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Fostering environmental responsibility among students: Collaborative strategies between village heads and school principals

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ABSTRACT: Waste is one of the most common forms of environmental pollution and has always been a major problem in environmental pollution. The problems caused by waste pollution have a negative effect on the environment, ranging from flooding, as well as infectious disease outbreaks caused by waste pollution. Paya Bakung Village, Deli Serdang Regency, is a village that is affected by waste pollution, the negative effects that occur are the number of villagers affected by infectious disease outbreaks of dengue fever and vomiting that occurred in the village in 2022. As a form of action against the negative impacts that occurred, in 2023, the head of Paya Bakung village took the initiative to create a collaborative program for the environmental literacy movement to form the character of environmental care from an early age in the formal education environment in Paya Bakung village. This research uses a qualitative approach using an analytic descriptive method. Data collection methods using interviews and observations. The results of this study indicate that as a form of initial implementation of the program, SMA Harapan Paya Bakung, which was appointed to run the collaborative environmental literacy movement program, showed a significant level of success, where the current state of the high school environment was clean from the garbage scattered around the school environment, thus making the teaching and learning atmosphere comfortable, besides that the effects of the environmental literacy movement have developed the environmental care character of students at SMA Harapan Paya Bakung.

KEYWORDS: Environmental literacy, Environmental Care Character Building, Trash.

Introduction

Issues related to the environment are in the spotlight and in the global news today (Braun et al, 2021; Pongratz et al, 2021). The environment is one of the most important elements in the lives of all human beings on earth (Rockström et al, 2023; Raj & Das, 2023; Wang et al, 2024). Because with a healthy environment, it will create a good continuity of life for humanity living on earth (Cloninger et al, 2023; Al-Hammouri et al, 2023; Becker, 2023). Therefore, every human being is required to be able to maintain their environmental conditions (Uralovich et al, 2023; Lloyd, 2023). Currently, one of the environmental problems is cleanliness, garbage is the main cause of environmental pollution today (Karmakar et al, 2023; Chew et al, 2023; Salman & Hasar, 2023), the act of littering by the community in streets, sewers, and rivers, resulting in environmental damage ranging from floods, water pollution, and even causing diseases such as diarrhea, dengue fever, all of which are caused by environmental pollution (Peng & Zang, 2020; An et al, 2021). Based on data from 2020-2023, there was a very high surge in waste with the following total details; in 2020 there were 28.73 million waste piles, in 2021 there were 29.01 million, in 2023 there were 29.45 million, in 2023 there were 35.83 million (katadata.co.id). Based on the results of the data obtained, it shows that the increase in the amount of waste

every year continues to jump very drastically from 2020-2023, this will certainly continue to increase throughout the year if good countermeasures have not been taken.

The current contributor to waste is household waste, where the amount of food waste produced is 39.8% of the total amount of waste produced by the Indonesian population every year, so this is the cause of global warming caused by methane gas produced from household waste (Agmasari, 2021). In addition, plastic and paper waste generated from e-commerce (online shopping) activities, which is currently a trend in the global community, is also the largest contributor to plastic waste in the world, where in this case plastic waste is waste that is difficult to decompose (Corraliza & Collado, 2019; Wierzbiyski et al., 2021; Suhendar et al, 2023). The National Plastic Action Partnership (NPAP) based on its research data states that Indonesia produces a total amount of plastic waste of 4.8 million tons per year (Situmorang, 2021). The increase in the amount caused by the large population in Indonesia, from the data that has been collected states that each individual produces 0.5 kg of waste every day, this amount of waste is the amount of waste that is only found in small cities in Indonesia, while in large cities the amount of waste produced by individuals every day can be up to 1 kg of waste (Izharsyah, 2020).

The level of awareness and understanding of Indonesian society towards waste is still very minimal, this matter can be proven by the amount of accumulated waste in big cities in Indonesia (Herdiansyah et al, 2021; Budiharjo et al, 2022; Mujiburohman et al, 2024). One of the big cities that produced the most waste in 2023 was Medan city, where in 2023 the amount of waste piles in Medan city was 645,661, 28 tons of waste piles, based on this amount Medan city was ranked 4th in the city that produced the most waste piles in 2023 (data.goodstats, 2023). Action is needed to overcome the problem of waste piles that continue to increase every year in big cities in Indonesia (Maulina et al, 2021; Avitadira & Indrawati, 2023). The action can be done from small and simple things first, for example forming a collaboration between the village and the surrounding community in order to create a clean and healthy environment.

Based on the explanation that has been conveyed by the researcher, the purpose of this study is to see the effectiveness of the collaboration carried out by the village head of Paya Bakung, Deli Serdang district, with the education office, Deli Serdang district which jointly conducts an environmental care character building program through the environmental literacy movement which is applied in schools in Paya Bakung village and one of them is applied at Harapan Paya Bakung Private High School which is one of the largest schools in the village environment, so that it will be easy to see the effectiveness of the collaboration program of the environmental literacy movement.

Collaboration in shaping the character of environmental care

The character of caring for the environment is a person or group who has a deep awareness and concern for ecosystems, biodiversity and the preservation of nature (Omoogun et al, 2016; Jax et al, 2018; Powell & McGuigan, 2023). The character of environmental care is not only to recognize the importance of the environment for human life, but also to act actively in protecting and maintaining sustainability (Hidayati et al, 2020; Pinheiro & Luis, 2020; Scheidel et al, 2020). Individuals who form an environmentally caring character not only see the negative impacts of human activities on nature, but also try to take concrete actions to reduce these impacts. Environmentally caring characters also have a proactive attitude to fight for policies and actions to support nature conservation, where individuals who have formed their environmental care character are always a voice for the environment to influence government and industry decisions in order to reduce pollution, care for natural resources, and maintain ecosystems (Fu et al, 2020; Wang et al, 2021; Elahi et al, 2022).

The formation of the character of environmental care is very necessary to develop in every individual from an early age (Mamurov et al, 2020; Nurtanto et al, 2020; Tobon & Luna, 2021), the most appropriate way to build the character of environmental care from an early age is through collaboration (cooperation) between schools and related agencies, in implementing collaborative programs to form the character of environmental care (Ardoin & Bowers, 2020; Ardoin et al, 2020; Van Hoof et al, 2021). Building the character of environmental care through collaboration is considered an effective and efficient way to get maximum results in its implementation and application. However, in this case, the parties involved in running the collaboration must always be consistent with the collaboration programs that were discussed from the beginning, so that with this consistent attitude, they can get maximum results in shaping the

character of environmental care in schools that collaborate.

The role of the village head and the education office in building environmental care character

Building the character of environmental care from an early age in a formal education environment is not easy (Adawiah, 2018; Debrah et al, 2023). There are several factors that must be met so that the environmental care character building program can be implemented properly in a formal school environment. One of the most effective ways is to collaborate, which in this case involves the school principal as a school policy maker, the village head as the leader of the local area and the education office as the education authority in Indonesia (Shutaleva et al, 2020; Nurlailah & Ardiansyah, 2022; Zikargae et al, 2022).

The village head, who acts as a local leader, has a vital role to coordinate and mobilize resources, in this case the formal education environment as the main resource in preserving the environment (Khattri et al, 2023; Mastika et al, 2023; Siangulube et al, 2023). The village head in this case plays an important role in conducting effective communication with villagers, community organizations, and related parties to raise funds as a form of participation and support for implementing the environmental care character building program in the formal school environment in the village environment.

Meanwhile, the education office in this case has the responsibility of implementing educational programs that incorporate environmental awareness values into the curriculum and extracurricular activities in the formal school environment (Idrissi, 2020; Ordaz et al, 2021; Rahayu & Dong, 2023). The education office in this case can design learning programs that incorporate ecological knowledge, environmentally friendly practices and ethical and moral values related to environmental conservation (Tauro et al, 2021; Suriyankietkaew et al, 2022; Bibri et al, 2024).

Therefore, the village head and the education office must work together to organize various forms of educational and socialization activities whose purpose is to increase environmental awareness and build environmental care characters in the formal school environment. The program can also include tree planting, environmental cleaning activities, waste processing seminars, and various activities that involve active participation from students. So that with the cooperation between the village head and the education office, it can be used as an example for other areas in environmental conservation efforts.

Method

This research uses a qualitative approach using an analytical descriptive method. Qualitative research is research that has the aim of understanding a phenomenon experienced by the subject directly in the field. This research also has a characteristic that is found in its research objectives: describing special needs by providing an understanding that has meaning and symptoms and composing power found in the field. Qualitative research focuses on general principles and unit manifestations of symptoms found in people's lives (Sugiyono, 2017). In this approach, social reality is holistic / comprehensive, complex, dynamic and full of meaning (Creswell, 2014).

The research location was carried out at Harapan Paya Bakung Private High School, located at Jalan Pendidikan, Paya Bakung, Hamparan Perak District, Deli Serdang Regency, North Sumatra. The techniques used to collect data in this study are observation, interviews and documentation. Furthermore, researchers analyzed the data systematically, searching and compiling the data found, from the results of observations, interviews, and documentation, by organizing the data into descriptive form by using several ways, namely: reducing data, and searching for data (Creswell, 2024). The target of this research is to see the effectiveness of the collaboration between the school, the village head, and the education office in building the environmental care character of students in the school environment of Harapan Paya Bakung Private High School.

Research Participants

The sample in this study consisted of three different respondents: School principal, Village Head, Deli Serdang District Education Office. The sample was purposively selected based on predetermined criteria. Each respondent shared their experiences and perceptions related to the issue under study. The school principal, village head and education office of Deli Serdang district have different roles in the context of the implementation of the program under study, so their understanding is needed to express their diverse views through the sample description (table 1).

Table 1. Description of research participants

No	Respon	Sample Description
1	Village Head	Is a local leader who has a vital role to coordinate and mobilize resources, in this case the formal education environment as the main resource in preserving the environment.
2	School Principal	As a policy maker at Harapan Payabakung Private Senior High School. The principal has a vital role in approving programs within SMA Harapan Payabakung, as well as overseeing the course of the implemented program whether it has been running properly or not. As well as providing an assessment of the implementation of the program that has been implemented to find out more about the sustainability of the program.
3	Deli Serdang District Education Office	Has a role and responsibility in implementing educational programs that incorporate environmental awareness values into the curriculum and extracurricular activities in a formal school environment.

Research Procedure

In this study, data were collected through in-depth interviews and observations of the activities carried out. In-depth interviews were used to obtain respondents' views and perceptions about the integration of the environmental care character building program at Harapan Paya Bakung Private Senior High School. Meanwhile, the observation activities carried out aim to see the effectiveness of the implementation of the environmental care character building program that has been implemented in the environment of SMA Swasta Harapan Paya Bakung.

Research Analysis

At the data analysis stage where this research involves two main approaches. First, in-depth interview data analyzed using a qualitative approach, second, documentation analysis using a holistic approach. This research aims to provide in-depth insights into the importance of building environmental care characters from an early age in a formal school environment, one of which is applied in the environment of Harapan Paya Bakung Private High School.

Result

Early Implementation of the Environmental Literacy Movement Program in Paya Bakung Village

Efforts to build the character of environmental awareness should indeed be applied early in the formal education environment. The application of environmental care character applied in the formal education environment will run smoothly if carried out with collaboration between related parties. One of the appropriate collaborations is to involve the head of the local environment such as the village head, this is necessary considering that the village head has a vital role in coordinating and mobilizing so that it can help the application of the character of environmental care that will be applied in the formal education environment.

In this case, the researcher conducted an interview with the village head of Paya Bakung, who is a local leader who collaborates with Harapan Paya Bakung Private High School in forming an environmental care character building program in the school environment.

Based on the interviews conducted, it is known that:

"*The environmental care character building program at Harapan Paya Bakung Private High School has been implemented since 2023. The implementation of the environmental care character program was because in 2023 the people of Paya Bakung village were affected by an outbreak of dengue fever and vomiting. From this incident, the head of Paya Bakung village took the initiative to make the environment around Paya Bakung village cleaner and healthier by implementing an environmental care character building program that would be implemented in formal schools in Paya Bakung village. The implementation of this program aims to educate the character of environmental care from an early age through the formal school environment so that in the future the Paya Bakung village environment will avoid disease outbreaks caused by unhealthy environmental conditions ". (Head of Paya Bakung Village).*

Environmental Condition of Harapan Paya Bakung High School After the Environmental Literacy Movement Program

The implementation of the environmental care character building program through collaboration between the village head and the formal education environment in Paya Bakung village has a positive impact on the environment of formal schools in the village. One of them is applied in the environment of Harapan Paya Bakung Private High School. The condition of the Harapan Paya Bakung High School environment is flanked by two Harapan Paya Bakung Elementary School environments, so in this case the researcher wants to see how effective the application of environmental care characters will be applied at Harapan Paya Bakung High School, which in fact the school environment is united with its elementary school environment (SD).



Figure 1 Environmental conditions of SMA Harapan Paya Bakung

Figure 1, shows the condition of the environment of SMA Swasta Harapan Paya Bakung, which looks very clean and not a single piece of garbage is seen scattered around the school yard. This condition provides an explanation that the effectiveness of the formation of environmental care character in this high school can be said to be successful.

Based on the results of interviews conducted by researchers with the principal of Harapan Paya Bakung Private High School, it is known that:

"The environmental care character building program implemented in this high school began in 2023, through collaboration between the village heads of Paya Bakung. The implementation of this program is actually implemented in a simple way, but it is sustainable and carried out every day. In the implementation of this environmental care character program, all teachers in the school environment help in its implementation, in this case the principal and teachers agree before the lesson starts, we will take advantage of about 20 minutes to clean the school environment starting from the yard, class, to the school toilet every day. If this simple activity is carried out continuously every day, I think it is very sufficient in shaping the character of environmental care in students in this Harapan Paya Bakung High School environment". (Principal of Harapan Paya Bakung Private High School).

Perception of the Deli Serdang Regency Education Office

Based on the collaboration program to shape the character of environmental care between the head of Paya Bakung village, towards the formal education environment in Paya Bakung village, in this case the Deli Serdang Regency Education Office gives appreciation to the head of Paya Bakung village and also to the principal of SMA Swasta Harapan Paya Bakung, who has succeeded in applying the character of environmental care to students in the school environment. This can be seen from the condition of the environment of SMA Swasta Harapan Paya Bakung which is currently very clean, beautiful and comfortable for the implementation of teaching and learning programs.

Based on the results of interviews conducted by researchers with one of the representatives of the Deli Serdang district education office, it is known that:

"The Deli Serdang Regency Education Office highly appreciates the initiative taken by the Paya Bakung village head, who has created a collaborative program for the formation of environmental care characters in the formal education environment in Paya Bakung village. This activity needs to be used as an example for other village heads, so that they can be more concerned about the state of the community and the environment around them. By implementing this environmental care character building program in addition to creating a clean and healthy environment for the teaching and learning process, but also to educate the community from an early age to have awareness of the state of the surrounding environment ". (Deli Serdang District Education Office).

Obstacles in Implementation

In the implementation of the environmental care character building program in formal education institutions in the village of Paya Bakung, which is implemented in the environment of Harapan Payabakung Private High School, where in this case the implementation of the environmental care character program does not find serious obstacles in the process of implementation and habituation. The obstacles found are only at the

beginning of the application, where implementing a program requires a habituation process that is carried out continuously and continuously, so that it can provide examples to students, so that henceforth the obstacles that occur will soon be resolved easily.

Discussion

Integration of the Environmental Literacy Movement at Harapan Paya Bakung High School

In this study, researchers revealed the integration of the environmental literacy movement in shaping the character of environmental care at Harapan Paya Bakung Private High School. Seeing the success of the collaboration between the head of Paya Bakung village and the principal of Harapan Paya Bakung High School in integrating the environmental literacy movement implemented at Harapan Paya Bakung High School is very important. Because a successful collaboration in the implementation of an environmental care character building program requires high consistency between the village head and the school principal so as to obtain the effectiveness of the implemented program.

The process of integrating the environmental literacy movement in the formation of environmental care character to students at Harapan Paya Bakung High School involves various parties in the school environment. The parties involved include the principal as a policy maker, the participation of all Harapan Paya Bakung High School teachers, the head of Paya Bakung village as a local leader who plays a role in providing assistance and mobilization in implementing the program, and all teachers at Harapan Paya Bakung Private High School in this case who have a very prominent role in educating the character of environmental care to Harapan Paya Bakung High School students. This role can be seen in figure 2.

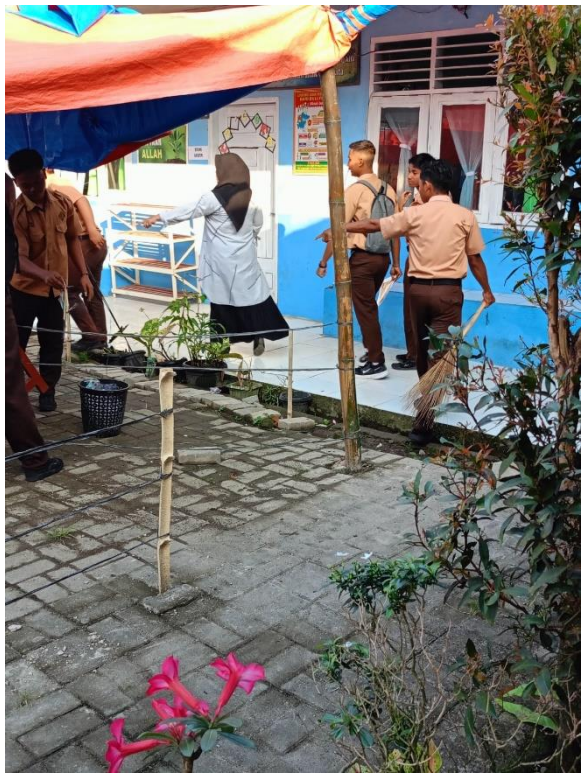


Figure 2 Keterlibatan Guru dalam dalam membentuk karakter peduli lingkungan peserta didik

Figure 2 explains the active role of SMA Swasta Harapan Paya Bakung teachers who participate in the formation of students' environmental care character. Figure 2 explains where Harapan Paya Bakung High School teachers freely direct and teach students how to maintain and care for the environment, by cleaning up scattered garbage, arranging plants and flowers in the school yard so that the school environment looks cleaner, healthier and also beautiful. So in this case the school environment can be comfortable to be used as a teaching and learning center every day.

Benefits of the Environmental Literacy Movement at Harapan Paya Bakung High School

The collaborative program of the environmental literacy movement in shaping the character of environmental care that has been implemented at Harapan Paya Bakung Private High School, in this case, has provided several benefits ranging from benefits to the cleanliness and comfort of the environment, to also benefits to students in the school environment. One of the benefits obtained by students can be seen in the following figure 3.



Figure 3 Benefits of the Environmental Literacy Movement for Learners

Figure 3 explains the benefits of the environmental literacy movement in shaping the character of Harapan Paya Bakung High School students. Figure 3 explains that the initiative of students in the school environment towards concern for the environment has grown well, in this figure 3 it is shown where some students with their own initiative carry out cleaning activities in front of their class so that the class environment looks clean and comfortable in carrying out teaching and learning activities.

Overcoming Obstacles to the Environmental Literacy Movement

In addition to looking at the effectiveness, integration, and benefits of the Environmental Literacy Movement in shaping the environmental awareness character of Harapan Paya Bakung Private High School students, this study also looks at what obstacles are experienced in implementing the program. The obstacles that researchers found in the research at Harapan Paya Bakung High School in implementing the environmental literacy movement were not a big obstacle. One of the obstacles found is only the consistency of students who are a little up and down in implementing the program.

This problem is a minor problem in the implementation of a new program implemented in a formal education environment. The way to overcome this problem is with a consistent attitude from the implementers of the environmental literacy movement program involved in this, namely teachers in the environment of Harapan Paya Bakung Private Senior High School who have a vital role in shaping the character of students, not to get bored in inviting and guiding students to care about the environment from an early age. So that with the persistence of the teachers in the school environment, the environmental care character of students at SMA Swasta Harapan Payabakung can grow and develop quickly.

Conclusion

This study describes the collaboration between the Head of Paya Bakung Village and the Principal of Harapan Paya Bakung Private High School in shaping the environmental care character of students through the environmental literacy movement. The collaboration of this environmental literacy movement began to be implemented in 2023, the formation of this environmental literacy movement was motivated by the high level of people infected with dengue fever and vomiting in the village environment of Paya Bakung, Deli Serdang Regency. Therefore, to handle and reduce the level of disease outbreaks, the Head of Paya Bakung Village took the initiative to carry out an environmental literacy movement in shaping the character of environmental care through collaboration with the formal education environment in the Paya Bakung Village Area. Harapan Paya Bakung Private High School, which is the closest school to the Paya Bakung village office, was then chosen to serve as a model school in the implementation of the environmental literacy movement in shaping students' environmental care character.

This environmental literacy movement program has been implemented for one year at Harapan Paya Bakung High School. Judging from the process of implementing this environmental literacy movement, it is said to be successful in its application, this is reinforced by the environmental conditions of SMA Harapan Paya Bakung which currently look clean, beautiful and avoid the scattered garbage in the school environment. As for the obstacles faced in the implementation of the environmental literacy movement program, it can be said to be very minimal. Based on interviews conducted by researchers with the principal of Harapan Paya Bakung High School, it was said that the obstacles that occurred were only at the beginning of the implementation of the environmental literacy movement program,

considering that the name of a new program implemented in the school environment must require a little time for adjustment and habituation by students. From a scientific point of view, the environmental literacy movement carried out through collaboration between the village of Paya Bakung and the principal of Harapan Paya Bakung High School, can be used as a positive example for policy makers and stakeholders in Indonesia to take the initiative and care for the environment and its sustainability.

Disclosure statement

In the research conducted, the author has no conflict of interest at all and just wants to see an effectiveness of the application of the program studied by the author.

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