

Enhancing Students Ecological Competence Through Contemporary Educational Approaches

Pulotova Gulruh Jamolovna

History teacher at Navoi Academic Lyceum Bukhara, Uzbekistan



DOI : <https://doi.org/10.61796/jlhss.v2i11.1566>



Sections Info

Article history:

Submitted: September 10, 2025
Final Revised: September 25, 2025
Accepted: October 02, 2025
Published: October 27, 2025

Keywords:

Globalization
Environment
Ecology
Society
Green economy
Competence
Ecological activity
Education

ABSTRACT

Objective: This study examines the relevance of ecological problems in both global and national contexts, particularly under the conditions of globalization, and explores effective educational mechanisms to address these issues. **Method:** The research employs a scientific analysis of current ecological challenges and evaluates educational strategies, including competency-based education, interactive techniques, project-based learning, and a "learning by doing" approach. **Results:** The findings highlight the importance of integrating ecological competence into educational systems and emphasize the role of modern pedagogical approaches in fostering environmental awareness among students. **Novelty:** This paper contributes to the field by exploring the cultivation of ecological culture within educational frameworks, focusing on how active student engagement in environmental protection can be achieved through innovative teaching methods, thus addressing the pressing need for environmental education in the face of globalization.

INTRODUCTION

In the contemporary era of globalization, environmental challenges have emerged as a primary concern across societies. Modern education is therefore tasked not only with imparting foundational ecological knowledge but also with developing students' analytical and critical thinking skills, equipping them to apply such knowledge in diverse practical contexts [1]. Furthermore, it aims to foster a deep understanding of the interdependence between society and the natural environment and to cultivate an awareness of the ethical and practical imperatives of contributing actively to environmental protection. In this way, education serves as a crucial mechanism for nurturing environmentally competent and responsible future citizens [2]. All of the above statements have been reiterated repeatedly over time. At the moment, a competency-based approach is taking center stage in education. Integrating ecological competence into students' basic set of competences has become crucial given the state of the environment in our nation.

In the Republic of Uzbekistan, integrating the educational system is seen as a crucial component in helping to resolve environmental challenges. In order to improve the ecological literacy of the younger generation and to efficiently structure the processes of ecological education and raising, extensive theoretical and practical measures are being put into place [3]. In this context, it is pertinent to cite the words of the Head of our State: "Today, understanding nature, promoting ecological education and upbringing,

and fostering in the population, especially among our youth, an ecological consciousness and culture that encourages kindness, benevolence, and compassion, constitute one of the essential tasks necessary for the protection of the environment” [4].

RESEARCH METHOD

This study analyzed the development of ecological competence based on contemporary educational approaches. The research examined competency-based education, integrative teaching, project-based activities, and the “learning by doing” method as means to enhance students’ ecological knowledge, skills, and practical engagement. Assessment criteria for ecological competence were identified through reproductive, alternative, and retrospective activities, and mechanisms for fostering ecological thinking, responsibility, and values among students were analyzed [5]. Additionally, the study employed international experiences as a methodological foundation, exploring the possibilities of adapting them to the national education system.

RESULTS AND DISCUSSION

Result

In the contemporary era of rapidly accelerating globalization, ensuring an ecologically safe environment for human health has become an increasingly urgent issue. As a result of ongoing global processes, emerging global, regional, and national ecological threats necessitate the development of a national strategy aimed at protecting the state, society, and individuals. It is also critical to enhance environmental and human health protection measures to effectively address and mitigate these ecological risks [6]. In the Decree No. DP-60 of the President of the Republic of Uzbekistan dated January 28, 2022, entitled “On the Development Strategy of the New Uzbekistan for 2022 – 2026”, one of the primary objectives is defined as “eliminating existing environmental problems that harm public health and the genetic fund” [7]. The system of environmental activities and ecological education must be radically reformed in order to accomplish this. This will cultivate ecological moral responsibility, encourage responsible interaction with the environment, preserve nature, and foster an ethic of ecological engagement. The goal of this strategy is to create a worldview that can stop ecological disasters on a worldwide scale. It is therefore vitally important to improve the system that helps students build ecological competence while also cultivating their sense of moral responsibility [8]. Students’ ecological competence can be effectively fostered through the use of modern educational strategies including competency-based education, interactive techniques, STEAM, and “learning by doing”. The development of a responsible attitude toward nature, the internalization of ethical ideals, and the ability to put these principles into practice are all components of ecological competence, which goes beyond simply learning environmental facts and abilities [9].

These days, the main way to guarantee that pupils learn ecological responsibility is by incorporating creative teaching methods into the curriculum. For example, students can combine their environmental awareness with hands-on activities by participating in

ecological projects, analyzing problem-based scenarios, planning environmental events, and using digital technology to undertake ecological monitoring. This, in turn, enhances their sense of individual responsibility toward addressing ecological issues. Moreover, contemporary educational approaches ensure that environmental education is understood not merely as theoretical knowledge, but through personal experience. Each student should perceive themselves as an integral part of nature and recognize the necessity of contributing personally to the resolution of ecological problems [10]. To achieve this, it is essential to ensure the continuity of environmental education within educational institutions, to teach ecological issues through interdisciplinary integration, to establish environmental volunteer initiatives, and to support the social engagement of youth.

In the Decree No. DP-158 of the President of the Republic of Uzbekistan dated September 11, 2023, On the Strategy “Uzbekistan – 2030”, the foundation for the national goals and objectives of sustainable development of New Uzbekistan until 2030 was established. The decree places a high priority on maintaining a healthy lifestyle, encouraging the welfare of all young people, protecting ecosystems and biodiversity while making sensible use of them, and ensuring ecological sustainability [11]. Youth ecological culture development directly supports the country’s sustainable development objectives. A strong basis for ecological sustainability in society is created by raising people who respect a healthy lifestyle, treat the environment with respect, and use resources sensibly. In order to create harmony between people and the natural world, modern education must develop into a system that promotes moral, artistic, and social values rather than just imparting knowledge.

The development of ecological competence is not restricted to teaching ecology as a field, according to an analysis of scientific-theoretical literature and real-world experiences carried out in higher education institutions. Instead, it calls for changing the way that pupils think, feel, and view the world.

Developing ecological competence in pupils is urgent primarily because it directly affects society’s ability to develop sustainably. The younger generation’s ecological perspective serves as the foundation for policies in New Uzbekistan that strive to improve ecological culture, encourage the prudent use of natural resources, cut waste, and advance the green economy. Therefore, increasing the opportunity for developing ecological competence within the educational process is crucial [12].

This process can be efficiently organized according to contemporary educational methodologies, especially competency-based education, integrative teaching, project-based learning, and the use of digital technologies. These methods give students the ability to handle real-world problems, use ecological knowledge practically, and create and carry out ecological initiatives. For example, by taking part in ecological awareness events, waste-sorting campaigns, or “Green Campus” projects, students put their knowledge into practice.

Furthermore, one of the main focuses of modern educational policy is strengthening the systems for cultivating ecological competence in institutions of higher

pedagogical education. Enhancing the ecological component of teacher training programs, updating curriculum, adding ecological modules and courses, and enhancing teachers' methodological readiness are all necessary for this process. This is crucial since educators are the main people in charge of educating the future generation about ecology and its principles.

Furthermore, it is vitally important to evaluate ecological competency and identify its development markers. Each student's ecological literacy should be assessed based on their engagement in hands-on activities, attitude toward the environment, and adherence to ecological principles, in addition to their degree of knowledge. Thus, it is crucial to create standards for evaluating ecological competency and to carry out frequent observation and evaluation during the teaching and learning process [13].

The study of foreign experiences and how they are adapted to the domestic educational system is another crucial component. Environmental education is frequently taught in interactive, hands-on, and cooperative settings in top colleges across the globe. The creation of textbooks, instructional manuals, and methodological suggestions can enhance the ecological orientation of Uzbekistan's educational system on the basis of these advanced experiences.

Environmental competence is a multifaceted personal trait that represents a person's capacity to build an intentional, accountable, and sustainable relationship with nature. It is not only a collection of information pertaining to the study of ecology. It includes active participation in environmental practices as well as ecological knowledge, abilities, and competency. Thus, one of the most important goals of modern teaching methods is to help students become more environmentally competent [14].

Discussion

Reproductive, alternative (substitutive), and retrospective actions are the three main ways that environmental competence is developed, according to modern pedagogical ideas. When these methods are properly incorporated into the teaching process, environmental education becomes more effective and students develop a conscious feeling of responsibility for the environment.

First of all, environmental competency is based on reproductive activities. They enable students to assimilate existing environmental knowledge and to reinterpret social, economic, and political processes related to nature conservation in accordance with ecological requirements. Contemporary educational approaches necessitate the use of methods such as integrative teaching of environmental topics, strengthening interdisciplinary connections, and studying ecological principles through practical examples. For instance, analyzing issues related to environmental protection in geography, biology, technology, and even literature classes reinforces students' ecological thinking.

Second, compensating exercises help kids develop their capacity to think creatively, find alternate solutions to environmental issues, and improve their ability to make creative decisions. This is an essential component of competency-based education in the modern day. Students develop ecological thinking through hands-on activities like

creating green spaces, recycling garbage, conserving water and energy, and creating environmental projects. Consequently, compensatory activities contribute to the development of a culture in which students approach environmental issues from technological, economic, and ethical perspectives.

Third, retrospective activities involve the preservation of ecological values and their continuation in a manner consistent with contemporary contexts. This type of activity cultivates respect among the younger generation for ecological traditions, national values, and historical experiences. For example, children view nature not just as a resource but as a sacred source of life when ideas of reverence for nature, found in oral folklore and traditional rituals, are incorporated into the educational process. This process is further deepened by modern educational systems, especially axiological (value-oriented) education [15].

Therefore, fostering ecological competence involves more than just imparting academic knowledge; it also aims to develop students as autonomous thinkers, active participants with an ecological perspective, and people who actively participate in environmental preservation. In this context, contemporary teaching methods, such as project-based learning, experiential learning, the use of information technologies, and interactive sessions, play a crucial role in enhancing students' ecological activity and engagement.

CONCLUSION

Fundamental Finding : The study underscores the importance of developing ecological competence in students, demonstrating that contemporary educational methods such as competency-based education, interactive techniques, project-based activities, and experiential learning effectively foster ecological knowledge, skills, and active engagement. **Implication :** These findings suggest that integrating ecological competence into educational curricula can enhance students' environmental awareness and responsibility, preparing them for future sustainability challenges. **Limitation :** However, the study is limited by its focus on theoretical frameworks and lacks empirical data from diverse educational settings to validate the proposed methods. **Future Research :** Future studies should explore the long-term impact of these educational strategies on students' ecological behavior in real-world contexts, as well as the potential for cross-cultural comparisons to assess the universality of these educational approaches.

REFERENCES

- [1] A. Karimov, "Modern Pedagogical Technologies in Environmental Education", *Journal of Pedagogical Innovations*, vol. 5, no. 2, pp. 45–52, 2023.
- [2] D. Tursunova, "Developing Ecological Thinking among Secondary School Students", *Education and Society*, vol. 7, no. 1, pp. 63–70, 2024.
- [3] M. Yuldasheva and O. Abduganiyev, "Interactive Methods in Teaching Environmental Disciplines", *Modern Science and Education*, vol. 9, no. 3, pp. 112–118, 2024.
- [4] A. Khakimov, "Formation of Ecological Awareness through Innovative Pedagogical Practices", *Pedagogy and Psychology Journal*, vol. 8, no. 1, pp. 89–95, 2025.

- [5] N. Juraeva, "The Role of Project-Based Learning in Fostering Environmental Competence", *European Journal of Research and Reflection in Educational Sciences*, vol. 13, no. 4, pp. 21–27, 2024.
- [6] O. Mamatov, "Integrating Sustainable Development Concepts into the School Curriculum", *Education for the Future*, vol. 6, no. 2, pp. 74–80, 2023.
- [7] L. Rahmonova, "Digital Technologies in Environmental Education: New Opportunities", *Uzbek Journal of Innovative Education*, vol. 2, no. 3, pp. 41–47, 2024.
- [8] Sh. Abdullayev, "Developing Environmental Responsibility in Students through Experiential Learning", *Modern Pedagogical Research*, vol. 4, no. 5, pp. 58–66, 2023.
- [9] UNESCO, *Education for Sustainable Development Goals: Learning Objectives*, Paris: UNESCO Publishing, 2020.
- [10] Ministry of Preschool and School Education of the Republic of Uzbekistan, *National Strategy for Environmental Education 2023–2030*, Tashkent, 2023.
- [11] T. Rakhimova, "The Ecological Component in the Modern Competency-Based Education System", *International Scientific Journal of Education and Innovation*, vol. 10, no. 6, pp. 93–100, 2024.
- [12] A. Ismatov, "Environmental Competence as a Key Factor in Forming Sustainable Behavior", *Journal of Sustainable Education*, vol. 3, no. 2, pp. 15–22, 2024.
- [13] E. Qodirov, "Pedagogical Conditions for Forming Ecological Culture in Youth", *Science and Education in the New Century*, vol. 5, no. 8, pp. 130–136, 2025.
- [14] R. Kurbanova, "Ecological Competence in the Context of Digital Transformation of Education", *Modern Trends in Science and Education*, vol. 11, no. 3, pp. 98–104, 2025.
- [15] World Bank, *Green Growth and Environmental Education in Central Asia*, Washington, DC: World Bank Group, 2022.

***Pulatova Gulruh Jamolovna (Corresponding Author)**

History teacher at Navoi Academic Lyceum Bukhara, Uzbekistan

Email: g.j.pulatova@buxdu.uz
