Environmental ethics analysis on household waste management behaviour

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Abstract. This study aims to analyze the effect of environmental ethics knowledge on household waste management behaviour in Jatibening Village, Pondok Gede District, Bekasi City. The research data collection was conducted from October to November 2020. The data was collected using a questionnaire from 127 homemakers. Respondents were selected using a simple random sampling method. The data that has been collected is processed and analyzed using descriptive statistics and inferential statistics, namely simple linear regression. The simple linear regression analysis results indicate that Environmental Ethics Knowledge has a significant positive effect on Household Waste Management Behavior (β = 0.215, p <0.05). These results indicate that increasing knowledge about environmental ethics can improve the behaviour of homemakers in managing household waste. Thus, it is hoped that homemakers can increase their knowledge of environmental ethics to improve their behaviour in managing household waste.

1. Introduction

For humans, the environment is everything in the environment, whether in the form of living things, inanimate objects, real or abstract objects, including other humans, and the atmosphere formed due to interactions between elements in nature. Besides, the environment is also one of the essential elements on earth. It causes the environment to have a unique role in the survival of all living things in the world [1]. Humans cannot live without the resources provided by nature, which is why humans must protect nature as best they can. One of the actions that can be taken to protect nature is to overcome environmental problems, such as waste problems. Garbage is leftover material that is no longer used, disliked/, or something that must be thrown away, which generally comes from activities carried out by humans. In activities, humans produce or produce waste. Humans produce many wastes, and it is necessary to carry out waste management to convert waste into materials that have economic value or process waste into materials that are not harmful to the environment [2]. In this case, if there is no community ability to manage waste, then the waste can cause environmental problems [3].

Waste management can be defined as a field that deals with the control of waste generation, storage, collection, transfer and transportation, processing and disposal of waste in a manner that is by the best principles relating to public health, economy, engineering, protection of nature, beauty and other environmental considerations as well as considering the wider community. Improper waste management can lead to piles of garbage. It can create a potential effect on environmental changes. Ignorance of the problem of waste management results in degradation of environmental quality, which does not provide comfort for life, thus reducing the quality of public health. Environmental quality degradation is...
triggered by behaviour patterns of people who are not environmentally friendly, such as throwing garbage in water bodies, causing garbage to accumulate in waterways, and causing various other inherited problems. This condition often occurs in densely populated areas in urban areas [4]. For example, environmental problems that occur in Bekasi City are caused by improper waste management. Namely, there are 88 illegal waste disposal points closed by the Environment Agency of Bekasi City, West Java, and the remaining 32 points for illegal dumping are spread evenly in 12 local districts. The condition of the 32 illegal waste disposal points is very worrying, so it is urgent to implement land management. One of them is located in the Jatibening sub-district, which is included in the Pondok Gede District area (Head of the Bekasi City Environmental Service, Jumhana Luthfi in suara.com 18 September 2018). Besides, the waste in the area will be disposed of at the Sumur Batu Final Disposal Site with an area of 3.5 hectares with a maximum capacity of 650 tons per day [5].

Some residents refuse to dismantle illegal TPS because some RTs have not yet provided a garbage storage area, including the RT 04 RW 03, Jatibening Village, Pondok Gede District, Bekasi City. In dealing with this problem, the Head of the Bekasi City Environment Agency is activating some programs, one of which is a waste bank that applies the principles of Reuse, Reduce, and Recycle (3R).

Based on the results of a preliminary study, the behaviour of homemakers in RT 04/RW 03 Jatibening Village in managing household waste is not good. It is because there are 6 out of 12 homemakers who have thrown their trash in an illegal garbage dump. Furthermore, 10 out of 12 homemakers do not manage household waste by type. Besides, 7 out of 12 homemakers manage their household waste by burning it. In this case, the knowledge about the environment is owned to manage the environment properly. One of the research results on waste management behaviour shows that environmental knowledge has a significant positive effect on waste management behaviour. It means that environmental knowledge greatly determines behaviour in terms of good waste management [6]. Thus, environmental knowledge is essential for every individual to have.

Understanding the environment (eco-literacy) owned by a person is not sufficient to shape one's behaviour in preserving the environment, so other supporting factors are needed [1]. Besides, humans are expected to instil morals or ethics in themselves because having good ethics towards the environment will foster participation in environmental care wherever they are [7]. It can be concluded that the knowledge that is expected to be possessed by each individual is knowledge of environmental ethics. These results indicate a problem in environmental ethics knowledge. Therefore, this study aims to analyze the effect of environmental ethics knowledge on household waste management behaviour.

2. Methodology

2.1. Research design
This research is an associative quantitative study that aims to analyze the effect of environmental ethics knowledge on household waste management behaviour. Meanwhile, the research method used is a survey method with a correlational approach. This research was conducted at Jatibening Village, Pondok Gede District, Bekasi City.

2.2. Instrument
Environmental ethics knowledge instruments are measured from three dimensions, namely nominal environmental literacy, functional environmental literacy, and operational environmental literacy. This instrument consists of 23 statements with two response options, namely true and false, provided that the correct answer is given a score of one (1) and the wrong answer is given a score of zero (0). The scores obtained are added and converted in the form of an index. After that, the data were categorized into three categories, namely low (index <60), medium (index 60-80), and high (index> 80).

Instruments household waste management behaviour is measured in three dimensions, namely thinking back (rethink), replace environmentally friendly materials (replace), and repair damaged goods (repair). This instrument consists of 9 statements with four response options, namely: Always (A), Often (O), Rarely (R), and Never (N). With ratings of 4, 3, 2, 1 for positive statements and 1, 2, 3, 4 for
negative statements. The scores obtained are added and converted in the form of an index. After that, the data were categorized into three categories, namely low (index <60), medium (index 60-80), and high (index> 80). This research is an associative quantitative study that aims to analyze the effect of environmental ethics knowledge on household waste management behaviour. Meanwhile, the research method used is a survey method with a correlational approach. This research was conducted at Jatibening Village, Pondok Gede District, Bekasi City.

2.3. Sample and sampling technique
This study was housewives in RT 04/RW 03 Jatibening Village, Pondok Gede District, Bekasi City. Data obtained from the local RT shows the number of homemakers there are 200 people. The sampling technique in this study used probability sampling techniques, with a simple random sampling technique. In determining the number of samples, the researcher used Isaac and Michael's formula table. Based on the table, a sample of 200 housewives with an error rate of 5%, a sample of 127 housewives was obtained.

2.4. Data analysis
That had been collected were analyzed using descriptive statistics and inferential statistics. Descriptive statistics are used to analyze the description of the research variables, such as the minimum value, maximum value, average value, standard deviation, categories, and percentages. The inferential statistic used is a simple linear regression test used to analyze the effect of environmental ethics knowledge on household waste management behaviour. Before carrying out a simple linear regression test, several prerequisite tests must be done, namely the normality and linearity tests. The results of the Lilliefors normality test show that the research data is usually distributed. The linearity test results also show that the data is linear.

3. Results and discussion

3.1. Characteristics of respondents
The housewives involved in this study were between 20 years and 79 years old. The highest percentage of age was 30-39 years (35%). The housewives involved in this study had taken primary education to tertiary education. The highest percentage of education was completed in high school (39%). The sample of homemakers involved in this research is not working (homemakers) and working as Civil Servants (PNS), Permanent Employees, and Entrepreneurs/Traders. The highest percentage is not working (housewives) (89%). The housewives involved in this study had no income and ranged from <IDR 1,000,000 to > IDR 5,000,000. The highest percentage of respondent's income is not yet income (89.8%).

3.2. Environmental ethics knowledge
Environmental ethics knowledge is included in the elements of environmental literacy knowledge. Environmental literacy has the same concept as knowledge of environmental ethics, which consists of knowledge, aspects of attitude, and concern for the environment (Kamil et al., 2019). Environmental literacy owned by each individual is different, depending on the ability to understand and the intensity of individual interactions with the environment. Related to integrating the constituent elements of environmental literacy, individual abilities can be divided into several stages/levels as follows [9]: nominal environmental literacy, functional environmental literacy, and operational environmental literacy.

The data shows that the respondents answered correctly (99.2%) for the statement that garbage dumped in rivers or waterways can cause flooding. It refers to the results of previous research that flood disasters can be said to be non-natural disasters caused by human behaviour, including throwing garbage inappropriately or throwing garbage into the riverbank [10]. Respondents answered correctly (41.7%) for the statement that coughs, flu, and migrants are diseases caused by bad waste management. It refers to the results of previous research that solid waste can cause several problems if not properly managed,
such as trash can become a breeding ground for insects or nuisance animals known as disease vectors that can cause infectious diseases (such as diarrhoea, cholera, typhus), pollution. Air (such as foul odours, dust, poisonous gases, and combustion fumes) and water pollution (such as changes in the colour and smell of river water) [11]. Thus, the statement that coughs, flu, and migrants are diseases caused by improper waste management is not quite right.

Respondents answered correctly (89.0%) for the statement that accumulated garbage did not affect public health. Accumulation or disposal of waste in the wrong place can cause various sources of disease that affect human health [12]. Thus, the statement that accumulated waste does not affect public health is not quite right. Furthermore, respondents answered correctly (76.4%) for the statement that using recycled products is not considered as an act of maintaining environmental balance. It refers to the results of previous studies that efforts to use natural resources efficiently, recycling, and eco-green are carried out to maintain the balance of nature [13]. Thus, the statement that using recyclable products is not included in maintaining environmental balance is not quite right. Furthermore, respondents answered correctly (96.9%) that waste management is an activity that can have a positive impact on the environment. Good waste management will positively impact the surrounding community [14].

Respondents answered correctly (96.1%) for the statement that proper waste management can provide benefits in balance and proportion to current and future generations. They refer to the results of previous research that the waste management system provides benefits in terms of environmental health and socio-economic community (Sarfiah and Juliprijanto, 2017). Thus, it can be said that waste management activities can positively impact the environment and society. Furthermore, respondents answered correctly (76.4%) for the statement that current waste management does not affect waste management in the future. Awareness and a sense of responsibility to protect and care for the environment are driving factors promoted in every individual. On a planning scale, waste management that is not controlled from now on will impact the next generation in the future [16]. Thus, the statement that waste management carried out at this time does not affect waste management in the future is incorrect.

Respondents answered correctly (96.9%) that technological progress can affect the waste management process to make it more effective and efficient. It refers to previous research that in achieving levels of effectiveness and efficiency in dealing with waste problems, it is necessary to choose the suitable method and technology and active participation from the community and related government agencies (Ray, 2017). Thus, choosing the right technology in dealing with problems can affect the process of waste management activities to run effectively and efficiently. Furthermore, respondents answered correctly (51.2%) for the statement that sophisticated technology is believed to be able to solve the waste problem. Waste can come from technological advances/ so that people tend to be more consumptive and follow technological developments [18]. Thus, the statement that sophisticated technology is believed to solve the waste problem is not quite right.

Respondents answered correctly (92.9%) for the statement that separating wet and dry waste is the most uncomplicated waste management process that can be done at home. The simple thing in waste management starts with separating wet and dry waste so that waste that can still be used can be reused [19]. Furthermore, respondents answered correctly (66.1%) that waste management can be carried out in the community first, then it can be applied in the home environment. It refers to previous research that states that waste management is carried out within households and outside households. Homemakers carry out domestic waste management. Meanwhile, outside the household, the management is carried out by the RT/RW management. Thus, proper waste management carried out by homemakers can be done first in the house, then it can be done outside the home with other communities [20].

Respondents answered correctly (93.7%) for the sanctions statement that was less firm and did not provide a deterrent effect for people who did not carry out waste management. Relevant agencies are expected to be more active in supervising and imposing strict sanctions on people who violate applicable regulations to cause a deterrent effect [21]. Furthermore, respondents answered correctly (93.7%) that the implementation of waste management requires legal regulations governing these activities, which
are formed in law. In this case, the law governing waste management is Law No. 18 of 2008. The results are presented in Table 1.

Table 1. Distribution of respondents by category nominal dimension of environmental literacy.

| Environmental Literacy Nominal | Total | Percent |
|-------------------------------|-------|---------|
| Low (Index <60)               |   5   |   3.9   |
| Medium (Index 60-80)          |  53   |  41.7   |
| High (Index> 80)              |  69   |  54.3   |
| Total                         | 127   |         |
| Minimum-Maximum Value         | 54.0-100 |       |
| Average ± Standard deviation  | 82.3 ± 13.3 |     |

The second dimension of environmental, ethical knowledge is functional environmental literacy. This dimension measures the housewife's ability to understand the nature and interactions between human social systems and natural systems and to be able to analyze the problems that occur in these interactions. The data shows that the respondent answered correctly (90.6%) that humans have an interdependent relationship with nature which requires humans to protect nature, such as by carrying out waste management. It is by the objectives of *ecological citizenship*, according to Crane (2008), that *ecological citizenship* can raise citizen awareness that humans have an interrelated relationship with nature so that humans can build good relationships with the natural environment. Furthermore, respondents answered correctly (88.2%) that the community was littered because they did not know how to manage waste. It refers to previous research that behaviour in action based on science is more durable and becomes a habit. It is due to knowing the risk of the action being taken. The better the knowledge a person has, the better the behaviour in managing the environment [22].

Furthermore, respondents answered correctly (91.3%) for the statement of sorting the waste according to nature's ability to break down waste, such as leaf waste separated from plastic waste. Waste selection is carried out by separating waste based on its type, organic or inorganic waste. Leaf litter and plastic waste are different types of waste [23]. Furthermore, respondents answered correctly (95.3%) for the statement that frequent flooding was caused by people who like to litter. Furthermore, respondents answered correctly (90.6%) that the lack of human resources is a problem in managing waste. It refers to previous research that the problems in waste management that often occur, including behaviour and lifestyle, still tend to increase the rate of waste piles and limited resources [24]. Respondents answered correctly (87.4%) for the statement that limited budget funds were a problem in carrying out waste management. They are referring to previous research that the government must have a budget for funding waste management. In this case, it can be said that a budget is needed as needed in carrying out waste management activities [25]. Results of the study are presented in Table 2.

Table 2. Distribution of respondents by category dimension of environmental literacy functional.

| Functional Literacy Environment | Total | Percent |
|---------------------------------|-------|---------|
| Low (Index <60)                 |   5   |   3.9   |
| Medium (Index 60-80)            |  15   |  11.8   |
| High (Index> 80)                | 107   |  84.2   |
| Total                           | 127   |         |
| Minimum-Maximum Value           | 33.0-100 |       |
| Average ± Standard deviation    | 90.5 ± 14.6 |     |

The third dimension of environmental ethical knowledge is functional environmental literacy. This dimension measures how much the ability of housewives to identify organizations or groups that contribute to environmental change. The data shows that the respondent answered correctly (89.8%) for
the statement that the organization/group managing the waste provided training in waste management. Furthermore, the respondents answered correctly (89.0%) for the statement of the organization/group of waste management to help increase public awareness in carrying out waste management activities. Community participation in waste management and the existence of a waste management organization will have a positive social impact. One of the positive impacts is expected to increase the knowledge and capacity of the community in managing the environment [26]. Furthermore, the respondents answered correctly (71.7%) that the organization/group of waste managers that provides training in waste management is only responsible for implementing the training. It refers to previous research that the implementing element or (implementor), both organizations or individuals, is responsible for obtaining implementation and supervision of the waste management implementation process [27]. Thus, the statement of the waste management organization/group that provides training in waste management, only being responsible for implementing the training, is inaccurate. Furthermore, the respondents answered correctly (99.2%) that the organization/group of waste management assists the government in implementing programs regarding waste management. The research results are presented in Table 3.

**Table 3. Distribution of respondents based on dimensions of operational environmental literacy category.**

| Operational Environment Literacy | Total | Percent |
|----------------------------------|-------|---------|
| Low (Index <60)                  | 7     | 5.5     |
| Medium (Index 60-80)             | 50    | 39.3    |
| High (Index> 80)                 | 70    | 55.1    |
| Total                            | 127   |         |
| Minimum-Maximum Value            | 50.0-100 |
| Average ± Standard deviation     | 87.4 ± 15.0 |

The study results indicate that most homemakers know environmental ethics in the dimensions of functional environmental literacy in the high category (84.2%). In Table 6, the results show that most homemakers have knowledge of environmental ethics in the operational environment literacy dimension in the high category (55.1%). The highest knowledge of environmental ethics based on average scores is in the dimension of functional environmental literacy, where homemakers can understand the nature and interactions between human social systems and natural systems and can adequately analyze problems that occur in these interactions. It refers to previous research that humans and the environment are integral natural systems forming ecosystems that influence each other. As a creature endowed with a mind, humans are the most perfect and noble creatures. The human obligation in interacting with nature is to use nature responsibly by environmental ethics by protecting and preserving it [28].

Based on the average value, the lowest average score for knowledge of environmental ethics is in the dimension of nominal environmental literacy, in which the ability of homemakers to understand and appreciate natural systems is sufficient. Referring to previous research, humans were created to appreciate nature because humans need nature as a place to live. If humans do not respect nature, it will cause disasters detrimental to humans themselves [29]. Thus, homemakers can increase their nominal environmental literacy by understanding every element and principle of nature to perfect their knowledge of environmental ethics.

### 3.3 Household waste management behaviour

Behaviour that can support environmental improvement efforts is behaviour in managing household waste. A method 3R in waste management, namely thinking back (rethink), replace environmentally friendly materials (replace), and repair damaged goods (repair).

The first dimension of household waste management behaviour is to think again (rethink). This dimension measures how precise the housewife is in determining the products to buy and use. The data shows that respondents always answered (85.0%) and often (14.2%) for buying products based on needs,
such as products that must be fulfilled for daily life. These results indicate that the respondents agree with the activity of buying products to fulfil their daily needs. It refers to previous research that someone making a purchase meets their needs (Supangkat and Supriyatin, 2017). Furthermore, respondents always answered (40.9%) and often (26.0%) for buying products based on previous consumer assessments, such as the number of positive responses to the product. These results indicate that the respondent agrees before making a purchase activity to ensure that there is a positive response from previous consumers to the product. It refers to previous research that one of the factors in the tendency of consumers to buy products is because the product has a good image in society [31].

Furthermore, respondents always answered (80.3%) and often (14.2%) for statements that buy products prioritizing health elements, such as products that have been officially registered at BPOM. These results indicate that respondents who agree in making purchasing decisions can first pay attention to the health elements. This statement is in line with the statement that intelligent consumers will always prioritize health when deciding to buy a product [32]. The research results are presented in Table 4.

Table 4. Distribution of respondents by category dimensional thinking back (Rethink).

| Rethink | Total | Per cent |
|---------|-------|----------|
| Low (Index <60) | 4     | 3.1      |
| Medium (Index 60-80) | 19    | 14.9     |
| High (Index> 80) | 104   | 81.8     |
| Total | 127 |          |

The second dimension of household waste management behaviour is to replace environmentally friendly materials (replace). This dimension measures the level of compliance of homemakers to replace items that are not environmentally friendly with environmentally friendly goods. The data presented in Table 9 shows that the respondent always answered (51.2 %) and often (27.6%) stated that they do not bring their shopping bags when going to the market. These results indicate that respondents agree not to carry shopping bags when travelling. Referring to previous research, plastic shopping bags usually obtained from stores can make it easier for buyers to move groceries (Furqaan and Santoso, 2017). Furthermore, respondents always answered (46.5%) and often (28.3%) for statements using plastic straws when drinking. These results indicate that the respondents agreed to use a plastic straw. It refers to previous research that another form of plastic waste is plastic straws that are easy to use and dispose of. Most restaurants serve plastic straws with drinks. It makes people reluctant to consume directly from glass and choose to use a straw [34].

Furthermore, respondents always answered (50.4%) and often (30.7%) for the statement that they brought their cutlery when travelling. These results indicate that the respondents agreed to bring cutlery when travelling. Furthermore, respondents always answered (48.8%) and often (33.1%) for the statement that they brought their food containers when travelling. These results indicate that the respondents agreed to carry food containers with them when travelling. The results of the study are presented in Table 5.

Table 5. Distribution of respondents based on the dimension category of replacing environmentally friendly materials (replace).

| Replace | Total | Per cent |
|---------|-------|----------|
| Low (Index <60) | 14    | 11.0     |
| Medium (Index 60-80) | 39    | 30.7     |
| High (Index> 80) | 74    | 58.2     |
| Total | 127 |          |
The third dimension of household waste management behaviour is repairing damaged items (repair). This dimension measures the level of the housewife's ability to repair damaged goods so that the product's life can be extended. The data shows that the respondent always answered (41.7%) and often (27.6%) for the statement of collecting used paper that is still fit for use. These results indicate that the respondents agreed to collect used paper. Furthermore, respondents always answered (54.3%) and often (23.6%) for the statement they collected used plastic, which was still suitable for use. These results indicate that the respondents agreed to collect used plastic that can still be used. The results of the study are presented in Table 6.

Table 6. Distribution of respondents by category dimensional fix damaged goods (repair).

| Repair                  | Total | Per cent |
|-------------------------|-------|----------|
| Low (Index <60)         | 23    | 18.1     |
| Medium (Index 60-80)    | 34    | 26.7     |
| High (Index > 80)       | 70    | 55.1     |
| Total                   | 127   |          |
| Minimum-Maximum Value   | 25.0-100 |   |
| Average ± Standard deviation | 78.8 ± 21.1 | |

The study results indicate that most homemakers apply household waste management behaviour by (rethink) in the high category (81.8%). The highest household waste management behaviour based on the average value is on the dimension (rethink), where the accuracy of the housewife in determining which products to buy and use is good. Referring to previous research that human consumption is carried out to meet needs both in the form of primary and secondary needs so that it is expected to be wiser in choosing which needs are the most important of an item and which have benefits and uses so as not to waste actions (Astuti, 2013). Thus, it is essential to think again (rethink) in determining which products to buy and use. Based on the average value, the lowest average value for household waste management behaviour is in the dimension of repairing damaged goods (repair), in which the accuracy of homemakers in repairing damaged goods is sufficient. It refers to previous research that if the damage to goods is categorized as severely damaged and cannot be repaired, it is better to buy new items [36]. Thus, some housewives think it is better to buy new things than spend much money repairing damaged goods.

3.4. Relationship between knowledge of environmental ethics and behaviour of household waste management

The correlation test results showed that knowledge of environmental ethics had a significant positive relationship with household waste management behaviour ($r = 0.215$, $p <0.05$). These results indicate that the better the knowledge of environmental ethics owned by housewives, the better the behaviour of homemakers in managing household waste. Referring to the results of previous research shows that environmental knowledge has a significant positive effect on waste processing behaviour. It means that environmental knowledge determines behaviour in terms of sound waste processing.

3.5. The effect of environmental ethics knowledge and household waste management behaviour

The influence of environmental ethics knowledge on household waste management behaviour was analyzed using a simple linear regression test. Before carrying out a simple linear regression test, a prerequisite test for data analysis was carried out, namely the Lilliefors normality test. The prerequisite
test results show that data on environmental ethics knowledge and household waste management behaviour is usually distributed. Furthermore, the data were analyzed using a simple linear regression test. The analysis results show that knowledge of environmental ethics has a significant positive effect on household waste management behaviour ($\beta = 0.215, p < 0.05$). These results indicate that the higher the knowledge of environmental ethics owned by housewives, the higher the behaviour of homemakers in managing household waste.

The magnitude of the influence between the variable knowledge of environmental ethics ($X$) on the behaviour of household waste management ($Y$) can be seen from the value of the $R^2$ square, which is equal to 0.046 x 100%, or it can be said that the variable knowledge of environmental ethics has an effect of 4.6% on the behaviour variable of household waste management. Stairs. The effect obtained from the two variables is low. It is because knowledge of environmental ethics can significantly influence the behaviour of household waste management if a caring attitude towards the environment supports it. They refer to previous research that the existence of indirect knowledge significantly increases behaviour by increasing attitudes, which can then improve behaviour. No matter how much knowledge a person has, if a positive attitude does not support it, the effect on behaviour will be small [37].

A person's attitude in waste processing has something to do with education level and income. The level of education informal education can affect a person's attitude towards waste processing. The higher the level of education of a person, the higher the attitude of concern for waste processing and vice versa. Meanwhile, the greater a person's income, the higher the attitude of concern for household waste processing and vice versa [6].

Based on the respondent's description of the respondent's education data, most of the respondents were high school graduates. Thus, it can be said that the respondent's education level is sufficient. Meanwhile, for the respondent's income data, it is not yet income. It is because most respondents are not working (homemakers). Thus, low income will slightly affect a person's caring attitude so that the effect on behaviour in managing waste is low. However, the index value of each dimension of the two variables is in the high category.

4 Conclusion
The results showed that environmental ethics knowledge was included in the high category (66.9%). Meanwhile, the behaviour of household waste management is in the high category (64.5%). The simple linear regression analysis results showed that environmental ethics knowledge had a significant positive effect on the behaviour of household waste management at ($\beta=0.215, p < 0.05$). These results indicate that the higher the knowledge of environmental ethics owned by housewives, the higher the behaviour of homemakers in managing household waste. Thus, knowing environmental ethics can improve one's behaviour in managing household waste.

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