



CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE BEHAVIOR IN SERBIA

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Abstract

This research aims to assess the level of ecological awareness, understanding, and perception of environmental issues among the population of the Republic of Serbia. In the context of escalating climate change, environmental pollution, natural resource degradation, and biodiversity loss, it is essential to understand how citizens perceive these challenges and their willingness to take action. A survey was conducted among 365 respondents of various ages, genders, and educational backgrounds to examine the gap between ecological knowledge and actual behavior. The results reveal a basic understanding of environmental issues but a lack of consistent, environmentally responsible practices. These findings point out the need for more comprehensive environmental education, stronger institutional support, and the development of both individual and collective responsibility. This study contributes to a better understanding of the social and psychological barriers to ecological action and provides recommendations for enhancing environmental education and culture in Serbia.

Key words: *Environmental awareness, sustainable behavior, ecological education.*

Introduction

Environmental issues have become a pressing concern worldwide, affecting people across generations and social groups. The increasing severity of ecological problems, together with the global demand to balance economic development and environmental protection, has encouraged consumers to adopt more sustainable

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lifestyles and responsible consumption patterns [1]. Changes in consumer behavior, rising pollution, and the pursuit of a higher quality of life have positioned sustainability as a key criterion in decision-making, particularly among younger generations, who show greater awareness of long-term impacts and stronger social responsibility [2].

Nevertheless, environmental protection remains a complex and resource-intensive endeavor, requiring substantial organizational, financial, and human capacities. While such efforts generate important and lasting benefits, barriers such as insufficient infrastructure, limited economic resources, and inadequate educational initiatives continue to prevent ecological awareness from being translated into consistent sustainable actions [3]. Moreover, research shows that many interventions aimed at promoting pro-environmental behavior (PEB) produce only modest or short-term results, highlighting the challenge of achieving enduring change [4].

Global frameworks, including the 2030 Agenda for Sustainable Development, underline the urgent need to reduce greenhouse gas (GHG) emissions to keep global warming below 1.5°C. Households play a central role in this transformation, as everyday choices directly influence environmental outcomes. To foster PEB, a growing number of interventions focus on sustainable living and consumption practices [4].

However, the adoption of sustainable behavior is shaped by cultural, social, and economic contexts, requiring context-specific strategies and locally adapted interventions [3]. Recent studies suggest that data-driven approaches can improve effectiveness by identifying key behaviors and systematically evaluating the impact of interventions [3]. At the same time, younger generations—especially those directly experiencing climate change—demonstrate higher motivation to adopt sustainable lifestyles, indicating that targeted measures could successfully build on this potential [5].

Thus, the present study investigates the challenges and opportunities for fostering sustainable behavior in Serbia, with particular attention to the gap between ecological knowledge and pro-environmental practices.

Methodology

The study employed an online questionnaire as the primary data collection tool, enabling systematic assessment of respondents' attitudes, knowledge, and behaviors related to environmental issues. The questionnaire was structured into five sections: (1) sociodemographic characteristics, (2) self-assessment of ecological knowledge and attitudes, (3) testing understanding of ecological concepts and principles, (4) personal environmentally related habits, and (5) suggestions for raising ecological awareness. This design combined subjective responses (self-assessed knowledge, perceived importance of ecology, willingness to act) with objective assessment of basic ecological literacy. The approach allowed for comparison between perceived and actual knowledge and provided insights into levels of awareness and engagement across age, gender, and education groups.



A total of 365 respondents representing diverse age, educational, and geographic backgrounds participated anonymously, completing the questionnaire electronically. The survey was distributed via social media and e-mail lists between March 20 and May 30, 2025. The methodology facilitated a comprehensive understanding of ecological literacy, interests, and pro-environmental behavior among citizens.

Results

The study included 348 valid responses, with women comprising the majority (69%) and men representing 31% of the sample. Age distribution was dominated by the 18–35 age group (36.2%), followed by 36–55 years (32.8%), 56–65 years (22.7%), and those over 65 years (8.3%). In terms of education, most respondents held higher or undergraduate degrees (59.2%), 27.5% had completed secondary education, 11.8% possessed master's or doctoral degrees, and 1.4% reported primary education as their highest qualification. Regarding residence, 65.9% lived in urban areas, 20.6% in rural areas, and 13.5% in suburban environments.

Age and intensity of environmental awareness

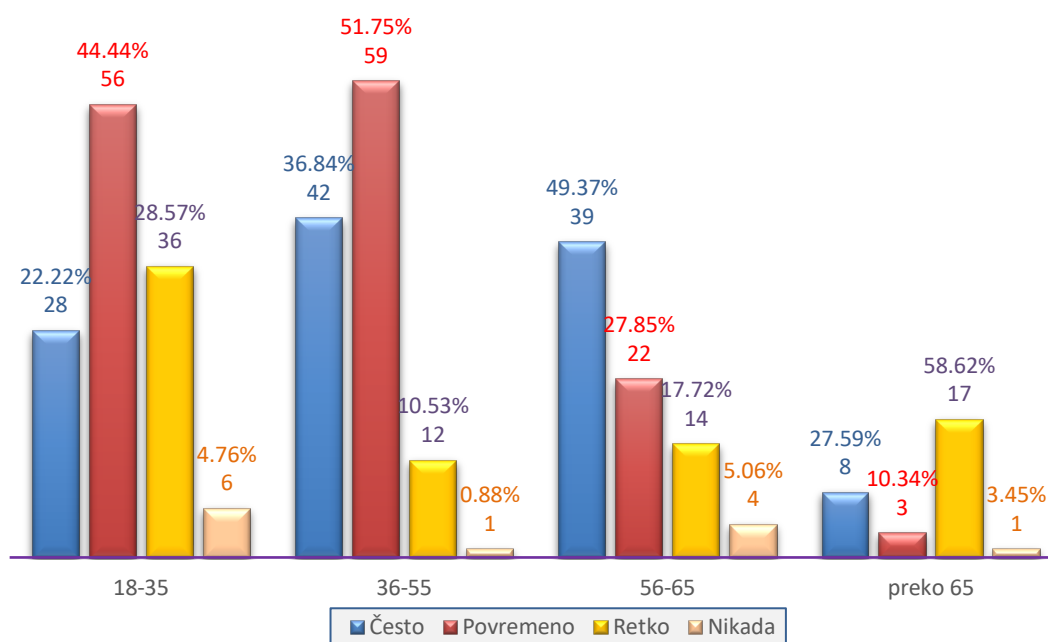


Figure 1. Age and intensity of environmental awareness

Legend: blue - often, red - periodically, yellow - rarely, orange - never

As illustrated in Figure 1, the middle-aged group (56–65 years) demonstrates the highest level of environmental awareness, which may be attributed to more developed personal consciousness and greater life experience. Younger generations are more intermittently informed, suggesting interest but a lack of continuity or attention due to competing priorities. Among respondents older than 65, there is a noticeable decline in environmental awareness, likely due to limited digital literacy or reduced engagement with these topics. These findings emphasize the need for tailored



approaches to environmental education: digital campaigns and social media for younger audiences, and direct, local initiatives for older populations. Engaging all generations in environmental awareness is crucial for strengthening ecological consciousness and collective responsibility.

Ecological knowledge and awareness of climate change

Figure 2 presents the relationship between self-assessed ecological knowledge and understanding of climate change. Respondents with higher ecological knowledge exhibit a high level of awareness, while a significant proportion of those with lower knowledge express a desire for further information. Interestingly, some respondents who report good familiarity with climate change but low overall ecological knowledge may have a narrow perception of what ecology encompasses. These gaps between perceived ecological knowledge and climate change understanding raise important questions about ecological literacy. The findings suggest the need for clearly defined educational frameworks that integrate all aspects of ecology, thereby improving not only knowledge but also confidence in ecological decision-making.

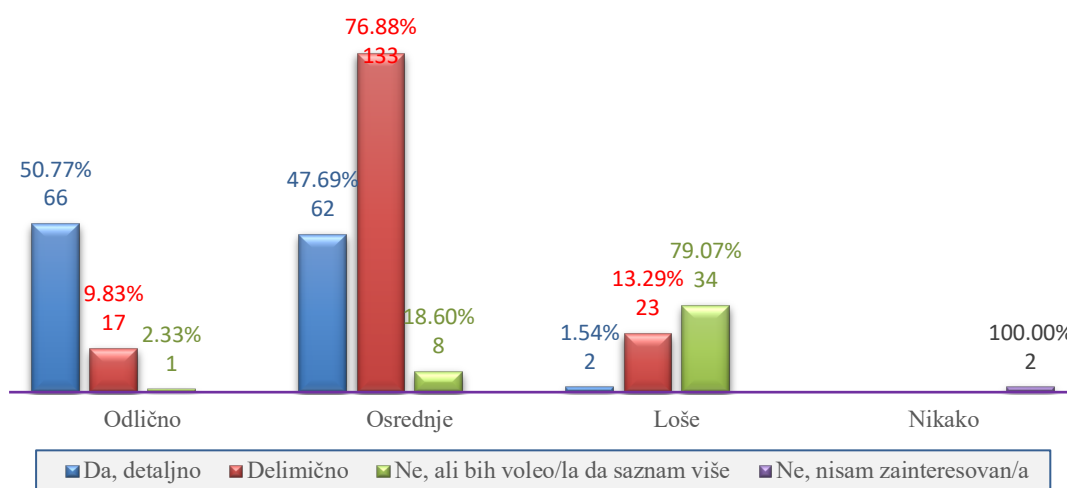


Figure 2. Ecological knowledge and awareness of climate change
Legend: blue – yes, in detail; red – partially; green – no, but I would like to know more;
purple – no, I am not interested.

Ecological knowledge and awareness of the concepts “Biodiversity” and “Greenhouse Effect”

Even among respondents who rated their ecological knowledge as “excellent,” some fail to recognize basic concepts such as “biodiversity” and the “greenhouse effect.” Notably, respondents with moderate self-assessed knowledge are generally familiar with both concepts. Since these concepts are fundamental to understanding contemporary environmental challenges, familiarity with them should represent a baseline level of knowledge for all citizens, as well as for educational institutions responsible for delivering comprehensive ecological education.

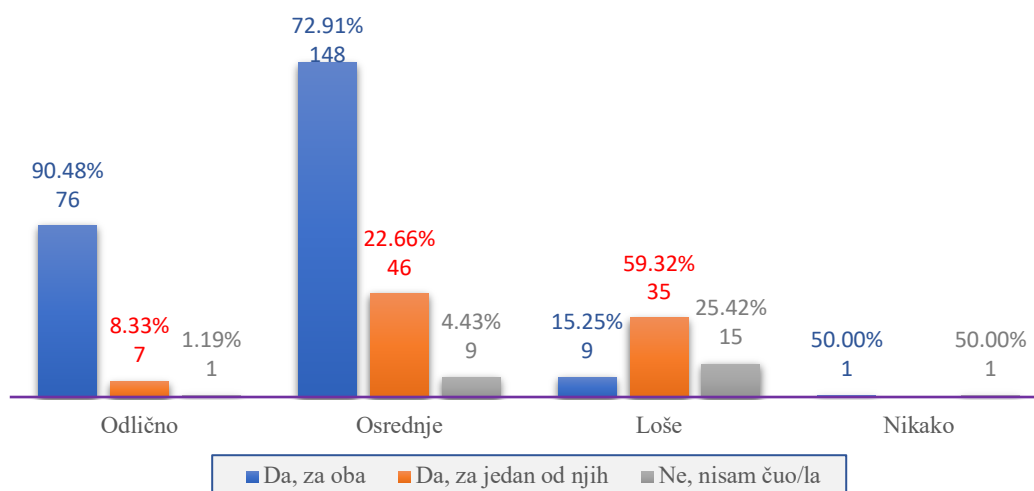


Figure 3. Ecological knowledge and awareness of the concepts “Biodiversity” and “Greenhouse Effect”
Legend: blue – yes for both; orange – yes for one of concepts; gray – no, never heard

Ecological knowledge and willingness to participate in environmental actions

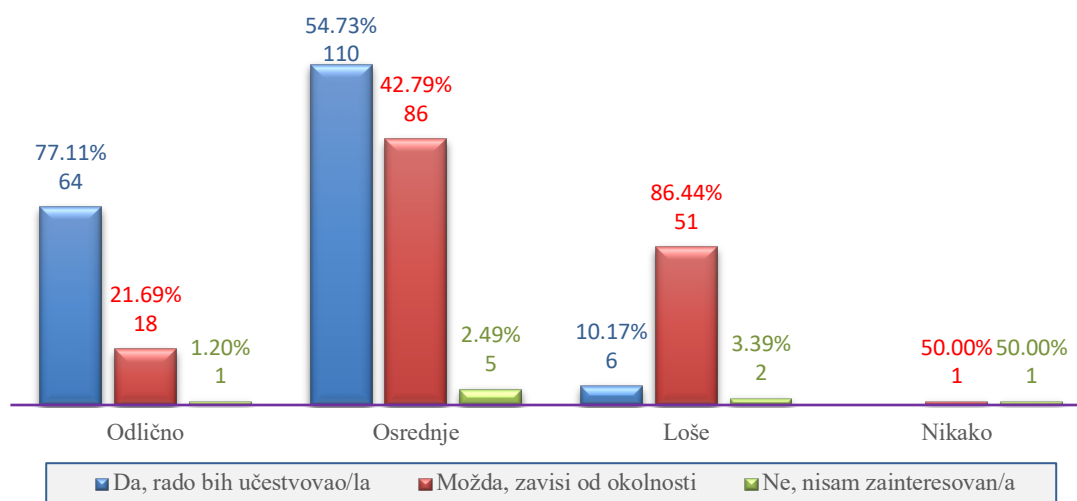


Figure 4. Analysis of the relationship between ecological knowledge and willingness to participate in environmental actions
Legend: blue – yes, willingly; red – maybe, depending on the circumstances; green – no, I am not interested

The results indicate a clear relationship between ecological knowledge and readiness to engage in environmental activities. Respondents with higher levels of ecological knowledge more frequently express willingness to participate in environmental actions, whereas those with lower knowledge tend to remain undecided. This highlights the pivotal role of education in fostering active environmental engagement (Figure 4).



Age and willingness to participate

The highest willingness to engage in environmental activities is observed among respondents aged 18–35, with interest decreasing with age, particularly among those over 65. Environmental protection should not be considered an activity for “others” but a responsibility for everyone. Simple actions, such as tree planting or cleaning local lakes, contribute to the community while also providing personal satisfaction and benefits. Environmental actions should be viewed as opportunities to directly improve quality of life rather than obligations.

Gaps between knowledge and practice

The study reveals that even among respondents who claim good knowledge of recycling, a significant number dispose of electrical and electronic waste in regular trash. Among those with partial knowledge of recycling, 79.39% dispose of waste incorrectly, while only 20.61% recycle properly. Respondents unfamiliar with the concept of recycling dispose of electronic waste entirely in regular trash. The fact that almost half of those claiming good knowledge of recycling still mismanage electronic waste indicates a lack of systematic education, practical guidance, and accessibility to recycling points. These findings underscore that awareness alone is insufficient; applied education and accessible infrastructure are essential to translate knowledge into responsible behavior.

Although the proportion of correct disposal increases with education level (0% among those with primary education, up to 55% among respondents with master’s or doctoral degrees), a high number of highly educated individuals still dispose of electronic waste incorrectly. This suggests that education alone is not enough without the development of concrete ecological habits, emphasizing the need for systematic training focused on practical, everyday actions rather than theoretical knowledge alone.

Plastic bag use and everyday ecological habits

Although many respondents report ecological behaviors such as saving energy, sorting waste, or purchasing eco-friendly products, the use of plastic bags remains widespread. This highlights the need for targeted education and campaigns that emphasize practical and concrete actions, such as consistently using reusable bags as a fundamental behavioral practice. The results reveal a paradox between declared ecological habits and actual practice. Even among those implementing multiple ecological practices, a significant number never use reusable bags, indicating a lack of consistency in basic steps toward responsible and sustainable consumer behavior. This confirms that ecological awareness alone is insufficient without habitual practice and concrete application.

Everyday decisions, such as remembering to bring a reusable bag when shopping, form the essence of sustainability. Education must therefore extend beyond informing citizens to fostering habitual behaviors, consistency in small actions, and personal



responsibility, as these factors differentiate declarative from actual ecological consciousness.

Conclusion

The study reveals that while ecological awareness and knowledge are moderately high among the population, consistent application of pro-environmental behaviors remains uneven. Respondents recognize the severity of pollution, the importance of recycling, green spaces, and habitat conservation, yet daily practices vary, with energy and water saving being the most common behaviors. More comprehensive sustainable actions, such as eco-friendly purchasing or proper disposal of electronic waste, are less consistently applied.

Education and public awareness campaigns play a crucial role in fostering sustainable behavior. Respondents emphasized the importance of school-based education, media outreach, and environmental events as strategies to enhance ecological awareness. High willingness to participate in environmental initiatives suggests significant potential for citizen-led engagement.

Finally, responsibility for environmental protection is perceived as shared among individuals, institutions, and businesses, reinforcing the need for integrated approaches that combine policy measures, community involvement, and education. Strengthening ecological knowledge, facilitating sustainable practices, and fostering a culture of shared responsibility are essential for advancing environmental sustainability in Serbia.

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