
Increasing Adolescents' Knowledge of Zero Waste Lifestyle in Pabuaran Village, Mt. Sindur

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Abstract

The Community Service Program (PKM) aims to socialize the Zero Waste (ZW) environmental program and train the public to manage waste (used goods) into usable items (recycled) using an e-mail-based application. The methods used are lectures and demonstrations (direct training), and counseling. For education on the Zero Waste environmental program, namely using the Zero Waste application that was developed previously, while for training on the utilization of waste into more useful goods, it is carried out through demonstrations or hands-on training (practice). This community service place is in Pabuaran Village, Mount Sindur, West Java. In this activity the researchers used the Participatory Action Research (PAR) method, which is a research method that is carried out in a participatory way among community members in a community. So far, no training has been held on waste management and the Zero Waste environment, so that people's knowledge and awareness about environmental health is still low. The results obtained are the formation of public knowledge about the importance of the Zero Waste environment and the community being able to make or manage waste into more useful finished goods.

Keywords

Education; information technology; zero waste



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1. INTRODUCTION

Concern for the environment is fundamental in encouraging one's awareness of the environment around him. This awareness can take the form of taking action to protect the environment, loving cleanliness, and being wiser in managing and utilizing everything in the environment (Mundiri & Hamimah, 2022). Humans as thinking beings must be able to take advantage of everything in the environment, especially in managing waste properly. Law of the Republic of Indonesia Number 18 of 2020 concerning waste management states that population growth and consumption patterns influence the increase in volume, type, and characteristics of increasingly diverse waste.

Low public awareness and concern for waste and inadequate availability of TPA (Final Disposal) land, so that waste is not handled properly as an alternative handling effort to solve waste problems. A clean and healthy environment can be promoted by using and managing waste properly and correctly through zero waste educational activities in the Mt. Sindur area.

Zero waste is a waste management concept based on recycling activities. The concept of handling waste systematically will reduce the amount to preserve and restore environmental resources, so that waste from the results of community activities will be handled properly such as making flowers from used plastic, compost from organic waste, bags from sachet coffee wrappers and so on (Conilie, Farihah, & Nasution, 2021). This also teaches that to make it easier for the public to learn about the importance of a zero waste environment so that a zero waste educational application is developed with the aim of making it easier for the public to get education related to zero waste, besides that there is training - training on the use of plastic waste into works that can benefit society (Saleh, 2020). The success of the zero waste program cannot be separated from people's awareness of loving their own environment and therefore the need for the media to encourage public awareness and gain knowledge about waste management with economic value, so as to create a zero waste culture (Dewantara, Efriani, Sulistyarini, & Prasetyo, 2020). With this media, it can provide information services as an educational medium in providing an understanding of public awareness of overcoming waste problems.

Today's rapid technological changes and developments require support in the form of continuous learning and creation of new ideas and skills. These changes and developments have an impact on human life in all fields, one of which is education (Barnes, 2020). The development of science and technology has encouraged educational technology to develop. This development has inspired the invention of

several communication tools and technologies to enhance mass and rapid development of information. In addition, the rapid development of science and technology has an impact on the development of learning media. The application of learning media in the field of education gave birth to many new breakthroughs in increasing the efficiency and effectiveness of the learning process. One way is through smartphone-based information services (smartphones) (Qodr, Efendi, & Musadad, 2021). Information services help maximize the delivery of information to the public, one of which is a smartphone (smartphone). In today's life that requires high mobility, the use of smartphones is very important, not only as a communication tool, smartphones also have a function as a tool for conveying and receiving information (Tao & Lv, 2022). Based on data from the Central Statistics Agency (BPS) during the 2010-2018 period, the increase in the percentage of residents who already own/master cell phones are 3.05 percent per year, based on regional classification, in rural areas the average population growth with cell phones is 3, 36 percent while urban 2.53 percent (Saidu & KOLIRO, 2016).

Today's smartphones not only make it easier to find information but have many positive and negative sides, both in terms of communication, health, cultural, social, and economic aspects (Tkacová, Králik, Tvrdoň, Jenisová, & Martin, 2022). However, in its use in society, smartphones are often ineffective, more dominant in games and social media. Therefore, in order to maximize the use of smartphones and gain knowledge, it is necessary to have educational media that can be accessed through smartphones, namely Android-based waste education media, this media contains waste material and its handling and waste processing material so that it has economic value (Uska et al., 2021).

Previous research on community empowerment through household-scale waste management in increasing community knowledge and skills, the most appropriate method used for education and training is the lecture method and direct demonstrations (Soliati, 2019). The results obtained are the formation of a joint commitment to create a zero waste environment and participants gain a good understanding of plastic waste management and increase awareness to sort and dispose of waste in a place that suits its type (Bagui & Arellano, 2021).

Pabuaran Gn Sindur Village is a village located in Bogor Regency, where most of the homeworkers do not have adequate waste disposal sites. In addition, based on the results of initial observations, awareness of environmental cleanliness is still low, as can be seen from the garbage that has piled up on the side of the village's main road. All waste is mixed, starting from household waste, natural waste, and plastic waste.

This is due to the lack of knowledge of residents about proper waste sorting and processing. Based on the description above, this service program aims to educate the public about the importance of a Zero Waste environment and train the people of Pabuaran Village in managing or recycling waste into more useful items. In addition to training the Pabuaran village in managing and recycling waste, it is also hoped that it can create creative crafts for Pabuaran residents, especially teenagers.

2. METHOD

In this activity the researchers carried out the Participatory Action Research (PAR) method which is a research method carried out in a participatory manner among members of the community in a community (Vaughn & Jacquez, 2020). Community service activities were carried out on November 18-28 2022 in Pabuaran Hamlet. Socialization of zero waste using an application is carried out by demonstrating to the public regarding how to install an android application and how to use the zero waste android application during plastic flower making training in collaboration with the Environmental Service demonstrating directly how to use plastic waste to make plastic flowers as a product. The stages of implementation carried out in community service activities carried out in Pabuaran village starting from November 18-30 2022 This PPM activity involved lecturers from the Guidance and Counseling Faculty, Education Faculty, University PGRI Indraprasta. In order for this PPM activity to run well, the methods used in implementing this PPM activity are The Demonstration Method at this stage, is done by demonstrating the application that has been developed to students, after that students practice how to install zero waste educational applications, and try to operate zero waste applications by trying to see the material contained in the zero waste android application, after students succeed practicing how to install applications and study the material contained in zero waste applications, after that it is hoped that students who have participated in socialization activities on the use and operation of applications, can also socialize this educational media starting from their families, neighbors and the surrounding community. Practical Method at this stage, training is carried out directly to students and the surrounding community in Pabuaran village with the Environmental Service. BK students directly practice how to make household products from plastic waste, for example plastic flowers. Observation Method at this stage, direct observation of PPM activities is carried out to collect data on the results of the implementation of PPM activities during PPM activities. The results of the implementation of PPM activities are then collected and then the results are compiled into the final activity report (Margalef et al., 2021).

3. FINDINGS AND DISCUSSION

From the results of the implementation of community service in the Pabuaran hamlet, the results are shown in table 1. The following description of the results of implementing Zero Waste Education:

Date and time	Activity	Peserta	Results
Friday, October 18, 2022	Program socialization and coordination meetings	Lecturers and Students	<ul style="list-style-type: none"> ● Formation of an agreement on the implementation of the activity program ● Establishment of an activity implementation committee Terbentuknya panitia pelaksana kegiatan
Saturday 19 November 2022	Working meeting for the preparation of the activity program	Lecturers and Students	<ul style="list-style-type: none"> ● Established a schedule for the implementation of activities ● Distribution of tasks for the organizing committee ● Compilation of costs and a list of activity facilities and infrastructure
Sunday November 20, 2022	Preparation of Proposals, permits	Lecturers and Students	<ul style="list-style-type: none"> ● Activity Proposals ● Licensing Letter
Monday 21 November 2022	Take care of permits at the location of the activity. Contact partners	Lecturers and Students	<ul style="list-style-type: none"> ● Obtain permission to carry out activities from village officials ● Obtained an agreement with partners, namely the zero waste community and the Environment Agency
Tuesday-Thursday November 22-24 2022	Preparation for the implementation of activities	Lecturers and Students	<ul style="list-style-type: none"> ● Funds for implementing activities come from institutions and lecturers. ● Facilities and infrastructure such as: transportation equipment, cooking equipment, internet quota, and others

Friday, November 25, 2022	Depart to the location of the implementation of the program	Lecturers and Students	<ul style="list-style-type: none"> ● Arrive at the location of the program implementation
Saturday, October 26, 2022	Implementation of educational activities for the Zero Waste environmental program using the Zero Waste application. Discussion on the zero waste environment	Lecturers and Students	<ul style="list-style-type: none"> ● Welcoming event by village officials ● Residents get knowledge about the zero waste environment through the application ● Residents can make flowers from used plastic bottles and cups
Sunday, November 27, 2022	Implementation of training on the utilization of waste (recycling) into more useful goods	Lecturers and Students	<ul style="list-style-type: none"> ● Residents can make flowers from used plastic bottles and cups
Monday, November 27, 2022	Closing of PKM activities	Lecturers and Students	<ul style="list-style-type: none"> ● The village party hopes that in the future this activity can continue to be carried out
Tuesday - Wednesday, 28 - 29 November 2022	Preparation of reports	Lecturers and Students	<ul style="list-style-type: none"> ● Activity implementation report

Discussion

The modern lifestyle encourages people to continuously need a lot of things that must be fulfilled and unconsciously buy the same things and produce a lot of waste, one of which is disposable items. Activities that are increasingly diverse every day and more and more products are purchased and make the waste that is produced exceeds nature's ability to absorb.

The use of disposable items currently seems to be inseparable from social life. Used grocery plastic bags, plastic tablespoons, Styrofoam, toothbrushes are the use of plastic items in everyday life and cannot be decomposed in the soil. People are used to seeing advertisements that highlight a more consumptive life, so they must update the model according to the progress of the times (Cavallo, Sacchi, & Carfora, 2020)(Cavallo et al., 2020). Zero waste is a philosophy that is used as a lifestyle to

encourage the life cycle of resources, so that existing products can be reused more optimally. The concept of zero waste is more about controlling ourselves to no longer be consumptive and responsible for the environment. We are becoming more aware of what we buy and consume and how it impacts the environment.

This is because zero waste is a lifestyle, of course it requires a process to live it. Do it slowly, but do it for sure and consistently. What we can do at the beginning is increase literacy, update with information related to the condition of our environment.

Awareness of the environmental impact of the amount of waste makes us aware to apply a zero waste lifestyle in our daily lives and will be a motivation to implement this waste free lifestyle.

At the educational stage of the zero waste environmental program using the zero waste application, it was found that there were still many people who did not know what a zero waste program was. So, discussions were held with residents to introduce the zero waste environmental program. After that, the zero waste application was introduced. Residents are educated on how to use the application, from how to download, install, to use the Zero Waste application. Apart from that, residents are also taught how to sort and select the waste around them, so that residents can separate waste based on its type and use.



Figure 1. Introduction of the zero waste application to the community

For the training stage to make flowers from used items such as used plastic bottles, used plastic cups and others. The resource persons for this activity came from partners, namely the Environmental Service. In this activity the enthusiasm of the residents was very high, the activity participants were more than on the first day. Residents feel happy with this activity. Many residents bring used plastic bottles from their homes. Residents hope that in the future through this activity residents will be able to find alternative businesses to get additional income besides being a sand miner. Apart from that, the village apparatus hopes that this PKM activity can take place every year with a different program.



Figure 2. Utilization of plastic waste from the training provided Simple, zero waste as a movement not to produce waste by reducing needs, reusing, recycling and even making your own compost. This movement does not involve burning or landfilling as is generally done with waste. That way, it can preserve and restore all resources.

The benefits of waste processing are residual materials that can damage the environment and cause disease. That is a picture of trash for some people who don't want to think about making it more useful. Proper and correct waste processing requires persistence and patience in doing it, so that a variety of energy can be reused from this waste. The benefits of good waste management have been carried out by several cities in the world, including big cities in Indonesia. By collaborating with various parties such as the Environmental Service around Bogor, a region can find the right way to process waste. Of course, this is good news for the residents of the area so that they find new innovations in utilizing this waste. Here are 3 Benefits of Good Waste Management.

- a. Save Energy: Processing waste into new energy can save the energy needed by humans. The energy in question is of course very diverse, starting from fuel, compost, and much more.
- b. Reduce pollution: Excessive use of natural resources can lead to higher levels of pollution and cause global warming. Land management is the best way to reduce existing pollution, so that the earth remains safe and farthest from global warming.
- c. Economical and save Money: With creativity and persistence capital, waste will become valuable. So that in addition to producing goods that are attractive but also costs less.

4. CONCLUSION

With the Zero Waste application that has been socialized to residents, it can help residents to further increase awareness of the importance of a zero waste environment

in life. Residents now have knowledge about the zero waste environment and how to choose the right waste. Furthermore, in the future, it is hoped that residents can apply this knowledge in everyday life. Training on the use of used goods (plastic bottle waste) to become flowers can add alternative income to residents if used and managed professionally. This can be done if village officials also support or program this activity as village promotion, so that the livelihood of residents who were sand miners can be replaced by craft makers from used plastic. If this can be realized then sand mining will be reduced, so that environmental damage can also be minimized.

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