Int. j. adv. multidisc. res. stud. 2025; 5(3):1588-1591

Received: 04-05-2025
Accepted: 14-06-2025

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Relationship Between Students Knowledge and Behavior in Waste Management

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Abstract

This research was motivated by the level of knowledge and awareness of FKIP UHAMKA students in managing waste. The aim of this research is to determine the relationship between knowledge in managing waste and waste care behavior among FKIP UHAMKA students. The method in this research is a qualitative descriptive. The results of the research show that the knowledge aspect of waste management in this study has linear relationship with behavior that cares about waste problems but does not show any influence on behavior that cares about waste. Environmental knowledge that a person has needs to be evaluated for its process because it has a direction and strength in the form of Intention that leads to an action and behavior that cares about the environment.

Keywords: Knowledge, Behavior, Waste Management

Introduction

Waste is the remains of a business or activity (human) in solid form, either in the form of organic or inorganic substances that can be decomposed or not decomposed and are considered no longer useful so they are thrown into landfills. Waste is divided into 2 types of waste that is easily rotten and not easily rotten (Saputra & Mulasari, 2017a) [12].

Effective waste management in overcoming waste problems can be done by reducing domestic waste accumulation (reduce), reusing domestic waste that is still suitable for use (reuse) and recycling domestic waste (recycle) so that the waste can have economic value. (Sari, 2018) [13].

Waste management includes all activities carried out to process waste from generation to final disposal. In general, waste management activities include controlling waste generation, collection, transportation, management, and final disposal. According to the instructions of Law Number 18 of 2008 concerning Waste Management, waste management is a systematic, comprehensive, and sustainable activity that involves reducing and processing incoming waste. In general, there are five aspects of waste management: Technology, institutions, laws/regulations, financing and social participation.

Comprehensive efforts to manage waste generated from various human activities and consists of six separate elements: Generation control, storage, collection, transfer and transport, processing, and disposal. Waste management according to these six elements must be carried out based on principles that can guarantee public health, and must be carried out based on economic, technical, conservation, aesthetic and other principles (Hidayah *et al*., 2021) [5].

The knowledge possessed by students regarding waste management is a factor that influences student participation in managing waste to maintain the cleanliness of their environment (Muhammad, 2018). Increasing awareness of waste management in academic institutions is an important key in implementing sustainable and innovative waste management capabilities (Saputra & Mulasari, 2017).

Sustainable waste management is an urgent need to overcome the negative impacts of waste and protect the environment. Sustainable waste management is considered an effective way to reduce the cost of waste collection, transportation, and processing. Sustainable waste management can be interpreted as an effort to reduce waste production, recycle usable items (recycling), recycle waste, and convert waste into energy.

Implementing the 3R principle is not easy, many students still have difficulty in implementing it. And to implement changes so that students can apply 3R requires a long time and a long process because it involves values, understanding, knowledge and

attitudes related to community life. The strategy for solving waste problems also requires changes in community attitudes and behavior to be more concerned and involved in solving problems and environmental improvement activities. This waste problem is a social problem, so this problem is also solved with a social approach and its solution must be sought with human knowledge and behavior or attitudes. And other consequences of improper waste disposal cause waste to pile up in various places (Khoiri & Rudiansyah, 2019) [6].

The most likely place to produce waste in urban areas is a university. Students who live in the university environment and routinely carry out activities, so that even on holidays there are still activities. Of course, various types of waste are produced every day. Waste that is usually produced at universities usually consists of organic waste, recyclable waste, and inorganic waste that cannot be recycled. Organic waste that is often found is leftover food and student snacks, leftover canteens and snack stands, and leftover grass and plants from parks in the campus area. Waste that is not disposed of can cause various environmental pollution and diseases for students and workers, especially those who come into direct contact with the waste. Therefore, good and proper waste management is very necessary to reduce various environmental health problems and improve environmental quality (Gusti *et al*., 2015) [3].

Method

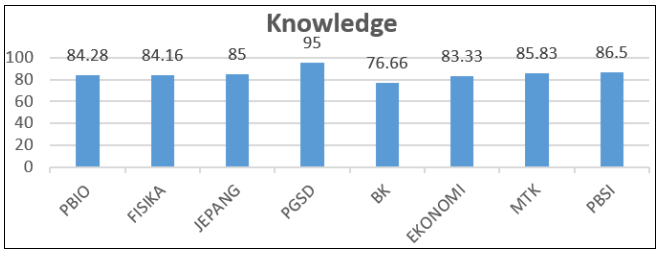
This study uses a quantitative descriptive method, with the aim of analyzing the extent of the relationship between student knowledge about waste management and student behavior in managing waste. The data collection technique was carried out by distributing instruments in the form of questionnaires. The questionnaire was distributed to eight study programs in the FKIP Uhamka environment using Google Form. The questionnaire contains 20 questions covering the variables of knowledge and behavioral variables about waste management. Each variable consists of 10 multiple-choice questions, with 4 multiple-choice items using a Likert scale. In the knowledge variable, the multiple-choice items presented are strongly agree, agree, disagree, and strongly disagree. While for the behavioral variable, the multiple-choice items presented are often, sometimes, ever, and never. The research procedure starts from concept planning, conducting surveys, data collection and data analysis (Purwono *et al*, 2019). The number of respondents in this study was 58 students representing the study programs of Biology Education, Physics Education, Japanese Language Education, Elementary School Teacher Education, Guidance and Counseling Education, Economic Education, Mathematics Education, and Indonesian Language and Literature Education.

Results And Discussion

Research result

Based on the data obtained from the questionnaire that has been distributed, there are 58 respondents consisting of 35 biology education students, 3 physics education students, 1 Japanese language education student, 5 elementary school teacher education students, 3 guidance and counseling education students, 3 economics education students, 3 mathematics education students, and 5 Indonesian language and literature education students. The questionnaire presents 2 variables, namely knowledge and behavior. These two variables are intended to determine how much influence students' knowledge has in managing waste and the behavioral impacts it causes.

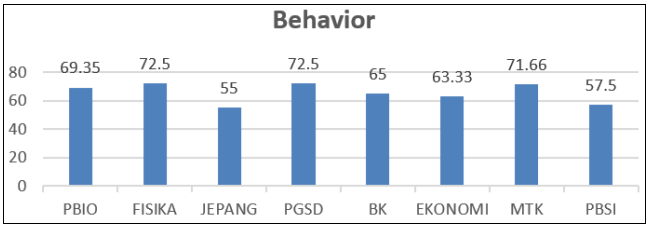
The variables of students' knowledge about waste management include several aspects, namely organic and inorganic waste management, sustainable waste management, integrated waste management, management of hazardous and toxic waste, the benefits of recycling activities and their impact on the environment. The following are the values of students' knowledge of waste management:



Graph 1: Average index value of waste management knowledge variable of FKIP Uhamka students

From the graph above, it can be seen that almost all study programs have a very good level of understanding about waste management. The study program that has the highest level of knowledge is the Elementary School Teacher Education study program, which is 95%. While the lowest level of knowledge is held by the Guidance and Counseling Education study program with 76.7% which is also close to a very good value.

The variables of student behavior on waste management include several aspects, namely the behavior of minimizing waste through the reduce and recycle method, waste sorting behavior and waste management persuasion. The following are the values of student waste management behavior:



Graph 2: Average index value of waste management behavior variables of Uhamka FKIP students

The following are details of the level of behavior towards waste management in each study program:

From the graph above, it can be seen that the average behavior of students in waste management ranges from 55-72.5%, with an average of 65.86. As many as 50% of study programs have waste management behavior that is quite good and the remaining 50% have poor waste management behavior. Meanwhile, individual data shows good behavior of 38 respondents (65.5%) with a value range of 68-98, and good-poor behavior of 20 respondents (34.5%) with a range of 43-65.

The relationship between the variables of waste management knowledge and waste care behavior is tested using a linearity test, to determine whether there is a significant linear relationship between variable X and

variable Y. This test uses the SPSS version 25.0 program. The following is a table of linearity test results:

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Pengetahuan * Perilaku	Between Groups	(Combined)	1897.437	18	105.413	1.316	0.231
		Linearity	94.495	1	94.495	1.180	0.284
		Deviation from Linearity	1802.943	17	106.055	1.324	0.229
	Within Groups		3123.683	39	80.094		
	Total		5021.121	57			

Based on the results of the linearity test, a significance value of 0.229 was obtained. Because the significance value is greater than 0.05, it can be concluded that there is a significant linear relationship between variable X (knowledge of waste management) and variable Y (behavior of caring about waste).

Furthermore, to test the hypothesis, a simple regression analysis was used to see the relationship and influence of variable X (knowledge of waste management) on variable Y (behavior of waste management).

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94.495	1	94.495	1.074	.304[b]
	Residual	4926.626	56	87.975		
	Total	5021.121	57			

The results of the ANOVA test show a significance value of 0.304. Because the significance value is greater than 0.05, it is stated that there is no significant influence between the independent variable (X) and the dependent variable (Y). So it is concluded that there is no influence between knowledge of waste management and waste care behavior.

Discussion

Students' knowledge of waste management is classified as very good and based on the questionnaire assessment, the highest value is students' knowledge of the impacts caused if waste is not managed properly. While the lowest knowledge is about the concept of integrated waste management.

Knowledge is the main thing that underlies a person's behavior. With knowledge, a person will know all the actions that will be carried out by considering all the advantages and disadvantages in advance. The knowledge that has been possessed should then be expressed and communicated or implemented to each other in life together, both verbally and in the form of activities, and in this way a person will be increasingly enriched in knowledge by each other (Rukmi Octaviana & Aditya Ramadhani, 2021) [9].

Student behavior regarding high concern in waste management is about reducing waste through the reduce method in the form of using tumblers and students already have the behavior of throwing garbage in its place. Meanwhile, the behavior that needs attention is waste sorting which is minimally carried out by students. This fact is in line with the results of research by Santi, A *et al.* (2020) [11] which stated that there was no influence of waste management knowledge on waste sorting behavior in students. Hidayah, N.Y (2020) [4] stated that only 28% of students sorted waste.

Generally, behavior is the result of knowledge. Behavior, in this context, refers to actions or behaviors carried out by individuals (Samodra *et al*., 2022) [10]. Behavior can include all kinds of actions, reactions, or responses carried out by a person in various situations. In this case, knowledge will guide a person to behave according to what he understands. Likewise with waste management, ideally if a person knows and understands how he manages it and how he is responsible for the waste, then he will behave as a person who knows. Likewise, the more and more and continuously it will affect human behavior towards their environment (Palupi & Sawitri, 2017) [7].

Based on the results of data analysis, it was found that there was an insignificant relationship between the level of student knowledge and behavior regarding waste management. Almost all respondents understood and knew about waste management with very good values but in contrast to the results of the behavioral variables which were on average quite good, even 20% of responses were not good. Ideally, if knowledge increases, behavior will also increase, such as the findings of Arya Gusti and B. Isyandi (2015) [3], who concluded that there is a positive relationship between knowledge and behavior in sustainable waste management. A similar opinion was also expressed by (Khoiri & Rudiansyah, 2019) [6] who stated that there is a strong correlation between knowledge, internal factors, and environmental factors with environmentally friendly behavior.

The findings of this study indicate that the high level of knowledge about waste management possessed by these students has not resulted in better behavior in caring about waste.

This fact shows that students' understanding of waste management has not played an important role in encouraging increased behavior in caring for waste management in the environment. This phenomenon then refutes the statement that knowledge will always correlate with behavior. This finding is supported by research by Duduong, AMV *et al*. (2024) [2], which states that there is no significant relationship between knowledge and TB prevention measures in families. A similar opinion was also obtained from the results of research by Santi, APP, *et al*. (2020) [11] that there was no significant influence between knowledge about waste and students' habits in sorting waste, because the coefficient of determination value obtained was only 0.090%.

The relationship between knowledge and behavior are two variables that require evaluation of the process between the two. The high value of knowledge in the form of environmental information in this case about waste management cannot necessarily indicate positive behavior of respondents towards concern for waste problems.

Knowledge is the result of human knowledge of something, of all human actions to understand an object that is faced, or the result of human efforts to understand a particular object (Surajiyo, 2008) [14].

Environmental knowledge possessed by a person needs to have direction and strength in the form of Intention that leads to an action and behavior that cares about the environment. So that conditions are needed in the form of attitudes that provide direction for an action. In other words, the role of attitude is an open reaction in the form of activities that are predispositions in the form of closed

reactions to behavior or actions (Widayati, 2017) [17].
Environmental behavior is part of environmental awareness, namely in the form of stages from the lowest to the highest levels including knowledge, attitudes and behavioral patterns. (Wibowo, 2011) [16]. Thus, the form of environmental awareness in the context is an action or attitude that is directed from an understanding of the importance of a good environment, for example clean, healthy, and so on. So that environmental awareness can be measured from a person's behavior or actions towards the surrounding environment without pressure (Amos, 2008) [1].
On the other hand, the strategy of acquiring knowledge is also a separate issue that influences the emergence of an attitude of caring for the environment. Several studies have shown a strong relationship between knowledge and attitude, Rasyid, R, *et al*. (2023) [8] proved that there is a significant relationship between environmental knowledge in Geography education students and the formation of an attitude of caring for the environment.

Conclusion

Waste management is not just a simple activity, it even requires knowledge to be realized in the form of behavior in everyday life. The aspect of knowledge about waste management in this study shows a linear relationship with behavior that cares about waste problems but does not show any influence on behavior that cares about waste. Environmental knowledge that a person has needs to be evaluated because it has a direction and strength in the form of Intention that leads to an action and behavior that cares about the environment.

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