described diagnostic methods, we have formulated conclusions about the formation of the cognitive criterion of senior preschool children's natural and environmental competence.

To diagnose the axiological criterion of senior preschool children's natural and environmental competence, the respondents were offered a task in the form of a conversation-game 'Why do plants, butterflies, birds rejoice and feel sad?', which was conducted in the form of solving game problem situations in which the game character gets into, and children help him/her.

The children's answers were analysed according to the principle of semantic differential, which assesses the qualitative and quantitative indexing of the meanings and senses of statements.

To diagnose the level of formation of the emotional criterion of natural and environmental competence, a conversation was held with children 'Is Nature Thankful or Angry?'

When analysing the answers, attention was paid to the predominance of children's answers in the list of norms and rules of behaviour or examples of environmentally oriented activities. Teachers' impressions of observations of preschoolers' attitudes towards wildlife during walks and group activities were also taken into account.

Diagnostics of the behavioural criterion of natural and ecological competence was carried out using methods aimed at studying the nature of children's practical activities in nature. The skills (or ideas about them) of caring for plants and animals, understanding the essence and implementation of elements of

environmental protection activities were identified, and children's creative works on environmental topics were evaluated.

The results obtained by studying the nature of children's practical activities in nature allowed us to determine the levels of natural and environmental competence of senior preschool children by the behavioural criterion.

The general results of the levels of formation of senior preschool children's natural and environmental competence are presented in Table 1.2.

Table 1.2.

Levels of formation of natural and ecological competence of senior preschool age children in CG (ascertaining stage)

No.	Criteria.	Levels of formation of natural and environmental competence by criteria (in % / number of people)		
		High	Medium	Low
		CG	CG	CG
1.	Cognitive	12,5% (13 чол.)	37,5% (19 чол.)	50 % (22 чол.)
2.	Axiological	4,1% (11 чол.)	41,7% (20 чол.)	54,2% (23 чол.)
3.	Emotional	8,3% (12 чол.)	37,5% (19 чол.)	54,2% (23 чол.)
4	Behavioural	8,3% (12 чол.)	54,2% (23 чол.)	37,5% (19 чол.)
Average value		8,3%	42,7%	49 %

Conclusions. The results of the ascertaining experiment indicate the need to find means and ways of forming the natural and ecological competence of senior preschool children in the IPE. The natural and environmental competence of senior preschool children is the ability of a child of 5-7 years old to learn the rules of behaviour in nature, readiness for environmentally appropriate behaviour in different life situations, value attitude to nature and experience of a sense of responsibility for the environment, accompanied by appropriate emotions. In the structure of this competence, we distinguish cognitive, emotional, value and activity components, which are identified by the following criteria: cognitive, axiological, emotional and behavioural. The degree of manifestation of indicators for each of these criteria allows us to judge the level of formation of the criterion of natural and environmental competence, and on the basis of the totality of manifestations of the criteria to identify and describe the levels of competence formation. We have identified three levels of senior preschool children's natural and environmental competence: high, medium and low, the identification and characteristics of which became possible due to the diagnosis of children's knowledge and ideas about nature, the role of man in it, the study of emotional experiences, observation of children's behaviour in the environment and their play activities.

Conclusions and Prospects for Further Research. The study does not exhaust all aspects of the problem of forming the natural and environmental competence of senior preschool children; in our opinion, the use of digital applications and mobile applications in didactic games aimed at environmental education of preschool children requires further development.

References

[1] Maksymova O.O. Formation of environmental competence as a component of a child's readiness for school. *Pedagogical education: theory and practice: Collection of scientific works. Kamianets-Podilskyi Ivan Ohienko National University; Institute of Pedagogy of the National Academy of Pedagogical Sciences of Ukraine.* Issue 24 (2018). Ч.1. Kamianets-Podilskyi, 2018. С. 329 - 334.

[2] Gurdish N. V. Formation of mental abilities of senior preschoolers by means of didactic games. Kryvyi Rih: KDPU, 2021. 100 с.

[3] Karuk I. V. Ecological education and upbringing of preschoolers as a priority area for the development of the culture of European society. *Science and Technology Today (Series 'Pedagogy', Series 'Law', Series 'Economics', Series 'Physical and Mathematical Sciences', Series 'Technology')*, 2023. № 9(23). C. 320-328.

[4] Krutii K.L. Subject-developmental environment as a factor of accompanying the child's activity. *Preschool education*, 2008. № 2. C. 4 - 9.

[5] Krutii K.L., Kotii NI, et al. Formation of key competences in preschool children in the context of multilingualism. *Class notes on teaching the Ukrainian language and developing the speech of children of middle preschool age: Method manual*. Zaporizhzhia: LIPS LTD, 2007. 248 c.

[6] Training of future educators to work with preschool children: a competence-based approach: a monograph / N. I. Bogdanets-Biloskalenko [et al: G. V. Belenka, O. A. Polovina; Borys Grinchenko Kyiv University, Department of Preschool Education. Uman: Vizavi, 2015. 208 c.

[7] The basic component of preschool education of Ukraine / MES of Ukraine [electronic resource] ; under the scientific guidance of Pirozhenko T. O., author's col: Bayer O.M., Bezsonova O.K., Brezhneva O.G., Havrysh N.V., Zahorodnia L.P. [et al: URL: <https://drive.google.com/file/d/1p73x-YaldG5sIZumhIHvWntn7-G0Y7KT/view?usp=sharing> (accessed 04.05.2024).

[8] Shmaley S. V. System of environmental education in secondary school in the process of studying subjects of the natural science cycle: PhD thesis: 13.00.01K., 2005. 479 c.

[9] Loshyk L. The essence and structure of natural and ecological competence of children of middle preschool age. *Materials of speeches of participants of the IV All-Ukrainian scientific and practical Internet conference 'Preschool education: theory, methodology, innovations'*, Lutsk, 2022. C. 104-108.

[10] Maksymova O. Formation of environmental competence in children of the senior group of preschool education institutions. *Scientific Bulletin of Uzhhorod University. Series: Pedagogy. Social work*, 2020. Issue 1 (46). C. 77 - 80.

[11] Fedorova M. A. Features of the formation of a system of personal values in children. *Modern approaches to the organisation of the educational process in preschool education institutions and primary school: a collection of scientific and methodological works* edited by O. O. Maksymova, M. A. Fedorova. Zhytomyr: FOP Levkovets, 2018. C. 9-12.

[12] Kolesnyk N. E. Theory and practice of primary school teacher training for the formation of subject-transformative competence of students: an integrative approach. *Problems of education: Collection of scientific works*, 2015. Issue 85. Special issue. Vinnytsia-Kyiv, 2015. C. 58-63.

[13] Plohii Z. P. Educating the ecological culture of preschoolers: methodological manual. Kyiv: Ed. journal 'Preschool education', 2002. 173 c.

[14] Lokhvitska L. Developmental subject environment in preschool educational institutions. K.: Editions of newspapers on preschool and primary education, 2019. 80 c.

[15] Polovina O., Garashchenko L. *Formation of ecological and natural competence of preschool children: health-saving approach*. *Young scientist*, 2018. №8 (1). C. 47-52.

Review received 09.09.2024