

# A Conceptual Framework: Determinants Of Food Waste Behavioral Intention Among Millennials In The Food And Beverage Industry

Journal of Tourism, Hospitality & Culinary Arts (JTHCA) 2024, Vol. 16 (1) pp 945-955  
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Submit date: 15<sup>th</sup> August 2023  
Accept date: 13<sup>th</sup> Sept 2023  
Publish date: 30<sup>th</sup> April 2024

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## Proposed citation:

Maripat, N., Hamid, R. Ahmat, N.C. (2024). A conceptual framework: Determinants of food waste behavioral intention among millennials in the food and beverage industry. *Journal of Tourism, Hospitality & Culinary Arts*, 16(1), 945-955.

## Abstract

Food waste's financial and environmental costs challenge the food and beverage industry. The critical driver of food waste is often aimed at Millennial consumers. This attracts the interest of researchers to determine Millennials' consumer behaviour intention towards the issue of food waste. However, the Millennials need the motivation of behavioural intention towards food waste. This article aims to build a model by proposing a new conceptual framework consisting of consumer value with two dimensions: environmental concern and materialism value, self-efficacy, and food waste behavioral intention among Millennials to understand better the consumer food waste issues in the food and beverage industry. As a result, this finding will provide knowledge through the food and beverage industry by examining the variables that lead to the food waste behavioural intention among Millennial consumers.

## Keywords:

Environmental Concern, Food Waste Behavioural Intention, Materialism Value, Millennials, Self-Efficacy

## 1 Introduction

The food and beverage industry showed waste during consumption, with 93% of consumer behavior being the critical driver of food wastage (Filimonau et al., 2019). In the hospitality and food service sector, food waste amounts to a 23% loss in terms of the value of the food purchased in Malaysia (Papargyropoulou et al., 2019). Food waste is not defined by a single behavior but rather by a combination of several behaviors that might raise or help reduce the risk of food waste. Therefore, understanding the attribute that contributes to food waste behavior is necessary to minimize food waste in the food and beverage industry. Food waste prevention and reduction are among the 17 Sustainable Development Goals (SDGs) in Agenda 2030 for sustainable development. The third objective under SDG 12 (Target 12.3) on “Responsible Production and Consumption” seeks to halve food waste at the retail and consumer level by 2030, given that the end consumer contributes more than half of it.

The Department of Statistics’ Household Expenditure Survey Report (2019) states that food and beverages are necessities, accounting for more than 50% of Malaysian consumers’ daily purchases. Peculiarly, Malaysia’s movement control order (MCO) restrictions significantly impacted food waste reduction in conjunction with the pandemic (Ismail et al., 2020). However, because of consumers’ positive attitude toward food delivery services during the pandemic, buying habit is increased, and this positive attitude towards food delivery apps increase the consumer’s tendency to order more, thus creating the possibility of food waste generation (Sharma et al., 2021). Consumer purchasing intent has emerged as a significant critical quality that has led to the creation of food waste in various households (Nayyar, 2020). Millennials are optimistic about online shopping (Mohd Ridzuan et al., 2023; Dharmesti et al., 2019) and tend to patronize food service enterprises (Filimonau et al., 2019).

There are three critical aspects for analyzing the drivers of food waste behaviors and intervention and one of the aspects is the motivation to prevent food waste (van Geffen et al., 2020). A consumer’s willingness to take activities to reduce food waste is referred to as motivation to prevent food waste. Consumers who lack food capability to manage food waste are a significant cause of food waste generation. Hence, the sequential structure of self-efficacy explains how capabilities contribute to food waste reductions (Aschemann-Witzel et al., 2020).

Values are defined as an individual’s idea about the importance and utility of learning and acting in specific ways (Hamid et al., 2019; Schunk & Usher, 2012). Diaz-Ruiz et al. (2018) proposed environmental concerns and materialistic values as influencers of food waste generation in their alternative approach to understanding food waste generation. Teller et al. (2018) agreed on the importance of involving the consumer in preventing and reducing food waste at the store level. Consumption and shopping habits change only gradually and over time. In this way, consumers could be made aware of their responsibility and contribution to food waste generation. Hence, psychological factors play a more significant role than thought in impulse buying and excessive buying ultimately leads to food waste by consumers (Lahath et al., 2021).

Therefore, there is a need for a strategy to reduce food waste by reducing leftover and serving the waste, improving surplus recovery capacity, better alignment with practitioners, and studies with a higher level of scientific validity, as half of the strategies are based solely on exploratory studies (Islam et al., 2022; Vizzoto et al., 2021). The study examines the mediation of self-efficacy between values and food waste behavioural intention among Millennials. This conceptual paper will discuss the determinants of food waste behavioural intention among Millennials to better understand consumer food waste issues in the food and beverage industry.

## **2 Literature Review**

### **2.1 Millennials**

As the first generation to be influenced by global warming and greenhouse gas emissions, "Generation Y" was born between 1981 and 1996 (Dimock, 2019). Regarding health awareness attitude variables, "Generation Y" follows a healthy lifestyle, including food and nutritional intake (Nabernik & Khan, 2020). As a result of varied behaviors in terms of healthy eating habits, this influences disposal behavior. The millennial generation, also called "Generation Y," is concerned about environmental issues, believes in labelling and certification systems to communicate information about different forms of production, and hopes that innovative processes will minimize the environmental effect (Bollani et al., 2019).

The term "youth" refers to a group of the Millennial generation widely regarded as one of the most wasteful consumers (Huang & Tseng, 2020). Bravi et al. (2019) report that one of the significant categories of population generating food waste is shown to be youths and young adults. As a result, their food-related behavior and intent to avoid it should be studied more closely among Millennials. There is also a pressing need to take activities that will impact them and result in behavioral changes.

### **2.2 Environmental Concern**

Environmental concerns of individuals may have a significant impact on food waste behavior (Diaz-Ruiz et al., 2018). The study is a survey and collected 418 respondents in Barcelona (Spain). Respondent expressed a high level of concern for the environment regarding food waste. In terms of environmental concern, a large majority of respondents believe that if the food waste trend continues, it will soon face a substantial ecological catastrophe.

Bandura (1986) describes human behavior because of social cognitive theory's interaction of personal, behavioral, and environmental elements. The theory explains how personal experiences, other human actions, and environmental factors affect personal behaviors. The social underpinnings of cognitive and behavioral are the scope of this theory. This study focuses on how a person's attitude influences their beliefs and, as a result, their behavior. Self-efficacy is a crucial internal motivational process

that determines motivational outcomes such as decisions, effort, perseverance, and achievement (Schunk & DiBenedetto, 2021). Personal and social factors can impact it.

Abdelradi, (2018) found that environmental concern is increased by understanding more about food waste. Increasing consumers' knowledge about food waste's environmental benefits will help reduce food waste. However, the value of the environment is decreasing because of materialistic value.

The view that food waste violates moral standards and harms society and the environment is more strongly held when horizontal individualism is higher or the value of materialism is lower, respectively (Chang, 2021). On the other hand, respondents are unaware of the environmental difficulties caused by food waste and have no view of the relevance of planning activities related to food purchasing and meal preparation at home (Djekic et al., 2019). With the following notion, the hypotheses are based on the previous argument:

H1a: Environmental concern has a significant effect on self-efficacy.

H1b: Environmental concern has a significant effect on food waste behavioural intention.

### **2.3 Materialism Values**

A person's level of materialism is a psychological concept that reflects how much they value money, material belongings, appearance, and social position compared to other life goals (Kasser, 2018). A vital component of the human value system is materialism, which is somewhat at odds with intrinsic values related to one's development, strong connections with others, and selflessness (Kasser, 2018).

An individual who values gaining a sense of agency believes that they can exercise a significant amount of control over important elements in their lives and are motivated to do so. Values seem to be the most important when it comes to influencing individuals' decisions because they are the key to motivational outcomes (Maddux et al., 1986). The characteristics of a sustainable lifestyle might be operationalized as less materialism, stronger environmental values, more life satisfaction, and greater participation in particular leisure activities (Gatersleben et al., 2018). As a result, the study formulates the following hypotheses:

H2a: Materialism values have a significant effect on self-efficacy.

H2b: Materialism values have a significant effect on food waste behavioural intention.

### **2.4 Self-Efficacy**

Self-Efficacy is primarily concerned with the role of personal cognitive factors in the triadic reciprocity model of social cognitive theory both effect and behaviour and the effect of behaviour, affect, and environmental influences on cognition (Maddux, 1995). Bandura, (1977) explains that self-efficacy was originally defined as a specific type of expectancy that refers to one's beliefs in one ability to perform a particular behaviour or set of behaviour required to achieve an outcome. Self-efficacy also concentrates on the cognitive aspects of mastery and effectiveness rather than more

emotional dimensions like needs, intention, values, and efficacy feelings (Bandura, 1977). The values of the affective and evaluative aspects of perceived control and mastery are not diminished by focusing on cognitions and expectations.

In the context of purchase intention, self-efficacy had a beneficial effect on the purchasing intention of participants in their 30s and younger (Jang & Lee, 2022). The findings of this study are important in dealing with food waste problems that are directly related to the global environment, as they confirmed both threat and coping appraisals of food waste problems perceived by individuals, as well as identifying individuals' ugly-off purchase intention to reduce food waste. In this study, individuals' views, and confidence in their abilities to execute a sequence of actions to effectively reduce food waste and improve existing environmental concerns are referred to as self-efficacy.

The higher the consumer self-efficacy, the more likely it is to reduce food waste. Key sources for increasing self-efficacy include verbal training, physiological and affective variables, learning from role models in comparable circumstances (vicarious learning), and mastery experiences, with these being important sources (Bandura, 1977). As a result, performance achievements boost self-efficacy, and learning based on satisfying mastering experiences can improve self-efficacy beliefs. Self-efficacy probably has significant effects in the context of food handling, a repetitive, frequent behaviour with numerous opportunities for experience and learning. How a consumer responds to certain food-related situations may depend on a domain-specific belief related to food management issues. Hence, the following hypothesis is based on the previous arguments:

H3: Self-efficacy has a significant effect on food waste behavioural intention.

H3a: Self-efficacy mediates the relationship between environmental concern and food waste behavioural intention.

H3b: Self-efficacy mediates the relationship between materialism values and food waste behavioural intention.

## **2.5 Food Waste Behavioural Intention**

The theory of planned behaviour (TPB) is commonly applied to predict human behavioural intention (Ajzen, 1991). Humans behave responsibly and frequently consider the implications of their actions. TPB postulates three independent determinants of intention. The first is an attitude towards behaviour and refers to the extent to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question. The second predictor is a social factor called subjective norm. It refers to the perceived social pressure to perform or not perform the behaviour. The third predictor of intention is the degree of perceived behavioural control, which refers to the perceived ease or difficulty performing the behaviour and is thought to reflect experience as well as anticipated obstacles. In general, the more favourable the attitude and subjective norms are towards behaviour and the greater

the perceived behavioural control, the stronger a person’s intention should be to perform the behaviour.

Other researchers extended this theory to find the predictors related to food waste behaviour intention. The study is to investigate the factors that affect young consumers’ food waste behaviour in a developing country context (Bhatti et al., 2019). The result shows that attitude and injunctive norms influence the intention to reduce food waste, but moral norms and perceived behavioural control (PBC) do not significantly influence this intention.

Aktas et al. (2018) using TPB as a theoretical lens, designed a questionnaire that incorporates contextual factors to explain food behaviour. In the context of food waste, TPB has often been used as a theoretical tool to explain consumer behaviour. The data confirm a significant relationship between food waste and contextual factor which is motives, financial attitudes, planning routine, food surplus, social relationship, and Ramadhan. Attitudes towards food waste positively affect the intentions to reduce food waste. Subjective norms and intentions are positively correlated and are supported. A negative relationship between PBC and the intention to reduce waste. That means when it is difficult to control food waste, the intention to reduce it is low.

TPB also tests extended variables by including price consciousness and food waste to understand and antecedent of food waste in the restaurant (Coşkun & Özbük, 2020). Intention to reduce food waste and PBC had significant negative effects on food waste behaviour. Food taste exerted a significant positive effect on food waste behaviour. Attitude towards food waste, PBC and price consciousness positively affected the intention to reduce food waste.

Based on the identification in the reviews of the relevant literature, the variable of the dependent variable in this study is the food waste behavioural intention of the Millennials and the independent variable is consumer values which consist of environmental concern and materialism value. Self-efficacy is predicted to mediate the relationship between consumer values dimension and food waste behavioural intention. The theoretical framework is illustrated in Figure 1.

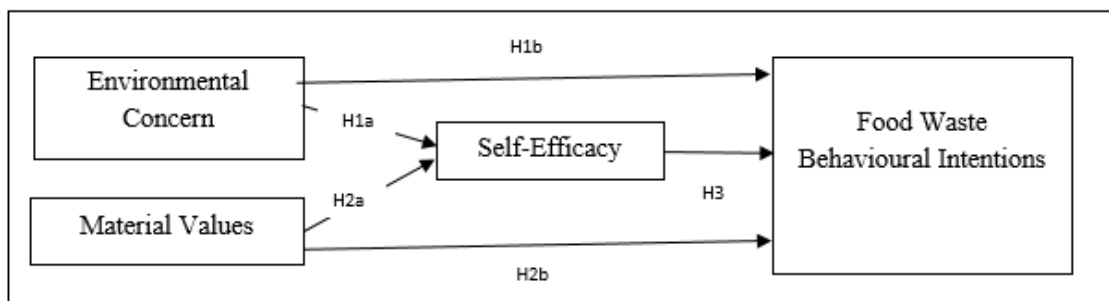


Figure 1: A proposed conceptual framework

### **3 Methodology**

#### **3.1 The Questionnaire Design**

An online survey questionnaire will be administered with the measurement using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). After identifying the variables in the relevant literature review, the dependent variable in this study is food waste behavioural intention and the independent variable is the dimension of consumer values related to food waste behaviour which consists of environmental concern and materialism values adopted from Diaz-Ruiz et al., (2018). Values items can use to predict self-efficacy and food waste behavioural intention among millennial consumers. Self-efficacy is predicted to mediate the relationship between two independent variables and food waste behavioural intention. Subsequently, the development of a conceptual model consisting of this variable is required to create correlations for methodology purposes.

#### **3.2 Data Collection Procedure and Data Analysis Procedure**

The target population for the study are Millennials consumers in Malaysia who have eaten in restaurants (ordinary restaurants, upscale restaurants, and cafeterias/bars). The data will collect at the end of the year. The purposive sampling techniques will be used in this study which is the sample is the Millennials generation in Malaysia who have eaten in restaurants in the past three months. The online survey will conduct to distribute the questionnaire to the respondent. The questionnaire will be distributed through e-mail and other social media platforms such as Facebook.

There are two stages in data collection. The first stage is the pilot study involving a minimum of 30 respondents. The second stage of data collection is fieldwork. Tabachnick et al. (2007) recommends using the confidence interval as a formula to calculate the sample size of the study. The confirmatory factor analysis (CFA) will be used to validate the measurement model using the data from this stage. Following the validation of the measurement model, the model will be changed to a structural model for hypothesis testing using structural equation modelling (SEM) because it is appropriate for a complex structural model with several constructs and relationships (Hair et al. 2019).

### **4 Findings**

This study proposes a conceptual framework that integrates consumer values dimensions, self-efficacy, and food waste behavioural intention in the food and beverage industry in Malaysia. The study will select Millennial consumers who have eaten in restaurants (ordinary restaurants, upscale restaurants, and cafeterias/bars) as a target population, and an online survey will be conducted. The proposed conceptual model will offer insightful information about the formulation and validation of domains that measure consumer value dimensions, self-efficacy, and behavioural intention of food waste.

This study expects to discover a significant positive influence of consumer values dimensions on self-efficacy and food waste behavioural intention. This study also expects that there will be a significant positive relationship between consumer values dimensions and self-efficacy, where self-efficacy will have a positive effect on food waste behavioural intention. The expected finding will contribute to the new knowledge of variables that influence food waste behavioural intention among Millennials consumers. This study will also investigate two mediating effects: the mediation effect of self-efficacy on the relationship between environmental concern and food waste behavioural intention, and the mediation effect of self-efficacy on the relationship between materialism values and food waste behavioural intention. This finding predicts that self-efficacy can be a driver of motivation between value dimension and food waste behavioural intention.

#### **4.1 Theoretical and Practical Contribution**

This study will contribute to three aspects. The first contribution is the development of a new research model. The finding will bridge the knowledge gap by identifying behavioural factors that are both, directly and indirectly, present among Millennials consumers and that influence food waste behaviour intention. This study will integrate four constructs simultaneously in one model, namely environmental concern, materialism values, self-efficacy, and food waste behavioural intention. As a result, five hypotheses are proposed in the research model which is considered an important contribution to the existing literature.

The second contribution is the selection of the study population. This study will focus on the study of consumer behaviour intention among Millennials in Malaysia towards food waste. Instead of buying too much food and throwing it away, Millennial consumers should be responsible for food purchases. Consuming food responsibly has a significant influence on consumer behaviour. Assessing the population is important to provide valuable input to stakeholders in the food and beverage industry to formulate food waste management strategies.

The third contribution is to highlight the practical implication of the study. The finding of this study will benefit the private sector, particularly food and food materials merchants including grocery stores, restaurants, cafes, and hotels by training their employees in effective and efficient methods for managing food during the purchasing, preparation, and sale of food materials. By understanding numerous methods and information concerning the management of food purchasing, food preparation and food waste minimization, consumers will also profit from the study. The study will also give direction to the consumer to build awareness and motivate them on the issue of food waste behaviour. Identifying consumer values will affect their behaviour to reduce food waste in the food and beverage industry.



## 5 Conclusion

This paper suggests a research proposal related to the dimensions of consumer value, namely environmental concern and materialism value, self-efficacy, and food waste behavioural intention to determine consumer behaviour intentions towards food waste in the food and beverage industry. Consumer value towards food waste behavioural intention will be driven by self-efficacy as a mediator to further explain the results of this study. Therefore, knowing the nature of consumer values towards food waste behavioural intention will help the industry understand consumer behaviour and formulate strategies to manage food more effectively.

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