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IMPROVEMENT OF THE SYSTEM OF ECOLOGICAL EDUCATION BASED ON ETHNOECOLOGICAL CULTUR

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Abstract: This scientific article highlights the essence of ethno-ecological culture, its role in improving the ecological education system, and its pedagogical possibilities in the process of geography education based on scientific-theoretical and initial empirical analysis. The study scientifically substantiates the need to integrate national environmental values, folk pedagogy, and regional-ethnocultural experience into the content of education to increase the effectiveness of environmental education. In the process of teaching geography, it was revealed that the components of ethno-ecological culture are not sufficiently systematized, and this situation is interpreted as a factor hindering the formation of ecological consciousness and sustainable ecological behavior in students. The results of the initial (defining) stage of the research show the need to introduce an ethno-ecological approach to teaching geographical sciences and create a scientific and methodological basis for the design of further formative and experimental work.

Keywords: ethno-ecological culture, ecological education, geographical education, ecological consciousness, national ecological values, sustainable development.

Introduction

In a world of globalization and technological progress, environmental problems are among the factors that pose a serious threat to the sustainability of human development. Climate change, depletion of water and land resources, environmental pollution, and loss of biodiversity are bringing the issue of ensuring environmental security to the agenda not only as a natural-scientific, but also as a socio-pedagogical problem. This situation shows that solving environmental problems through technical or economic measures alone is not enough, but that it is important to form the individual's attitude towards nature, environmental awareness and culture.

Environmental education is recognized as an important pedagogical mechanism for ensuring sustainable development in society. At the same time, in educational practice, environmental education is often limited to imparting general environmental knowledge and does not have a sufficient impact on the individual's value system and real behavior. As a result, environmental knowledge does not translate into sustainable environmental behavior in a person's daily life. This situation raises the need to rethink the content of environmental education and to inextricably link it with the internal beliefs and cultural values of the individual.

President Of The Republic Of Uzbekistan Sh. M. Mirziyoyev pays special attention to the issue of ecology and environmental protection, emphasizing that raising environmental culture is an important condition for sustainable development [1]. This approach scientifically and practically justifies the need to improve environmental education on the basis of national and

[1] O‘zbekiston Respublikasi Prezidenti Sh. M. Mirziyoyevning ekologiya va atrof-muhitni muhofaza qilishga oid nutqlari. – https://president.uz

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universal values, to form a responsible attitude towards nature in the younger generation. In this process, ethnoecological culture is manifested as an important pedagogical factor. Ethnoecological culture represents a set of experiences of interaction with nature, ecological moral norms, customs, and traditions that have developed over the historical development of a particular people. This culture serves to form in the individual a sense of caution, thrift, and responsibility towards nature, not as an external obligation, but as an internal need. G'. Kadyrov noted that ethnoecological culture is one of the most stable factors in the formation of ecological consciousness, which is deeply embedded in the behavior of individuals through national values[2].

Geography education, as a field of science focused on the development of territorial thinking and understanding the interdependence between nature and society, has great pedagogical potential for the formation of ethnoecological culture. In particular, the educational process, which is based on the natural-geographical and ethno-cultural characteristics of a particular region, serves to develop ecological awareness and territorial responsibility in students. However, practice shows that ethnoecological components are often used in geography education in an episodic manner and are not systematized as a holistic pedagogical mechanism.

International experience also emphasizes the need to organize environmental education based on local and regional contexts. In particular, the UNESCO-promoted concept of "Education for Sustainable Development" recognizes the consideration of national and cultural characteristics in the process of environmental education as an important factor in improving the effectiveness of education [3].

This approach demonstrates the need to organize environmental education in a combination of universality and nationality. Therefore, the main objective of this scientific article is to highlight the theoretical foundations of improving the system of ecological education based on ethnoecological culture in the process of geographical education and to determine the current situation within the framework of the initial (defining) stage of the research. This goal is aimed at creating a scientific and methodological foundation for the design of subsequent formative and experimental work.

Literature review

Issues of environmental education and ecological culture have been widely studied in recent decades at the intersection of pedagogy, ecology, and geography. Analysis of scientific literature shows that, although environmental education was originally formed within the framework of natural sciences, today it is interpreted as a complex pedagogical system aimed at developing an individual's ecological consciousness, responsibility, and sustainable ecological behavior.

The conceptual framework of environmental education in international scientific research has been consistently substantiated within the framework of the UNESCO-promoted concept education for Sustainable Development. This concept emphasizes that the effectiveness of environmental education is ensured by the integration of educational content with local, regional, and cultural contexts [4]. This approach demonstrates the need to organize environmental education in a combination of universality and nationality. S. In the research of

[2] Qodirov G‘. Etnoekologik madaniyat asoslari. – Toshkent: Fan, 2019.

[3] UNESCO. *Education for Sustainable Development*. – Paris, 2017. – https://www.unesco.org
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[4] UNESCO. *Education for Sustainable Development*. – Paris: UNESCO, 2017. – https://www.unesco.org

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Sterling and D. Tilbury, environmental education is interpreted as an important pedagogical mechanism that contributes to sustainable development by transforming the individual's value system [5].

The authors argue that in solving environmental problems, it is not enough to provide knowledge alone, but that the formation of an individual's environmental beliefs and responsibility is of paramount importance in the educational process. These views strengthen the theoretical foundation of the ethnoecological approach advanced in this study

Among scientists from the CIS countries N. N. Moiseyev considers environmental education as a social necessity aimed at harmonizing the relationship between man and nature, and emphasizes the role of cultural factors in the formation of ecological consciousness [6]. A. D. Ursula interprets environmental education in close connection with the concept of sustainable development, presenting it as a strategic educational direction aimed at solving global and regional problems [7]. I. D. Zverev, on the other hand, develops the pedagogical foundations of environmental education and emphasizes the need for a systematic approach to the formation of ecological culture [8].

In the studies of scientists of Uzbekistan, the issue of ecological culture is covered in close connection with national values and folk pedagogy. In particular, the ideas of establishing environmental education on the basis of national values and educational traditions are also found in modern research[9].Including R. X. Juraev highlights the theoretical and practical foundations of environmental education and emphasizes the role of national values and social experience in the educational process [10].

Within the framework of geography education, issues of environmental education are widely covered in the research of famous geographer-pedagogical scientists. In Particular, V. P. Maksakovsky considered geography as a leading educational direction that forms an ecological worldview and territorial thinking, and substantiated the possibilities of understanding the nature-society relationship and developing the foundations of ecological culture through geography education [11]. Also, I. D. Zverev analyzes the issues of organizing environmental education based on the integration of geographical and ecological sciences, emphasizing the need for a systematic and continuous pedagogical approach to the formation of ecological culture [12].

However, in these studies, ethnoecological culture has not been sufficiently developed as an independent and conceptual pedagogical component of geography education at the level of a separate scientific model. Thus, the results of the literature analysis show that, although the issues of environmental education and ecological culture have been widely studied, the issue of introducing ethnoecological culture as a systematic pedagogical mechanism in the process of geography education has not been sufficiently developed. This situation determines the

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[5] Sterling S., Tilbury D. *Learning for Sustainability*. – London: Earthscan, 2016.
[6] Моисеев Н. Н. *Экология и образование*. – Москва: МГУ, 2001.
[7] Урсул А. Д. *Устойчивое развитие и образование*. – Москва, 2010.
[8] Зверев И. Д. *Экологическое образование: теория и практика*. – Москва, 2004.
[9] https://maktabgacha-va-maktab-talimi-jurnal.uz/index.php/jurnal/article/view/3500?utm_source=chatgpt.com
[10] Qoraboyev A. H. o‘g‘li, Ma’murova M. E. qizi. Talabalarda ekologik tarbiyaviy dunyoqarashni milliy tarbiya metodlari asosida shakllantirish // Science and Education ilmiy jurnali. – 2025. – Jild 6, son 12. – B. –.
[11] Максаковский В. П. Географическая культура. – М.: Владос, 1998. – 416 с.
[12] Зверев И. Д., Суравегина И. Т. Экологическое образование и воспитание. – М.: Педагогика, 1991. – 176 с.

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scientific relevance and novelty of this study and serves as a theoretical basis for designing the next stages of the study.

Research methods

This study aimed to improve the system of environmental education based on ethnoecological culture in the process of geography education and was conducted based on systematic, cultural-contextual, and competence-based approaches. The selection of research methods took into account modern paradigms of environmental education, national and international methodological requirements, and criteria.

The study was conducted as part of the initial (exploratory) phase. The main task of this stage was to determine the current state of ethnoecological culture among students, identify problematic aspects of the ecological-educational process, and create a scientific basis for designing subsequent formative and experimental work. The research design was based on a diagnostic model aimed at analyzing environmental education in a regional-ethnocultural context.

- ✓ The object of the study is the process of teaching geography at a higher educational institution.
- ✓ The subject of the study is the state of formation of ethnoecological culture in students in the process of geography education.
- ✓ The definition of the object and subject of this study is methodologically justified from the point of view of regional and geographical characteristics, the level of professional training of students, and the possibilities of mastering ecological content. This methodological approach required the selection of scientific methods used in the research process on a comprehensive and systematic basis.
- ✓ The following theoretical methods were used:
- ✓ analysis of scientific literature;
- ✓ comparison;
- ✓ generalization;
- ✓ systematization. These methods helped to determine the directions of development of scientific views on environmental education, ethnoecological culture, and geography education, and to form the theoretical foundations of the research [13].
- ➢ Empirical methods used:
- ➢ pedagogical observation;
- ➢ questionnaire;
- ➢ diagnostic assessment methods. The survey was aimed at determining students' environmental knowledge, attitudes towards national-ecological values, and regional environmental perceptions. Through pedagogical observation, the ecological behavioral activity and attitudes of students in the ecological-educational process were studied.
- ➢ Diagnostic criteria and indicators:
- ➢ The following diagnostic criteria were established to determine the current state of ethnoecological culture among students:
- ➢ Cognitive criterion — students' ecological and ethnoecological knowledge, their understanding of regional natural and geographical characteristics;
- ➢ Value-normative criterion — attitude to nature, ecological responsibility, level of belief in national ecological values;

[13] Zverev I. D. *Экологическое образование: теория и практика*. – Москва, 2004.

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➢ Behavioral criterion-participation in environmental activities, practical attitude to environmental problems and initiative. These criteria were chosen based on diagnostic approaches widely used in international and national studies on environmental education[14].

Data processing: The results of the initial diagnostics were processed using comparative and percentage analysis methods, and the current state of ethnoecological culture in students was objectively assessed. The data obtained were used as a basis for developing a pedagogical model and methodological support in the subsequent formative stage.

Methodological basis: The research was methodologically based on the Law of the Republic of Uzbekistan "On Education", regulatory and legal documents on environmental education, and the UNESCO-promoted concept of "Education for Sustainable Development" [15].

This ensured that the research was scientifically grounded and methodically consistent.

Results and discussion

This section analyzes the results of the initial (determining) stage of the research aimed at improving the system of environmental education based on ethnoecological culture in the process of geography education. The main task of the diagnostic stage was to determine the current state of ethnoecological culture among students, to empirically substantiate existing problems, and to create a scientific and methodological basis for the subsequent formative stage.

The initial diagnostics were carried out with the participation of 120 students in grades 2–3 studying geography at Fergana State University. During the diagnostic process, the level of formation of ethnoecological culture in students was assessed based on cognitive, value-normative, and behavioral criteria. The results of the cognitive survey and tests showed that the majority of students have some knowledge of general environmental concepts, global environmental problems, and sustainable development ideas. However, it was found that territorial-ethnoecological knowledge, in particular knowledge of the natural-geographical features of the Fergana Valley, traditions of using local landscapes, and views on maintaining ecological balance in the national economy, are of a fragmentary nature. Only 38–42% of respondents were able to consistently and systematically articulate this knowledge. Analysis based on the value-normative criterion showed that students have a positive attitude towards nature. However, this attitude was more at the level of general moral views, and it was observed that national environmental values had not been sufficiently internalized to the level of personal beliefs and internal responsibility. Although the majority of students expressed concern about environmental issues, this attitude did not manifest itself in the form of a sustainable environmental position.

Pedagogical observations based on behavioral criteria showed that students' participation in environmental activities was episodic. While students expressed willingness to participate in environmental activities, a systematic and continuous form of this activity was not sufficiently formed. This situation is explained by the lack of practical and territorial oriented types of activities in the process of environmental education. The results of the initial diagnostics show that although there is ecological content in the geography education process, it is not systematically organized based on ethnoecological culture. Environmental consciousness in students is largely general and theoretical in nature, not sufficiently connected with territorial and National Environmental experience. This situation is harmonized with the views presented in the scientific literature. In Particular, G'. Kadyrov emphasizes that the sustainable formation of ecological culture is directly related to the integration of national ecological values into

[14] Sterling S., Tilbury D. *Learning for Sustainability*. – London, 2016.

[15] O‘zbekiston Respublikasi “Ta’lim to‘g‘risida”gi Qonuni. – https://lex.uz

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the educational process [16]. The UNESCO-promoted concept of "Education for Sustainable Development" also notes that the effectiveness of environmental education can be increased by taking into account the local and regional context [17]. The initial results obtained show that it is necessary to systematically introduce components of ethnoecological culture in geography education. It is this need that acts as a scientific basis for the development of further — formative and experimental-test stages of research. At these stages, it is planned to increase the effectiveness of environmental education by integrating territorial-ethnographic materials, interactive methods and types of practical activities in the teaching of geography.

Results of the initial (determinant) phase:

allowed for an objective assessment of the current state of ethnoecological culture among students;

served to empirically identify problematic aspects in the system of environmental education;

scientifically substantiated the need to develop a pedagogical model aimed at improving environmental education based on ethnoecological culture.

These results serve as an important scientific basis for determining the content, methodological support and pedagogical conditions of the formative experimental-test work carried out at the next stages.

Conclusion

This scientific article examines the issue of improving the system of ecological education based on ethnoecological culture in the process of geographical education, based on theoretical and initial empirical analysis. The results of the study scientifically substantiated that in the context of modern environmental problems, it is not enough to limit environmental education to providing general environmental knowledge, but it is necessary to organize it in close connection with national-ethnocultural values and regional environmental experience.

Literature analysis has shown that environmental education and environmental culture issues have been extensively covered in international and national scientific research. At the same time, it was found that studies aimed at introducing ethnoecological culture as a systematic pedagogical mechanism within the framework of geography education were not sufficiently developed. This circumstance determines the scientific relevance and novelty of the study.

The results of the initial (diagnostic) diagnostics showed that although students have environmental awareness and a positive attitude towards nature, they do not have sufficient territorial-ethnoecological knowledge, national environmental values, and sustainable environmental behavior. This situation confirms the episodic nature of ethnoecological components in the process of geography education and the need to integrate them on a systematic basis. The results obtained scientifically substantiated the need to develop a conceptual approach to improving environmental education based on ethnoecological culture in geography education. This approach aims to form environmental awareness in students in harmony with national-ecological values, develop regional ecological thinking, and instill a sense of responsibility for nature.

The theoretical and empirical conclusions obtained at the initial stage of the study provide a solid foundation for designing subsequent formative and experimental stages,

[16] Qodirov G‘. *Etnoekologik madaniyat asoslari*. – Toshkent: Fan, 2019.

[17] UNESCO. *Education for Sustainable Development*. – Paris, 2017. – https://www.unesco.org

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determining pedagogical conditions, and scientifically substantiating the effectiveness of the improvement model.

References

1. O‘zbekiston Respublikasi Prezidenti Sh. M. Mirziyoyevning ekologiya va atrof-muhitni muhofaza qilishga oid nutqlari va ma’ruzalari. – URL: https://president.uz
2. O‘zbekiston Respublikasi “Ta’lim to‘g‘risida”gi Qonuni. – Toshkent, 2020. – URL: https://lex.uz
3. Ergashev A. Ekologik tarbiya va milliy qadriyatlar. – Toshkent: O‘qituvchi, 2020.
4. Ergashev A. Ekologik ta’limda milliy qadriyatlarning o‘rni // Ta’lim va tarbiya. – 2020. – №2. – B. 33–38.
5. Jo‘rayev Sh. Ekologik ta’limning pedagogik asoslari. – Toshkent, 2018.
6. Komilov B. Geografiya ta’limida ekologik yondashuv. – Toshkent, 2018.
7. Komilov B., To‘xtayev M. Geografiya ta’limida ekologik yondashuv. – Toshkent, 2018.
8. Moiseyev N. N. Ekologiya i obrazovanie. – Moskva: MGU, 2001.
9. Palmer J. Environmental Education in the 21st Century. – London: Routledge, 1998.
10. Qodirov G‘. Etnoekologik madaniyat asoslari. – Toshkent: Fan, 2019.
11. Qodirov G‘. Ekologik madaniyat va shaxs tarbiyasi // Pedagogik ta’lim. – 2019. – №3. – B. 45–49.
12. Sterling S. Sustainable Education: Re-visioning Learning and Change. – Bristol: Green Books, 2011.
13. Sterling S., Tilbury D. Learning for Sustainability. – London: Earthscan, 2016.
14. Tilbury D. Education for Sustainability. – London: Earthscan, 2014.
15. Tilbury D. Education for sustainable development: An expert review // Journal of Education for Sustainable Development. – 2016. – Vol. 10(2). – P. 1–14.
16. To‘xtayev M. Geografiya fanini o‘qitishda hududiy yondashuv. – Toshkent, 2017.
17. UNEP. Environmental Education and Awareness. – Nairobi, 2019.
18. UNESCO. Education for Sustainable Development. – Paris: UNESCO Publishing, 2017. – URL: https://www.unesco.org
19. United Nations. Transforming our world: the 2030 Agenda for Sustainable Development. – New York, 2015.
20. Ursul A. D. Ustoychivoe razvitie i ekologicheskoe obrazovanie. – Moskva, 2010.
21. Zverev I. D. Ekologicheskoe obrazovanie: teoriya i praktika. – Moskva, 2004.