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Environmental awareness for teachers: A sustainable future

Екологічна свідомість вчителів: стале майбутнє

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
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Abstract


The article shows the significance of the formation of environmental awareness of each individual on a global scale. The approach of scientists to the disclosure of the content of ecological consciousness, its structure, and its varieties has been studied. The position of consideration of ecological consciousness is proposed, which is presented from two positions (the first position – based on the acquired experience of ecological being, the awareness of a person's mental sense of personal responsibility; the second position – the phenomenon of ecological consciousness in the "society – nature" system). The main approaches in preparing future primary school teachers for the formation of environmental consciousness are highlighted; principles that ensure the development of environmental awareness of primary school teachers; and components of environmental awareness (technological, managerial, communicative). To verify the


Анотація


У статті показана значущість формування екологічної свідомості кожної особистості у світовому масштабі. Досліджено підхід науковців до розкриття змісту екологічної свідомості, структури та її різновидів. Запропоновано позиції розгляду екологічної свідомості, яка представлена з двох позицій (перша позиція – на основі набутого досвіду екологічного буття, усвідомлення людиною психічного почуття власної відповідальності; друга позиція – феномен екологічної свідомості у системі «суспільство – природа»). Виокремлено основні підходи при підготовці майбутніх учителів початкових класів до формування екологічної свідомості; принципи, що забезпечують розвиток екологічної свідомості учителів початкової школи; компоненти екологічної свідомості (технологічний, управлінський, комунікативний). З метою перевірки сформованості компонентів екологічної

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formation of the components of environmental awareness among students of higher education in higher educational institutions, an experimental study of the formation of environmental awareness among primary school teachers was conducted and the need for the formation of environmental culture among schoolchildren was proven in primary school when a person develops his personality as a future citizen, which proves the relevance of the selected research topic.

Keywords: formation of environmental awareness, future primary school teachers, project activity, primary school, environmental culture.

Introduction

The current ecological crisis in the world actualizes the formation of ecological orientations and attitudes in people and speaks of the need to ecologies the consciousness of the entire society. It is the environmental crisis in the world that has reached a global level, which requires the formation of a solid foundation for the ecological thinking of the individual, which must be provided by environmental education. Therefore, the promotion of fundamental ecological knowledge and the formation of ecological consciousness and ecological culture of each person and society as a whole is the main goal of ecological education. Achieving this goal will ensure the formation of people's ecological thinking, which is necessary today for making economic decisions – ecologically justified at the level of regions, industries, enterprises, each country, and the world in general (Vlasenko, 2019). Therefore, since the solution to urgent modern environmental issues is impossible without changes in the ecological consciousness of the individual, the question of the formation of ecological consciousness today belongs to the global socio-psychological problems. At the same time, primary school plays an important role in the formation of environmental awareness. The primary school itself is the starting point of "abandonment from the destructive consumerist way of life of a person to a thrifty and restorative one (Gabarda Méndez et al., 2021).

The new requirements of society for education, starting from primary school, determine the need for quality training of an ecologically literate generation of young people who can implement an eccentric approach to interaction with nature. The modern Paradigm of education places the education of environmental literacy at the center of educational activity, which leads to the

свідомості здобувачів вищої освіти вищих педагогічних закладів освіти було проведено експериментальне дослідження формування екологічної свідомості у вчителів початкової школи та доведено необхідність формування екологічної культури школярів саме в початковій школі, коли у людини здійснюється становлення особистості як майбутнього громадянина, що доводить актуальність обраної теми дослідження.

Ключові слова: формування екологічної свідомості, майбутні учителі початкових класів, проєктна діяльність, початкова школа, екологічна культура.

formation of environmental awareness and the formation of environmental competence of the individual and society. Fulfillment of this task is impossible without affirming the priority of life forms as a condition for the existence of humanity and, the accumulation of positive practical and scientific experience of the interaction of nature and man (Kotiash, 2019).

The development and functioning of the environment, and the attitude of each person towards it mostly depend on the formation of environmental consciousness, emotional relationships with nature, and the strength of the foundation of primary environmental knowledge formed in primary school age. Therefore, the formation of environmental consciousness among future primary school teachers plays a major role in the training of future primary school teachers in higher education institutions and is the main factor in the development of the ecological culture of the young generation of the world. Our research will focus on such important global issues.

The problem of the formation of environmental consciousness of teachers acquires special importance in the theory and methodology of professional education. Therefore, in the article we considered the main aspects of this problem. Namely: the significance of the formation of environmental awareness of each individual on a global scale; the approach of scientists to the disclosure of the content of ecological consciousness and its varieties; positions of consideration of ecological consciousness and its structure; basic approaches to the formation of environmental consciousness in the preparation of future primary school teachers; principles that ensure the development of environmental awareness of primary school teachers;

components of environmental awareness; the use of project activities for the formation of environmental awareness among primary school teachers; conducted an experimental study of the formation of environmental awareness among primary school teachers.

Literature review

Depending on the orientation of ecological ideas, scientists reveal the essence of ecological consciousness in future specialists, distinguish types of ecological consciousness, show its importance for society, in the educational process investigate psychological and pedagogical problems of the formation of ecological consciousness and age aspects of the problem of ecological consciousness. In particular, V. Rohoza (2020), within the scope of his research, examines the problem of the formation of eco-values among future teachers of natural sciences.

Nowadays, in the process of project activities, the problem of forming environmental competence of the future primary school teacher is relevant. V. Koval & A. Shevantaieva (2018), based on the study of the experience of scientists from different countries, analyzed the essence of the concepts: of "project activity" and "ecological competence". They devoted their research to the justification of the need to use project activities in the educational process to increase the level of environmental competence of future teachers in higher education institutions. The same problem is dealt with by T. Ninova (2018), who considered the concept of "ecological competence" and substantiated the concept of "ecological consciousness". It determined the components and structure of the environmental consciousness of the future teacher and analyzed the survey of students, and future teachers of primary classes to identify their level of environmental consciousness and ecological knowledge.

However, in the discursive field of the scientific investigations outlined above, the problem of the formation of ecological consciousness, its essence, components, and levels of formation was not highlighted. Taking into account the fact that nowadays ecological culture is one of the most important means of socialization of students and a way of their self-realization, all the efforts of the educational process should be directed to the effective use of the necessary levers of its formation, taking into account the existing state of the natural environment, ecological deformations that leave an imprint on

personal sphere, reveal the need for unconditional fulfillment of ecological imperatives and the search for optimal forms of interaction between man and nature.

Contradictions were revealed, indicating the need for future primary school teachers to improve the process of forming environmental awareness. I. Kotiash (2019) also studies the process of training future primary school teachers in a higher education institution. The scientist reveals the content of forming the readiness of future specialists to solve issues of human health preservation, environmental safety, nature protection, and rational use of natural resources. Justifies the need for future primary school teachers to develop a system of environmental knowledge (scientific ideas, concepts, facts, etc.), skills, and abilities; proves the importance of the development of consciousness and ecological thinking, indicates the importance of the formation of an ecological culture, the need to maintain a healthy lifestyle, and the appropriate ecological behavior of the individual in the natural environment. That is, it proves the need for environmental culture, self-awareness, environmental literacy, and the formation of environmental competence of the future primary school teacher, which is a necessary component of the teacher's professional training. Continues the study and consideration of modern approaches to the formation of environmental consciousness of future teachers of primary school N. Vlasenko (2021). The researcher, in the process of teaching the integrated course "I Explore the World", found out the ways of forming the ecological consciousness of future primary school teachers, analyzed the current state of the formation of the teacher's ecological consciousness in the primary school, with the aim of quality education of the young generation, which will be able to rationally reproduce and use natural wealth and coexist harmoniously with nature. It represents the professional training of a teacher by integrating methodological approaches to teaching (activity, axiological, competence, interdisciplinary).

Despite a large number of scientific and scientific-practical developments, in particular, in the field of environmental education, the environmental situation in the world is not only not improving, but also worsening. Awareness of environmental problems and acquired environmental knowledge have almost no effect on the environmental awareness and environmental activities of the individual.

H. Popova & O. Derkach (2021) not only researched the state of development of the concept of "ecological competence of the future primary school teacher", but also derived their own concept, which interprets it as: "an integral quality of the personality, which includes its eco-appropriate characteristics, properties; as a result of environmental education, which integrates relevant knowledge, skills, and abilities, which are the basis for the formation of thinking, consciousness, worldview of an individual; as professional readiness for ecological pedagogical activity.

O. Kuchai, N. Hrechanyk, A. Pluhina, A. Chychuk, L. Biriuk & I. Shevchuk (2022) revealed the content of information culture formation of the future primary school teachers; showed the world experience of using multimedia technologies in the training of future primary school teachers in an open democratic society; researched the forms and methods of introducing multimedia technologies into the educational process. They described the information culture of the primary school teacher and revealed it as "a certain level of information competence of a specialist, which allows him to realize himself in the process of creative information activity through the use of information technologies, prepares him for independent education".

R. Tuay-Sigua, M. Pérez-Mesa & Y. Porras-Contreras (2023) in their study sought to account for the ideas and experiences of teachers in education for sustainable development in the city of Bogotá, Colombia. Based on a qualitative study with an interpretive approach through an open questionnaire, the aim was to investigate educational proposals developed in institutions in urban environments. The results intersect with the proposal of sustainability typologies from the epistemological, axiological, and ontological components.

G. Lucenko, N. Hrechanyk, T. Gavrilenko & O. Lutsenko (2022) analyzed the peculiarities of the formation of research activities of primary school students. The study showed that "the introduction of project work allows the teacher to create a pedagogical situation in which the student formulates a goal and achieves it, while simultaneously developing key skills that will become the basis of their wider learning".

Scientists emphasize that the laid foundations of the formation of environmental consciousness have acquired further development in pedagogy

by the growing relevance of environmental issues and their understanding as a vitally important problem of society.

As a result of the research analysis, we note that the ecological state of the modern planet has caused a deep interest in solving this problem at the level of education. It has been proven that future primary school teachers need to have a high level of environmental knowledge, environmental thinking, and behavior. However, with numerous studies by scientists from different countries, the issue of the formation of environmental consciousness of future primary school teachers has been incompletely covered. A study of the specialized literature on the issue makes it possible to outline several contradictions:

- between the ecological challenges faced by humanity, attempts to solve them, which involve an axiological component, and the ability of modern education to prepare people and society to solve environmental problems measurement;
- between the importance recognized at the level of society and the state environmental values, involving the latter in everyday practice and their real promotion and affirmation, in particular using professional pedagogical education;
- between the requirements of educational standards, which contain value and meaning components of professional competencies of future teachers, and the lack of development of relevant pedagogical technologies for their formation in the process of professional training;
- between the need for effective formation and assimilation of ecological values in the process of professional training of future teachers and inadequately developed pedagogical conditions for ensuring such a process.

Taking into account the relevance of environmental education and the education of schoolchildren, the need to change current approaches to the training of highly qualified teachers, and the insufficient level of scientific and methodical development of the outlined problem, the topic of the article was chosen.

Purpose of the article. To show the significance of the formation of environmental awareness of each individual; single out the main approaches in the preparation of future primary school teachers to the formation of environmental awareness; principles that ensure the

development of environmental awareness of primary school teachers; components of environmental awareness and experimentally verify the formation of environmental awareness of higher education students.

Methodology

The modern ecological state of the planet caused the solution of this problem at the level of education and caused the expansion and deepening of the methodological basis in educational practice.

Methodological approaches to the formation of environmental awareness are the basis of training future primary school teachers.

In the article, we used *research methods*:

- theoretical – comparison and comparison of scientific and methodical sources; analysis of psychological, philosophical, pedagogical, and sociological literature on the researched question, to determine the essence of the main concepts of the research and the possibility of substantiating the conceptual and methodological foundations of the research;
- empirical – pedagogical observation, monitoring, interviewing, questionnaires, conversations, analysis of activity products;
- a pedagogical experiment – to check the effectiveness of the formation of environmental awareness among future primary school teachers.

Statistical methods were used to generalize qualitative and quantitative characteristics, and process, and verify experimental data.

The research was conducted in three stages.

- the diagnostic stage involved the organization of an ascertaining experiment. At this stage, based on the conducted monitoring analysis, we found out the actual state of formation of environmental awareness among future primary school teachers and explored promising ways to improve professional training;
- the content stage involved the accumulation of empirical material on the formation of environmental awareness among future primary school teachers; clarification of the hypothesis and selected research methods; establishment of a structure for the formation of environmental awareness among future primary school teachers;

modeling of the pedagogical system of training future specialists of primary school for the formation of environmental consciousness. Carrying out the formative stage of the experiment;

- the control stage involved the processing, analysis, and systematization of the obtained results, the implementation of factor analysis of the results, statistical processing of the experiment data, their registration, and implementation in the practice of work of higher education institutions.

During the theoretical analysis, we found insufficient attention to such elements of environmental consciousness as interests, needs, attitudes, motives, beliefs, etc., which contribute to the environmental protection activities of students and the orientation of the ecological worldview.

To check the formation of the components of environmental consciousness of higher education graduates of higher pedagogical educational institutions, an experimental study of the formation of environmental consciousness among primary school teachers was conducted.

58 students of the educational degree "Bachelor" took part in the study. During the experiment, diagnostic methods were used: questionnaires and observations to simultaneously cover a certain number of respondents and obtain empirical materials by recording facts and conditions, phenomena where they occur. During the research, we singled out the most relevant elements of the formation of environmental consciousness among students of higher education.

The experiment was conducted at several universities: Oleksandr Dovzhenko Hlukhiv National Pedagogical University; and Vinnytsia State Mykhailo Kotsiubynskyi Pedagogical University. Permission to experiment was approved by the academic councils of these universities and considered by the ethics.

To assess the homogeneity of experimental and control data, statistical processing was performed using MS Excel and SPSS (Statistical Package for Social Science).

Research relies heavily on the accuracy and reliability of the data. In research work, the quality of data collection and analysis not only adds weight to the research but also contributes to the formation of sound conclusions, which is the key to academic success.

The following digital data collection tools were useful in the study:

- Google Forms – a simple tool for creating surveys that allows you to collect data from respondents, create different types of questions, and collect answers in spreadsheets.
- SurveyMonkey – a modern survey tool that offers a wide range of customization options and analytical tools for analyzing the collected data.
- JSTOR, Google Scholar, and other academic search engines provide access to scholarly articles, books, and other academic resources that may be useful for literature review and theoretical data collection.
- Zotero or Mendeley – bibliography management programs that help organize research materials, store references, and format bibliographies and citations according to different citation styles.
- Microsoft Excel or Google Sheets – spreadsheets are useful for organizing and analyzing collected data when working with quantitative data.
- SPSS, R, or Python for more advanced data analysis, statistical analysis, and processing of volumes of data.

Results and discussion

1. The significance of the formation of environmental awareness of each individual on a global scale.

In the 21st century, the priority of ecological education for the younger generation and all layers of society has been determined. On a global scale, great importance is attached to environmental education and the formation of environmental consciousness of each individual. The Cabinet of Ministers of the European Union issued a resolution defining the priority tasks of environmental education: raising public awareness of environmental safety issues; ways to overcome pollution in the environment are proposed, among which the foundations of active, full-fledged participation of every person in preserving the environment are laid.

The European Parliament, starting in 1993, emphasized the mandatory introduction of the environmental component into all educational spheres and directed the training of teachers to the ecological education of young people. One of the main tasks of the Fifth European Community Environment Program was to integrate the ideas of environmental policy into all spheres of life of

the population. The educational policy of Great Britain, Denmark, Spain, Germany, Sweden, and Finland states the fact that it is in these countries that environmental education is of great importance for all areas of the population, and special attention is paid to the professional training of teachers, in particular in primary schools, for environmental education children J. Castera, P. Clement, F. Munoz, F. Bogner studied: features of the environmental attitude of teachers when working at school; the influence of higher education in training future teachers on the formation of environmental awareness, key competencies, value systems, behavior in the natural environment, etc. and proved the importance of environmental education in teaching and developing the environmental awareness of each individual (Castera et al., 2018). Forstner-Ebhard's research is interesting and important, which substantiates the importance of the "Green Pedagogy" course, which is available in Europe, which helps "to ensure a holistic view of environmental problems, to form an indifferent attitude towards the environment" (Millán, 2021). To implement the "Green Pedagogy" course, the following teaching methods are used: trips and excursions, case studies, problem-based learning, the use of media and interactive learning, experimental work, and reflective evaluation of each completed task. The formation of ecological awareness should begin with empathy for living and non-living nature, studying the environment, and understanding its interrelationships (Cárcamo-Vásquez & Gubbins-Foxley, 2023).

The most important link in the system of continuous environmental education, which should carry out the formation of the ecological consciousness of each individual, is the elementary school, where the teacher lays the foundations of a responsible, conscious attitude to personal and social value, to the natural environment. And it is possible only under the condition of appropriate professional training of teachers (Kotiash, 2019).

2. The approach of scientists to the disclosure of the content of ecological consciousness and its varieties.

Ecological awareness contains a set of theories, views, and emotions that reflect the problems of coexistence (relationship) of nature and society in terms of their optimal solution to the possibilities of nature and the specific needs of society. Ecological consciousness is defined from the practical side as:

- awareness by society (individuals) of the negative consequences of the environmental crisis;
- aggravation of the ecological situation;
- the habit, concerning nature, the ability to act in such a way as not to disturb the cycles and connections of the natural environment;
- promote environmental protection;
- improvement and restoration of natural resources for the sake of future generations, not just their current existence.

It is the development of the ecological consciousness of each person that determines his activity, his behavior, and the ecological culture of the individual. A person reveals his own attitude to his living environment through consciousness, he can adapt nature to his own needs, change nature, and adapt to the surrounding world space (Vlasenko, 2019).

Therefore, environmental consciousness is defined as awareness by society or a person of the negative consequences of the development of the ecological crisis of society; aggravation of the ecological situation; the habit and ability to act in nature so as not to disturb the cycles and connections of the entire natural environment; to contribute to environmental protection and its improvement.

We substantiate the varieties of ecological consciousness (anthropocentric, ecocentric).

Anthropocentric ecological consciousness is characterized by the following postulates:

- Man is the highest value;
- nature is the object of one-sided human action;
- nature is the property of man;
- the nature of the goals and motives of interaction between nature and man is pragmatic.

Ecocentric ecological consciousness is characterized by the following postulates:

- human understanding of the essence of environmental problems, their sources, and the nature of society's development;
- personal participation of an individual in environmental protection measures;
- awareness of the possibilities and role of environmental education in solving relevant problems;
- the moral responsibility of a person concerning nature;

- the ability to conduct educational work (Prima et al., 2017).

Ecocentric environmental awareness is important in the context of our research. It presupposes a conscious understanding of the importance of environmental education by future elementary school teachers, their valuable, motivated attitude to the identification of ecologically appropriate behavior, nature conservation activities, to manifestations of empathy to problems that constantly arise in the natural environment. The formation of an individual's environmental consciousness takes place under the influence of the close environment, parents, and necessarily in the process of a person's education. It is the personality of the teacher, from primary school with a high level of ecological culture, ecological awareness, and competence, who is a model for students to follow, is a model of appropriate environmental behavior, is a person who will prove to students of the educational space the value of preserving their own health, will instill a caring attitude towards natural resources, which will contribute to the protection of the environment (Popova & Derkach, 2021).

3. Positions of consideration of ecological consciousness and its structure.

In the world, environmental awareness is represented from two positions.

The first position is based on the acquired experience of ecological existence, a person's awareness of a mental sense of personal responsibility.

The second position – the phenomenon of ecological consciousness in the system "society – nature" represents a spiritually established responsibility based on the experience of the ecological existence of the entire society. With this approach, ecological consciousness is a set of ecological knowledge, beliefs, ideas, emotions, and views that reflect the relationship between nature and people, the ecological conditions of an individual's life in the process of relating to nature, the regulation of the "society – nature" system, which takes into account the activities of each person in the natural environment (Barbosa & Costa, 2020).

Environmental consciousness has a three-component structure (Kuchai et al., 2023):

- cognitive component – a mental reflection of the internal environment, social

- environment, natural environment, and artificial environment;
- behavioral component – self-regulation and self-reflection in the environment (technology and interaction strategies);
 - emotional component – attitude to the internal, social, natural, artificial environment.

Deterioration of the ecological situation on a global scale, and aggravation of contradictions in the relationship between nature and society can lead to a violation of the ecological balance, which will create a world catastrophe and this causes anxiety for humanity. Getting out of this situation requires the combined efforts of all humanity and significant social and economic transformations. Harmonization of such relationships is possible only with the development of an environmental awareness of society, which is especially important for the younger generation. Therefore, great attention should be paid to the formation of the environmental consciousness of primary school teachers during studies in institutions of higher education (Vlasenko, 2019).

4. Basic approaches to the formation of environmental consciousness in the preparation of future primary school teachers.

Axiological approach. In the conditions of the educational process, the nature and direction of interaction of future primary school teachers is determined by their value system. The destructive or constructive nature of professional and social activity depends on its correlation with the value orientations of the team, society, other people, and the entire social community. Therefore, in the preparation of future primary school teachers, during the formation of their ecological consciousness, it is important to use an axiological approach.

Active approach. When training future primary school teachers and forming their environmental awareness, an activity approach is necessary for practical experience of environmental activities; formation of independent and professional planning of one's activities depending on the situation; the ability to practically apply environmental knowledge in solving, clarifying, and preventing environmental problems; improvement of the environment; effective study of environmental disciplines.

Competency approach. The introduction of a competency-based approach to the training of

future primary school teachers and the formation of their environmental awareness solves the problem of applying a significant amount of knowledge to solve specific problem situations, life tasks, and theoretical knowledge.

Interdisciplinary approach. Environmental education and the formation of environmental awareness among future primary school teachers require a combination of different disciplines. An interdisciplinary approach and its qualitative application are the main things in solving this problem. In practice, an interdisciplinary approach can be implemented by introducing and developing relevant topics in professional disciplines (Vlasenko, 2019).

In all approaches, there are sensory, intellectual, and activity components that provide the basis of the structure of ecological consciousness as a holistic formation (Kuchai et al., 2017).

Ecological culture formed based on ecological awareness and ecological competence of future primary school teachers is the main condition for the sustainable development of the entire society, and the coordination of social, ecological, and economic factors of development (Zasiekina, 2020).

5. Principles that ensure the development of environmental awareness of primary school teachers.

The highest level of mental reflection of the social, artificial, and natural environment and the inner world of a person is ecological consciousness, which is also a reflection of the role and place of the individual in the ecological world, taking into account the self-regulation of such reflection. Ensuring the development of environmental awareness among primary school teachers is possible if the principles are followed (Vlasenko, 2019):

- reflection (expansion and awareness) of acquired knowledge about natural objects, personal meaning and methods of interaction, subjective attitude, and empathy;
- communication with the natural world;
- identification (identification with objects of nature of oneself);
- modeling in teaching actions, and environmental situations (business environment, plot, simulation, role-playing games);

- activity (participation in a practical orientation in various types of environmental work);
- the creation of an educational ecological environment under the age characteristics of the child to form the ecological consciousness of the individual.

6. Components of environmental awareness.

Let's highlight the main components of environmental consciousness: technological, managerial, and communicative.

The technological component of the environmental consciousness of the future primary school teacher includes the creation of environmental programs; accumulation of practical experience in creating ecological trails; the ability to organize scientific research, educational research, and ecologically oriented activities; implementation of projects; organization of an ecological club of teachers and students of higher education for practice-oriented activities; using the possibilities of all types of pedagogical practice, problem-based, interactive, heuristic educational technologies, computer technologies in environmental education, etc.

The management component of the environmental consciousness of the future primary school teacher exists to obtain results that would correspond to the tasks of ecological education and consists of the ability of the teacher himself to organize various types of joint work of schoolchildren. It is implemented based on interconnected principles of selection of the content of ecological concepts in the management of the system of ecological knowledge. The content of the management component includes justification and selection of one's own model of action; assessment of the professional environmental situation; and implementation of the selected solution. With this approach, environmental education in institutions of higher education is aimed at the development of the personality of a person ready for ecological and pedagogical activities as a professional and individual.

The communicative component of environmental awareness includes the teacher's ability to convey knowledge in an accessible form to younger schoolchildren; and the ability of a future elementary school teacher to learn new environmental knowledge throughout his life. It is based on: knowledge of the means of influence on schoolchildren and the content of environmental awareness, taking into account the

individual, age-specific characteristics of the child, it provides for the preparation of the establishment of relationships "teacher and parents", "children and teacher"; on the ability to build communication and establish relations with schoolchildren based on maximum democracy, cooperation, the desire to establish a democratic way of life while communicating with nature; on the equality of schoolchildren and adults for mutual demands, respect, and trust in nature conservation practical activities (Kotiash, 2019).

7. The use of project activities for the formation of environmental awareness among primary school teachers.

When forming the environmental awareness of teachers in institutions of higher education, it is mandatory to use project activities to ensure the formation of such key competencies as communication, research, information, and others. The method of projects in institutions of higher education combines productive and research activities with the process of acquiring skills and knowledge, based on the personal interests of a person. This approach ensures the integration of knowledge and skills and promotes the implementation of interdisciplinary connections from various educational disciplines. The form of the project can be in the form of presentations for lessons; non-traditional lessons; methodological manuals and recommendations; systematization of the development of didactic games; and development of ecological holidays (weeks, projects). This is inherent in the independent choice by the students of higher education of the methods and means of implementing the idea, project topics, and presentation forms with the aim of quality project work for the future teacher (Koval & Shevantaieva, 2018).

The project is characterized by the following requirements and features:

- use of research methods;
- integration of various learning tools and methods;
- solving an important social problem;
- theoretical, cognitive, and practical significance of the obtained results;
- use of interdisciplinary connections and, a combination of knowledge from different fields (Kuchai & Bida, 2018).

In the process of project activity in institutions of higher education, almost all the work is done by the student (from setting the problem, choosing the topic of the project, and ending with the

analysis of his activity and the presentation). With this approach, the teacher performs the role of a consultant, models various situations, directs the activities of the student of higher education, motivates the student to think, and transforms the educational environment. The use of project activities in the process of training future primary school teachers allows for a form of environmental awareness among primary school teachers, raises the interest of education seekers in nature; develops their creative independence; contributes to the improvement of success and the formation of environmental competence of a specialist due to the expansion, deepening, generalization of educational material; improves the ability to choose the necessary information from various sources; provides a combination of collective and individual activity. Therefore, the application of project activities in the educational process plays a large role in the formation of the environmental consciousness of future primary school teachers and provides opportunities for students to acquire skills and acquire new knowledge (Koval & Shevantaieva, 2018).

8. An experimental study of the formation of environmental awareness among primary school teachers.

During the theoretical analysis, we found insufficient attention to such elements of environmental consciousness as interests, needs, attitudes, motives, beliefs, etc., which contribute to the environmental protection activities of students and the orientation of the ecological worldview.

An experiment was conducted to check the formation of the components of environmental awareness of higher education graduates of higher pedagogical educational institutions. 58 students of the educational degree "Bachelor" took part in the study. We used a complex of psychological, pedagogical, and sociological research methods. During the experiment, diagnostic methods were used: questionnaires and observations to simultaneously cover a certain number of respondents and obtain empirical materials by recording facts and conditions, phenomena where they occur. During the research, we singled out the most relevant elements of students' environmental awareness. Let's analyze the answers to the questions of the questionnaire, which aimed to find out the manifestation of the elements of environmental awareness of higher education students.

The results indicated that the majority of respondents see nature primarily as the environment:

- 33.7% – the habitat of all non-living and living organisms
- 26.8% – human habitat
- 1.0% is an environment hostile to humans

Thus, almost a quarter of future primary school teachers perceive nature in the form of separate components:

- 11.3% – components of inanimate nature
- 17.4% – living nature
- 5.4% of future primary school teachers see nature as their native, close, own
- 3.8% – clean space
- 2.4% – rest
- 2.1% – neglect, dirt
- 1.6% – unclear, hidden

We have found out that the perception of nature has a very wide spectrum in the minds of students: to the hostile environment as a whole and starting from the habitat. After analyzing the data, we claim that the majority of respondents perceive the natural environment in the form of certain of its components.

Investigating the features of future elementary school teachers' perceptions of their environment, it was established that:

- 39.2% – with the image of the infinite and great
- 33.6% of respondents compare nature with the image of spiritual, living, high
- 22.6% – see her in poetic images
- 4.6% associate nature as negative, and destructive

Thus, the analyzed data show that the majority of future primary school teachers have an appropriate attitude towards the environment and a positive attitude towards nature.

The next question was aimed at the feelings that future primary school teachers have about the environmental condition of the area where they live. We got the following results:

- 24.5% – hopelessness
- 20.5% – anxiety
- 15.3% – danger
- 11.1% – dissatisfaction
- 8.8% – uncertainty
- 4.3% – hope
- 2.1% – calming
- 4.0% – no special feelings
- 3.1% – satisfaction
- 3.1% – respect

1.9% – confidence
1.9% – security
1.4% – fear

Therefore, such results highlight negative feelings in the emotional and volitional sphere of future elementary school teachers, they testify to the concern and indifference of their locality to the ecological state. Emotionality in the perception of the surrounding nature by future primary school teachers most often indicated such emotions as joy (21.4%) and pleasure (22.5%). And insignificantly – for emotions of excitement (8.8%), beauty (9.4%), harmony (9.1%), irritation (6.8%), curiosity (4.4%), sadness (6.3 %), boundless sadness (4.3%), indifference (2.7%), shame (4.3%). So, 65% of future primary school teachers showed emotions of beauty, beauty, harmony, which is the basis of environmental awareness and 35.1% of future primary school teachers have negative emotions. Taking into account the chosen specialty of the future primary school teacher, these indicators testify to the positive attitude of students toward nature, and only a third of respondents chose indifference, sadness, and irritation, which indicates an attitude towards nature. So, the research suggests that nature is included in the point of view of their interests, needs, and goals in the category of the most valuable orientations among the majority of respondents.

So, based on the analysis of the typological features of the ecological consciousness of future primary school teachers, it can be concluded that this phenomenon exists in close interaction with all forms of social consciousness, and has an independent scientific status, which consists in the interaction of society and nature. To ensure the effectiveness of the formation of environmental consciousness of future primary school teachers, it is necessary that upbringing and environmental education are aimed at transforming the value characteristics, skills, knowledge, principles, ideals, and attitudes toward the nature of the whole society into the internal worldview plan of the individual.

We, to form the ecological awareness of future primary school teachers, have allocated environmental educational activities, practical training, educational work with students, environmental psychological training, and the creation of ecological pedagogical projects.

During the experimental period, different teaching methods, forms, and different work tools were used. Environmental-pedagogical projects, which contributed to the formation of

environmental awareness of future primary school specialists, played a significant role in solving clearly defined problems. While preparing the material for the project, the students studied psychological and pedagogical literature, a significant volume of scientific environmental literature, applied material from practice, and participated in student conferences, scientific discussions, and round tables.

During the formation of ecological consciousness, it was assumed that students of higher education would be familiarized with the content of ecological consciousness and its structure. Ecological awareness is represented from two positions. The first position is based on the acquired experience of ecological existence, a person's awareness of a mental sense of personal responsibility. The second position is the phenomenon of ecological consciousness in the system "society – nature".

The students discussed the three-component structure of environmental awareness, its varieties, the main approaches in preparing future primary school teachers for the formation of environmental awareness, the principles that ensure the development of the environmental awareness of primary school teachers, the components of environmental awareness (technological, managerial, communicative).

During the experimental work, great importance was attached to the application of project activities for forming environmental awareness among primary school teachers.

When studying professional disciplines, work with information was given a creative ecological character: students of education had the opportunity to define an ecological-pedagogical problem in the content of the work, draw up an activity plan, develop their own methods of solving ecological-pedagogical tasks, put forward a hypothesis based on evaluative judgments, write conclusions to creative work and make generalizations; to analyze the work of other students and self-analysis of one's own activity.

Great attention was paid to: the content of ecological material, clarity, the possibility of considering the studied concept in various aspects, the application of situational and problematic tasks, the formation of intellectual skills in students, conducting reflective training of students, where they creatively approached the solution of ecological and pedagogical tasks, group reflections (video reflections – analysis of

video recordings of lessons and events of environmental orientation.

After conducting such in-depth work on education seekers on the ecological and pedagogical problem, we surveyed students.

As evidenced by the results of the survey of students of higher education, insufficient attention is paid to the formation of environmental awareness during university studies.

So, to the question: "What prevents the successful formation of environmental awareness among future primary school teachers?" education seekers answered differently: insufficient attention on the part of teachers to the formation of environmental awareness among future primary school teachers (31%); detachment of people from nature (48%); rapid scientific and technical progress (20%); a negative example from adults for children in matters of attitude to the environment (54%); insufficient number of hours in the educational process for studying environmental disciplines (12%); insufficient attention of the state to solving environmental problems (9%); 17% of respondents could not answer.

In the course of the experiment with future primary school teachers, it was found that they have insufficient knowledge for the formation of environmental awareness, do not know how to carry out environmental education activities for younger schoolchildren (49%); would like to receive more information about the environmental problems of their area (28%); environmental disasters of a global scale (46%); problems of demographic explosion (13%); on issues of environmental law – 6%; environmental problems of other countries – (33%) and others. 24% of higher education students do not feel the need for additional environmental knowledge and are consciously ready for the formation of environmental awareness in primary school students.

We believe that the formation of environmental awareness among future primary school teachers, and their environmental activity is one of the health-preserving activities of all mankind, as it contributes to the formation of environmental awareness, health-preserving skills, and abilities in primary school students. Under such conditions, it is possible:

- caring attitude towards nature,

- formation of moral and spiritual health, social health, psychological health, and physical health of a person;
- formation of cultural behavior skills,
- interpersonal communication, etc.

Special attention should be paid to the formation of ecological awareness among future primary school teachers and the formation of the environmental culture of schoolchildren in primary school when a person is formed as a future citizen. Therefore, institutions of higher education face the task of forming environmental awareness among future primary school teachers, and their appropriate preparation for carrying out such activities with children.

A literature review is an important task for the researcher, so we made extensive use of information available through published articles or the Internet. Given the volume of literature available, the literature review was subject to substantial bias because only a few studies were included, as the studies thus identified may well be representative of all relevant studies. It was felt that the best way to ensure an objective and unbiased review of the literature was to conduct a review that followed strict guidelines to minimize bias in the selection and interpretation of the reported studies, and generalization of results. Knowing about some of the key published studies helped us. However, we checked that they were all identified using an electronic database search. If not, a careful review of the search strategy identified the reason for this, and the search may have been modified accordingly. Reference lists of all relevant studies identified from the electronic database search that were missed by this search but cited in relevant papers were reviewed.

We will give specific examples of how primary school teachers can raise the environmental awareness of their students. Learning by doing promotes a more frugal attitude to objects, students understand that raw materials are needed for their production of all objects, and this harms the environment. After our conversations about the importance of the environment, the students began to use water and paper more rationally, try to take care of their clothes, save electricity at home and school, and make sure that the front door is closed.

Scientific research and educational work, ecological and local history, educational and cognitive, educational and informational, and environmental protection activities were carried out to develop environmental awareness among

students.

Educational and cognitive activities took place through environmental games, trainings, and participation of students in environmental Olympiads, seminars, and debates.

Scientific and research work covered the implementation of environmental projects, monitoring, experiments, organization of observations, work at the school site, and landscaping of the arboretum.

Educational and informational activities consisted of the release of newsletters, leaflets, appeals to citizens, the presentation of the environmental campaign brigade, and the collection of photo materials.

Environmental and local history and nature protection activities are participation in the environmental actions such as "Plant a tree", "Clean environment", "Save the beauty of the village".

For environmental education, students were involved in work on the school grounds and flower gardens, teachers conducted environmental brainstorming sessions and socializing hours.

Conclusions

The significance of the formation of environmental consciousness of each individual on a global scale has been proven, and the approach of scientists to the disclosure of the content of ecological consciousness, its structure, and its varieties has been investigated.

The position of consideration of ecological consciousness is proposed, which is presented from two positions, and the three-component structure of ecological consciousness is shown. The main approaches in preparing future primary school teachers for the formation of environmental consciousness are highlighted; principles that ensure the development of environmental awareness of primary school teachers; and components of environmental awareness (technological, managerial, communicative).

The necessity of using project activities for the formation of environmental awareness among primary school teachers is shown.

During the theoretical analysis, we found

insufficient attention to such elements of environmental consciousness as interests, needs, attitudes, motives, beliefs, etc., which contribute to the environmental protection activities of students and the orientation of the ecological worldview.

To verify the formation of the components of environmental awareness among students of higher education at higher educational institutions, an experimental study of the formation of environmental awareness among primary school teachers was conducted and the need for the formation of environmental culture among schoolchildren was proven precisely in primary school, when a person develops his personality as a future citizen, which proves the relevance of the selected research topic.

The implications of the research results make it possible to state that primary school teachers can use the results to improve their teaching practice because environmental consciousness forms a worldview in the individual aimed at ensuring environmental protection and is a worthy platform for environmental education, which is a collection of various environmental knowledge, environmental thinking, ecological ethics, ecological culture.

First of all, primary school teachers can use the results to improve their teaching practice, putting into practice such functions of a teacher that are necessary for his work, these are: diagnostic; orientational and prognostic; constructive and design; organizational; informative and explanatory; communicative and stimulating; analytical and evaluative; research-creative.

Secondly, take into account the fact that the development of ecological awareness takes place through the following activities: deepening scientific knowledge in natural disciplines that ensure a responsible attitude to the environment and life; learning independent ecological thinking, finding innovative solutions to problems; promotion of ecological education for awareness of the idea of harmonious interaction between man and nature; involving not only students, but also parents, public organizations, and local authorities in environmental protection activities; formation of a sense of responsibility for the state of the environment. We will provide specific recommendations on the formation of environmental awareness for future primary school teachers. To give the

process of students' familiarization with nature a clear ecological orientation, educational activities should be improved in the following areas:

- 1) eliminate the anthropocentric approach to studying the material;
- 2) highlight such tasks as the development of personal responsibility for the state of preservation of the natural balance of the environment, development of ecologically competent behavior in nature, assimilation of ethical norms about members of society and objects of nature, etc.;
- 3) to provide students with the formation of elementary, but scientifically reliable ecological ideas and concepts, the disclosure of laws existing in nature;
- 4) for students to understand the need to preserve natural balance, they should be brought to the awareness of the general regularity – "Everything in nature is interconnected."

For this purpose, the teacher can apply verbal-symbolic modeling, combine dynamic modeling and verbal-symbolic, offer schoolchildren to solve environmental problems, and familiarize them with the rules of ecologically competent behavior in nature not in the form of moralizing, but by giving them the right to choose a variant of behavior, enable to motivate him, to create such pedagogical situations that will have a significant educational impact, will contribute to the formation of the substructure of a responsible attitude of students to nature.

Further research will be aimed at clarifying the principles that ensure the development of environmental awareness among primary school teachers.

Bibliographic references

- Barbosa, T. C. L., & Costa, E. A. D. (2020). Formação continuada: contribuições para práxis docente do professor das séries iniciais. *Humanidades & Inovacao*, 7(8), 509-519. <https://revista.unitins.br/index.php/humanidadeinovacao/article/view/2837>
- Cárcamo-Vásquez, H., & Gubbins-Foxley, V. (2023). Concepciones que posee el futuro personal docente de educación primaria sobre la participación de los padres y las madres en la escuela. *Revista electronica educare*, 27(1), 242-260. <https://acortar.link/xP3emV>
- Castera, J., Clement, P., Munoz, F., & Bogner, F. (2018). How teachers' attitudes on GMO relate to their environmental values. *Journal of Environmental Psychology, Elsevier*, 57, 1-9. <https://doi.org/10.1016/j.jenvp.2018.04.002>
- Gabarda Méndez, V., García Tort, E., Ferrando Rodríguez, M. de L., & Chiappe Laverde, A. (2021). Pre-school and primary school teachers: technological training and digital competence. *Innoeduca. International Journal of Technology and Educational Innovation*, 7(2), 19-31. <https://doi.org/10.24310/innoeduca.2021.v7i2.12261>
- Kotiash, I. (2019). Formation of ecological competence of future primary school teachers in higher education institutions of all levels of preparation. *Current issues of humanities*, 26(1), 179-184. <https://doi.org/10.24919/2308-4863.1/26.195859>
- Koval, V., & Shevantaieva, A. (2018). Formation of future primary school teachers' ecological competence in the process of the project work. *Young Scientist*, 2.1(54.1), 55-58. <http://erpub.chnpu.edu.ua:8080/jspui/bitstream/123456789/1204/1/6.pdf>
- Kuchai, O., & Bida, O. (2018). The readiness of the future primary school teacher for professional self-determination. *Scientific journal «Humanitarian Studios: Pedagogics, Psychology, Philosophy»*, 291, 16-20. <http://journals.nubip.edu.ua/index.php/Pedagogica/article/view/11997>
- Kuchai, O., Bida, O., & Kuchai, T. (2023). Organization of professional training of future primary school teachers in the pedagogical college. *Social work and social education*, 2(11), 235-239. [https://doi.org/10.31499/2618-0715.2\(11\).2023.291902](https://doi.org/10.31499/2618-0715.2(11).2023.291902)
- Kuchai, O., Hrechanyk, N., Pluhina, A., Chychuk, A., Biriuk, L., & Shevchuk, I. (2022). World experience in the use of multimedia technologies and the formation of information culture of the future primary school teacher. *International Journal of Computer Science and Network Security*, 22(3), 760-768. <https://doi.org/10.22937/IJCSNS.2022.22.3.100>
- Kuchai, O., Kuchai, T., & Pyrzyk, I. (2017). Studying the peculiarities of education development in Japan (in terms of primary education). *Science and Education*, 25(5), 34-40. <https://doi.org/10.24195/2414-4665-2017-5-7>

- Lucenko, G., Hrechanyk, N., Gavrilenko, T., & Lutsenko, O. (2022). Using the project method as a means of developing the creative potential of primary school children in Ukraine. *Education 3-13. International Journal of Primary, Elementary and Early Years Education*, 51(7), 1185-1194. <https://doi.org/10.1080/03004279.2022.2053182>
- Millán, C. P. (2021). Diversity approaches in primary school teacher training programs in Chile. *Education Policy Analysis Archives*, 29. <https://doi.org/10.14507/epaa.29.4702>
- Ninova, T. S. (2018). Dynamics of formation of environmental awareness of future primary school teachers in the process of professional training. *Bulletin of the Cherkasy Bohdan Khmelnytsky National University: Series "Pedagogical Sciences"*, 13-14, 120-129. <https://ped-ejournal.cdu.edu.ua/article/view/2258>
- Popova, H., & Derkach, O. (2021). Essential characteristics of ecological competence of the future primary school teacher. *Bulletin of the Cherkasy Bohdan Khmelnytsky National University: Series "Pedagogical Sciences"*, 3, 63-68. <https://ped-ejournal.cdu.edu.ua/article/view/4323>
- Prima, R., Roslavets, R., & Orlova, S. (2017). The question of the formation of ecological competence of future teachers. *Pedagogical Journal of Volyn*, 1, 95-99. http://nbuv.gov.ua/UJRN/pchv_2017_1_18
- Rohoza, V. (2020). Development of ecological values of future teachers of natural sciences by changing the educational content. *Pedagogy and Psychology of Sport*, 6(1), 104-120. <https://doi.org/10.12775/PPS.2020.06.01.009>
- Tuay-Sigua, R. N., Pérez-Mesa, M. R., & Porras-Contreras, Y. A. (2023). Teachers' Ideas and Educational Experiences Regarding Urban Environmental Sustainability in Bogotá, Colombia. *Sustainability*, 15, 11882. <https://doi.org/10.3390/su151511882>
- Vlasenko, N. (2021). Modern approaches to forming the environmental consciousness of future primary school teachers in the process of teaching an integrated course «I am exploring the world». *Aesthetics and ethics of pedagogical action*, 24, 54-66. <https://doi.org/10.33989/2226-4051.2021.24.255897>
- Vlasenko, N. O. (2019). *Modern tendencies of environmental education in preparation of future primary school teachers* (pp. 50-59). In Innovative pedagogical solutions in primary education: Collection. of science works. Simon. http://elcat.pnpu.edu.ua/docs/Збірник_кафедри%20ПО_2019.pdf
- Zasiekina, T. (2020). Analysis of the textbooks of the integrated course " I am exploring the world". *Problems of the modern textbook*, 24, 67-77. <https://ipvid.org.ua/index.php/psp/article/view/76>