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FORMATION OF READINESS OF FUTURE PRIMARY SCHOOL TEACHERS FOR ENVIRONMENTAL ACTIVITIES: CREATIVE ASPECT

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Abstract. *The article actualizes the issue of forming the readiness of students pedagogical university to environmental activities. Based on the world and domestic environmental documents, new creative educational directions of ecological content in higher pedagogical institutions are determined. We conducted a definitive analysis of main concepts of the study: «creativity», «environmental activities», «readiness» and proposed its own definition of the term «readiness for environmental activities» (protecting, preserving and restoring the natural potential of nature). We have carried out a historical review of the main creative waysof formation teachers readiness for environmental activities. The aim of the article is to prove the effectiveness of the formation of the readiness of students for environmental activities through creative methodological exercises. We have proposed a system of creative exercises and tasks that must be used in the complex «classroom work – extracurricular work – independent training». Creative exercises allow to expand the panorama of ecological thinking of students, to acquire the necessary knowledge through analysis and personal appropriation, to enrich one own methodical stock with original, non-standard tasks of natural and ecological subjects. We have revealed the specifics of the introduction of a system creative exercises of environmental content for future teachers of rimary school. During the study we identified the criteria, indicators and levels (low, average, high) of readiness for environmental protection of future teachers, conducted a study on the basis of Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, (Ukraine), and Kamianets-Podilskyi National Ivan Ohiienko University (Ukraine). We conducted an experimental study and found that the average level of readiness to environmental activities of future primary school teachers are vails in both universities, but Vinnytsia institute of high pedagogical education is the leader of high level, because students used a system of creative exercises in the educational process.*

Keywords: *readiness, nature protection activity, creativity, future primary school teachers.*

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Introduction

Nowadays, the issue of the ecological crisis, which arose due to a careless, consumerist, pragmatic attitude to nature, is becoming relevance in the world. Humanity has realized the need for radical environmental measures, identified the need to conserve and restore natural resources. In addition, great importance is attached to environmental education of the younger generation as an effective means of overcoming the environmental crisis. That is why modern pedagogical institutions of higher education have received a priority task, which is to form the readiness of future teachers for environmental activities, starting from primary school. Primary school teacher can create ecological value in students on a spiritual level, develop the inner need for nature, save its resource from childhood and promote these desires throughout life. For the effective formation of readiness for environmental activities it is appropriate to use a variety of technologies, forms, methods and techniques in the creative aspect. Creativity allows students to perceive the environment in terms of beauty, perfection, sophistication, rationality, integrity. Creativity expands the panorama of thinking, develops imagination and fantasy, allows future teachers to rediscover the world of nature and helps to get to know child about it through the prism of aesthetic visuality, environmental safety, responsibility for the environment while living.

The purpose of the article is to prove the effectiveness of the formation of the readiness of future teachers for environmental activities by creative methodological tasks.

Research methods are theoretical: analysis of domestic and foreign scientific sources on the creative approach to the formation of readiness of future teachers for environmental activities; empirical: observation, testing, analysis of creative students works, their practical experience of organization of environmental activities with primary school pupils; methods of statistical research.

The Theoretical Background

The issue of forming the readiness of future teachers for environmental activities today has become especially acute in scientific spheres in Ukraine and scientists of the world. Environmental education helps to better understand the environment of their existence, to understand environmental problems, to deal rationally with their solution, thereby improving their living conditions and forming a stable civic ecological position (UNESCO, 2009). The issue of relevance of environmental activities is identified in the entire educational and legal framework of Ukraine. Thus, the State Standard of Primary Education defines the necessity for the formation of ecological competence of junior school pupils, which unites in itself natural knowledge, ideas about relationships in

nature, ability to behave humanely in the natural environment, empathize with its objects, the formation of natural values (Derzhavnyi standart pochatkovoi zahalnoi osvity, 2018). The Law "On Education" provides for the formation of ecological culture of the population, ideas about a healthy lifestyle, education of caring for the environment (Zakon Ukrainy "Pro osvitu", 2017). The Law of Ukraine "On General Secondary Education" states that the formation of competence in environmental sciences of students, the ability to environmental the ability to organize and implement environmental activities should be with the assistance of all participants of educational process (Zakon Ukrainy "Pro povnu zahalnu seredniu osvitu", 2020). The Law of Ukraine "On Higher Education" emphasizes that future professionals must take care of ensuring an environmentally friendly environment of their country, take care of the preservation of its resources (Zakon Ukrainy "Pro vyshchu osvitu", 2014). Detailed analysis of normative-legal educational system of Ukraine determines that the issue of formation the readiness of future teachers for environmental activities is extremely important, because today society requires an ecologically educated, humane personality. In the study (McKeown & Hopkins, 2009) identified that environmental education is the education of a sustainable society, because to deal with it, society must go through a difficult path of development, understand the causes of problems that arise and humanely approach their solution. M. Monroe determines that the attitude of the individual to the environment should be formed in the process of interaction of his emotional, volitional and intellectual spheres of activity (Monroe, 2002). V. Sukhomlynsky's pedagogical heritage is very important for the problem of formation of the readiness of future teachers for environmental activities activities with junior pupils. In "School under the blue sky" he offered to conduct "lessons of thinking in nature", which aimed to develop cognitive interest in the environment, to establish cause-and-effect relationships, learn to admire the beauty of nature and empathize with it. The teacher considered it necessary to observe the natural environment, use ecological games and conversations, excursions to the field, to the forest, to the river, to compose fairy tales about nature, to treat it with care (Sukhomlynskyi, 1977). D. Shepardson argues that teacher education should begin with opening the world to the environment, teaching them to track relationships, and drawing their own conclusions about the effects of human activities on the environment (Shepardson, 2007). N. Kazanishena insists that the professional readiness of teachers for environmental activities is formed in a combination of two interrelated factors – pedagogical and personal readiness (knowledge, value-motivating attitude to the environment, active citizenship in solving complex issues) (Kazanishena, 2011). S. Sovgira convincingly proves that the readiness of future teachers for environmental activities in primary school is created by a complex system of psychological and pedagogical, subject, special,

methodological, general cultural knowledge; ability to work with information, to generalize it at a high level, to participate in creative ecological and educational activities; a system of pedagogical skills that ensure the readiness of teachers for environmental activities on the basis of appropriate educational programs, etc (Sovgira, 2002). In Standards and Guidelines for Quality Assurance in the European Higher Education Area stipulates that the modern learning process requires creativity, finding new productive ways to solve problems, originality and non-standard thinking from both the teacher and the student (ESG, 2015). A. Maslow was the first who emphasized that creativity is the most universal function of a human, which leads to all forms of expression and is an important part of the self-actuating process (Maslow, 1970). Similar approach to this concept of creativity is used in the works by J. Renzulli; he defines creativity as a special feature of individual`s behavior, expressed in the original ways of obtaining a product, achieving a solution of a problem, in new approaches to the problem from different points of view (J. Renzulli, 1981). S. Sysoeva insists that pedagogical creativity reflects the process of personal and professional realization of a teacher in professional environment. The essence, specifics, indications and distinctive features of pedagogical creativity are manifested in the personality-oriented developmental interaction of subjects in the educational process. S. Sysoeva highlights the main features of the future creative teacher: leadership, freshness, persistence, high self-organization, preparedness for risk, impulsivity, and independence of judgments (Sysoeva, 2006). Scientists (Demchenko et al., 2020) have proven that a creative approach is a condition for successful study in higher education.

Based on the analysis of scientific literature we have offered a number of creative tasks for future teachers at system "class activities – extracurricular activities – individual work" for the formation of readiness of environmental activities in primary school.

Class activities include morning meetings on environmental issues; solving environmental problems by arguing their position, discussion, debate; participation in ecological games, which involve the transformation of students into certain objects of nature and through the empathy of awareness, experience of their feelings and emotions; participation in environmental quests, web quests, ecological trails; conducting lessons "Natural Science" in the system of quasi-professional training, etc.

Extracurricular activities involve students in science, environmental groups; participation in creative environmental projects, which may include modeling of cleaning filters for reservoirs, inventing effective ways of sorting garbage, growing Christmas trees, etc .; screenwriting and participation in theaters of nature; creation of environmental cartoons; compilation of fairy tales, poems, legends on environmental issues; production of logos "I save nature", nature

protection signs, compilation of ecological calendars and dictionaries, selection of information for children's natural encyclopedia; participation in green nature protection patrols; participation in the national stage of the International competition of scientific and technical creativity "Eco Ukraine".

Individual work involves the compilation of mental maps based on the study of basic and additional literature; participation in environmental actions and projects; visiting botanical gardens, art exhibitions and museums of local lore, which demonstrate the beauty of the native land, acquaint with the features of natural objects; acquaintance with poetic works, viewing of videos and films on natural subjects; attending scientific conferences, participation in webinars and seminars, which address to the problems of environmental protection.

Methodology and Organization of the Research

During the study, we introduced a system of selected tasks of creative environmental content for 3rd year students majoring in 013 Primary School Education of Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University (VSPU, Ukraine) during the 2019-2020 academic year in classes "Natural science with teaching methods" during class activities, extracurricular activities, individual work of students, namely:

- elaboration of lecture material and additional literature by creating mental maps;
- use of ecological games "Fir tree ", "Ladybird", "Nature lover" during classes;
- creation of logos "I am a protector of nature", environmental signs;
- acquisition of children's encyclopedias in natural sciences, creation of ecological dictionaries and calendars;
- creating a gallery of nature, filling it with paintings, collections of poetry about nature, etc.;
- participation in the environmental project "Reach out to animals in severe frosts;
- participation in the quest "Seven colors of the rainbow";
- view webinars related to the work of a teacher in primary school in science lessons.

In the process of experimental research, we tried to determine the effectiveness of the proposed tasks and compared the results among two institutions of higher education: Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University (84 future teachers), they worked on a system of creative tasks and Kamianets-Podilskyi National Ivan Ohiienko University (K-PNU,

Ukraine) (96 students majoring in 013 Primary School Education, they studied they studied according to the general program).

To diagnose the readiness of future teachers for environmental activities in primary school, we have identified the following criterias and corresponding indicators, namely:

- *knowledge criterion* (covers theoretical knowledge of pedagogical and natural sciences; the ability to effectively select the necessary methods, techniques, forms of environmental work with primary school students, etc.);
- *activity criterion* (ability to develop own summaries of lessons and extracurricular activities in natural sciences for junior high school students; ability to organize and conduct mass environmental events; create your own methodological proposal for junior high school students);
- *acmeological criterion* involves the analysis of the desire and ability of future teachers to professional growth, self-improvement (desire to become a successful teacher, progressively move up the career ladder, be an innovator in teaching).

According to the criteria and indicators, we determined the levels of readiness of environmental activities of primary school teachers, namely:

- *low* (students have limited knowledge of pedagogical and natural sciences, they do not have sufficient methodological methods of skills and navigation to develop lesson plans in extracurricular activities, their organization and conduct; future teachers do not reflect and can not determine the prospects of any professional activities;
- *average* (students have sufficient knowledge of pedagogical and natural sciences, they are engaged in the development of their own methodological products, help primary school teachers to organize regular and extracurricular environmental work with students, strive for self-development);
- *high* (future teachers have a thorough knowledge of pedagogical and natural sciences, they are engaged in self-education, are able to independently develop a synopsis of a lesson or extracurricular activity for primary school pupils and conduct it; students seek professional self-improvement).

To diagnose the formation of readiness of future teachers for environmental activities according to the knowledge criterion, we asked respondents to be tested by the method of "Ecoerudit" (A. Levochkina, 2013) and tasks proposed by the Program for International Student Assessment (PISA) in 2015 to determine the ability to use acquired knowledge of natural sciences. To analyze the results

according to the activity criteria, we offered students to perform practical tasks according to the system of exercises (O. Groshovenko, 2018), to develop a lesson outline of the integrated course "I explore the world" and shoot a video with junior students. Examining the indicators of the acmeological criterion, we invited respondents to take the tests "Career Anchors" (E. Shane, 2011) and verbal associative method "EZOP" (Deryabo & Yasvin, 1996) to determine the natural values of future teachers.

Result of the Research

Diagnosis of the formation of the readiness of future teachers for environmental activities in primary school was conducted from 02 to 13 November 2020 in two pedagogical institutions of higher education in the Vinnytsia city and in the Kamianets-Podilskyi city simultaneously. Evaluating results of future teachers according to the knowledge criterion, we offered them 30 closed test questions developed by PISA and the method "Ecoerudit" (A. Levochkina, 2013). For each question, students had to choose the correct answer from the five suggested. After conducting calculations, we determined the level of knowledge of each student and proposed the following grading system: 1-25 points – the low level, 26-49 – average level and 50-60 – high level. We presented the summary data in the Table 1.

Table 1 ***Levels of Formation of Readiness of Future Teachers for Environmental Activities by the Knowledge Criterion***

Institutions of higher education	**Level**		
	Low	**Average**	**High**
Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University (Ukraine)	14,2%	58,5%	27,3%
Kamianets-Podilskyi National Ivan Ohiienko University (Ukraine)	15,6%	62,6%	21,8%

Diagnosis determined that the average level is dominated by future teachers Kamianets-Podilskyi institution of higher pedagogical education, but the high level is dominated of Vinnytsia institution of higher pedagogical education. In general, their performance is more effective.

Assessing the activity criterion, we offered students 5 tasks with open answers (O. Groshovenko, 2018), who checked the formation of features of pedagogical activities of teacher with junior pupils in natural science lessons. For example, one of the tasks was to present the list of main methods for the formation of ideas of primary school pupils about the water cycle in nature.

The list of methods proposed by VSPU students was larger, it included such as teacher's explanation, viewing presentations and videos of a cognitive nature with subsequent discussion in pairs or groups, creating a plastic sketch about the journey of a drop, conducting research work, which involved making a mini-environment to observe the water cycle in nature, writing a fairy tale about the journey of a drop, etc. Among the students of K-PNU prevailed such methods as: teacher's explanation, work with a textbook and a notebook, making diagrams of the water cycle in nature, watching videos and presentations on a given topic, etc. Interpreting the results, we determined that all incorrect answers are evaluated at 0 points, partially correct answers from 1 to 5 points, all correct answers are evaluated at 6 points. Accordingly, students who scored points from 0 to 2 are at the low level, from 3 to 5 are at the average level and those who received 6 points are at the high level.

The next task was to evaluate the lesson plans of future teachers from the integrated course "I explore the world" and videos taken in working with pupils on these notes. The main criteria for evaluating student development were:

- correspondence of tasks to the stages of the lesson (from 0 to 5 points);
- competently selected methodological content (from 0 to 5 points);
- use of pedagogical innovative technologies (from 0 to 5 points).

The main criteria for evaluating student videos were as follows:

- ability to interest and stimulate all students in the class to be active (from 0 to 5 points);
- ability to depart from the lesson plan-summary if it is necessary for additional explanation, answers to pupils' questions, clarifications, etc. (from 0 to 5 points);
- realization of the aim of the lesson set in the syllabus in practice (from 0 to 5 points).

Future teachers of Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University worked of task performance in schools of Vinnytsia: secondary school I-III degrees №8, secondary school I-III degrees №27 and secondary school I-III degrees №32. Students of Kamianets-Podilskyi National Ivan Ohiienko University conducted lessons and extracurricular activities in schools of Kamianets-Podilskyi: secondary school I-III degrees №2 named after Taras Shevchenko, secondary school I-III degrees №6 and secondary school I-III degrees №1. The best works of students are posted on the YouTube channel of the Department of Primary School Education of VSPU.

Accordingly, for two tasks, future teachers had the opportunity to score maximum 36 points, we interpreted the results as follows: from 0 to 12 points – the low level, from 13 to 25 points – average level and from 25 to 36 points – high level. We presented the summary data in the Table 1.

Table 2 ***Levels of Formation of Readiness of Future Teachers for Environmental Activities in Primary School by Activity Criterion***

Institutions of higher education	Level		
	Low	**Average**	**High**
Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University (Ukraine)	9,5%	58,4%	32,1%
Kamianets-Podilskyi National Ivan Ohiienko University (Ukraine)	18,7%	54,2%	27,1%

The diagnosis showed that the results of students of Vinnytsia institution of higher pedagogical education prevail over the results of students of Kamianets-Podilskyi institution of higher pedagogical education.

For the acmeological criterion, we offered future teachers to pass the tests "Career Anchors" (E. Shane, 2011). The test consists of 41 statements that need to be evaluated in order of importance from 1 to 10, where 1 is "not important at all" and 10 is "extremely important". The test reveals the following future career orientations of future teachers.

Accordingly, we classified students' answers as follows: if entrepreneurial motives and stability were in the lead, we evaluated the answer at 5 points, if students rated management, lifestyle integration, autonomy with the highest scores, we evaluated the results of their answers at 10; if the future teachers were dominated by such statements as: professional competence, service, challenge, then we evaluated their answers at 15 points. By offering students work on the verbal associative method of "EZOP" (Deryabo & Yasvin, 1996), we try to determine their attitude to nature, as a result, they should not exist and they are conscious to engage in environmental activities. "EZOP" is emotions, knowledge, protection and pragmatism. The "EZOP" technique involves 12 points, each of which contains a keyword, four indirect associations and another word that is far from meaningful to distract attention (for example, ELK – footprints, forester, stones, horns, trophy). The student's task is to circle the word that is most associated with the proposed). Analyzing the students' answers, we determined that the pragmatic attitude towards nature is evaluated at 5 points, emotional or cognitive at 10 points, and protective at 15 points.

Interpreting the results of the two tests, we determined that students who scored up to 10 points, according to the acmeological criterion, they are at the low level of readiness for environmental activities in primary school; if you scored up to 20 points, then at the average level, and if up to 30 – then at a high level. Summary data are presented in Table 3.

Table 3 ***Levels of Formation of Readiness of Future Teachers for Environmental Activities in Primary School by Acmeological Criterion***

Institutions of higher education	Level		
	Low	Average	High
Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University (Ukraine)	7,9%	54%	38,1%
Kamianets-Podilskyi National Ivan Ohiienko University (Ukraine)	20,8%	48%	31,2%

Generalized data showed that according to the acmeological criterion, the formation of readiness for environmental activities in future teachers of VSPU is higher.

After analyzing total results all criterias, we found that the indicators of environmental readiness protection in students of VSPU are more higher than in students of K-PNU (Figure 1).

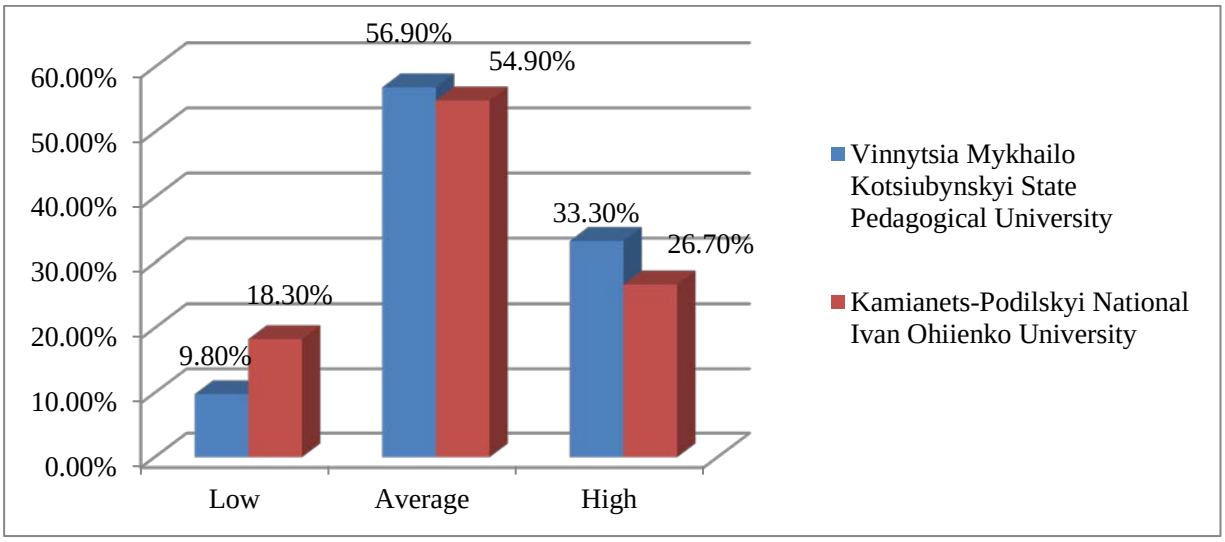

Figure 1 ***Levels of Formation of Readiness of Future Teachers for Environmental Activities in Primary School***

We are convinced,that the successful results of students of Vinnytsia institution of higher education established due to the fact that future teachers (over 92%) are actively worked in the system of ecological creative exercises in the complex "class activities – extracurricular activities – individual work". Quarantine restrictions related to the COVID-19 pandemic did not particularly affect on the educational process of teachers: from March to June, future teachers theoretically processed the material, accumulated knowledge, classes were

conducted on the platforms Zoom and Google Meet; in July-August students conducted active phenological observations, collected photos, video material for future creative works on environmental issues; from September to November, students worked in extracurricular activities with younger students, involving them in environmental actions, projects.

Discussion

Nowadays, the issue of using creative exercises of forming the readiness of future teachers for environmental activities occupies a leading place in the work of higher pedagogical education institutions, but in the Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University it has acquired a special scale. Thus, in August 2020, I. Stakhova, O. Groshovenko, V. Imber held a performance for more than 60 teachers in Vinnytsia sity (Ukraine) on environmental education of students. I. Stakhova has developed a training "Creative view of nature", which help future teachers to interactively organize environmental education of primary school pupils. O. Groshovenko and I. Stakhova developed the program of the clube "Pryrodogray" for students. The following sections function in the clube: research laboratory "EUREKA" (conducting observations, experiments, practical work); "STORY" studio (writing poems, fairy tales, short stories; creating cartoons; production of printed products: booklets, newspapers, magazines, comics); interactive school "WEB-NATURE" (development of web-quests, creation of pallets, blogs, electronic manuals, development of game platforms); creative biodesign workshop "FLASH FASHION NATURE" (creation of biodesign projects, design of flower beds, creation of ekiban); "SMILE" playground (development of ecological games, preparation of environmental projects and quests). In the context of computer science classes, V. Imber offers students to shoot or create their own cartoons of environmental content. In the lesson of "Environmental education" O. Demchenko invites students to present their own logos "I save nature", "Protection of nature" emblems, present poetry and paintings on environmental issues, etc. In the context of the Erasmus + project Jean Monnet module 620252-EPP-1-2020-1-UA-EPPJMO-MODULE "EU experience of soft skills development of preschool and primary school age children by theater activities in teacher training" O. Demchenko and I. Stakhova organizes a nature theater, invites primary school pupils and students to participate in the shadow theater, puppet theater on environmental issues and more. Results of the formation of readiness of future teachers in VSPU for environmental activities stimulated teachers of the K-PNU to use creative tasks in the system "class activities – extracurricular activities – individual work". So students took part in two ecological actions "Batteries, stop!", "We learn to sort garbage", work on creation of an animation "Flower of the sun" will begin soon.

Perspectives for the study and implementation of basic ideas in the educational process of =future teachers is the project "R.I.V.E.R." ("R.I.V.E.R", 2012). It is the acronyme for Research Inside and Verify the Environmental Risk. This project brings a global perspective on a natural element which is so familiar to our students: the river. Through common enjoyable activities, students`ll share their findings with their counterparts. Future primary school teachers will realize the importance of the river in community life and will be able to involve students in environmental activities. Students choose one of the rivers, they`ll gather information about its historical, geographical, economic and cultural interests, work on the presentation and dissemination of information through a website or a blog.

Conclusions

The analysis of the scientific literature and the conducted research allowed to make the following conclusions:

- The global ecological crisis has posed new challenges to the world, aimed at eliminating the mistakes of the past, namely the preservation and restoration of the natural environment. The world community has begun to act in two directions: 1) environmental measures; 2) education of a humane and conscious younger generation capable of preserving and protecting the natural environment. It is in the context of the second direction the formation of the readiness of future teachers for environmental activities in primary school becomes especially relevant. In pedagogical institutions of higher education, they should form this readiness. We understand it as a complex personal education that reflects the system of methodological, environmental and socially significant knowledge.
- For the effective process of forming the readiness of future teachers for environmental activities, we have identified from the scientific and methodological literature creative tasks, which completed the system "class activities – extracurricular activities – individual work", including environmental games, projects, quests, theater nature, acquisition of environmental literature for children, etc.
- The effectiveness of the proposed tasks was tested by us through a study involving 180 respondents of Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University and Kamianets-Podilskyi National Ivan Ohiienko University. In the educational process of students, we introduced environmental tasks in the system "class activities – extracurricular activities – individual work", students of K-NPU studied

according to the usual educational program. The results showed that the formation of readiness of future teachers for environmental activities is higher in students of VSPU (indicators: low – 9,8%, average – 56,9%, high –33,3%) than in students of K-PNU(indicators: low – 18,3 %, average – 54,9%, high – 26,7%). Thus, our proposed system of creative environmental exercises is effective.

References

Demchenko, O., Koval, T., Vatso, M., Lymar, Yu., & Turchyna, I. (2020). Razvitie refleksivnogo komonenta gotovnosti buduschih pedagogov k rabote s odarennyimi detmi vo vremya treningovyih zanyatiy. *Society. Integration. Education, I,* 119-132.

Deryabo, S., & Yasvin, V. (1996). *Ekologicheskaya psihologiya i pedagogika.* Rostov-na-Donu: Feniks.

Derzhavnyi standart pochatkovoi zahalnoi osvity . (2018). *Ofitsiinyi visnyk Ukrainy. № 87.* 637. Retrieved from https://zakon.rada.gov.ua/laws/show/688-2019-%D0%BF#Text

Groshovenko, O. (2018). Formuvannia ekohumanistychnoi pozytsii molodshoho shkoliara v umovakh shkilnoho navchannia. *Molodyi vchenyi, 1(53),* 283-288.

Kazanisheva, N. (2011). *Pidhotovka maibutnoho vchytelia pochatkovykh klasiv do ekolohichnoho vykhovannia.* Kyiv: Osvita.

Levochkina, A. (2013). *Psykholohiia ekolohichnoho rozvytku studentskoi molodi.* Kyiv: Osvita.

Maslow, A. (1970). *Motivation and Personality*. New York: Harper & Row

McKeown, R., & Hopkins, C. (2009). *Two paradigms, one Crucial Goal*. Abingdon Oxon: Routledge.

Monroe, M. (2002). Two Avenues for Encouraging Conservation Behaviors. *Human Ecology Review, 10 (2),* 113-125.

Renzulli, J., Reis, S., & Smith, L. (1981). The Revolving-Door Model: A New Way of Identifying the Gifted. *Delta Kappah, 62,* 648-649.

Shepardson, D., Wee, B., Priddy, M., & Harbor, J. (2007). Students' mental models of the environment. *Journal of Research in Science Teaching, 44(2),* 327-348.

Shane, E. (2011). Organizatsionnaya *kultura i liderstvo*. Moskow: SPb: Piter.

Sovgira, S. (2002). *Formuvannia ekolohichnoho profesionalizmu maibutnoho vchytelia.* Kyiv: Nauk. svit.

Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). (2015). Kyiv: CS Ltd.

Sukhomlynskyi, V. (1977). *Sertse viddaiu ditiam.* Kyiv: "Radianska shkola". Vol. I. 30-42.

Sysoeva, S. (2006). *Osnovy pedahohichnoi tvorchosti.* Kyiv: Mileni.

UNESCO. (2005). *Promoting a global Partnership for the UNDecade of Education for Sustainable Development.* Retrieved from http://portal.unesco.org/education /en/ev.php- ml.

Zakon Ukrainy. (2017). "Pro osvitu". *Vidomosti Verkhovnoi Rady. №38-39.* 380. Available at https://zakon.rada.gov.ua/laws/show/2145-19#Text

Zakon Ukrainy. (2020). "Pro povnu zahalnu seredniu osvitu". *Vidomosti Verkhovnoi Rady. №31.* 226. Retrieved from t https://zakon.rada.gov.ua/laws/show/463-20#Text

Zakon Ukrainy. (2014). "Pro vyshchu osvitu". *Vidomosti Verkhovnoi Rady. №37-38.* 2004. Retrieved from https://zakon.rada.gov.ua/laws/show/1556-18#Text

"R.I.V.E.R". (2012). *Research Inside and Verify the Environmental Risk. "R.I.V.E.R"* [home page] Retrieved from https://www.etwinning.net/en/pub/benefits/collaborate/project.cfm?id=79836