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# *Cultivating Green Minds: Enhancing Climate Literacy and Awareness in Azerbaijani Secondary Schools*

**Összefoglalás:** Az éghajlatváltozás világszerte jelentős kihívásokat jelent, ez alól Azerbajdzsán sem kivétel. Az azerbajdzsáni középiskolák fiatalabb tanulói körében azonban jelentős hiányosság tapasztalható a klímaműveltség és a tudatosság terén. A jelen tanulmány azzal a sürgető szükséglettel foglalkozik, hogy az átfogó környezetvédelmi kurzusok nemzeti tantervbe történő integrálásával javítsák a környezetismeret oktatását. Bizonyos erőfeszítések ellenére a jelenlegi oktatási keretből hiányzik a szükséges mélység és kiterjedtség ahhoz, hogy elősegítse az környezetvédelmi kihívások egyértelmű megítélését a diákok körében. Ez a szakadék nemcsak akadályozza a tanulókat abban, hogy felfogják az éghajlat-politikai intézkedések sürgősségét, hanem korlátozza abban is, hogy hozzájáruljanak a fenntartható gyakorlatokhoz és politikákhoz. E szakadék áthidalására sokoldalú megközelítést javasolunk, amely magában foglalja a tanterv reformját, a tanárképzést, az interaktív tanulási módszereket és a közösség bevonását egyaránt. Az éghajlattudomány különböző tantárgyakba történő beépítésével és a környezettudományi kurzusok létrehozásával szilárd alapot biztosíthatunk a hallgatóknak a klímaműveltség terén. Ezen túlmenően a tanárok szakmai fejlesztési programokon keresztül történő megerősítése, valamint a gyakorlati tanulás és a tanórán kívüli tevékenységek lehetőségeinek megteremtése jelentősen javíthatja a diákok elkötelezettségét és megértését. A jelen tanulmány a közösségi alapú megközelítés fontosságát is hangsúlyozza, bevonva a szülőket, a helyi szervezeteket és a környezetvédő csoportokat az iskolai kezdeményezések támogatásába és megerősítésébe. Annak biztosítása érdekében, hogy a javasolt stratégiák hatékonyak és Azerbajdzsán számára megfelelőek legyenek, elemezzük a különböző országok sikeres éghajlati oktatási modelljeit, és értékeljük azok azerbajdzsáni környezetben való alkalmazhatóságát.

**Kulcsszavak:** Klímaműveltség, környezeti nevelés, tantervreform, közösségi szerepvállalás, fenntartható gyakorlatok.

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**Abstract:** Climate change poses significant challenges globally, and Azerbaijan is no exception. However, there is a notable gap in climate literacy and awareness among the younger population in Azerbaijani secondary schools. This article addresses the pressing need to enhance climate education by integrating comprehensive environmental courses into the national curriculum. Despite some efforts, the current educational framework lacks the depth and breadth required to foster a robust understanding of climate issues among students. This gap not only hinders students' ability to grasp the urgency of climate action but also limits their potential to contribute to sustainable practices and policies. To bridge this gap, we propose a multi-faceted approach that includes curriculum reform, teacher training, interactive learning methods, and community engagement. By incorporating climate science across various subjects and establishing dedicated environmental studies courses, we can provide students with a solid foundation in climate literacy. Furthermore, empowering teachers through professional development programs and creating opportunities for hands-on learning and extracurricular activities can significantly enhance students' engagement and understanding. This article also emphasizes the importance of a community-based approach, involving parents, local organizations, and environmental groups to support and reinforce school-based initiatives. To ensure the proposed strategies are effective and suitable for Azerbaijan, we will analyze successful climate education models from different countries and assess their applicability to the Azerbaijani context.
**Keywords:** Climate literacy, environmental education, curriculum reform, community engagement, sustainable practices.

## Introduction

Climate change is one of the most pressing issues of our time, affecting ecosystems, economies, and communities worldwide. Azerbaijan, with its diverse climate and geography, faces unique environmental challenges that underscore the need for robust climate education. Despite the growing urgency of addressing climate change, there is a significant lack of climate literacy and awareness among the younger population in Azerbaijani secondary schools. This deficiency not only impedes students' understanding of environmental issues but also limits their ability to participate in sustainable practices and advocate for green policies. The current educational framework in Azerbaijan does not adequately cover climate science and environmental education. Integrating comprehensive environmental courses into the national curriculum is essential to bridge this gap. Such an integration will equip students with the necessary knowledge and skills to understand and address climate-related issues.

Additionally, a community-based approach that involves parents, local organizations, and environmental groups can reinforce school-based initiatives and promote a culture of sustainability. This article explores various strategies to enhance climate literacy and awareness in Azerbaijani secondary schools. It examines successful climate education models from different countries, evaluates their suitability for Azerbaijan, and proposes a multi-faceted approach that includes curriculum reform, teacher training, interactive learning methods, and community engagement. [1]

[1] Azeri, A.– Mirzoev, T. (2020): Environmental education in Azerbaijan: Current state, problems and prospects. *Journal of Sustainable Development of Energy, Water and Environment Systems,* 8., (2.), pp. 223–234. https://doi.org/10.13044/j.sdewes.d7.0255

## Literature Review

Raising awareness about climate issues in secondary schools has been a focal point for educational reform in many countries. According to UNESCO (2016), education is a critical tool for fostering environmental stewardship and equipping young people with the skills to tackle climate change. Integrating climate education into the school curriculum not only enhances students' understanding of environmental issues but also empowers them to become proactive agents of change. In the context of secondary education, scholars have emphasized the importance of curriculum reform to include comprehensive environmental studies. For instance, Anderson (2019) argues that integrating climate science into various subjects, such as geography, biology, and social studies, can provide a holistic understanding of climate issues. This multidisciplinary approach ensures that students grasp the interconnectedness of climate systems and human activities. Teacher training is another crucial aspect highlighted in the literature. Teachers must be equipped with the knowledge and resources to effectively deliver climate education. According to a study by Monroe et al. (2017), professional development programs focused on environmental education significantly improve teachers' confidence and competence in teaching climate-related topics. Interactive learning methods, such as hands-on projects and field trips, have been shown to enhance students' engagement and understanding of climate issues. A study by Chawla and Cushing (2007) found that experiential learning opportunities, such as school gardens and eco-clubs, foster a deeper connection to the environment and promote sustainable behaviors among students.

Community engagement is also critical in reinforcing school-based climate edu-

cation. Research by Ballantyne, Connell, and Fien (2006) suggests that involving parents and local communities in environmental education initiatives creates a supportive environment for students and extends the impact of school programs. Community-based approaches can include partnerships with environmental organizations, participation in local sustainability projects, and public awareness campaigns. In this article, we will analyze successful climate education models from various countries, such as Finland, Germany, and Japan, and assess their applicability to the Azerbaijani context. By adopting best practices from these models and tailoring them to local needs, we aim to develop a comprehensive strategy for enhancing climate literacy and awareness in Azerbaijani secondary schools. This approach will prepare Azerbaijani youth to become informed and proactive citizens, capable of driving sustainable change and advocating for robust green policies.

## Successful Examples of Environmental Curriculum and Raising Awareness in Finland, Germany, and Japan

Enhancing climate literacy and awareness in Azerbaijani secondary schools can be effectively achieved by learning from the successful environmental education models of countries like Finland, Germany, and Japan. These countries have implemented comprehensive strategies to integrate climate education into their school systems, fostering a culture of environmental stewardship and proactive climate action among students.

Finland is renowned for its progressive education system, which places a strong emphasis on environmental education. The Finnish National Core Curriculum incorporates sustainability and environmental responsibility as cross-cutting themes, ensuring that climate education is integrated into various subjects, including science, geography, and social studies. Finnish schools adopt a holistic approach to climate education, weaving environmental topics into multiple subjects. This helps students understand the interconnectedness of ecological, economic, and social systems. For example, in geography, students might study the effects of climate change on different regions, while in science, they might learn about the underlying mechanisms of global warming. Finnish schools also emphasize project-based learning, where students engage in hands-on activities such as studying local ecosystems, participating in recycling programs, and developing sustainable solutions for their communities. Projects might include creating a school garden to learn about biodiversity, conducting energy audits to identify ways to reduce consumption, or organizing community clean-up events. Continuous professional development for teachers is a cornerstone of Finland's approach.

Teachers receive training on the latest environmental issues and pedagogical methods to effectively

teach climate-related topics. This ensures that educators are well-equipped to integrate environmental education into their classrooms and inspire students to take action. [2, 3, 4, 5]

Germany has a robust framework for environmental education, supported by both federal and state governments. The country's approach includes formal curriculum requirements and extracurricular activities that promote climate literacy. Many German schools participate in the "Eco-Schools" program, which encourages schools to implement sustainable practices, such as energy conservation, waste reduction, and biodiversity projects. Schools are awarded "Green Flags" for their efforts, motivating ongoing commitment to sustainability. This initiative promotes a school-wide culture of environmental responsibility, involving students, teachers, and the broader community. German curricula mandate the inclusion of environmental education across various subjects. This ensures that students receive consistent and comprehensive exposure to climate science, renewable energy, and sustainable development principles. In addition to science and geography, environmental topics are integrated into subjects like economics, where students might study the impact of environmental policies on businesses. German schools often collaborate with local environmental organizations, businesses, and government agencies to provide students with real-world learning experiences. This includes field trips, internships, and community projects that address local environmental issues. For example, students might visit renewable energy plants, participate in conservation projects, or intern with organizations focused on sustainability. [1, 2, 3]

Japan's approach to environmental education is characterized by a strong emphasis on fostering a sense of responsibility and connection to nature among students. The Japanese government has implemented several initiatives to integrate environmental education into the school system. Japan's national curriculum includes specific guidelines for environmental education. Topics such as climate change, energy conservation, and biodiversity are covered in science and social studies classes. This structured approach ensures that all students receive a basic education in environmental issues, preparing them to understand and address these challenges. Japanese schools emphasize experiential learning, where students participate in activities such as tree planting, water quality monitoring, and energy-saving campaigns. These activities help students develop practical skills and a deeper appreciation for the environment. For example, students might participate in local conservation projects, learn about traditional ecological knowledge, or conduct scientific experi-

[2] European Commission. (2021): *EU-Azerbaijan Cooperation: Environment.* Retrieved June 20, 2024, from https://ec.europa.eu/neighbourhood-enlargement/neighbourhood/countries/azerbaijan_en

[3] Ministry of Education, Azerbaijan (2022): *National Curriculum Framework.* Baku.

[4] Ministry of Education, Finland (2023): *National Core Curriculum for Basic Education 2021.* Helsinki.

[5] UNESCO (2021): *Education for Sustainable Development Goals: Learning Objectives.* Paris.

ments related to climate change. Many Japanese schools adopt a whole-school approach to sustainability, involving all students, staff, and the wider community in environmental initiatives. Schools often have ”eco committees” that lead projects and promote sustainable practices within the school. These committees might organize events like eco-fairs, coordinate recycling programs, or advocate for sustainable policies at the school and community levels. [2, 4, 6]

To enhance climate literacy and awareness in Azerbaijani secondary schools, the following strategies can be adapted from the successful models of Finland, Germany, and Japan: Integrate environmental education across various subjects, ensuring a comprehensive and multidisciplinary approach to climate literacy. Develop specific courses focused on climate science and sustainability. Implement professional development programs to equip teachers with the knowledge and skills to effectively teach climate-related topics. Provide ongoing support and resources to ensure teachers stay updated on the latest environmental issues. Encourage hands-on learning activities, such as school gardens, eco-clubs, and field trips, to engage students and provide practical experience in addressing environmental challenges. Foster partnerships with local environmental organizations, businesses, and government agencies to support school-based initiatives and provide students with real-world learning opportunities. Involve parents and the wider community in environmental education efforts to create a supportive and sustainable culture. By adopting these strategies, Azerbaijani secondary schools can cultivate green minds, preparing students to become informed and proactive citizens capable of driving sustainable change and advocating for robust green policies. [4, 7]

A comparative analysis of these environmental education models reveals key elements that can be adapted to the Azerbaijani context. Finland's integration of environmental topics across the curriculum, coupled with project-based learning and continuous teacher training, ensures a holistic approach to climate education. Germany's Eco-Schools initiative, curriculum integration, and community engagement strategies provide a structured framework for promoting sustainability in schools. Japan's emphasis on experiential learning and a whole-school approach to environmental initiatives fosters a deep sense of responsibility and connection to nature among students. By learning from these successful models, Azerbaijan can develop a comprehensive strategy for

[2] European Commission. (2021): *EU-Azerbaijan Cooperation: Environment.* Retrieved June 20, 2024, from https://ec.europa.eu/neighbourhood-enlargement/neighbourhood/countries/azerbaijan_en

[4] Ministry of Education, Finland (2023): *National Core Curriculum for Basic Education 2021*. Helsinki.

[6] Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) (2020): *The German Strategy for Adaptation to Climate Change.* Berlin.

[7] Pulkkinen, R. (2020): Environmental education in Finnish schools: A review of current practices and challenges. *Environmental Education Research,* 26., (3.), pp. 345–358. https://doi.org/10.1080/13504622.2019.1658837

enhancing climate literacy and awareness in its secondary schools, ultimately empowering its youth to lead the charge towards a sustainable future. [8, 9]

***Table 1. Comparative Table of Environmental Education Models and Application to Azerbaijan***

| Aspect | Finland | Germany | Japan | Application to Azerbaijan |
|---|---|---|---|---|
| **Curriculum Integration** | Environmental education integrated across multiple subjects | Environmental education mandated across various subjects | National curriculum includes specific guidelines for environmental education | Develop a national curriculum that incorporates environmental education across subjects such as science, geography, and social studies. Ensure consistent exposure to climate science and sustainability principles. |
| **Project-Based Learning** | Emphasis on hands-on projects and local ecosystem studies | Eco-Schools program promotes sustainable practices | Experiential learning through activities like tree planting and water quality monitoring | Introduce project-based learning initiatives that encourage students to engage in local environmental projects, such as school gardens, energy audits, and recycling programs. |

[8] Ministry of the Environment, Germany (2023): *National Strategy on Education for Sustainable Development.* Berlin.

[9] Ministry of the Environment, Japan (2021): *Environmental Education Initiatives 2020–2030: A Vision for Sustainability.* Tokyo.

| | | | | |
|---|---|---|---|---|
| **Teacher Training** | Continuous professional development for teachers | Professional development and resources for educators | Teacher training includes guidelines on integrating environmental education | Implement ongoing professional development programs to equip teachers with the latest knowledge and teaching methods on environmental issues. Provide resources and training to ensure effective delivery of climate education. |
| **Community Engagement** | School-community projects, recycling programs | Collaborations with local organizations and businesses | Whole-school approach involving students, staff, and the community | Foster partnerships with local environmental organizations, businesses, and government agencies to support school-based initiatives. Involve parents and the wider community in environmental projects to create a supportive culture. |

| | | | | |
|---|---|---|---|---|
| **Extracurricular Activities** | Eco-clubs, community clean-up events | Field trips, internships, community projects | Eco committees, eco-fairs, school-wide sustainability initiatives | Establish eco-clubs and organize extracurricular activities such as community clean-up events, field trips to natural reserves, and participation in local sustainability projects. |

Source: Data collected from the Ministries of Education of the respective countries. [2, 3, 4, 6, 10]

## European Union Eco-Curriculum and Activities for Azerbaijan

The European Union (EU) offers a range of eco-curriculum initiatives and activities that can provide valuable inspiration and guidance for Azerbaijan in enhancing environmental education and sustainability practices within its secondary schools. By leveraging these models, Azerbaijan can effectively foster climate literacy, promote environmental awareness, and empower students to contribute actively to sustainable development.

## Erasmus+ Program

The Erasmus+ program represents a cornerstone of EU initiatives in education, providing opportunities for Azerbaijan to participate in projects focused on environmental education and sustainability. Through Erasmus+, Azerbaijani schools can collaborate with institutions across EU member states to exchange best practices, develop educational resources, and implement joint environmental initiatives. These projects often involve teacher exchanges, student mobility programs, and collaborative research efforts aimed at enhancing environmental literacy and fostering cross-

[2] European Commission. (2021): *EU-Azerbaijan Cooperation: Environment.* Retrieved June 20, 2024, from https://ec.europa.eu/neighbourhood-enlargement/neighbourhood/countries/azerbaijan_en

[3] Ministry of Education, Azerbaijan (2022): *National Curriculum Framework.* Baku.

[4] Ministry of Education, Finland (2023): *National Core Curriculum for Basic Education 2021.* Helsinki.

[5] UNESCO (2021): *Education for Sustainable Development Goals: Learning Objectives.* Paris.

[10] Ministry of Education, Japan (2022): *Course of Study for Upper Secondary Schools: Environmental Science.* Tokyo.

cultural understanding of sustainability issues. Participation in Erasmus+ projects can enrich Azerbaijani secondary schools by integrating diverse perspectives on environmental challenges and solutions, while also promoting international cooperation and solidarity in addressing global sustainability goals. Teachers and students benefit from exposure to innovative teaching methods, new technologies, and alternative approaches to environmental stewardship, thereby enhancing their capacity to contribute meaningfully to local and global environmental initiatives. [2]

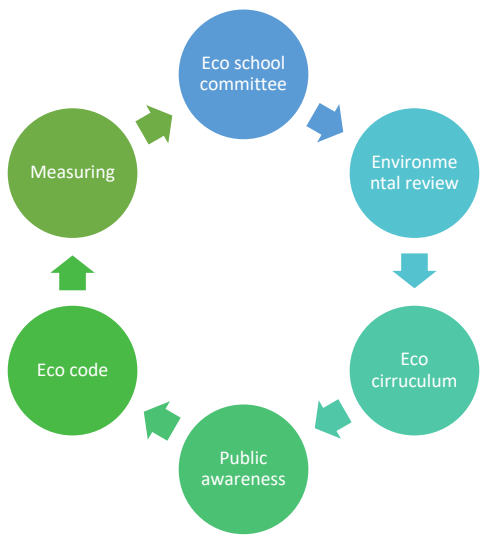
[2] European Commission. (2021): *EU-Azerbaijan Cooperation: Environment.* Retrieved June 20, 2024, from https://ec.europa.eu/neighbourhood-enlargement/neighbourhood/countries/azerbaijan_en

## Eco-Schools Program

Modeled after successful implementations in Germany and other EU countries, the Eco-Schools program offers Azerbaijan a structured framework for implementing sustainable practices within school communities. For example, Scotland supports Eco-Schools through comprehensive guidance, resources, and toolkits tailored to assist schools in implementing the Seven Elements effectively. Continuous professional development opportunities for educators ensure they are equipped with the knowledge and skills to support students in leading eco-initiatives and integrating sustainability into the curriculum. The program also celebrates and acknowledges schools that achieve the Green Flag Award, fostering a culture of recognition and inspiring other schools to participate and excel in environmental education. This initiative encourages schools to adopt comprehensive sustainability strategies, engage students in environmental projects, and work towards achieving international recognition through the Green Flag certification. Central to Eco-Schools Scotland is its emphasis on student leadership and participation. Students play a pivotal role in forming Eco Committees, conducting Sustainability Audits, and developing Action Plans to address environmental issues within their school environment and beyond. [11, 12] This student-led approach not only fosters a sense of responsibility and ownership but also cultivates essential skills such as teamwork, critical thinking, and problem-solving. By joining the Eco-Schools network, Azerbaijani schools can implement practical actions such as energy efficiency measures, waste reduction programs, biodiversity conservation projects, and sustainable transportation initiatives.

These activities not only reduce environmental impact but also educate students about the importance of sustainable living and empower them to become environmental leaders in their communities. Schools participating in the Eco-Schools program benefit from access to educational resources, training workshops, and networking opportunities with other schools and environmental organizations committed to sustainability.

***Figure 1. Eco-School program structure***




Source: Composed by author based on Scotland eco-school concept.

## European Green Capital Award

Learning from EU cities recognized for their environmental achievements, Azerbaijan can promote city-level initiatives that prioritize sustainability and environmental stewardship. The European Green Capital Award recognizes cities that demonstrate a commitment to improving urban sustainability through innovative policies, community engagement, and environmental education initiatives.

Azerbaijan can encourage its cities to participate in activities linked to the European Green Capital Award, fostering a sense of civic responsibility and environmental awareness among students. Schools can collaborate with local authorities, businesses, and community organizations to support city-level sustainability projects, such as urban green spaces development, clean energy initiatives, and pollution reduction programs. Students can actively contribute to these efforts through research projects, advocacy campaigns, and volunteer activities that promote sustainable urban development and environmental resilience [2].

[2] European Commission. (2021): *EU-Azerbaijan Cooperation: Environment.* Retrieved June 20, 2024, from https://ec.europa.eu/neighbourhood-enlargement/neighbourhood/countries/azerbaijan_en

## Conclusion(s)

In conclusion, the exploration of environmental education and eco-school initiatives across various contexts, including Germany, Japan, Finland, and Scotland as well as the support provided by the European Union, underscores the global commitment to sustainability within educational frameworks. Each country's approach reflects unique strategies tailored to their educational systems and environmental challenges, from integrating sustainability into national curricula to fostering community engagement and student leadership in eco-initiatives. Azerbaijan, in its efforts to enhance environmental literacy and awareness, can draw valuable insights from these diverse models. Emphasizing curriculum integration, community involvement, and student-led initiatives, Azerbaijan can develop a robust framework for Eco-Schools that aligns with global sustainability goals. Furthermore, partnerships with international entities like the European Union provide opportunities for knowledge exchange, capacity building, and collaborative projects that promote environmental stewardship on a broader scale. Integrating environmental courses into school curricula supports SDG 4 (Quality Education) by ensuring all students learn about sustainability. It also contributes to SDG 13 (Climate Action) by educating future leaders on climate science and solutions, empowering them to address environmental challenges effectively. By adopting best practices from countries such as Germany, Japan, and Finland, and leveraging support from the EU, Azerbaijan can effectively cultivate a generation of environmentally conscious citizens equipped to address local and global environmental challenges. This holistic approach not only prepares students with the necessary skills and knowledge but also instills a sense of responsibility and empowerment to actively contribute to a sustainable future for all.