International Journal of Research and Applied Technology

2(1)(2022) 114-123
Journal homepage: https://ojs.unikom.ac.id/index.php/injuratech

Literature of Waste Management (Sorting of Organic and Inorganic Waste) Through Digital Media in Community

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Abstract. This study aims to educate the public regarding good and correct waste management, both in terms of definitions, interests and procedures for good and correct waste management using digital literacy methods in the community. Education was carried out to 21 community members in Cimahi City, Indonesia, using digital literacy methods in the form of providing information and learning through digital media to explain related subjects taken. The information provided to the public is made as attractive as possible using an attractive design. The education process is carried out online (providing information and discussions through WhatsApp groups) and offline (through direct socialization to the public). Community understanding was analyzed through pretest and posttest questions as many as 20 questions. The results showed that there was an increase in the results of the pretest submitted to the posttest at the end of the activity. Education is done successfully and the public can understand. This shows that educational activities are successful because the information conveyed is interesting and raises public interest in understanding information and applying it in everyday life. This research provides information that infographics and videos can be used as educational media. In addition, an attractive design can generate public interest in understanding the information conveyed. This shows that educational activities are successful because the information conveyed is interesting and raises public interest in understanding information and applying it in everyday life. This research provides information that infographics and videos can be used as educational media. In addition, an attractive design can generate public interest in understanding the information conveyed. This shows that educational activities are successful because the information conveyed is interesting and raises public interest in understanding information and applying it in everyday life. This research provides information that infographics and videos can be used as educational media. In addition, an attractive design can generate public interest in understanding the information conveyed.

1. Introduction

Garbage is one of the environmental problems that cannot be avoided. Currently, waste is a serious problem faced by the community, especially the people of Cimahi City. Cimahi City produces approximately 273 tons of waste per day. Waste generated from household activities

International Journal of Research and Applied Technology

2(1)(2022) 114-123

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is allowed to accumulate without proper management. Garbage is leftover or discarded items that are not used and used by the owner.

In general, waste is divided into two types, namely organic and inorganic waste. Organic waste is waste that comes from the rest of living things (nature) such as animals, plants that experience decay or weathering. Meanwhile, inorganic waste is waste that comes from the rest of human activities that are difficult to be decomposed by bacteria, so it takes a long time (up to hundreds of years) to be decomposed [1].

Waste sorting is certainly very useful in reducing the accumulation of waste in the community. Seeing that public awareness and concern in managing waste is still very lacking, efforts are needed to increase public awareness in good and correct waste management. Education is one of the important efforts that can be done in minimizing the surge in the volume of waste generated. Digital education can now be a solution in educational efforts, because digital media can be accessed and used effectively and efficiently in distributing information to the public.

There are many papers that discuss waste management [1]. Discussing the Socialization of Organic and Non-Organic Waste and Waste Creation Training but there are shortcomings such as the absence of socialization about the dangers of accumulation of plastic waste. Then paper by [2]. Discussed about Community Education for Waste Management in Kumbang Village, Masbagik District, East Lombok. But there are drawbacks because the socialization carried out does not lead to simultaneous waste management solutions. Then paper by [4] on Socialization and Education on Organic Waste Management for Community Empowerment in Sakti Village, Nusa Penida Klungkung Regency, Bali. But there are shortcomings in the paper, the paper only discusses the management of organic waste and does not discuss the management of inorganic waste. Then paper by [4], but there are shortcomings in terms of implementation, socialization at the time of the implementation of education to the community is done by pasting posters on the walls of the residents' houses, of course this will increase the waste in the community. Then research by [3]. There are shortcomings in the paper, including socialization activities that do not pay attention to the impact of the pandemic by crowding. Activities should be carried out by utilizing digital media.

Therefore, this study aims to educate the public regarding proper and correct waste management methods for residents in Cimahi City, especially Kp. Sukanampa by applying the digital literacy method. Providing information and learning through digital media is expected to be able to overcome the problems that occur today. The education process is carried out online, namely in the form of providing information and discussions through WhatsApp groups and offline through direct socialization to the community. The novelty of this research are (i) ; research on waste management is important in society (ii); education is carried out online through digital media and (iii) digital assistance to the community

2. Method

The method used in this research is the digital literacy method in the form of providing information and learning through digital media. This research was conducted on 21 residents of Kp. Sukanampa Kel Cigugur in the middle of Cimahi City. The education process is carried out online (providing information and discussions through WhatsApp groups) and offline (through direct socialization to the public). There are pretest and posttest questions through

International Journal of Research and Applied Technology

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google form as many as 20 questions to the public to analyze public understanding regarding waste management. The pretest and posttest questions are shown in table 1.

Table1. Pretest and Posttest Questions

NO	PRETEST QUESTIONS	PRETEST QUESTIONS
1.	Is it true that organic waste is waste that cannot be recycled?	Is it true that organic waste is waste that cannot be recycled?
2.	Is food waste, fruit waste an organic waste?	Is food waste, fruit waste an organic waste?
3.	What is another name for organic waste?	What is another name for organic waste?
4.	Is it true that inorganic waste is waste that is difficult to decompose?	Is it true that inorganic waste is waste that is difficult to decompose?
5.	Is it true that organic waste can cause soil pollution?	Is it true that organic waste can cause soil pollution?
6.	Does the decomposition of inorganic waste take up to 50 years?	Does the decomposition of inorganic waste take up to 50 years?
7.	Is it true that inorganic waste is recyclable waste?	Is it true that inorganic waste is recyclable waste?
8.	Is it true that plastic waste, paper, cans are organic waste?	Is it true that plastic waste, paper, cans are organic waste?
9.	Waste management can be done by applying the 3R principle (Reduce, Reuse, Recycle).	Waste management can be done by applying the 3R principle (Reduce, Reuse, Recycle).
10.	Is it true that the meaning of reduce is to	Is it true that the meaning of reduce is to reduce the use

	reduce the use of objects that can become waste?	of objects that can become waste?
11.	Is it true that the meaning of reuse is to recycle waste into objects that can be used?	Is it true that the meaning of reuse is to recycle waste into objects that can be used?
12.	Is it true that the meaning of recycle is to reuse waste that can still be used?	Is it true that the meaning of recycle is to reuse waste that can still be used?
13.	How to manage organic waste, namely by?	How to manage organic waste, namely by?
14.	Can the accumulation of garbage cause damage to nature?	Can the accumulation of garbage cause damage to nature?
15.	Will the leaf litter left to rot on the ground cause the soil to become barren?	Will the leaf litter left to rot on the ground cause the soil to become barren?
16.	Will plastic waste if left on the ground decompose by itself?	Will plastic waste if left on the ground decompose by itself?
17.	Will managing waste properly will have a good impact on health?	Will managing waste properly will have a good impact on health?
18.	Will the accumulation of garbage cause air pollution?	Will the accumulation of garbage cause air pollution?
19.	Have you sorted your waste into organic and inorganic?	Have you sorted your waste into organic and inorganic?
20.	Is waste management important?	Is waste management important?

International Journal of Research and Applied Technology

2(1)(2022) 114-123

Journal homepage: https://ojs.unikom.ac.id/index.php/injuratech

3. Results and Discussion

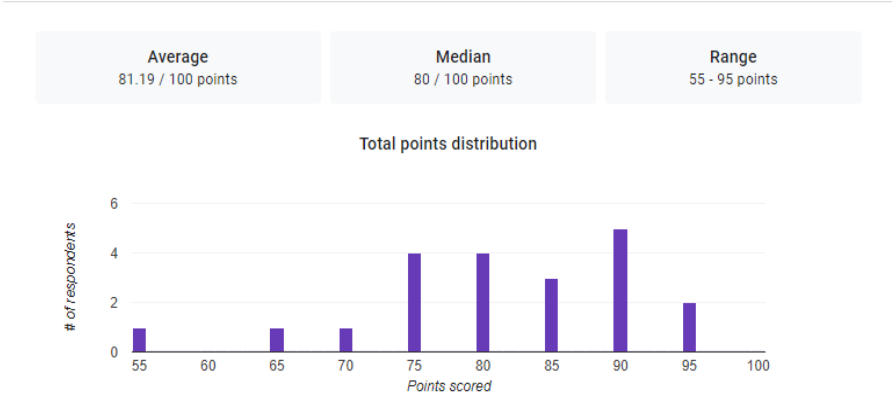

Figure 1. Community Pretest Average Score

Figure 1 shows the average pretest scores of the 21 residents of Sukanampa Village who were tested. From these results, it can be said that the community's initial understanding of waste and its management is still very diverse. There are people who have low knowledge with a score of 55 and high knowledge with a value of 95.

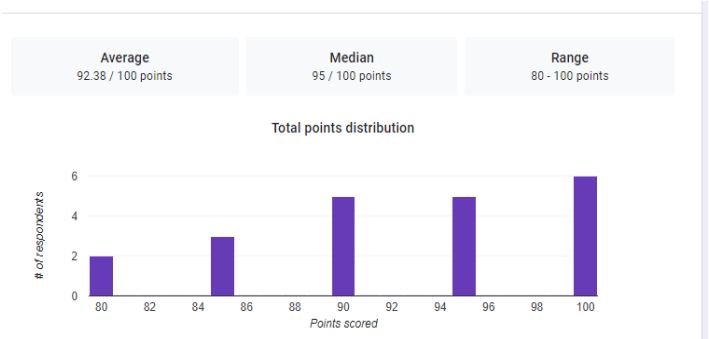

Figure 2. Community Posttest Average Score

Figure 2 shows the average posttest scores of 21 kp residents. Sukanampa. From these results, it can be seen that there is an increase in the pretest value with the lowest value being 80 and the highest value being 100. This proves that the socialization activities carried out have succeeded in educating and increasing the knowledge of the residents, resulting in good results on the posttest score.

Table 2. Results of Pretest and Posttest

International Journal of Research and Applied Technology

2(1)(2022) 114-123

Journal homepage: https://ojs.unikom.ac.id/index.php/injuratech

Question No.	Pretest score	Posttest score
1.	11/21	17/21
2.	19/21	21/21
3.	19/21	21/21
4.	16/21	21/21
5.	12/21	17/21
6.	19/21	21/21
7.	19/21	20/21
8.	18/21	20/21
9.	21/21	21/21
10.	19/21	21/21
11.	6/21	15/21
12.	6/21	14/21
13.	17/21	21/21
14.	21/21	21/21
15.	17/21	14/21
16.	18/21	19/21
17.	20/21	21/21
18.	21/21	21/21
19.	10/21	18/21
20.	21/21	21/21

Source: Data processed

The results of the study as seen in table 2 have increased. As for the discussion:

(i) For question no 1 regarding "Is it true that organic waste is waste that cannot be recycled?" The results show an increase. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 11 out of 21 respondents who answered correctly during the pretest, and increased to 17 of 21 respondents who answered correctly on the posttest.

(ii) For question no 2 regarding "Are food waste, fruit waste an organic waste?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 19 out of 21 respondents answered correctly at the pretest, and increased to 21 out of 21 respondents answered correctly in the posttest.

(iii) For question no 3 regarding "Another name for organic waste is ?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 19 out of 21 respondents answered correctly at the pretest, and increased to 21 out of 21 respondents answered correctly in the posttest.

(iv) For question no 4 regarding "Is it true that inorganic waste is waste that is difficult to decompose?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 16 out of 21 respondents

International Journal of Research and Applied Technology

2(1)(2022) 114-123

Journal homepage: https://ojs.unikom.ac.id/index.php/injuratech

answered correctly at the pretest, and increased to 21 out of 21 respondents answered correctly in the posttest.

(v) For question no 5 regarding "Is it true that organic waste can cause soil pollution?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 12 out of 21 respondents answered correctly at the pretest, and increased to 17 out of 21 respondents answered correctly in the posttest.

(vi) For question no. 6 regarding "Does the decomposition of inorganic waste take up to 50 years?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 19 out of 21 respondents answered correctly at the pretest, and increased to 20 out of 21 respondents answered correctly in the posttest.

(vii) For question no 7 regarding "Is it true that inorganic waste is waste that can be recycled?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 19 out of 21 respondents answered correctly at the pretest, and increased to 20 out of 21 respondents answered correctly in the posttest.

(viii) For question number 8 regarding "Is it true that plastic, paper, cans are organic waste?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 18 out of 21 respondents answered correctly at the pretest, and increased to 20 out of 21 respondents answered correctly in the posttest.

(ix) For question no 9 regarding "Waste management can be done by applying the 3R principle (Reduce, Reuse, Recycle) is it true?" The results show that people's understanding gets the same results. There were 21 out of 21 respondents answered correctly at the pretest, and increased to 21 out of 21 respondents answered correctly in the posttest.

(x) For question no 10 regarding "Is it true that the meaning of reduce is to reduce the use of objects that can become waste?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 19 out of 21 respondents answered correctly at the pretest, and increased to 21 out of 21 respondents answered correctly in the posttest.

(xi) For question no 11 regarding "Is it true that the meaning of reuse is to recycle waste into objects that can be used?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 6 out of 21 respondents answered correctly at the pretest, and increased to 15 out of 21 respondents answered correctly in the posttest.

(xii) For question no 12 regarding "Is it true that the meaning of recycle is to reuse waste that can still be used?" The results show that public understanding has increased. These

International Journal of Research and Applied Technology

2(1)(2022) 114-123

Journal homepage: https://ojs.unikom.ac.id/index.php/injuratech

results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 6 out of 21 respondents answered correctly at the pretest, and increased to 14 out of 21 respondents answered correctly in the posttest.

(xiii) For question no 13 regarding "How to manage organic waste, namely by ?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 17 of 21 respondents who answered correctly at the pretest, and increased to 21 of 21 respondents who answered correctly on the posttest.

(xiv) For question no 14 regarding "Can the accumulation of garbage cause damage to nature?" The results show that the community's understanding is good. These results were obtained because all people were able to answer this question correctly, both in the pretest and posttest questions.

(xv) For question number 15 regarding "Is the leaf litter left to rot on the ground will cause the soil to become barren?" The results show that public understanding has decreased. These results were obtained because there was a decrease in the number of respondents who answered correctly on the pretest and posttest. There were 17 out of 21 respondents answered correctly at the pretest, and increased to 14 out of 21 respondents answered correctly in the posttest.

(xvi) For question number 16 regarding "Will plastic waste if left on the ground decompose by itself?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 18 out of 21 respondents answered correctly at the pretest, and increased to 19 out of 21 respondents answered correctly in the posttest.

(xvii) For question no 17 regarding "Is managing waste properly will have a good impact on health?" The results show that public understanding has increased. These results were obtained because there was an increase in the number of respondents who answered correctly on the pretest and posttest. There were 20 out of 21 respondents answered correctly during the pretest, and increased to 21 out of 21 respondents answered correctly on the posttest.

(xviii) For question no 18 regarding “Will the accumulation of garbage cause air pollution? The results show that the community's understanding is good because all respondents can answer the questions correctly.

(xix) For question no 19 regarding "Have you sorted your waste into organic and inorganic?" The results show that there are still people who have not sorted their waste. There are 10 respondents who have sorted their waste and 11 respondents have not separated organic and inorganic waste at the beginning before the socialization. After the socialization was carried out, many people were aware that there was an increase in the number of people who sort their waste into 18 people from 21 people.

(xx) For question no 20 regarding "Is waste management an important thing?" The results show that the community's understanding is good, because all respondents feel that waste management is an important thing.

International Journal of Research and Applied Technology

2(1)(2022) 114-123

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Based on the results of research conducted, there is an increase in the results of public understanding, this can be seen from the increase in the pretest and posttest scores. The use of social media in the educational process is said to be capable and effective as a means of education. In line with Rasyid research, the use of smartphones is considered more efficient and easily accessible by the public, so that the public can gain knowledge. knowledge through smartphone media that can be accessed at any time. As is Android-based waste education, making it easier for the public to access information. This media contains waste material and its handling as well as waste processing materials so that they are of economic value [5].

in line with the research conducted by Ida et al. it is necessary to implement the practice of what is informed on waste management education posters in everyday life and teach it to generations successor so that good waste management can become a habit or even become a necessity. In this KKN activity, there is also a challenge that requires the community to make a movement to sort waste in order to create a culture of good waste sorting in the community [6].

4. Conclusion

Research was conducted as one of the programs in educating the public regarding proper and correct waste management, using digital literacy methods in the community. Education was carried out to 21 community members in Cimahi City, Indonesia. Information dissemination to the public was made as attractive as possible using attractive designs, so that it could attract public interest in understanding the information. The education process is carried out online (providing information and discussions through WhatsApp groups) and offline (through direct socialization to the public). Community understanding was analyzed through pretest and posttest questions as many as 20 questions. The results showed that there was an increase in the results of the pretest submitted to the posttest at the end of the activity. Education is done successfully and the public can understand. This research provides information that infographics and videos can be used as educational media. In addition, an attractive design can generate public interest in understanding the information conveyed. After the socialization activities were carried out, there was a slight change in the lifestyle of the community after being given education. People are starting to pay attention to the condition of the cleanliness of their environment and there are some people who have started to sort the waste they produce. After the socialization activities were carried out, there was a slight change in the lifestyle of the community after being given education. People are starting to pay attention to the condition of the cleanliness of their environment and there are some people who have started to sort the waste they produce. After the socialization activities were carried out, there was a slight change in the lifestyle of the community after being given education. People are starting to pay attention to the condition of the cleanliness of their environment and there are some people who have started to sort the waste they produce. (Idawati, Dewi, & Indiani, 2021)

Acknowledgement

The authors would like to thank the LPPM UPI, KJP UPI, and Directorate of International Affairs (DIA) UPI as well as the field supervisors for KKN who have guided the completion of this paper.

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