



Influence Sustainable Consumption Campaigns on Intention to Perform Food Waste Reduction Behavior of Young Consumers in Yogyakarta

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Abstract. Food waste was the biggest contributor of waste amount 40,8% in Indonesia, according to Sistem Informasi Pengelolaan Sampah Nasional. Food waste also has a significant impact on the environment due to its greenhouse gas emissions. However, food waste is still uncommon in public discourse. Gifood is the social community established to begin action on food waste and sustainable consumption campaigns, especially for young consumers in Yogyakarta. The research employed the Theory of Planned Behavior as a theoretical framework, and used a quantitative method to gather data a year (2019–2020). 135 Gifood's social media followers were randomly selected as study samples. By using simple regression analysis, this research found that sustainable consumption messages had a statistically significant effect on attitude ($t_{\text{value}} 3,871 > t_{\text{table}} 1,656, p 0,00 < 0,05$), subjective norm ($t_{\text{value}} 4,247 > t_{\text{table}} 1,656, p 0,00 < 0,05$), and perceived control ($t_{\text{value}} 9,098 > t_{\text{table}} 1,656, p 0,00 < 0,05$). The results also showed that using a multiple regression analysis, the subjective norm and perceived control variables can explain 59.6% of the variation in the intention variable. The subjective norm had most influence ($\beta = 0,443$) and followed by perceived control ($\beta = 0,315$). While attitude had not statistically significant. The study suggests that in order to promote sustainable consumption more effectively, factors such as normative beliefs, motivation to comply with others' opinions, and perceived control should be taken into consideration.

Keywords: Sustainable Food Consumption · Food Waste Campaign · TPB

1 Introduction

1.1 Research Background

Indonesia is among the top countries in the world that generates a large amount of food waste, with an average of 300 kg of food per capita being disposed of annually [1]. A large amount of food waste occurs. Food waste grows along with modern consumption habits caused by wasteful behaviors and practices by consumers [2]. Witzel et al. [3], states that consumer perceptions and behavior are the biggest sources of food waste.

Food waste is the food of good quality and suitable for human consumption, but is not consumed because it is discarded - either before or after it is damaged [4]. Food waste is

the result of negligence or a conscious decision to dispose of food [5], so that it is closely related to consumer behavior [6] which can actually be avoided. In general, consumer behavior in producing food waste has a small global impact. However, the number of millions of daily foods at the consumer level is the main activity that contributes to health, the environment, and economic aspects related to food [7, 8].

Before the Indonesian Government gives their focused on the food waste reduction through the National Development Planning Agency (BAPPENAS) as a leading sector, a grassroots initiative called “Gifood” was established in 2017 to respond the food waste problem. These initiatives focus on aspects such as creative campaigns. The “Foodsharing” movement in Germany [9] and the “Love Food Hate Waste” campaign in the UK by WRAP [10] have provided success in their efforts to reduce hunger and eliminate waste among countries in the world, by carrying out that kind of initiative.

Gifood is a pioneering online logistics platform in Indonesia that boasts unique innovative features and effective prevention strategies tailored to the specific sociocultural conditions of the community. This study builds upon previous research on food waste, such as that conducted by Mandasari [11] and Pamela [12], which examined key factors that contribute to food waste, this study aimed to show 1) how sustainable food consumption messages from Gifood influence attitude, the subjective norm, and perceived behavior; 2) what factors are influence intention on reducing food waste and sustainable food consumption practices.

1.2 Literature Review

Sustainable Food Consumption. The idea of sustainable development is no longer a new thing in world society. Since 1984, when the Brundtland Commission formulated sustainable development as having the core purpose of meeting the needs of today’s generation without causing harm to that of the future generation, it’s become the principal for drafting development goals today. As discussions and negotiations on the post-2015 development agenda progressed, it became clear that current and future social, environmental, and economic challenges are interconnected and require an integrated approach to address them. This includes addressing sustainable consumption practices related to food, which is referred to as Sustainable Food Consumption.

Sustainable Food Consumption (SFC) has set a goal to reduce per capita global food waste by 50% at the retail and consumer level by 2030. This target is achieved through prevention, reduction, recycling, and reuse. However, there is no universally accepted definition of sustainable food consumption. Among the conceptualizations in circulation, in a comprehensive manner, Reisch et al. [13]; Gisslevik, [14]; Racz et al. [15] outline the definition by highlighting ecological, social- health, ethical, and economic aspects related to food consumption.

Ecological aspects are closely related to how to shop, store, cook and, most importantly, throw food away. Research by the Barilla Center for Food and Nutrition [1], shows that each person in Indonesia contributes about 300 kg of leftover food per year. These trends have a significant impact on the environment, and food waste contributes to the problem of climate change by increasing the emissions of greenhouse gases (GHG). Social-health aspects related to this food consumption are where one of the goals of a sustainable consumption pattern focuses on social issues such as reducing hunger for

people with economic limitations and saving costs on food consumed, which leads to the welfare of the community also to the prevention of stunting, obesity, and other diseases caused by a lack of food consumption patterns. Economic aspects related to this food waste causes economic loss because every food waste at the end of the food system uses the greatest amounts of resources. Consumption requires individuals to be responsible for food that is ethically safe, fair, and not detrimental to humans.

The Theory of Planned Behavior. In general, consumer behavior in producing food waste has little global impact when compared to, for example, the primary agricultural production phase. However, the number of millions of daily foods at the consumer level is the main activity that contributes to many aspects related to food (Ivanova, et. al., 2016). Based on that argument, the actions and choices of consumers can be said to play an important role in the food system because consumers ultimately make decisions about what food and services they consume and can significantly influence demand and even various types of food product supply [7].

The theory of Planned Behavior (TPB) provided a framework for examining the influence of the independent variables on behavior concerning the food waste reduction in the context of sustainable consumption. TPB is an extension of the Theory Reasoned Action (TRA) (Ajzen and Fishbein, 2011). TPB explains that attitude toward the behavior, subjective norms, and perceived behavioral control collectively influence a person's intention to carry out a behavior.

An attitude towards a behavior is a person's position on an affective or bipolar dimension towards an object of action or event, and it is composed of cognitive, affective, and conative components. Beliefs about the consequences of behavior (beliefs of outcomes of behavior) and an assessment of the consequences of these behaviors for oneself (evaluation regarding the outcomes) determine attitudes towards behavior (Fishbein and Ajzen, 1975) on food waste reduction.

Beliefs in other people's opinions (which are considered important) related to developing norms (normative beliefs) and motivation to follow other people's opinions (which are considered important) (motivation to comply with others' opinions) determine the subjective norm as social pressure for someone to do or not do something. In this context, Gifood encourages individuals and should behave in a sustainable consumption by reducing food waste and helping people who live in difficult situations to access adequate food.

Perceived behavioral control refers to an individual's perception of the ease or difficulty in performing a certain behavior. This perception is based on past experiences and the perceived obstacles that must be overcome to perform the behavior. Belief about the success of doing something either due to effort or external factors (the locus of control); and the availability of resources and the role of resources in realizing behavior (strength and power control belief) determine perceived behavior control.

1.3 The Research Framework

The research will propose Fig. 1, to postulate the relationship between the different variables used in this research, as the literature review presented above. Based on research framework below, the following hypothesis is proposed:

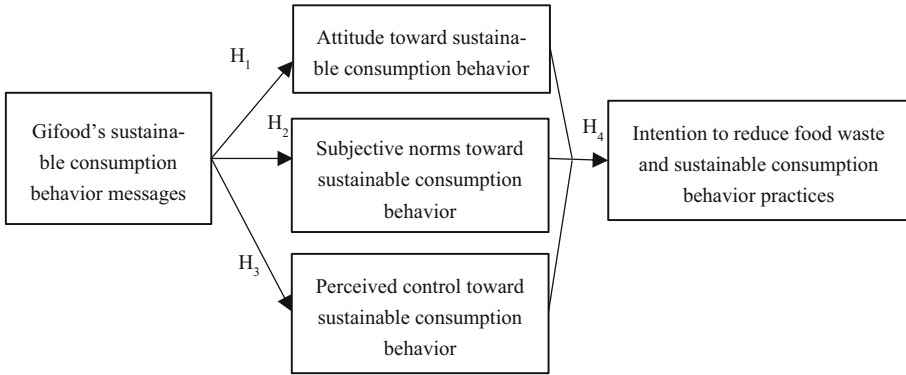


Fig. 1. Research framework

H1 Sustainable food consumption messages have a positive and statistically significant effect on attitudes towards sustainable food consumption.

H2 Sustainable food consumption messages have a positive and statistically significant effect on the subjective norms towards sustainable food consumption.

H3 Sustainable food consumption messages have a positive and statistically significant effect on perceived control towards sustainable food consumption behavior.

H4 Attitudes, the subjective norms, and perceived control have a positive and statistically significant effect on intentions to reduce food waste and sustainable food consumption behavior practices, collectively.

2 Method

The Theory of Planned Behavior (TPB) was used as the theoretical framework for this research, and a quantitative method was used to solicit data from the study sample to answer the research questions. A self-administered questionnaire is a research tool in which participants complete a set of questions on their own, without the assistance of a researcher. Previous authors designed the questionnaire in this study, and it is being used to investigate the relationship between independent variables and the dependent variable. The authors used a random sampling technique. Random sampling is a method of selecting participants for a study in which each member of the population has an equal chance of being chosen. It is a type of probability sampling that allows the researcher to select a sample of participants from the population [18].

At least, respondents must have one of some criteria, such as 1) followed Gifood's social media, 2) shared their excess food through Gifood, 3) received excess food from Gifood, 4) donated their money through Gifood, and 5) joined Gifood's webinars, challenges, etc. The sampling is based on Roscoe (1975) in [19] that is, if the research will use multivariate analysis (the correlation or multiple regression, for example), then the number of sample members is the at least 10 times, the number of variables researched. Therefore, minimum number samples taken was $n = (10 \times 5 \text{ variables}) = 50$ samples. This research randomly selected 135 of Gifood's social media followers from approximately 2000 followers.

Thus, the sample size has met the requirements of the number of samples. This questionnaire contains a total of 71 questions to measure variables using 5 Likert-type scales ranging from 1 = strongly Disagree to 5 = strongly Agree, etc. It is highly critical to note that in designing the questionnaire, we have adopted questions from various previous research.

Simple regression analysis is a statistical technique used to measure the relationship between a single independent variable and a single dependent variable. It was used in this research to analyze the relationship between the independent and dependent variables for the first, two, and three hypotheses. On the other hand, multiple regression analysis is used to investigate the relationship between a single dependent variable and multiple independent variables. This method was used to answer the fourth hypothesis.

3 Results

3.1 The Influence of Sustainable Consumption Behavior Campaigns

Gifood is a social community in Yogyakarta, that is working to address important issues related to food waste and sustainable food consumption. By taking action and raising awareness in their community, the undergraduate students behind Gifood are making a positive impact and helping to promote more sustainable practices [20].

The results of this study founded that sustainable consumption messages had statistically significant towards attitude ($t_{\text{value}} 3.871 < t_{\text{table}} 1,656$), the subjective norm ($t_{\text{value}} 4,247 > t_{\text{table}} 1,656$, $p 0,00 < 0,05$), and perceived control ($t_{\text{value}} 9,098 > t_{\text{table}} 1,656$, $p 0,00 < 0,05$) (see Table 1). This study's findings are consistent with previous research on the effectiveness of campaigns to reduce food waste [21–23]. Chen and Jai [23] studies have found that messages that focus on the environmental benefits of reducing food waste can have a strong impact on people's attitudes and behavior. Additionally, the credibility of the source of the message can also play an important role in shaping people's perceptions.

Gifood's campaign has been successful in encouraging young people to take responsibility for their food consumption habits and be more mindful of food waste. This includes actions such as finishing meals, bringing home unfinished meals, practicing organic composting, giving extra food to others, and other small efforts that individuals can take. The campaign provides information about global and local food waste research, as well as research conducted on campus through interactive quizzes and informative posters. It also actively engages young people by encouraging them to share their own ideas on reducing food waste on social media and recognizing their contributions through events such as the Zero Waste Challenge and the Food Waste Diet Week.

3.2 3.2. The Intention on Reduce Food Waste and Sustainable Food Consumption Practices

Gifood followers who exposed information about food waste and sustainable food consumption has tested about their intention on reduce food waste action. We founded that subjective norm had most influence ($\beta = 0,443$) and followed by perceived control ($\beta =$

0,315). While, attitude had not significantly effect the intention (p value $0.084 > p 0,05$) (see Table 2).

The number Adjusted R^2 is 0,596, by using a multiple regression analyzer. This statement suggests that a research study has found that intention variable explains 59.6% of the subjective norm and perceived control being studied, but that other factors not included in the variable also play a role in explaining the phenomenon (40.4%).

The study found that most participants had not yet formed a strong opinion about sustainable food consumption, particularly in regards to taking action. The results also showed that the attitude towards sustainable food consumption had no significant effect on the intention to reduce food waste, particularly in the conative component. This component, which is the tendency to act, was found to be the most important factor. This finding is different from other studies that have found a correlation between attitude and intention in sustainable food consumption [23–25].

Gifood’s campaigns had not significantly affected the attitude, which means indicators in this research failed to explain correlation or effect at confidence significant 95%. However, although the influence of attitudes and behavior can be measured, it is not uncommon for the results of attitude measurements to be out of harmony with the results of behavioral measurements. This is because the correlation between attitudes

Table 1. The Result of hypothesis 1st (H1), hypothesis 2nd (H2), and hypothesis 3rd (H3) testing

Model	t value	p value
Attitude	3.871	0.000*
Subjective norms	4.247	0.000*
Perceived behavior	9.098	0.000*

Independent Variable: Gifood’s message
 * $p < 0.05$

Table 2. The result of hypothesis 4th (H4) testing

Model	Standardized Coefficients (β)	t value	p value
Attitude	0.141	1.743	0.084
Subjective norms	0.443	5.337	0.000*
Perceived behavior	0.315	4.689	0.000*
Adjusted R^2	0.596		

Dependent Variable: Intention
 * $p < 0.05$

and behavior is still lacking. Attitudes are measured on a general scale, but behavior is measured on a very specific scale [26].

4 Conclusion

Gifood is a community that encourages individuals to reduce food waste and support those in need by providing a supportive environment and role models. To effectively promote sustainable food consumption habits among young people, Gifood should focus on both the “conative” (the tendency to act) and “attitudinal” (overall attitude) aspects. This research suggests that campaigns to reduce food waste should also take into account factors such as people’s beliefs about others’ opinions, motivation to comply with them, belief in their own ability to control their behavior, and the resources available to them.

This study has some limitations, such as the sample being specialized and the research period being short. More research is needed to study the effectiveness of social campaigns on food waste reduction and explore other factors that may influence behavior. This can include looking at the role of family, friends, and policies, as well as government regulations.

Acknowledgements. We express our gratitude to Universitas Gadjah Mada for providing financial support for this research through the Rekognisi Tugas Akhir Program 2020. We also extend our thanks to the members of Gifood for sharing their experiences with us. We would not have been able to complete this study without the support of the 1st International Conference on Multidisciplinary Studies (ICoMSi) 2022.

Author Contributions. S.P.W and D.A were had been work together and involved in planning, funding acquisition, and supervised this research, to the analysis of the results, until this manuscript could be done properly. All authors have read and agreed to publish this manuscript.

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