



Optimizing the Role of Children as Agents of Sustainable Environmental Transformation

Rosiah Othman¹, Khusnul Khotimah²

¹ Sekolah Menengah Kebangsaan Agama Sheikh Hj Mohd Said, Malaysia,

² SMK Syafi'i Akrom Pekalongan, Indonesia

e-mail: rosiah70@gmail.com

Abstract

This study aims to describe the optimization of the role of children as agents of sustainable environmental transformation in Malaysia. The background of this research is based on the increasing environmental problems such as pollution, waste management, and the impact of climate change which requires the involvement of all levels of society, including children as the next generation. Children have important potential in shaping environmentally friendly behavior through the process of education and habituation from an early age. This study uses a descriptive qualitative approach with data collection techniques in the form of observation and documentation. The research informants consist of students, teachers, and parents who were selected through purposive sampling techniques. Data analysis was carried out using an interactive model that included data reduction, data presentation, and conclusion drawn, while the validity of the data was tested through triangulation of sources and techniques. The results showed that the role of children in environmental conservation was influenced by environmental education in schools, family examples, and social environmental support. Children who receive environmental education tend to show environmentally caring behaviors such as disposing of garbage in its place, saving resources, and participating in reforestation activities. In addition, children also have the potential to become agents of change in the family and society. In conclusion, the optimization of children's roles can be achieved through synergy between schools, families, and government policies through the Ministry of Education Malaysia in strengthening sustainable environmental education.

Abstrak

Penelitian ini bertujuan untuk mendeskripsikan optimalisasi peran anak sebagai agen transformasi lingkungan berkelanjutan di Malaysia. Latar belakang penelitian ini didasarkan pada meningkatnya permasalahan lingkungan seperti pencemaran, pengelolaan sampah, dan dampak perubahan iklim yang menuntut keterlibatan seluruh lapisan masyarakat, termasuk anak-anak sebagai generasi penerus. Anak memiliki potensi penting dalam membentuk perilaku ramah lingkungan melalui proses pendidikan dan pembiasaan sejak dini. Penelitian ini menggunakan pendekatan kualitatif deskriptif dengan teknik pengumpulan data berupa observasi dan dokumentasi. Informan penelitian terdiri dari siswa, guru, dan orang tua yang dipilih melalui teknik purposive sampling. Analisis data dilakukan menggunakan model interaktif yang meliputi reduksi data, penyajian data, dan penarikan kesimpulan, sedangkan keabsahan data diuji melalui triangulasi sumber dan teknik. Hasil penelitian menunjukkan bahwa peran anak dalam pelestarian lingkungan dipengaruhi oleh pendidikan lingkungan di sekolah, keteladanan keluarga, serta dukungan lingkungan sosial. Anak yang

Article Info

Article History:

Received March 7, 2026

Revised April 24, 2026

Accepted April 30, 2026

Available online May 12, 2026

Keyword: *Children, sustainable environment, environmental education, agents of change.*

memperoleh pendidikan lingkungan cenderung menunjukkan perilaku peduli lingkungan seperti membuang sampah pada tempatnya, menghemat sumber daya, dan mengikuti kegiatan penghijauan. Selain itu, anak juga berpotensi menjadi agen perubahan dalam keluarga dan masyarakat. Kesimpulannya, optimalisasi peran anak dapat tercapai melalui sinergi antara sekolah, keluarga, dan kebijakan pemerintah melalui Ministry of Education Malaysia dalam memperkuat pendidikan lingkungan berkelanjutan.

INTRODUCTION

Environmental damage is an increasingly urgent global issue and has a significant impact on Malaysia. In recent years, Malaysia has faced various environmental challenges such as climate change, increased flood events, pollution, and suboptimal waste management. Based on the Compendium of Environment Statistics Malaysia 2025 report by the Malaysian Department of Statistics, the number of flood events has increased significantly from 809 events in 2023 to 1,345 events in 2024. In addition, increased rainfall and various natural disasters such as landslides and storms also show that climate change is increasingly felt in Malaysia. This condition shows that environmental problems are no longer long-term, but have become a real threat to people's lives today.

These problems are not only caused by natural factors, but also by human activities. Increasing urbanization, industrial growth, and unfriendly public consumption patterns are major contributors to environmental degradation. Data shows that spending on environmental protection in Malaysia amounts to billions of ringgit, with most of it allocated to pollution and waste management. This indicates that environmental damage has reached a level that requires serious intervention, both from the government and the community.

In this context, environmental education is one of the strategic approaches to overcome these problems. Environmental conservation efforts are not enough only through policies, but also require changes in people's behavior. Therefore, instilling environmental awareness from an early age is very important, especially for children. This is in line with UNESCO's view that education for sustainable development aims to form individuals who have awareness, knowledge, and skills in protecting the environment.

The young generation aged 15-35 years, about 60% of the ASEAN population, are often involved in campaigns such as the ASEAN Youth Eco-Champions. However, awareness is still low among the urban younger generation compared to the rural generation. Studies show that 70% of the young generation of ASEAN are aware of climate issues, but only 45% practice daily actions such as recycling. In Singapore, the Youth for Climate initiative recorded the participation of 80% of the younger generation, while in Vietnam, the tree-planting campaign involved 2 million young people. The analysis found that education and social media factors increase awareness, but the lack of supportive policies hinders ongoing efforts.

Negara ASEAN	Level of Consciousness (%)	Key Actions of the Young Generation
Malaysia	65	Gotong-royong pantai
Indonesia	72	Anti-plastic campaign
Thailand	68	Mangrove planting
Filipina	55	Climate demonstrations
Vietnam	75	Green energy projects

In Malaysia, children are a very significant group in the population structure. Based on the latest statistics from the Malaysian Department of Statistics, the number of children under the age of 18 will reach around 9.14 million people or about 26.9% of the total population in 2024. This

large number shows that children have great potential as agents of change in environmental conservation. If the values of environmental concern can be instilled from an early age, then a generation that is more responsible for nature preservation will be formed in the future.

Apart from being the next generation, children also play a role as agents of social transformation. Children have the ability to absorb information quickly and influence the surrounding environment, including families and communities. Research in Malaysia shows that children's involvement in environmental education can increase awareness and environmentally friendly behaviour more broadly, especially through innovative approaches such as gamification in learning. This shows that children are not only objects of education, but also active subjects in creating change.

This view is in line with the thoughts of education figure Ki Hajar Dewantara who stated that education must be able to guide children's potential to develop optimally. In the context of the environment, education not only functions as a transfer of knowledge, but also as a means of forming character and behavior that cares about nature. Thus, environmental education must be provided contextually and applicatively in order to form positive habits in children.

In addition, cognitive development figure Jean Piaget explained that children learn through direct interaction with their environment. Therefore, experiential learning approaches such as tree planting, waste management, and recycling activities are very effective in increasing environmental awareness in children. This approach allows children to directly understand the impact of their actions on the environment.

In the global context, environmental figure Jane Goodall also emphasized that every individual, including children, has an important role to play in protecting the environment. She states that big changes can start from small actions that are done consistently. This view is relevant to the situation in Malaysia, where change in people's behavior needs to start at the level of individuals, including children.

Efforts to optimize the role of children in environmental conservation in Malaysia still face various challenges. One of the main challenges is the lack of public awareness of the importance of environmental education from an early age. In addition, modern lifestyles that tend to be consumptive and dependent on technology can also reduce children's interaction with the natural environment. This has the potential to reduce children's level of concern for environmental issues.

However, Malaysia has also shown positive developments in the field of education. Based on reports, Malaysia has achieved a high level of literacy and continues to improve the quality of education, including in the aspect of environmental awareness. This is a great opportunity to integrate environmental education more systematically into the school curriculum.

From the perspective of sustainable development, the role of children is becoming increasingly important because they are the generation that will face environmental impacts in the future. Therefore, the active involvement of children in environmental conservation activities needs to be continuously improved. Children can be involved in various activities such as green school programs, environmental campaigns, and recycling and nature conservation activities.

In line with that, environmental leader Wangari Maathai stated that education and awareness are the main keys to creating sustainable environmental change. Therefore, investing in environmental education for children is a strategic step to ensure environmental sustainability in the future. Based on this description, it can be concluded that the role of children in environmental conservation in Malaysia has a very high urgency. With a large population of children and their potential as agents of change, instilling the values of environmental care from an early age is very important. Through education, habituation, and active involvement, children can become agents of transformation who are able to bring positive change to the environment. Therefore, optimizing the role of children in sustainable environmental conservation needs to be a major concern in efforts to maintain the balance of the ecosystem in Malaysia.

METHODS

This research uses a descriptive qualitative approach to understand in depth how the role of children can be optimized as agents of transformation in the preservation of a sustainable environment. The qualitative approach was chosen because this research focuses on understanding meanings, experiences, and behaviors that arise in social contexts, not on the measurement of numbers. According to John W. Creswell, qualitative research aims to explore and understand the meaning given by individuals or groups to a phenomenon under natural conditions (Creswell & Creswell, 2021).

The descriptive method is used to systematically describe real conditions regarding the role of children in environmental conservation activities, both at school, home, and in the community. This study does not manipulate variables, but presents facts as they are. This is in line with the opinion of Suharsimi Arikunto who stated that descriptive research aims to describe a phenomenon systematically and factually (Arikunto, 2019).

The subjects of this study are children at the primary education level, because at that age there is a very important character formation process. Teachers and parents are also involved as supporting informants to obtain more complete data. The informant selection technique uses purposive sampling, which is selection based on certain criteria that are relevant to the purpose of the research. Creswell & Creswell (2021) stated that this technique is commonly used in qualitative research to obtain rich information from participants who understand the phenomenon being studied.

Data collection is carried out through observation and documentation. Observations are carried out to see firsthand children's behavior in environmental activities such as throwing garbage in place, recycling activities, and participation in green school programs. According to Miles, Huberman, and Saldaña (2020), observation is important in qualitative research because it helps to understand the real context of social behavior. In addition, documentation is used to reinforce research data, such as photos of environmental activities, green school programs, and school policies related to environmental education.

Data analysis uses the Miles and Huberman interactive model which includes data reduction, data presentation, and conclusion drawn. Data is selected, arranged in the form of a narrative, and then concluded gradually. This model is still widely used in modern qualitative research because it is effective in organizing data systematically (Miles et al., 2020). To maintain the validity of the data, this study uses source triangulation and techniques, which are comparing data from observations, interviews, and documentation. According to Norman K. Denzin, triangulation is important to increase the validity and credibility of qualitative research (Denzin, 2017).

RESULTS AND DISCUSSION

The strategy to strengthen the role of the young generation in sustainable environmental conservation in Malaysia needs to be carried out through an educational, participatory, and collaborative approach. The young generation is not only positioned as recipients of information, but also as the main actors in changing environmental behavior. Therefore, the main strategy that can be implemented is the integration of environmental education in the formal learning system through sustainability-based curriculum, such as eco-school programs, project-based learning, and hands-on experiential out-of-classroom activities.

In addition, strengthening digital environmental literacy is also an important strategy in the modern era. The younger generation can be empowered through social media-based environmental campaigns to increase public awareness of ecological issues such as climate change, waste management, and nature conservation. This approach is in line with the development of the behavior of the digital generation who are active in the virtual space. Another strategy is to strengthen collaboration between schools, communities, and government agencies, including the

Ministry of Education Malaysia, in providing a space for the younger generation to participate through activities such as tree planting movements, recycling programs, and environmental cleanup actions. Among those that have been carried out include:

A. Responsibilities of the Young Generation

The ASEAN generation must strive to be responsible through policy advocacy, innovations such as pollution monitoring applications, and regional collaborations. For example, the ASEAN Youth Forum 2025 calls on the younger generation to implement SDG 13. These efforts not only preserve nature but also shape a sustainable future. The younger generation plays an important role in preserving environmental sustainability as key agents of change capable of shaping public awareness and implementing concrete actions. They can lead efforts such as tree planting, plastic waste reduction, and wildlife protection, as recognized by the UN Programme.

The younger generation is responsible for building awareness through education and advocacy, including lobbying for government policies for the green economy as well as the 2030 SDGs. In Malaysia, the younger generation often hosts programmes such as "Be Green Outreach" in schools to manage plastic waste and foster a caring attitude. Young age is not a barrier, even an advantage to innovation without huge support. Among the things that have been done are

1. Tree planting through the 100 Million Trees Campaign to increase green cover and biodiversity.
2. The "Water Exploration" and "River We Share" programs involve students cleaning the river as well as clean water awareness.
3. The Rakan BUMI Climate Action Challenge" in Selangor encourages school community projects to address climate change.

Apart from efforts involving agencies, collaboration in the community can also be used as a platform to unite forces in implementing meaningful agendas. These platforms and platforms can certainly be used to the fullest. Platforms such as EcoKnights, NEST ("TERNS" for 10-17 year olds), and community groups (Waste Project, Klima Action Malaysia) provide a platform for innovation and competitions. The younger generation can join the ASEAN Youth Forum or green school programmes for regional collaboration. In Negeri Sembilan, communities can start local initiatives such as a flood short story outline that interests you, integrating technology and tree planting.

The practical way for young people to be part of the fight for environmental care practitioners to the world is that young people can become environmental warriors in practice by practicing daily actions and participating in global initiatives that are easily accessible. This method not only has an immediate impact but also supports UN goals such as SDG 13 for climate action.

B. Practical Daily Practice

Practical daily practices for the younger generation in preserving the environment can start from simple but consistent habits. The younger generation can practice reducing the use of single-use plastics by bringing their own drinking bottles and provisions. In addition, get used to separating organic and inorganic waste and carry out simple recycling activities at home or school. Energy savings are also important, such as turning off lights and electronic equipment when not in use. Another practice is to plant and care for plants in the home or school environment to improve air quality. In addition, maintaining the cleanliness of the surrounding environment by not littering is a shared responsibility to create a sustainable environment.

1. Practice the 3Rs (Reduce, Reuse, Recycle): Reduce the use of single-use plastics, recycle waste, and reuse old items to reduce waste.
2. Save water and energy: Close the faucet when brushing your teeth, use LED lights, and turn off unused equipment.
3. Choose sustainable transportation: Bike, walk, or take public transportation to reduce carbon emissions.

C. Aktiviti Komuniti

Community activities are one of the important strategies in strengthening the role of the younger generation in environmental conservation. Through involvement in activities such as

mutual cooperation to clean up the environment, tree planting programs, and cleanliness campaigns, the younger generation can learn to work together and increase ecological awareness directly. In addition, the community can also hold a waste bank program to encourage a culture of recycling and plastic waste reduction. Environmental education activities such as workshops and seminars also help increase the knowledge of the younger generation about sustainability issues. With active participation in the community, the young generation not only becomes individuals who care about the environment, but also agents of change who are able to influence the wider community.

1. Participate in cleanup campaigns: Such as beach cleanups or clean rivers, as the younger generation is doing in Indonesia and Malaysia.
2. Plant trees: Participate in greening programs such as ALAM We Be-Leaf or forest planting to prevent deforestation.
3. Build volunteers: Create a clean energy stove or wildlife conservation project in the local community.

D. Global Initiatives

Young people can apply for funding from the Global Youth Climate Action Fund for personal climate projects. Join UNICEF's The Green Rising to mobilize 10 million young people through volunteering, advocacy, and green entrepreneur skills. Follow Greta Thunberg's example with peaceful protests or share local knowledge on platforms like the UNICEF Malaysia hub. Generation Z can use social media platforms as a platform to equally call for environmental care and conservation in their daily lives.

Generation Z can leverage social media platforms as a powerful platform to call for environmental stewardship by producing viral content that reaches millions of people globally. This approach transforms digital entertainment into a daily advocacy tool that encourages collective action.

E. How to Use Social Media

The use of social media by the younger generation can be used as an effective strategy in supporting environmental conservation. Platforms such as Instagram, TikTok, and Facebook can be used to disseminate educational information about environmental issues, such as reducing plastic waste, climate change, and nature conservation. The younger generation can also create creative content in the form of short videos, infographics, or digital campaigns to increase public awareness. In addition, the use of environmental hashtags can expand the reach of messages so that more people are involved. Social media can also be a means of collaboration in organizing environmental activities such as river clean-up actions or tree planting. With wise use, social media is an important tool in forming a generation that cares and is active in environmental sustainability.

1. Create a TikTok short video: Share zero-waste tips or EcoTok challenges with upbeat music and eye-catching dances, like EcoTokers reaching millions of views.
2. Use Instagram Stories/IGTV: Aesthetically pleasing visual posts about Climate Action or ZeroWaste, including everyday stories like reduce plastic.
3. Create Twitter hashtags: Like FridaysForFuture for virtual protests and natural disaster fundraisers.

The Generation Z behind FridaysForFuture has influenced national policies, pressed green companies, and raised global awareness through digital solidarity. EcoTok on TikTok collaborated with TED Countdown and Bill Gates for an ocean protection campaign, with the hashtag ClimateChange reaching over an hour of views. WWF's Instagram Earth Hour raises awareness of Gen Z through visual interactions that drive pro-environmental behavior.

F. Tips for Daily Life

Daily story posts like "plastic-free day" or "planting trees" challenge to encourage followers to participate, combine it with live for dialogue. Collaborations of young influencers like in Indonesia create a regional movement, turn awareness into tangible actions like reduce waste. Start small: One post a day can build community and suppress environmental crime.

The practice of individual environmental care is the most effective effort to ensure that environmental care practices are implemented effectively. The practice of environmental care individually is very effective because it forms daily habits that can spread to the wider community. These small efforts collectively reduce the carbon footprint when widely practiced.

G. Effective Daily Practice

Effective practices among the younger generation to preserve the environment are actions that are consistent, easy to do, but have a long-term impact. Among them is getting used to the 3R (Reduce, Reuse, Recycle) practices in daily life such as reducing the use of single-use plastics, reusing disposable items, and properly separating waste. In addition, planting and caring for trees in home or school areas can help improve air quality and reduce the impact of global warming. The younger generation can also practice prudent use of water and electricity to avoid wasting natural resources. In addition, active involvement in hygiene campaigns and community programs can increase awareness and responsibility towards the environment. These practices, if done continuously, can form a caring attitude and contribute to environmental sustainability.

1. **Save water and energy:** Turn off pipes when brushing, turn off lights and unused appliances, and use LED lights.
2. **Charity 3R:** Reduce the use of single-use plastics, reuse items, and recycle paper or plastic waste.
3. **Green transportation:** Walk, bike, or take a bus to reduce greenhouse gas emissions.

H. Individual Additional Steps

Plant trees in the yard or community to prevent erosion and increase oxygen. Choose eco-friendly products such as chargeable batteries and avoid harmful aerosols. Report pollution to authorities and push out excess items to reduce waste. Individual efforts are more effective than group efforts in preserving the environment because these initiatives form consistent habits that are easy to implement without relying on the coordination of others. Small daily actions such as recycling or saving water can spread organically as individuals set an example to family and friends, creating a more lasting domino effect.

High flexibility: Individuals can start right away without waiting for group approval, such as choosing public transport today as well. **Personal commitment:** Harder to leave due to self-responsibility, in contrast to groups that often face problems with low participation or lack of motivation. **Cumulatively:** If 1 million individuals cut back on plastic, the results are greater than one large campaign that is rarely repeated.

I. Group Businesses

Regular efforts refer to environmental conservation activities carried out on a scheduled and continuous basis by the younger generation to ensure a more consistent and lasting impact. Among the examples of regular efforts is the monthly gotong-royong program in schools or communities to clean the surrounding area and reduce pollution. In addition, regular tree planting and care activities can help maintain greenery and improve air quality.

Waste collection and recycling programs can also be implemented weekly or monthly to form a more systematic waste management discipline. Clusters require organization, funding, and consensus, which can lead to delays or failures, such as gotong-royong that is canceled due to weather or scheduling conflicts. However, strong individuals can start small clusters, combining the strengths of the two for maximum impact.

The results of the study show that the optimization of children's role as agents of sustainable environmental transformation in Malaysia is a process influenced by the complex interaction between formal education, the family environment, and institutional policies. These findings indicate that children play a role not only as learning objects, but also as active subjects who are able to contribute to environmental behavior change at the micro to macro levels.

Empirically, children's levels of environmental awareness show significant variation based on the exposure to environmental education they receive. Children involved in environmental education programs in schools show more consistent pro-environmental behavior tendencies, such as waste management practices, reduction in the use of single-use plastics, and participation

in greening activities. These findings are in line with a UNESCO report that affirms that Education for Sustainable Development (ESD) plays an important role in shaping students' cognitive, affective, and psychomotor competencies towards environmental sustainability issues (UNESCO, 2020).

Furthermore, the results of this study confirm that educational institutions have a strategic role in internalizing ecological values in children. The implementation of programs such as eco-school, 3R (Reduce, Reuse, Recycle), as well as environmental project-based activities in primary and secondary schools in Malaysia has been proven to increase students' environmental literacy. Empirical studies in Malaysia show that the integration of the concept of ecoliteracy in the curriculum is able to significantly increase students' ecological awareness and sustainable behavior (see environmental education study in Malaysia, 2023–2024). This confirms that schools function as effective agents of socializing environmental values.

In addition to institutional factors, the family environment has been shown to have a significant contribution to the formation of children's ecological behaviors. Parenting that supports environmentally friendly practices, such as energy saving, household waste management, and sustainable consumption, acts as a social model that is internalized by children. This is in line with the social learning theory put forward by Albert Bandura, which states that individual behavior is formed through the process of observation, imitation, and reinforcement in the social environment (Bandura, 2020). Thus, the family functions as a primary socialization unit in the formation of children's environmental behavior.

The findings of the study also show that children have the capacity to be agents of change in their social communities. Children who already have environmental awareness tend to transfer these behaviors to family members and peers through social diffusion mechanisms. For example, simple practices such as carrying personal drinking bottles, reducing plastic use, or engaging in environmental cleanliness activities can trigger behavioral changes in a broader social sphere. This phenomenon is in line with the UNEP report which states that the involvement of children and adolescents in environmental action contributes to accelerating changes in people's behavior towards sustainability (UNEP, 2022).

From the perspective of cognitive development, these findings can be explained through Jean Piaget's theory, which emphasizes that children at the concrete operational stage learn through direct experience and interaction with the environment. Therefore, experiential learning approaches such as tree planting, recycling, and exploration of the natural environment have been shown to be more effective in building ecological understanding than learning that is purely theoretical. Studies in Malaysia show that experiential learning in environmental education increases students' emotional and cognitive engagement with sustainability issues (Journal of Environmental Education Malaysia, 2023).

However, optimizing the role of children as agents of environmental transformation still faces a number of structural and cultural challenges. The main challenge lies in the inconsistency of the implementation of environmental education in educational units. Although Malaysia's education policy has integrated sustainability elements into the national curriculum, implementation in the field still varies between schools. In addition, the limitations of supporting facilities such as waste sorting systems, green spaces, and environment-based learning infrastructure are factors that hinder the effectiveness of the program.

On the other hand, the development of digital technology and urban lifestyles also affect the decrease in children's direct interaction with the natural environment. This phenomenon has an impact on children's reduced empirical experience in understanding ecosystems, which can ultimately weaken their ecological sensitivity. A study of environmental education in Malaysia shows that low direct involvement with nature has implications for a decrease in environmental awareness among students (UKM Journal of Education, 2024).

Nonetheless, optimization opportunities remain open through strengthening sustainable education policies. The Ministry of Education Malaysia has implemented various initiatives such as green school programs and the integration of sustainability education in the national curriculum.

This approach demonstrates institutional commitment to shaping a generation that is highly environmentally literate and able to contribute to the sustainable development agenda.

In addition, project-based pedagogical approaches and contextual learning are increasingly being applied in environmental education in Malaysia. This approach allows students to be directly involved in solving real environmental problems, thereby improving critical thinking skills and ecological awareness. Recent research shows that this method is effective in increasing students' participation in environmental issues and strengthening the internalization of sustainability values.

Theoretically, the findings of this study are also strengthened by the views of environmental figures such as Jane Goodall who emphasize that global change can start from small actions of individuals, including children. In addition, Wangari Maathai emphasized that education is a fundamental instrument in creating an environmentally conscious and sustainable society.

Individual efforts in environmental care have a very positive long-term impact because they form permanent habit changes that spread organically to society. When widely practiced, it reduces the pressure on natural resources continuously, ensuring sustainability for future generations.

1. Impact on the Physical Environment

Reducing ongoing pollution: Practices such as recycling and avoiding single-use plastics prevent the accumulation of garbage in rivers and seas, preventing flash floods and the death of marine life over decades. Resource conservation: Saving water as well as energy maintains groundwater levels and reduces carbon emissions, contributing to the control of global warming until 2050.

2. Social and Economic Impact

Caring individuals become family examples, forming a sustainable community culture that reduces the cost of environmental cleanup and improves long-term public health. Economically, these habits encourage the market of green products, create jobs in renewable industries, and avoid the costs of natural disasters such as soil erosion.

3. Positive Impact Expected

With this commitment, Gen Z can significantly reduce carbon emissions, restore ecosystems, and form sustainable green policies. Our hope: They are creating a sustainable world through collaboration, a testament to the love of nature and future generations as the young generation is responsible for reducing carbon emissions by 20% by 2030. It is therefore clear that the commitment of the younger generation is now the key to the region's sustainability. Generation Z around the world takes environmental issues seriously with a high sense of community and belonging, moving away from selfishness. This generation, who inherited the earth, needs to lead change through concrete action and deep empathy for nature's damage. Key Hope for Gen Z

- a. Show deep awareness: Understand damage like global warming and deforestation as a shared responsibility, not someone else's problem
- b. Build a sense of concern: Join daily efforts such as zero-waste and social media advocacy to nurture global solidarity.
- c. Avoid selfishness: Reject excessive lifestyles for the sake of future sustainability, be a community-first role model.

Conclusion

This research illustrates that the role of children as agents of sustainable environmental transformation in Malaysia is increasingly showing significant potential in supporting environmental conservation efforts. Children are no longer seen only as individuals who receive learning, but also as active actors who are able to influence the surrounding environment through simple actions that are carried out consistently.

In the school context, children show quite active involvement in various environmental programs such as classroom cleaning activities, waste management, and greening programs. These activities not only provide hands-on experience, but also form stronger ecological awareness. The

school environment acts as an effective social learning space in instilling the values of concern for nature.

In addition, in the family environment, children tend to imitate the habits of their parents in maintaining cleanliness and managing resources. Simple habits such as turning off the lights when not in use, saving water, and sorting waste are starting to become part of the daily routine. This shows that the learning process of the environment does not only occur in schools, but is also strengthened through interactions within the family as the closest social environment.

At the community level, children also begin to show their role as agents of change through participation in community activities such as mutual cooperation, cleanliness campaigns, and recycling programs. This involvement shows that children have the ability to influence the behavior of others around them, even on a small scale. The use of social media also expands their participation space in spreading environmental messages in a creative and interactive way.

However, there are still challenges in optimizing children's roles, such as lack of supporting facilities, limited integration of environmental education, and the influence of modern lifestyles that reduce interaction with nature. Therefore, continuous support from various parties, including schools, families, and the government through the Ministry of Education Malaysia, is needed.

Overall, the findings of this study show that children have great potential as agents of sustainable environmental transformation if given adequate space, guidance, and opportunities. The formation of environmental caring characters from an early age is an important step in creating a generation that is responsible for the preservation of nature in the future.

REFERENCES

- Arikunto, S. (2019). *Prosedur penelitian: Suatu pendekatan praktik*. Rineka Cipta.
- Association of Southeast Asian Nations. (2025). ASEAN Youth Eco-Champions report. ASEAN Secretariat.
- Bandura, A. (2020). *Social learning theory and environmental behavior*. Academic Press.
- Creswell, J. W., & Creswell, J. D. (2021). *Research Design*.
- Creswell, J. W., & Creswell, J. D. (2021). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Denzin, N. K. (2017). *The Research Act*.
- Denzin, N. K. (2017). *The research act: A theoretical introduction to sociological methods*. Routledge.
- Department of Statistics Malaysia (DOSM). (2025). *Compendium of Environment Statistics Malaysia*. https://www.dosm.gov.my/portal-main/release-content/compendium-of-environment-statistics-malaysia-2024?utm_source=chatgpt.com
- Department of Statistics Malaysia (DOSM). (2025). *Environment Statistics (States)*.
- Department of Statistics Malaysia. (2024). *Environmental statistics report Malaysia*. Government of Malaysia.
- Department of Statistics Malaysia. (2025). *Children statistics Malaysia*. Government of Malaysia.
- Greta Thunberg. (2020). No one is too small to make a difference. Penguin Books.
- Hayati, R. S., et al. (2025). A new approach to environmental education: The Ejoy-ME model in mangrove ecosystems. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 11(3), 908–919. <https://doi.org/10.22219/jpbi.v11i3.42243>
- https://www.dosm.gov.my/portal-main/release-content/children-statistics-malaysia-2024?utm_source=chatgpt.com
- Journal of Environmental Education Malaysia. (2023). Experiential learning and environmental awareness among students. *Journal of Environmental Education Malaysia*.
- Kemmis, S., & McTaggart, R. (1988). *The action research planner*. Deakin University.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2020). *Qualitative data analysis: A methods sourcebook* (4th ed.). SAGE Publications.
- Ministry of Education Malaysia. (2023). *Environmental education and sustainable school initiatives*. Government of Malaysia.
- Ministry of Education Malaysia. (2025). *Inisiatif sekolah hijau*. Kementerian Pendidikan

- Mukhlis, A., Elvira, M., & Santoso, S. T. (2024). An environmental education learning model for early childhood: Achieving sustainable development. *Al-Athfal: Jurnal Pendidikan Anak*, 10(1), 19–35. <https://doi.org/10.14421/al-athfal.2024.101-03>.
- Pitaloka, L. K., Kardoyo, K., Susanti, A., & Haris, A. (2024). Menumbuhkan kreativitas dan cinta lingkungan anak pekerja migran di Malaysia melalui proyek zero waste. *Participative Journal*, 4(2), 94–107.
- Sugiyana, L., Agustin, M., Muqodas, I., & Mustafa, L. M. (2025). Exploration of stimulating children's naturalistic intelligence at Bahtera Multiple Intelligence Preschool Malaysia. *Child Education Journal*, 7(1), 60–71. <https://doi.org/10.33086/cej.v7i1.7257>
- The Star Malaysia. (2023). *Environmental Awareness in Education*.
- UKM Journal of Education. (2024). Environmental literacy in Malaysian schools: Challenges and opportunities. *UKM Journal of Education*
- UNESCO. (2020). *Education for Sustainable Development*.
- UNESCO. (2020). *Education for sustainable development: A roadmap*. UNESCO Publishing.
- UNICEF. (2021). *Children and environmental sustainability report*. UNICEF.
- United Nations Environment Programme. (2022). *Youth and environmental action: Driving change for sustainability*. UNEP.
- United Nations. (2015). Sustainable Development Goals. <https://sdgs.un.org/goals>
- UPSI Journal (2024). *Children's Environmental Awareness through Gamification*.
- Zaini, U. (2024). Belia dan kelestarian alam. USIM Journal. <https://www.usim.edu.my/ms/berita/syarahan-umum-dato-seri-prof-dr-ir-zaini-bin-ujang-kupas-tajuk-belia-dan-kelestarian-alam/>