

Mobile-Based Garbage Bank Empowerment Education in Jambi City

Erris¹, Supriatna², Sondang³, VA Irmayanti⁴

^{1,2,3}Poltekkes Kemenkes Jambi, Indonesia

⁴Universitas Adiwangsa Jambi, Indonesia

nazraugm@gmail.com

Abstract

This study aims to determine the perceptions, participation, knowledge of housewives in managing the Garbage Bank and provide education on empowering mobile-based Garbage Banks to sort organic and inorganic waste where the management of the Garbage Bank emphasizes. The research method by collecting perceptual data is carried out before being given education to housewives preparing instruments in the form of observations, checklists, interviews and documentation before collecting data conducting discussions and common perceptions about the content of the instrument then expected to have mobile-based application outcomes and making bank empowerment educational materials Garbage that is entered into the google form, the technique of spreading it empowers the Head of the Neighborhood Association, Head of the Garbage Bank, Young Women with the results of the answers of Housewives and Young Women on the Google form, data analysis is carried out. This research is a quantitative study with the Dependent T Test and Paired-Samples T-Test with a 95% confidence level, $\alpha = 0.05$. If the calculated value is less than 0. The statistical test results obtained a value of 0.000, so it can be concluded that there is a significant difference between perception, participation and knowledge before and after mobile-based education on empowering housewives, The statistical test results obtained a value of 0.049, so it can be concluded that there is a significant difference between good knowledge and poor education in community empowerment through the management of a Waste Bank by means of 3R (reduce, reuse, recycle). As for the conclusions of the study, there are differences in perception, participation, differences in knowledge of housewives before and after education on empowering mobile-based Garbage Banks in Jambi City, the influence of knowledge of housewives on education on empowering Garbage Banks with the use of mobile-based applications in Jambi City.

Keywords

education; community empowerment; mobile based



I. Introduction

Data from the Ministry of Environment and Forestry (KLHK)¹ shows that the amount of national waste generation is 175,000 tons per day or the equivalent of 64 million tons per year, assuming that each person produces 0.7 kg of waste/day. The most dominant waste generated in Indonesia is organic waste (food scraps and plant residues) by 50%, plastic and paper, other waste such as metal, rubber, cloth, glass, and others by 25%. Based on the source of household waste (48%), traditional markets (24%), and commercial areas (9%) and the rest is from public facilities, schools, offices, roads, and so on. The pattern of waste management in Indonesia is based on being transported and stockpiled at the Final

Processing Site (TPA) (69%), buried (10%), composted and recycled (7%), burned (5%), thrown into the river (3%) , and the rest is not managed (7%)².

Reducing waste means that all layers of government, the business world and the general public carry out activities to limit waste generation, recycling and reuse of waste, as well as Jambi Mayor Regulation No. 54 of 2018 concerning regional strategic policies regarding the management of household waste and waste-like waste. households, thus reducing waste management still needs to be carried out optimally in order to cultivate a culture of sorting waste at the source. This is supported by the Regulation of the Minister of State for the Environment of the Republic of Indonesia number 13 of 2012 concerning Guidelines for Implementing Reduce, Reuse and Recycle through Waste Banks³.

The problem of waste management starts from the household, this is influenced by the large number of families, level of education, behavior, perspective and culture of waste management and the family's monthly income. The lack of public knowledge and concern for waste management causes waste not to be handled optimally, it can be seen from the people who are still reluctant to provide adequate trash bins at their homes, they still find garbage in waterways, rivers or burning piles of garbage, causing environmental pollution. The generation of temporary solid waste is difficult to stop, thus it needs to be managed, reduced or minimized properly

The Talang Gulo Final Processing Site has entered the saturation stage where piles of waste have reached the optimum point so that they cannot be used anymore, therefore there is a need for alternative waste management in Jambi City. One of the solutions recommended by the government is the Garbage Bank. The Garbage Bank is a service activity for saving waste that is formed according to the capacity and capacity of the Garbage Bank infrastructure where waste has been sorted from home to take to Garbage Banks saved. Garbage Bank too one of empowering the community. Society is taught to manage waste by process pengomgup to you compost has value economical. The Garbage Bank has been introduced by the Regional Government of Jambi City, it is still not optimal as waste management in Jambi City.

The segregation of waste at the household level is still not optimal and the temporary storage of waste is only a transmission before being transported to the TPA. Jambi City Government has initiated a Garbage Bank concept in order to help reduce waste in Jambi City. Until the end of 2020 there were 57 Waste Banks that had been formed, but only 27 units were actively operating. This research is by empowering the community with mobile with the aim of facilitating and speeding up data collection so that it is hoped that all housewives can provide their knowledge via mobile. This study aims to determine the perceptions, participation, knowledge of housewives in managing the Garbage Bank with mobile-based Garbage Bank empowerment education at the household level in Jambi City.

II. Research Method

Research Methodology with Pretest Posttest research design, with this design it is possible to measure the effect of treatment (intervention). This research is a quantitative research using a phenomenological approach to reduce individual experiences of phenomena to descriptions of universal essences or essences. This study uses phenomenology because researchers want to observe individual experiences related to perception, participation and knowledge of drivers and obstacles to the management of waste banks in the phenomenon of increasing the amount of waste that is currently happening in many regions in Indonesia. The location of this research is in Jambi City

where data collection will be carried out in the waste bank area. Jambi City was chosen as the research location because the phenomenon regarding the Waste Bank problem also occurred in Jambi City. Sampling in this study by selecting samples was done using a purposive technique. Researchers only focus on how to observe, record, photograph, study, and record the behavior or phenomenon under study and can record data without being directly involved with the activity or community being studied. This research starts from March to November 2022. The population is all housewives in the Garbage Bank area and record the behavior or phenomenon under study and can record data without being directly involved with the activity or community being studied. This research starts from March to November 2022. The population is all housewives in the Garbage Bank areaKcity of Jambi. The sample is 30 housewives in Region 13 of the Garbage Bank so that the total sample is 480 people. Data analysis method with Univariate analysis aims to explain and describe the characteristics of each research variable and only produces a percentage of each variable⁴. Bivariate analysis is an analysis conducted to prove whether or not there is a difference between the independent variable and the dependent variable. The test used is the T-Test with a Confident Interval (CI) of 95%, $\alpha = 0.05$. If the $p\text{-value} \leq 0.05$ proves there is a difference before and after counseling and if the $p\text{-value} > 0.05$, then there is no difference before and after.

III. Result and Discussion

The results of the research were conducted from 480 housewives consisting of 13 waste banks in Jambi City, based on the availability of pre and post-test⁵ values. The educational description of empowering housewives regarding the management of the Waste Bank is as follows:

Based on the Pre-test and Post-Test analysis, the following results were obtained: Based on the results of research activities, the dominant age factor at the age of 26 to 50 years was 85 (94.4%), while working was more dominant, namely 62 (68.9%) , then the level of education is more dominant at the end of junior high school or equivalent as much as 32 (35.6%).

3.1 Perceptions of Housewives Before and After Mobile-Based Garbage Bank Empowerment Education in Jambi City

Table 1. Perception Average Distribution Before and After in Community Empowerment Through Waste Bank Management in Jambi City

Variable	Means	SD	SE	P-value	N
Perception					
Before	72,91	14,14	0.645	0.000	480
After	85.58	15.50	0.708		

The average perception of dari Housewives from 13 Garbage Banks in Jambi City under guidance from the Jambi City Environment Service and mothers using Garbage Banks in Jambi City prior to empowerment education 72.91 with a standard deviation of 0.645. In the measurement of perception after the average housewife from 13 Garbage Banks in Jamb City and Mother Garbage Bank users 85.58 with a standard deviation of

15.50 It can be seen that the mean difference between the before and after measurements is 12.669 with a standard deviation of 21.24. The statistical test results obtained a value of 0.000, so it can be concluded that there is a significant difference between perceptions before and after education on empowering mobile-based housewives through the management of the Waste Bank.

Based on the answers from respondents to perceptions in community empowerment through the management of the Garbage Bank in Jambi City illustrates that community empowerment through the management of the Garbage Bank is still not in accordance with the instructions for managing the waste bank, so it is natural that the management of the Garbage Bank in Jambi City is not in accordance with the community empowerment program through the management of the Garbage Bank so that the waste collected comes from the source or the waste from the housewives is not separated, so in the management of the Waste Bank it takes up more and more time for officers if it has been transported to the waste bank, based on this research it is still important to approach and improve concepts on an ongoing basis in realizing the management of the Waste Bank based on community empowerment through management Garbage Bank with sustainable and routine empowerment.

The perception of housewives should be as often as possible socialization and education about the benefits of managing a waste bank which can improve the economy of housewives and at the same time a clean environment, with the hope of being able to anticipate future waste generation and accelerate waste generation at landfills. In this context, the perception of housewives should be more directed as knowing the function if managing a waste bank will give a change in the setting of housewives.

Government Regulation No. 81 of 2012 mandates the need for a fundamental paradigm shift in waste management, namely from the waste collection-and-transport paradigm to processing that focuses on waste reduction and waste handling⁵. Waste reduction activities mean that all levels of society, including the government, the business world and the wider community, carry out restrictions on waste generation, recycling and reuse of waste or better known as the Garbage Bank concept. The definition of waste bank management in general is an effort to reduce waste disposal, through reuse, reduce and recycle⁶ programs.

The concept can be described as follows: 1. Reuse, namely the direct reuse of waste for the same function or other functions. Examples that can be done in the household include reusing used honey bottles for knick-knacks, paint cans for trash, plastic bottles for flower pots and so on. 2. Reduce, namely reducing everything that causes waste.

This can be done, for example by using durable bags for shopping for daily needs, using products that can be refilled, reducing the use of disposable materials such as tissues with napkins or handkerchiefs, bringing your own food or drink containers and so on. 3. Recycle, namely reusing waste after experiencing a processing process. Things that can be done for this concept on a household scale include always choosing products or packaging that have signs that can or are easily recycled, making compost from the organic waste produced, turning canned waste into other, more useful items. The role of the Waste Bank became important with the issuance of Government Regulation (PP) Number 81 of 2012 concerning Management of Household Waste and Household-like Waste. The PP regulates the obligation of producers to carry out 3R activities by producing products using packaging that is easily decomposed by natural processes⁷; which creates as little waste as possible; use production raw materials that can be recycled and reused; and/or recall waste from products and product packaging for recycling and reuse.

3.2 Housewife Participation Before and After Mobile-Based Garbage Bank Empowerment Education in Jambi City

Table 2. Average Participation Distribution Before and After Empowerment Education Mobile-Based Garbage Bank in Jambi City

Variable	Means	SD	SE	P-value	N
Participation Before	70.97	30.88	1,410	0.000	480
After	81.50	15.80	0.721		

The average participation of dari Housewives under the guidance of the Jambi City Environment Service and mothers using Garbage Banks in Jambi City prior to mobile empowerment education 70.97 with a standard deviation of 30.88. After measuring participation, the average participation of housewives regarding the participation of Garbage Banks and Garbage Bank users is 80.50 with a standard deviation of 15.80. It can be seen that the mean difference between the measurements before and after is 10.53 with a standard deviation of 34.52. The statistical test results obtained a value of 0.000, so it can be concluded that there is a significant difference between participation before and after education for empowering housewives through the management of the Waste Bank by means of 3R (reduce, reuse, recycle)8.

In the context of empowerment, it actually contains an element of participation, namely how the community is involved in the development process, and the right to enjoy the results of development. 13 Empowerment emphasizes the recognition of the subject's ability or power (power) possessed by the object. Broadly speaking, this process sees the importance of converting individuals who were originally objects into subjects. In this case, the empowerment process changes the old relationship pattern from an asymmetrical relationship between subjects to a symmetrical relationship, namely subjects9.

Community participation in the management of the Waste Bank is a form of active and voluntary involvement and participation of the community in the entire waste management process. However, not everyone has a high social spirit, especially their love for their environment and not everyone can participate and want to be directly involved in protecting their environment, especially the waste problem. Through the participation shown by the community in waste management, it is hoped that the community will be able to experience the benefits and results for both themselves and their environment. Therefore, it is first necessary to build a strong foundation within each community to be aware of the environment and waste. The active role of the community is needed, especially in reducing the amount of waste,

Community participation in the management of the Waste Bank is a must. Reducing the volume of waste will not work without changing people's behavior in managing their household waste. Community participation is also an important factor in solving waste problems, because success in waste management lies in the contribution of community participation itself. The key to successful waste management lies in sorting out the four compositions of the waste by a participatory community in waste management. Without the participation of the community who are producers of waste, all planned waste management programs will be in vain.

3.3 Knowledge of Housewives Before and After Education on Mobile-Based Garbage Bank Empowerment in Jambi City

Table 3. Average Distribution Knowledge of Housewives Before and After Mobile-Based Garbage Bank Empowerment Education in Jambi City

Variable	Means	SD	SE	<i>p</i> -value	N
Knowledge Before	7,53	3,343	0.153	0.037	480
After	14,20	1,249	0.057		

Average Knowledge of housewives before and after education on empowering the mobile-based Garbage Bank from the management of the Garbage Bank assisted by the Jambi City Environment Service and mothers who use the Garbage Bank in Jambi City before education or outreach is 7.53 with a standard deviation of 3.343. In measuring knowledge after obtaining the average knowledge of housewives about Garbage Banks in Jambi City and mothers who use Garbage Banks 14.20 with a standard deviation of 1.249. It can be seen that the mean difference between the before and after measurements is 6.676 with a standard deviation of 3.571. The statistical test results obtained a value of 0.000, so it can be concluded that there is a significant difference between knowledge before and after education in community empowerment through the management of the Waste Bank.

The level of education attained by the community will affect their mindset and knowledge. In general, people with higher levels of education will have better knowledge than people with only low education. The mindset, knowledge and behavior of people with higher education tend to be dynamic, while people who only have low education are usually less developed. This education also includes non-formal education in the community such as socialization/counseling and training. People who receive socialization/counseling about waste management will be more aware and behave well in protecting the surrounding environment compared to people who do not receive socialization/counseling at all¹².

The activities carried out in socialization and increasing the knowledge of managers from the Environmental Service and mothers who use the Garbage Bank reduce piles of waste that decompose easily and are very useful in soil enrichment, besides that compost can also provide economic value by selling compost used as fertilizer. for plants. Recycler With 3R stands for Reduce, Reuse and Recycle. (3R) namely:

1. Reduce means reduce.
Reduce the amount of waste and save on the use of goods. For example, by bringing shopping bags to the market, you can reduce plastic waste and prevent the use of styrofoam.
2. Reuse means reuse.
Items that can still be used should not be thrown away immediately, but as much as possible reuse them as many times as possible. For example, writing on both sides of the paper and using refill bottles.
3. Recycle it means recycling.
Paper waste can be made into works, as well as plastic packaging waste for instant noodles, soap and oil.

Community empowerment is an effort to make people who previously had a backward and powerless position become more empowered and independent. Where in carrying out empowerment carry out various processes that must be passed, namely: 1) The awareness stage is an awareness effort to provide an understanding regarding the right to

become capable and increase their knowledge so that they get out of poverty. Efforts to raise awareness are carried out by increasing knowledge, by socializing, deliberating and fostering the importance of managing waste banks that can be sold. Subsequent awareness efforts are providing outreach, deliberations regarding waste sorting, the importance of healthy living behavior and increasing skills in making crafts for processing inorganic waste and processing organic waste. 2) Capacity building stage; the capacity building stage, namely the stage of enabling underprivileged people to have the skills to take advantage of the opportunities provided by conducting trainings, and activities that aim to improve life skills. Efforts to increase capacity are carried out by conducting training on the utilization of organic and inorganic waste processing which is made into handicrafts (such as plastic shampoo packaging, cooking oil packaging, beverage packaging) involving women, Karang Taruna and the community which aims to increase economic value namely souvenirs and organic fertilizer 3) Empowerment stage; the stage where the community is given opportunities according to their abilities through active and sustainable participation by giving a bigger role to the community according to their capacity and capability. Empowerment efforts carried out in the empowerment stage are facilitators by providing resource assistance to actively participate in making handicrafts processed by inorganic waste and organic waste.

3.2 Mobile-Based Garbage Bank Empowerment Education on the Knowledge of Housewives in Jambi City

Table 4. Average Distribution Mobile-Based Garbage Bank Empowerment Education on Knowledge of Housewives in Jambi City

Variable	Means	SD	SE	P-value	N
Application	45,61	10.53	0.575	0.049	480
Good Knowledge	35,92	11.35	0.943		
Not good					

Average influencemobile-based Garbage Bank empowerment education on the Knowledge of Housewives in Jambi City. Good knowledge 45.61 with a standard deviation of 10.53. In measuring poor knowledge with mobile applications, the average is 35.95 with a standard deviation of 11.35. It can be seen that the mean difference between the measurement of good and poor knowledge is 3.88. The results of the statistical test obtained a value of 0.049, so it can be concluded that there is a significant difference between good knowledge and poor education in community empowerment through the management of waste banks using the 3R (reduce, reuse, recycle) method.

The waste problem is an issue faced by all countries. Population growth and the development of industrialization led to an increase in the amount of waste generated. The main problem in Jambi City in waste management is the limited land for landfills (TPA). Efforts to overcome these problems are to reduce the amount of waste disposed of at the TPA in order to extend the life of the TPA, by managing the Waste Bank which is carried out by the community¹³.

IV. Conclusion

Based on a comparison of the use of mobile applications, the effect on knowledge is seen to positively provide additional knowledge to housewives, but the difference between good knowledge and poor knowledge is small, this is because housewives are still not optimal to use mobile or to change it. it tends to be more practical, namely door-to-door

counseling, because it is still limited and it is customary to receive information through applications and is still dependent on other people to disclose information related to the management of the Waste Bank and it is better to carry out the practice directly so that it is more touching and easier for housewives to do Ladder. As for the conclusion of the research is There are differences in the perceptions of housewives before and after the mobile-based Garbage Bank empowerment education in Jambi City; There are differences in the participation of housewives before and after the mobile-based Garbage Bank empowerment education in Jambi City; There is a difference in the knowledge of housewives before and after the mobile-based Garbage Bank empowerment education in Jambi City; There is an influence of the knowledge of housewives on education on the empowerment of the Waste Bank by using mobile-based applications in Jambi City,

Suggestions for this activity are to support: The Health Office's program to improve the cleanliness of residential areas on an ongoing basis and can be carried out cross-sectorally; Realizing continuous improvement of health promotion programs; Support and improve waste handling programs at the source in household and individual settings that are sustainable and collaborate sectorally; Waste handling improvement program from the Environmental Service by Partners and Non-Governmental Organizations and provide continuous guidance; Health Office program in realizing Kampung Bantar (Clean, Safe and Smart) whose supervision is carried out regularly so that the yard is guaranteed to be clean.

References

- Bank Sampah Bina Mandiri. (2011) Program bank sampah. (online) tersedia di: (<http://www.banksampahbinamandiri.com>) Diakses pada tanggal 19 Januari 2015.
- Benno Rahardyan dan Dini Aprilia Murdeani, (2006), Sikap Masyarakat Terhadap Pemilahan Sampah Berbasis Pengumpulan Terjadwal, Jurnal Infrastruktur Dan Lingkungan Binaan, Vol. 2 No. 2, Desember 2006, hlm. 18-26
- Dainur, (1993), Materi- Materi Pokok Ilmu Kesehatan Masyarakat. Jakarta: Widya Medika
- Juli Soemirat Slamet, 2002, Prinsip dasar Kesehatan Lingkungan, Yogyakarta: Gajah Mada University
- Lilis Sulistyorini, (2005), pengelolaan Sampah dengan Cara Menjadikannya Kompos, Jurnal Kesehatan Lingkungan, Volume II, No 1, Juli 2005,
- Mukono, HJ, (2000), Prinsip Dasar Kesehatan Lingkungan. Surabaya : Airlangga University Press
- PPLH-Bali. (2006). Peran Perempuan dalam Pengelolaan Sampah. Diakses 29 September 2015 dari <http://www.pplhbalior.id/indo/artikel/nopember/sanur.htm>
- Rizky Rizaldi, (2008), Pengelolaan Sampah Secara Terpadu di Perumahan Dayu Permai Yogyakarta, Tugas Akhir: Universitas Islam Indonesia
- Saifuddin Azwar, (2008), Sikap Manusia Teori dan Pengukurannya, Yogyakarta: Pustaka Pelajar Offset
- Soekidjo Notoatmodjo, (2003), Pendidikan Dan Perilaku Kesehatan, Jakarta: PT. Rineka Cipta
- Stanley Lameshow, (1997), Besar Sampel dalam Penelitian Kesehatan, Yogyakarta: Gadjah mada University Press
- Sugiono, (2006), Statistika Untuk Penelitian. Bandung : cv. Alfabeta
- Suharsimi Arikunto, (2002), Prosedur Penelitian Suatu Pendekatan Praktek Edisi Revisi V, Jakarta: Rineka Cipta
- Widyatmoko dan Sintorini, (2002), Menghindari, Mengolah dan Menyingkirkan Sampah, Jakarta: Abdi Tandur