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IMPROVING THE METHODOLOGY FOR DEVELOPING STUDENTS' ENVIRONMENTAL ATTITUDES BASED ON THE PROTECTION AND APPRECIATION OF NATURE

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ABSTRACT

This study examines a methodology for developing secondary school students' environmental attitudes through the protection and appreciation of nature. The study argues that environmental education should extend beyond the acquisition of ecological knowledge to include values, responsibility, practical action, and reflection. The methodological framework integrates person-centered, activity-based, axiological, and reflective approaches and employs pedagogical observation, interviews, questionnaires, diagnostics, analysis of environmental situations, practical assignments, experimental testing, and quantitative and qualitative analysis. The proposed methodology consists of five interconnected stages: understanding environmental situations, forming environmental values, participating in practical environmental activities, engaging in collaborative environmental work, and conducting reflective self-assessment. The empirical component involved 950 students, including 476 in the experimental group and 474 in the control group. Initial diagnostics showed broadly comparable baseline distributions: 18.1% of the experimental group and 16.9% of the control group demonstrated a high level of environmental education, while 47.5% and 50.0%, respectively, demonstrated a low level. These baseline findings provide a foundation for subsequent comparison of methodological outcomes. Practical tasks are designed around local environmental problems such as water use, waste sorting, and care for school green spaces. The study proposes a knowledge–values–action–reflection sequence intended to support the transformation of environmental knowledge into responsible environmental behavior.

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Keywords: *environmental education, environmental attitudes, nature conservation, environmental values, environmental behavior, reflection.*

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Introduction

The increasing complexity of environmental issues necessitates that the shaping of students' attitudes toward nature within the general secondary education system go beyond the mere acquisition of environmental knowledge. The effectiveness of environmental education is determined not only by students' knowledge of nature but also by how that knowledge is expressed in their values, daily behavior, and practical actions. From this perspective, the protection and appreciation of nature can be viewed as a substantive foundation of environmental education. Protecting nature entails acting in accordance with ecological safety and conservation requirements, while appreciating nature involves recognizing it as a

vital value for human life and adopting a responsible attitude toward it. Current UNESCO guidance emphasizes that climate and sustainability education should be action-oriented, holistic, and connected to learners' social-emotional development and practical engagement (UNESCO, 2024a, 2024b). Within Uzbekistan, national education policy and the Uzbekistan–2030 Strategy provide a broader policy context for strengthening education, sustainable development, and environmental awareness (President of the Republic of Uzbekistan, 2023; Republic of Uzbekistan, 2020). Consequently, the core problem of this research is to identify methodological opportunities for environmental education grounded in the protection and appreciation of nature and to strengthen these approaches through a coherent system linked to students' actual environmental activities.

Literature Review

Environmental education and upbringing constitute a scientific field situated at the intersection of pedagogy, ecology, psychology, and education for sustainable development. Research in this area has addressed the relationship between nature and humanity, the integration of environmental knowledge with practical activity, the formation of environmental values, and the development of environmental responsibility. Foundational Uzbek literature has treated environmental education and upbringing as an integrated pedagogical task (Ismoilov & Axadov, 1997). More recent studies have examined the improvement of environmental education in general education schools (Xamrokulova, 2021) and the moral and ethical principles that shape ecological attitudes toward nature (O'rinboyeva, 2020). International scholarship on sustainable education likewise emphasizes the need to reorient learning toward sustainability rather than treat environmental concerns as isolated content (Sterling, 2001).

Modern concepts of environmental education place special emphasis on the student's role as an active participant. In this process, the student is not limited to memorizing established environmental rules; instead, the student observes environmental situations, identifies problems, analyzes causes and consequences, participates in activities aimed at resolving issues, and evaluates personal actions. This orientation is consistent with action-focused approaches to climate and sustainability education (UNESCO, 2024b). For the present study, it supports an integrated framework of knowledge, attitude, activity, and reflection. Recent dissertation activity in Uzbekistan within specialty 13.00.02 also demonstrates continuing attention to methodological improvement and reflective competence in education (Higher Attestation Commission of the Republic of Uzbekistan, n.d.). The scientific focus of this research therefore lies in integrating environmental knowledge, values, practical action, and reflection with the protection and appreciation of nature in general secondary education.

Method

The methodological framework of the study is based on the integration of person-centered, activity-based, axiological, and reflective approaches. The methods employed were (a) pedagogical observation, (b) interviews, (c) questionnaire survey, (d) pedagogical diagnostics, (e) analysis of environmental situations, (f) practical assignments, (g) pedagogical experimental testing, (h) analysis of the results of students' activities, and (i) quantitative and qualitative analysis.

Stage 1: Understanding an Environmental Situation

Students were presented with real-life situations related to the protection of water, air, soil, flora, and fauna. For example: "You have observed inefficient use of water on the school premises. What environmental consequences could this have?" Such an assignment encourages students not to provide a ready-made answer, but rather to identify and understand the problem.

Stage 2: Formation of Environmental Values

After understanding the consequences of an environmental problem, students develop their personal attitudes toward nature. For example: "If every person considers protecting nature to be their personal responsibility, what changes would occur in the environment?" At this stage, particular attention

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is paid to ensuring that environmental protection is not merely perceived as something that is necessary, but is internalized as a personal value.

Stage 3: Practical Environmental Activities

Students carry out practical assignments with an environmental focus, including environmental observations of the school grounds, waste sorting, development of proposals for rational water use, care of trees and plants, preparation of environmental awareness materials, and small-scale projects addressing local environmental problems. This stage is central to the methodology because it enables students to transform knowledge into action.

Stage 4: Collaborative Environmental Activities

Students engage in activities individually, in pairs, in small groups, and as a whole class. Examples include projects such as "Our School's Environmental Map," "One Week for Nature," "Let's Save Water," and "Green Area." Through such activities, students develop responsibility, cooperation, initiative, and the ability to address environmental problems collectively.

Stage 5: Reflective Assessment

At the end of the activities, students are asked to consider questions such as: What did I learn? What environmental problem did I come to understand? What changed in my attitude toward nature? What practical activity did I carry out? What should I improve in my future activities? Thus, in addition to external assessment of their activities, students are given an opportunity for self-analysis and reflection.

Results

A total of 950 students participated in the empirical part of the study. Of these, 476 students constituted the experimental group and 474 students constituted the control group.

Table 1

Distribution of Study Participants by Group

Group	Number of Students	Percentage of Total
Experimental group	476	50.1%
Control group	474	49.9%
Total	950	100%

The results of the initial diagnostic assessment were as follows.

Table 2

Initial Levels of Environmental Education Among Students

Level	Experimental Group	%	Control Group	%
High	86	18.1	80	16.9
Medium	164	34.5	157	33.1
Low	226	47.5	237	50.0
Total	476	100	474	100

Note. Percentages may not total 100 because of rounding.

The initial results indicate that, in the experimental group, 86 students (18.1%) demonstrated a high level, 164 students (34.5%) demonstrated a medium level, and 226 students (47.5%) demonstrated a low level. In the control group, 80 students (16.9%) demonstrated a high level, 157 students (33.1%) demonstrated a medium level, and 237 students (50.0%) demonstrated a low level. These indicators show that the baseline levels of environmental education in the two groups were generally similar. It would not be methodologically appropriate to draw a final conclusion regarding the effectiveness of the methodology at this stage; a comparative analysis with final diagnostic results is required.

Discussion

The theoretical analysis of the research findings demonstrates that assessing the effectiveness of environmental education solely through students' knowledge of environmental terminology is insufficient. For example, a student may know that water should be conserved; however, if the student wastes water in everyday life, this knowledge has not been transformed into behavior. Conversely, when a student values water resources, engages in practical conservation actions, and evaluates personal activity, the substantive components of environmental education become interconnected. Therefore, the developed methodological

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approach is based on the sequence: environmental knowledge → environmental values → environmental action → reflective assessment → environmental behavior.

The distinctive feature of this mechanism is that the outcome of environmental education is explained not merely by the acquisition of knowledge, but by the transformation of knowledge into behavior through values and practical activity. From a methodological perspective, each stage provides the foundation for the subsequent stage.

Table 3

Methodological Stages, Main Content, and Expected Outcomes

Methodological Stage	Main Content	Expected Outcome
Awareness	Identifying an environmental problem	Attention to the problem
Valuing	Understanding the importance of nature in human life	Responsible attitude
Activity	Practical environmental activities	Environmental behavior
Cooperation	Collective environmental activities	Social responsibility
Reflection	Analyzing one's own activities	Self-assessment

This approach makes it possible to organize environmental education not as a separate topic or a one-time activity, but as a systematic methodological process integrated into students' educational and developmental activities.

Conclusion

Based on the theoretical and empirical analyses conducted, improving the methodology of environmental education through students' respect for and care of nature should not be limited to the formation of environmental knowledge alone. The methodological process should connect students' understanding of environmental problems, acceptance of nature as a value, participation in practical environmental activities, and analysis of their own activities. The initial diagnostic results of the 950 participating students provide an empirical basis for determining baseline levels of environmental education and for conducting a comparative assessment during the subsequent experimental stage.

The findings support systematically incorporating local environmental problems into environmental education, involving students in the analysis of real-life environmental situations, increasing practical nature-conservation assignments, combining individual and collaborative environmental projects, concluding activities with reflective questions and self-assessment, and assessing outcomes in terms of changes in knowledge, attitudes, activities, and behavior. Thus, environmental education based on the protection and appreciation of nature can be organized as a consistent pedagogical mechanism leading students from environmental knowledge toward practical activity and responsible behavior.

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