

Environmentally Friendly Integration in Education and Economics for Elementary School Students

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Abstract

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Global environmental crises such as climate change, deforestation, pollution, and resource scarcity demand comprehensive solutions through education. Environmental education, often referred to as green education, is considered a strategic approach to instill ecological awareness from an early age. This concept aligns with global initiatives such as Eco-Schools, which emphasize the active involvement of students, teachers, and communities in protecting the environment through practical actions. At the same time, the green economy emerges as a paradigm of sustainable development that balances social welfare, economic growth, and ecological preservation. By integrating green education and the green economy into the elementary school curriculum, young generations are not only equipped with environmentally responsible attitudes but also with adaptive skills to face sustainability challenges. This article aims to analyze the role of elementary schools in implementing green education as the foundation for fostering environmental awareness while preparing students to engage with the era of the green economy through a comprehensive literature review.

1. Introduction

The current global condition is facing serious challenges marked by environmental crises, climate change, pollution, deforestation, and the scarcity of natural resources. Human activities that tend to be exploitative have caused widespread consequences, ranging from increased greenhouse gas emissions that trigger extreme climate change, to rising sea levels, and ecosystem degradation (Gahlawat & Lakra, 2020). Air pollution from industrialization and transportation threatens human health, while water and soil contamination from domestic and industrial waste damages quality of life. Massive deforestation reduces the ability of forests to absorb carbon, worsening the greenhouse effect, and causing erosion, drought, and the loss of biodiversity (Collado et al., 2022). This situation triggers a crisis of vital resources such as clean water and fertile land, which ultimately threatens the sustainability of human well-being and global ecosystems.

In facing the complexity of these environmental problems, education holds a strategic role. Education is not only tasked with transferring knowledge, but also with instilling values, attitudes, and skills that are relevant to the challenges of the times. Environmental education, also known as green education, is a progressive approach to shaping the character of the younger generation to be concerned, adaptive, and proactive in preserving the environment (Gitmiwati & Indrayuda, 2024). Green education emphasizes independence, responsibility, courage, and empathy in wisely using nature as a shared need and as a source of learning.

The implementation of green education is not just theoretical, but is realized in real activities that shape daily behavior patterns. One example is Eco-Schools, a

global program initiated by the Foundation for Environmental Education (FEE), which integrates sustainability practices into school life. This program encourages the involvement of students, teachers, and the school community in reducing waste, saving energy, and maintaining environmental cleanliness. Furthermore, Eco-Schools shapes the character of a generation that is environmentally aware, while also creating a positive impact on the surrounding community (Ardoin et al., 2020).

In addition, the concept of a green economy is present as a development paradigm that seeks to balance human well-being, social justice, and environmental sustainability. A green economy emphasizes resource efficiency, reduced carbon emissions, and investment in environmentally friendly sectors such as renewable energy, sustainable agriculture, and waste management. Thus, a green economy not only emphasizes economic growth, but also provides solutions to overcome the negative impacts of conventional development that is exploitative of nature.

In the context of primary education, the integration of green education and the green economy is very important. Primary school is the initial phase of character formation, so the value of environmental care needs to be instilled early on. Environmental education integrated with the concept of a green economy can foster students awareness of sustainability, while preparing them to play an active role in an economic system that is oriented towards environmental preservation. This is in line with the idea that the younger generation needs to be equipped with environmentally friendly skills, including green entrepreneurship, in order to become agents of change in the future (Munawaroh & Nia, 2021).

The urgency of this research is based on the limited number of studies that connect green education with the formation of environmentally conscious attitudes as well as preparation for facing the green economy era. Most studies discuss these two concepts separately, without outlining the integration that can be carried out in the context of primary schools. Therefore, this article tries to fill this gap by analyzing the role of primary schools in implementing green education as a foundation for building students environmentally conscious attitudes and preparing them to face the green economy.

2. Literature Review

Studies on environmental education or green education show that this concept has an important role in shaping the character of the younger generation who care about the environment. Gitmiwati and Indrayuda (2024) emphasizes that green education integrates the values of independence, responsibility, empathy, and courage in wisely managing natural resources. Anggraini et al. (2022) also add that environmental education is not just about conveying ecological material, but more about shaping a positive attitude towards nature through active habituation. This is in line with the research of Ahirwar and Singh. (2024) who found that the involvement of the school community in environmental activities can increase collective awareness of the importance of environmental preservation.

The Eco-Schools program initiated by the Foundation for Environmental Education (FEE) is one of the real implementations of global environmental education. This program emphasizes student involvement in sustainability projects,

such as waste management, energy conservation, and school greening. The application of Eco-Schools is able to increase student participation in maintaining the environment and foster a sense of social-ecological responsibility.

On the other hand, the concept of a green economy has also received attention as a sustainable development strategy. According to Gahlawat and Lakra (2020), a green economy is an economic development effort that is oriented towards improving human well-being while still paying attention to environmental sustainability. Savchenko and Borodina (2020) classifies the important dimensions of a green economy, including ecosystem management, sustainable transportation, renewable energy, waste management, and green city development. This concept is in line with the United Nations Environment Programme (UNEP) framework which emphasizes the importance of investing in environmentally friendly sectors as a solution to facing the climate crisis.

The link between green education and a green economy has also begun to receive attention in recent research. Munawaroh and Nia (2021) proposed a learning strategy based on environmentally friendly entrepreneurship in primary schools, such as market day practices with environmentally friendly products or green business observation activities. This strategy is considered effective in instilling awareness as well as practical skills that support students readiness to face a green economic system in the future.

The literature shows that environmental education plays a role as a foundation in shaping environmentally conscious attitudes, while a green economy provides a

framework for sustainable development. However, there is still a research gap in integrating the two comprehensively at the primary education level.

3. Methods

This research uses the library research method as the main approach in data collection and analysis. Library research was chosen because this research focuses on conceptual analysis and the synthesis of thoughts from various relevant literature on green education, green economy, and environmentally conscious attitudes. Through this method, researchers can examine theories, previous research results, and policies related to sustainable education to provide a comprehensive picture.

The research process begins with a literature search using academic databases in Google Scholar or Elsevier. The keywords used in the search include green education, eco-schools, green economy, environmental awareness, and sustainable education. From the search results, literature was selected that was relevant to the criteria of publication.

After the literature is collected, the next stage is the classification and analysis process. The literature is grouped into three main categories, namely: conceptual studies and implementation of green education, studies on the green economy and its relevance in sustainable development, and studies on environmentally conscious attitudes and their formation through primary education. The analysis is carried out in a descriptive-analytical manner by emphasizing the relationship between concepts, so that a common thread can be found between environmental education and the preparation of the younger generation to face the green economy.

To maintain validity, this research uses the source triangulation technique by comparing various literature from different authors and diverse contexts. Thus, the results of the study are not only normative, but are also supported by empirical findings from previous research. Through this library approach, the research is expected to provide a theoretical contribution in the form of a conceptual framework that explains how the integration of green education can shape environmentally conscious attitudes while preparing primary school students for the green economy era.

4. Results and Discussion

4.1 The Role of Green Education in Shaping Environmentally Conscious Attitudes

Green education has an important role in shaping environmentally conscious attitudes in primary school students (Ricoy & Sánchez-Martínez, 2022). This education does not only aim to provide knowledge about nature and the environment, but also to instill values, skills, and behaviors that support the creation of a generation with ecological awareness. The concept of green education places education as the basic foundation for preparing children to understand the close relationship between humans and the environment, as well as to habituate them to maintain life sustainability. Children are at a developmental stage where they are easily shaped, so primary school becomes a strategic starting point for instilling the value of sustainability through real experiences that are integrated into daily learning activities.

One of the main roles of green education is to help students understand the connection between human activities and environmental conditions. This awareness is instilled from an early age so that children not only know the theory, but also understand that their every action has a real impact on the surrounding environment (Nudin, 2020). For example, students are trained to recognize environmental problems around them, such as water pollution, piles of plastic waste, and ecosystem damage due to logging. With this early introduction, children not only learn through textbooks, but also feel firsthand the consequences of environmentally unfriendly behavior. A simple example is a waste sorting program at school that not only educates children about the importance of cleanliness, but also habituates them to be responsible for the waste they produce every day.

In addition, green education fosters empathy for nature. Empathy is an important basis for building environmentally conscious attitudes because without a sense of respect and love for nature, humans tend to be exploitative. Through environmentally based learning, students learn to appreciate the lives of animals, plants, and ecosystems that support human life. Simple activities such as planting trees together, caring for the school garden, making a small garden in the yard, or carrying out greening projects in the surrounding environment can build awareness that maintaining the environment is every individual's moral responsibility. The empathy that grows from an early age is expected to continue into adulthood, so that environmentally conscious behavior is not just a temporary activity, but develops into a lifestyle that is inherent in daily life (Canosa et al., 2020).

Green education also encourages an independent and brave attitude in making decisions related to the environment. Environmentally oriented education does not only emphasize theory or rote memorization, but also trains students to think critically, creatively, and be able to take real action. For example, when students are invited to discuss solutions to reduce plastic waste at school, they learn to weigh problems, design ideas, and even dare to propose new innovations. This kind of attitude plays an important role in shaping a generation that is not just passive in following rules, but is also an active agent of change that brings positive influence to their environment. Children who are used to expressing ideas and being responsible for their actions from an early age will grow into more resilient adults in facing global environmental problems.

Schools have a very large role in the implementation of green education. The curriculum can be designed by integrating environmental issues into various subjects, such as Science to understand ecosystems, Social Studies to discuss human-environment interactions, and even art to express ecological messages through creative works. Through this cross-subject integration, students learn that the environment is not a separate aspect, but an integral part of human life (Liou, 2020). In addition, extracurricular activities such as nature lover groups, school waste bank units, Friday clean-up programs, or creative recycling activities are practical means that strengthen learning in the classroom while providing more meaningful direct experience.

Furthermore, green education emphasizes the importance of collaboration between schools, parents, and the community. Schools may be able to provide

theoretical understanding and practical experience, but without family support, positive habits will be difficult to sustain. Family support in implementing an environmentally friendly lifestyle at home is very influential on the consistency of student behavior. For example, simple habits such as saving electricity, reducing the use of single-use plastic, sorting household waste, or reusing old items can be practiced with parents at home. This habituation strengthens the values that have been instilled at school so that children learn that caring for the environment is a shared obligation, not just the responsibility of the school. Likewise, community involvement in providing examples and contextual learning spaces will enrich students experiences.

Thus, green education can be considered a long-term investment in shaping the character of the next generation. Environmentally conscious attitudes that grow through early learning do not only have an impact on students daily behavior, but also make a significant contribution to environmental sustainability in the future. The younger generation educated through a green education approach is expected not only to be able to preserve nature, but also to build collective awareness to create a healthy, clean, and harmonious living environment for all living things. Through a consistent and directed educational strategy, green education becomes an important foundation for preparing a future society that is adaptive, competitive, and able to face global challenges related to environmental crises with sustainable solutions.

4.2 Integration of Green Education with Green Economy in Preparing the Younger Generation

The integration of green education with a green economy is a strategic step to prepare the younger generation to face the challenges of sustainable development. A green economy is a new economic paradigm that emphasizes resource efficiency, reduced emissions, and improved social well-being without sacrificing environmental sustainability. For this paradigm to be internalized from an early age, education needs to play a role as the main entry point.

Primary school is the most effective place to introduce the principles of a green economy through contextual learning. For example, students can be invited to understand the concept of recycling by turning plastic waste into creative products that have commercial value. Simple activities like this not only teach environmental care, but also introduce entrepreneurial skills based on environmentally friendly practices. Thus, green education is not only oriented towards knowledge, but also towards the development of a green entrepreneurial spirit. This integration is also seen in the habituation of energy and resource saving lifestyles (Medojevic et al., 2021). Students are trained to understand the importance of reducing the use of electricity, water, and paper. Through daily activities at school, such as energy saving campaigns or green class competitions, students learn to connect small actions with a big impact on the environment and the economy. This kind of learning instills the awareness that resource efficiency is not only beneficial for the environment, but also has real economic value.

In addition, the development of environmentally friendly skills is an important aspect in preparing the younger generation to face a green economy. The future workforce will increasingly need people who have an understanding and skills in the fields of renewable energy, waste management, sustainable agriculture, and green technology. Therefore, primary education must begin to instill the basics of these skills through adaptive and creative learning (Kem, 2022). For example, simple science projects about solar energy or experiments to make organic fertilizer can be an initial foundation for fostering students interest in environmentally friendly fields. The integration of green education and the green economy also requires support from a visionary education policy (Tahir & Babar, 2024). The curriculum needs to be directed towards strengthening environmental literacy and sustainable economic literacy. Teachers act as facilitators who not only convey material, but also guide students to connect knowledge with real practice.

Collaboration with external parties, such as local governments, environmental organizations, and the business world, is also important so that students get direct experience regarding the implementation of a green economy in society. In the long term, this integration is expected to create a younger generation that has ecological awareness as well as economic skills that are relevant to global challenges. Students are not only able to preserve the environment, but also contribute to building a fairer, more prosperous, and sustainable economic system. Thus, green education and a green economy cannot be separated, because the two complement each other in shaping a future generation that is ready to face the dynamics of world change.

5. Conclusion

The global environmental crisis demands a paradigm shift in education and development. Environmental education or green education becomes an important foundation for shaping environmentally conscious attitudes from an early age, especially at the primary school level. Through an approach that emphasizes independence, responsibility, empathy, and courage, students not only understand the importance of preserving the environment, but also get used to doing so through real activities. The role of schools, families, and the community is very important in supporting the formation of sustainable behavior patterns in children.

On the other hand, the green economy is present as a new development paradigm that is oriented towards human well-being and environmental sustainability. The integration of green education with a green economy allows students to not only become individuals who care about the environment, but also to be ready to face global challenges through environmentally friendly skills and green entrepreneurship. Primary schools as the initial phase of character formation can be a strategic point for instilling these two concepts simultaneously.

Thus, the implementation of green education integrated with the principles of a green economy in primary schools can be an effective strategy to prepare a younger generation that is adaptive, progressive, and concerned about sustainability. This generation is expected to be able to become an agent of change that not only preserves the environment, but also plays an active role in building a fairer, more prosperous, and environmentally friendly economic system. This effort is an

important step in realizing sustainable development that sides with both humans and nature in a harmonious way.

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