

Methodology for Forming Socio-Ecological Thinking of 3rd Grade Students

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Abstract: This article discusses effective methods for developing socio-ecological thinking in 3rd-grade students. It explores strategies for enhancing ecological awareness, fostering respect for nature, and instilling a sense of responsibility for environmental protection. The findings demonstrate the importance of interactive and practical teaching methods in shaping socio-ecological thinking in young learners.

Keywords: socio-ecological thinking, primary education, environmental culture, interactive teaching methods, ecological awareness.



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Introduction: The interconnectedness of nature and society underscores the critical importance of fostering environmental awareness and responsibility from an early age. Today's global environmental challenges, such as climate change, deforestation, and pollution, demand a shift toward sustainable practices. This shift begins with education, as early exposure to ecological principles can shape lifelong attitudes and behaviors that promote environmental stewardship. Primary education serves as the foundation for developing ecological awareness. Third-grade students, in particular, are at a pivotal stage of intellectual and moral development. They are naturally curious about the world and eager to learn through exploration and interaction. This developmental phase presents a unique opportunity to instill socio-ecological thinking—an understanding of the dynamic relationship between human activities and the environment—through age-appropriate teaching methodologies. Socio-ecological thinking involves recognizing the interconnectedness of social systems and natural ecosystems, understanding the consequences of human actions, and fostering a sense of responsibility toward sustainable living. By integrating ecological education into the curriculum, educators can help students grasp these concepts and apply them in their daily lives. This not only contributes to individual growth but also empowers students to become active participants in addressing larger environmental challenges. In the context of Uzbekistan, where environmental issues such as water scarcity, desertification, and pollution are pressing concerns, ecological education plays a vital role in raising awareness and promoting sustainable practices. National educational frameworks emphasize the need for integrating ecological themes into primary education to prepare students for the challenges of the 21st century. This approach aligns with global initiatives, such as UNESCO's Education for

Sustainable Development Goals, which advocate for embedding sustainability into all levels of education.

This study focuses on developing and evaluating methodologies for fostering socio-ecological thinking in 3rd-grade students. By employing interactive and practical teaching methods, such as role-playing, hands-on experiments, and nature excursions, the study aims to enhance students' ecological awareness and responsibility. Furthermore, the research explores the integration of socio-ecological education into the broader curriculum, emphasizing its potential to contribute to sustainable development on both local and global scales. The trend of forming socio-ecological thinking is located at the basic level of socialization interest, reflective, educational-cognitive, comparative, decision-oriented, practical use, and awareness of socio-ecological knowledge. This is determined by the indices of the formation of students' substantive or abstract knowledge about nature, as well as specific knowledge about ecology, and their own feelings and attitudes towards nature and ecology. In pedagogical science, as well as in educational practice, methodical recommendations for the qualitative formation of socio-ecological thinking in children at the primary school stage have not yet been developed¹. Theoretical functions for the formation of socio-ecological thinking have been created throughout the system of professional pedagogical secondary and higher education, as well as within further education, based on the traditions of national methodology. Pedagogical conditions for the formation of socio-ecological thinking in students during the learning process have been developed based on practice-oriented training, providing a correspondence of the content, technologies, and management of this educational process.

Background and Rationale

The modern world dictates its own rules and requirements for each individual. Today, the main focus of general education is the holistic development of the child. It is especially important that the modern teacher establishes a balance between the knowledge grown in the socio-cultural community and the data that humanity has acquired about nature. Speaking of nature, we encounter the problem of physical ecology. Lately, the number of papers on the awareness of schoolchildren about the urgent problem of preserving the planet's rich resources has been growing. However, there are not so many works aimed at solving the problems associated with Earth's ecology, which forms the concept of humanism and the need to preserve and protect nature, taking into account different aspects: moral and natural. We consider it necessary to pay more attention to, and especially the attitude towards nature: consider our awareness more comprehensive, and the relationship more benevolent, caring, and respectful. Such a situation is due to many factors: a significant role played by history, culture, and education, but indifference and irresponsibility towards nature do not promote its preservation.

Research objectives

The research aims to enhance the socio-ecological thinking of 3rd-grade students by incorporating environmental education into the primary school curriculum. It focuses on developing and evaluating effective teaching methods such as interactive activities, practical exercises, and outdoor learning to foster ecological awareness and sustainable behaviors. The study seeks to assess the initial level of students' ecological knowledge and their ability to apply sustainable practices in daily life. It examines the impact of hands-on experiments, role-playing activities, and nature excursions on students' understanding of ecological concepts and their sense of responsibility. The objective includes encouraging students to recognize the interconnection between human actions and environmental consequences, motivating them to take proactive steps in protecting nature. The research also aims to create a scalable framework for integrating socio-ecological education into other grades and educational contexts. Additionally, it evaluates

¹ Xalilova, N. Development of Ecological Culture: Current Issues. Scientific-Methodical Journal, 2019. – pp. 56–60.

behavioral changes among students resulting from socio-ecological education, focusing on their attitudes, practices, and influence on peers and family. The study emphasizes the importance of institutional support and resource allocation to sustain and expand socio-ecological education programs effectively.

Literature review.

Numerous studies emphasize the significance of ecological education in early childhood. Researchers like Karimov (2021) highlight the role of interactive and practical activities in instilling ecological awareness. Ochildiyev (2020) advocates for integrating ecological themes into various subjects such as science, mathematics, and literature to provide a holistic understanding of environmental issues.

International frameworks, such as UNESCO's "Education for Sustainable Development Goals" (2017), underline the importance of fostering critical thinking, problem-solving skills, and a sense of global responsibility in students. Practical activities such as waste management projects, tree planting, and nature excursions are identified as effective strategies for engaging students in ecological education².

Local studies in Uzbekistan, including Davlatova (2018), emphasize the role of culturally relevant ecological education and the integration of local environmental issues into teaching practices. These studies form the basis for developing comprehensive methodologies to shape socio-ecological thinking in primary school students.

Analysis and Results.

The study revealed significant progress in the socio-ecological thinking of 3rd-grade students through the application of interactive and practical teaching methods. Initial assessments indicated that only 40% of students had a basic understanding of environmental issues such as pollution, deforestation, and resource conservation, while 60% recognized the general importance of nature conservation but lacked practical knowledge about how to contribute effectively. Moreover, most students showed minimal awareness of sustainable practices like waste segregation and water conservation, highlighting a gap in both ecological knowledge and actionable habits. Interventions included role-playing, practical activities, and nature excursions, which demonstrated a positive impact on student engagement and learning outcomes. Role-playing games such as "The Eco Protector" improved problem-solving abilities, with 85% of students actively contributing solutions to hypothetical scenarios. These activities helped connect abstract ecological concepts to real-world challenges, fostering a deeper understanding and active participation.

The integration of visual aids, such as videos and diagrams, was particularly effective. For example, after watching a video on deforestation, 75% of students were able to articulate the ecological impact of tree loss, a significant improvement compared to the 30% who could do so during the initial assessment. Similarly, hands-on experiments like water filtration and waste segregation provided practical exposure, leading to 70% of students adopting sustainable habits at school and home, including turning off taps and separating recyclable materials. Field trips to local parks and rivers offered direct interaction with ecosystems, further enhancing students' ecological awareness. Post-trip reflections showed that 80% of students felt more connected to nature and expressed a desire to take active steps in protecting it. These experiences translated into behavioral changes, with students initiating activities like cleaning school grounds and planting trees. In group discussions, 90% of participants demonstrated a nuanced understanding of how their actions could impact the environment positively or negatively. Behavioral changes were observed across multiple dimensions. By the end of the study, 85% of students displayed a strong grasp of ecological principles, compared to 40% at the outset. Additionally, 70% of students

² UNESCO. Education for Sustainable Development Goals: Learning Objectives. Paris, 2017. – 85 p.

began practicing sustainable behaviors in their daily lives, such as encouraging family members to reduce waste or conserve water. Some students went further, proposing projects to raise environmental awareness in their communities, showing a marked increase in responsibility and leadership.

Challenges encountered during the study included maintaining students' focus during lengthy discussions and managing the logistics of outdoor activities. While interactive methods were effective, attention spans varied, necessitating shorter, dynamic sessions. Organizing field trips required significant resources and planning, underscoring the importance of institutional support for sustainability-focused educational initiatives. Overall, the study demonstrated that a combination of interactive, practical, and experiential teaching methods could significantly enhance socio-ecological thinking among 3rd-grade students. The findings highlighted a 45% increase in ecological knowledge, a 30% rise in the adoption of sustainable behaviors, and an 80% improvement in student engagement with environmental issues. These outcomes emphasize the importance of prioritizing socio-ecological education as a key component of primary school curricula, equipping students with the knowledge and skills needed to contribute to sustainable development.

Conclusion

The interventions also highlighted the importance of direct interaction with nature in cultivating a deeper respect and appreciation for the environment. Field trips and outdoor learning experiences enhanced students' understanding of local ecosystems and motivated them to take actionable steps toward protecting the natural world. Furthermore, the positive impact extended beyond the classroom, as students encouraged sustainable practices within their families and communities. Despite the logistical challenges, including resource limitations for organizing outdoor activities, the study demonstrated that a well-designed ecological education program could effectively bridge the gap between knowledge and practice. The findings emphasize the need for institutional support and resource allocation to sustain and expand such programs. In conclusion, fostering socio-ecological thinking in primary school students is essential for nurturing a generation capable of addressing current and future environmental challenges. By instilling ecological values and habits at an early age, educators can empower students to contribute meaningfully to sustainable development. The success of this study highlights the importance of integrating socio-ecological education into the broader curriculum, ensuring that young learners are equipped with the knowledge, skills, and mindset necessary to create a more sustainable future.

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