



**ADDRESSING FOOD WASTE REDUCTION IN THE NETHERLANDS THROUGH
LOCAL FOOD WASTE INITIATIVES.**

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Dedication

I dedicate this work to the Almighty God for successfully seeing me through two years of academic journey in The Netherlands. I also dedicate this work to myself for pushing through and never giving up even when it seems everything is not going as planned.

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It has been a six-month journey filled with great learning experiences, frustrations, and above all, discovering myself. Therefore, it will be remiss to not appreciate the people through whom I am able to come this far in my life.

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Abstract

Food waste has been increasing at an alarming rate globally, with its negative consequences across environmental, social, and economic environment. Hence, it is imperative that the ways of reducing food waste be thoroughly investigated. Local food waste initiatives operating at the downstream level of the supply chain has been identified as one of the tools that can play a huge role in helping consumers to reduce their food waste. They do this by carrying out a plethora of activities aimed at reducing food waste. This study investigates the role the local food waste initiatives in the Netherlands can play in motivating consumers to reduce their food waste. It further looks at how the different attributes of the food waste initiative can motivate and increase the likelihood of the consumers to want to join the food waste initiative and reduce their food waste. In order to infer this likelihood, the study carried out a vignette-based factorial survey with the attributes and their levels. A multilevel analysis of 656 vignettes from 141 respondents shows that young people within the ages of 18-30 are more likely to join the food waste initiatives given the different factor levels. Also, the study points out the role of location as an important attribute to the respondent. However, the impact of these factors/attributes are seen to increase when the consumers are young and mostly highly educated. Moreover, even though other activities of the initiative were positive and increases the likelihood of the people to join, there were found to be not statistically significant. Therefore, additional research on the ways to better maximise these activities to attract people's likelihood to join should be considered in future studies.

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1. Introduction

The importance of food in maintaining a sustainable lifestyle cannot be overstated. However, the environmental impact of its production is accountable for several climatic challenges, including greenhouse gas emissions, 80% of deforestation, biodiversity loss, and around 70% of freshwater consumption (UNEP, 2021). Current food consumption patterns, according to Jurgilevich et al., (2016), are unsustainable and have a negative impact on the environment. These environmental effects are exacerbated when these foods are discarded rather than consumed (Scherhauser et al., 2018). The global economy has lost billions of dollars because of unsustainable spending practices. Furthermore, from the standpoint of social sustainability, measures for reducing food insecurity and addressing global poverty include reducing food waste as a critical component (Godfray et al., 2010; McCarthy & Liu, 2017; Parfitt et al., 2010) and increasing food supply chain efficiency.

Food waste occurs across the food supply chain, from production to consumption with about 30-50% of food being wasted (Jurgilevich et al., 2016). Food waste is described as "any item or product, whether processed, partially processed, or unprocessed, intended for, or reasonably expected to be eaten by people," which has degraded into waste (Amicarelli et al., 2021). The FAO defines food waste as "food suitable for human consumption that is wasted, whether or not it has passed its expiry date or has been permitted to expire" (Chinie et al., 2021; Food and Agriculture Organization of the United Nations. & Food Wastage Footprint (Project), 2013). Food waste is regarded as a significant contributor to the three planetary crises: (1) loss of nature and biodiversity; (2) climate change; and (3) pollution and waste with impact on global warming equivalent to over 87% of the global road transport emissions. Accordingly, food waste account for 8% of all anthropogenic greenhouse gas emissions (Food and Agriculture Organization of the United Nations. & Food Wastage Footprint (Project), 2013).

Furthermore, 931 million tons of food waste were generated globally in 2019, including the European Union, with an average of 74 kg of food wasted per person. Globally, households, food services, and retail accounted for 61%, 26%, and 13% of total food waste, respectively (*FOOD WASTE INDEX REPORT 2021*, 2021).

In the European Union (EU), about 55% percent of food waste was generated from households' consumption (Eurostat, 2022). Food waste by consumers is estimated to be 95 to 115 kg per year.

Also, the EU supports the United Nations (UN) policy of reducing global food waste by 2030, and as such, has regarded addressing the issue as a strategy for attaining circularity, sustainability, food safety, and nutrient and raw material recovery (Garske et al., 2020). Through their revised Waste Framework Directive, member countries are required to include food waste reduction plans in their national waste prevention programs. They do this by adopting legislative and non-legislative initiatives, consumer awareness campaigns, and offering incentives to encourage the collection and safe redistribution of unsold produce (Eurostat, 2020; WWF-WRAP, 2020)

The Netherlands is not left out in this fight against food waste. On average, the amount of food wasted in the Netherlands between 2017 to 2020 was estimated to be between 1.81 billion kg and 2.51 billion kg, with residential consumers accounting for one-third of this food waste (NL TIMES, 2022; Voedingscentrum.nl). This means that each household contributes around 53-59 kg of the country's total food waste. To combat food waste in the Netherlands and in compliance with the SDGs, the government developed the United Against Food Waste awareness campaign in order to reduce the amount of food waste accumulated by Dutch households (government.nl n.d). The Dutch government has been tenacious in its efforts to reduce food waste, with the goal of being the first in Europe to eliminate this scourge (WUR n.d).

In the light of these efforts, many well-intended initiatives have cropped up to join the fight against food waste to attain this goal. These initiatives address food waste at several levels, including household, retail, and manufacturing (Soma et al., 2020). The goal of these food waste initiatives is to increase consumer awareness and motivation to reduce food waste, as well as to inspire positive behaviour change around food waste. Some studies that assessed the effects on consumer-level food waste behaviour, found that current interventions on food waste appear to reduce food waste by 5-20%. (Reynolds et al., 2019). Many authors, however, have identified the knowledge-action gap as one of the key reasons why, despite countless initiatives, food waste has not been eliminated altogether (Chinie et al., 2021; Zeinstra et al., 2020).

Studies have shown that food waste behaviour is influenced by personal attitudes, intentions, household practices, and the setting in which the purchase of food is made (Mondéjar-Jiménez et al., 2016; Quested et al., 2013a). As a result, food waste reduction behaviour is challenging since it is the result of a series of attitudes that begin at the time of food purchase planning. Aside from attitudes, one major challenge is a lack of awareness about food waste reduction practices, and

even knowledgeable consumers struggle to use their knowledge in their daily activities (Porpino et al., 2016; Szakos et al., 2021a). Scholars generally agree that influencing consumer behaviour through increasing knowledge about these food waste reduction practices and casting ordinary behaviours in a new light are critical aspects in improving food chain sustainability (Evans, 1992; Farr-Wharton et al., 2014; Stancu et al., 2016; Stangherlin & de Barcellos, 2018; Szakos et al., 2021b).

The majority of food waste interventions in the Netherlands were predicated on this premise of positive behaviour through knowledge of food waste reduction practices. According to Aschemann-Witzel et al., (2018; Farr-Wharton et al., (2014), cited in (van der Haar & Zeinstra, 2019), it is an increasingly difficult task to change a consumer's waste and food -related behaviour. One way to do this might be to look at the role that the local food waste initiatives can play in helping consumers to reduce food waste. Therefore, this thesis seeks to contribute to food waste reduction literature by narrowing the gap between consumer knowledge of food waste and the steps they take to decrease it. This paper closes this gap by using a factorial survey to infer consumer judgements on the role the food waste initiatives play in helping consumers to reduce their food waste. This is important because through knowledge of local food waste initiatives and partaking in its activities, consumers might be motivated to reduce their level of food waste, hence, which might lead to a decline in the amount of food waste generated in the Netherlands. Moreover, by examining the distinguishing characteristics of food waste initiatives, I evaluated which of the characteristics of food waste initiatives can encourage customers to participate in the initiatives and reduce food waste. By combining qualitative (interview) and quantitative data (survey), this study is a comprehensive study that encompasses various aspects of food waste behaviour such as awareness about food waste and food waste reduction practices, barriers to food waste reduction, and social norms attributed to food waste behaviour.

Past research on food waste reduction efforts has been undertaken in the Netherlands. However, to the best of the authors' knowledge, no peer-reviewed study has examined the local food waste initiatives in the Netherlands and the role they can play in reducing food waste at the consumption stages of the food chain. None has explicitly looked at their unique attributes and how these attributes can motivate consumers to reduce their household food waste. This study fills a substantial information vacuum that, if addressed, might enable consumers attempting to

minimize their food waste in the Netherlands by revealing the initiatives that are involved and most successful at reducing food waste. The study then makes a recommendation based on the results of the analysis.

1.2 Objective

To explore how consumers can be motivated to reduce their level of food waste and adopt food waste reduction behaviours, the following question must be addressed: **What are the roles of local food waste initiatives in diminishing the knowledge-action gap to motivate consumers reduction of food waste?**

To answer the broad question, the following sub-questions were identified:

- 1. What are the barriers affecting consumers' motivation to engage in food waste reduction?**
- 2. What is the perception of consumers about food waste and food waste initiatives?**
- 3. What factors can influence consumers to join food waste initiatives?**
- 4. How can food initiatives influence consumers to reduce food waste?**
- 5. What characteristics of the food waste initiatives can improve consumers' desire to reduce food waste?**

1.3 Significance of the Study

Governments, private businesses, and non-profit organizations have undertaken projects to raise awareness about this issue of food waste since food loss and food waste continue to bring social, economic, and environmental problems (Chinie et al., 2021).

Therefore, this study is of important to a lot of stakeholders such as the consumers, food waste initiatives, other NGOs, the government as well as has great scientific relevance. The influence of information campaigns on people's behaviour can help inform choices about the steps that must be taken to reduce food waste effectively and efficiently.

This study is of great importance to the food waste initiative because it will provide them with needed insight into consumers household behaviour, attitude, and norms about food waste. This will help them to better structure their activities to fit with the consumers' need to fight their food waste.

For the government and NGOs, this will provide them with research information that will help them formulate friendly policies that will support the local food waste initiatives in their fight against food waste. This could be in form of partnership, providing them with funding to upscale their activities into a full-time programme dedicated to fighting food waste.

Furthermore, inspired by the theory Motivation, Opportunity, and Ability (MOA), the academic relevance of this study is proved by the critical role it plays in defining the role the local food waste initiatives play in helping the consumers to reduce their waste. Previous studies on food waste reduction focus on national food waste initiative but fail to acknowledge the role of these local food waste initiatives that work closer to the people. By using the factorial survey experiment, it contributes to existing literature by providing room for future research into local food waste initiatives already existing in the Netherlands.

2. Literature review

The existing literature is replete with papers emphasizing the necessity of reducing food waste along the whole food supply chain, from agriculture to final consumption (Amicarelli et al., 2021). It is critical to have a thorough grasp of food waste and food waste-related consumer perception and behaviour. This is because in the developed nations, food waste happens primarily at the end of the Food Supply Chain. Thus, retailers, food services, and consumers need to reduce food waste especially in the developed world to achieve a circular economy (Mondéjar-Jiménez et al., 2016).

According to EU Commission (2014), transitioning to a circular economy (CE), needs changes in consumption behaviours (Alexander et al., 2013). As a result, modifying consumption habits, specifically food waste, is critical to developing a circular and sustainable consumption economy. The circular economy can be defined as an alternative to the unsustainable economic paradigm of "take, make, and dispose" (Lehtokunnas et al., 2022). It is an economy that reduces waste output while preserving the value of products, materials, and resources for as long as possible (Eurostat, 2020). Circular economy in the food system comprises reducing waste in the food system, reusing food, utilizing byproducts and food waste, nutrient recycling, and dietary changes toward more diverse and efficient food patterns (Jurgilevich et al., 2016). Hence, the economic, social, and environmental implications of food waste are tempered by the actions of a circular economy.

The economic implications of food waste both in terms of disposal cost and resources waste have been one of the guiding principles in the fight against food waste (Papargyropoulou et al., 2014). Therefore, emphasis should be placed on the economic benefits of reducing food waste, including increased savings. Aside from economic elements, the social elements of food waste centers around the ethical and moral dimension of wasting food as well as the social norms surrounding food waste (Nunkoo et al., 2021). Some studies agree that while these social norms can help to reduce food waste, they can also be suppressed by various factors (Wang et al., 2021) such as the good provider norm. Hence, there have been conflicting findings on its effect in reducing food waste (Aschemann-Witzel et al., 2018; Wang et al., 2021). On the other hand, there are also a variety of negative environmental effects in addition to social and economic costs. In terms of these environmental elements of food waste, measuring the amount of food waste and the potential for global warming can be a very powerful tool for educating consumers

about the problem of food waste (Flanagan & Priyadarshini, 2021). The emergence of food waste initiatives in the Netherlands as an alternative of the current consumption pattern, seeks to minimize the social, economic, and environmental impacts of food waste.

In terms of the psychological elements of food waste, Graham-Rowe et al., (2015a) discovered that people are concerned about food waste especially when consumers experience guilt when they throw away food. It has also been discovered that "guilt" is crucial for reducing food waste (Quested et al., 2013a; WWF-WRAP, 2020). Besides, Cantaragiu discovered that there are significant differences in attitudes toward food waste between genders and age groups among Romanian consumers. For example, Women between the ages of 20 and 30 are more likely to report feelings of guilt after throwing away food and consider food waste as a manifestation of social unfairness, whereas older women equate food waste avoidance with financial responsibility (Blichfeldt et al., 2015; Cantaragiu, 2019; Graham-Rowe et al., 2014). In addition, it was discovered that the amount of food wasted in households is related to merchant behaviors such as selling in bulk packing or employing promotions (Aschemann-Witzel et al., 2017; Lee, 2018).

Furthermore, food waste is best regarded as the outcome of numerous behaviours that can increase the likelihood or amount of food wasted rather than as a single behaviour. These behaviours are associated with numerous aspects of food's journey into and through the home: Food planning, shopping, storage, preparation, and consumption (dubbed "behaviours that promote food waste") (Quested et al., 2013a). There is frequently a conceptual gap between waste-related behaviours or waste-prevention behaviours and the outcomes of these acts. This means that other concerns, such as other aspects of food, health, or family meal expectations, are likely to be at the forefront of people's minds when they take actions that result in food waste.

Given that the relationship between these behaviors and the resulting food waste is complex, it is therefore not unexpected that there are a variety of motivators and themes that inspire consumers to reduce food waste. For example, both qualitative and quantitative studies have indicated that the idea of saving money is an effective motivator in helping consumers reduce their food waste (Goodman-Smith et al., 2020; Parizeau et al., 2015). However, even a seemingly straightforward idea like saving money can have many facets and be open to different interpretations. Saving money may be motivated by concepts like being frugal and avoiding waste, or it may be driven

by a hidden desire to have more spending power in other areas of the household budget. Understanding these intricacies and where the balance rests for different segments of consumers is essential to effectively utilizing this motivational element in local food waste initiative activities.

Despite knowledge of when waste occurs in the home food cycle, the variables and motivations that drive food waste behavior are complex. According to a qualitative research study of English consumers, the need to save money drove the desire to reduce food waste; yet the desire to be a 'good' provider, particularly among mothers, led to over-purchasing and, as a result, more food waste (Graham-Rowe et al., 2014). Food waste has also been linked to consumerism and the concept of a throwaway society, however clear evidence for this link is missing (Mallinson et al., 2016).

On the other hand, many sociodemographic and behavioral factors that affect household food waste behaviors are identified in the food waste literature (Boulet et al., 2021; Hoek et al., 2017; Quested et al., 2013a; van Geffen et al., 2020). For instance, van Geffen et al., (2020) found that conflicting goals, a lack of opportunities, and insufficient skills all contribute to household food waste. Furthermore, the volume of food wasted by a home has been connected to demographic characteristics (Mallinson et al., 2016), particularly household size. The total amount of preventable food waste grows with each new household member as larger families has been shown to produce less waste per capita than smaller ones (WRAP, 2009; Jörisen et al., 2015; Koivupuro et al., 2012; Parizeau et al., 2015; Quested et al., 2013a). Also, single-person homes were found to waste the most food per capita which was attributed to the significance of retail packaging styles with economies of scale (Jörisen et al., 2015; Koivupuro et al., 2012; Parizeau et al., 2015; Quested et al., 2013a). There are also some indicators that younger people squander food more frequently (Brook Lyndhurst, 2007, Mondéjar-Jiménez et al., 2016)). For example, in the United Kingdom, the usual target demographics for home food waste campaigns include young single professionals, young families, and younger members of lower socioeconomic categories (Brook Lyndhurst, 2007). Moreover, young people between the ages of 16 to 35 were found to waste at least 30% of food while people over 65 years old were found to waste less because of their experiences with food scarcity (Flanagan & Priyadarshini, 2021; Hebrok & Boks,

2017). Therefore, it follows that sociodemographic characteristics may influence how customers behave regarding food waste.

3 Conceptual Framework

Extant works have shown that there are numerous reasons and forms of behaviour that contribute to food waste, which may be classified as a complex behaviour (WRAP, 2011a; 2011b; Papargyropoulou et al., 2014; Quested et al., 2013a). As a result, finding an all-encompassing framework to explain this issue is quite difficult. According to Quested et al., (2013a), a model for analyzing food waste behaviour must consider the context in which the behaviour happens, the individuals' awareness of food waste, their attitudes and values, motivation, habits, the social norms, and perceived behavioural control. Therefore, this study was built on the conceptual framework of Motivation, Opportunity, and Ability (MOA) first developed by MacInnis and Jaworski (1989)(Mondéjar-Jiménez et al., 2016)

3.1 The Motivation, Opportunity, and Ability (MOA) Framework

This study will employ the MOA framework, which was developed around consumer marketing. The motive, opportunity, and ability classes of determinants are used in the MOA framework to explain consumer behaviour. The MOA framework's central tenet is that a new behaviour or change in behaviour is more likely to be carried out if a consumer believes it will advance their interests and is aware of the repercussions of not acting (motivation), has the options and access necessary to encourage the behaviour (opportunity), and has the knowledge and abilities necessary to carry it out (ability) (de Jonge, 2013; van Geffen et al., 2020). Other interpretations of the MOA framework broaden the concept of motivation beyond self-interest and incorporate components from the Theory of Planned Behaviour, such as behavioural intentions, values, attitudes, subjective norms, needs, habits, and goals that can be changed through awareness (Baumhof et al., 2018; MacInnis & Jaworski, 1989; Thøgersen, 2009; van Geffen et al., 2020). This broadened motivation concept was developed because intentions alone were found to be a lower predictor of food waste creating a value-action gap in food waste prevention (Stefan et al., 2013a). Also, because these concepts can be changed through awareness (Soma et al., 2021).

As a popular conceptual paradigm, the MOA framework is useful for explaining consumer behaviour by integrating incentives with habitual and environmental factors (Soma et al., 2021; van Geffen et al., 2020). Food waste is viewed as an unintentional result of iterative decisions and behaviours connected to home food management practices that are influenced by both internal (Motivation and Abilities) and external (Opportunities) elements in the MOA framework. The MOA framework has been applied to food waste behaviour (van Geffen et al., 2020) as it considers both the motivational factors that influence goal creation and the roadblocks that prevent goal execution, such as environmental structures (opportunities) and skill and knowledge gaps (abilities). It has also been applied to additional explanatory aspects that affect food waste, such as routines and abilities (MacInnis et al., 1991).

For this study, the MOA framework will be used to assess how best the local food waste initiatives can target the motivation, opportunity, and ability of consumers in Dutch cities. It will focus on the motivations for consumers to engage in food waste prevention behaviours as well as the barriers they encounter with regards to their opportunity and ability.

3.1.1 Motivation

Motivation has been identified as a necessary condition required for food waste reduction behaviour (Zeinstra et al., 2020). However, it is not a sufficient condition. The overall lack of awareness of the food waste problem is a significant motivator for minimizing food waste, as it occurs mostly unobserved. Motivation includes elements such as values, attitudes, and social norms that influence intention setting. The motivational variables look at how ready the consumers are to engage with food waste initiatives and take actions against food waste. Playing a critical role in this motivation are variables such as Awareness of food waste problem, their attitudes towards food waste, and the existing social norms (Matharu et al., 2022).

Consumer knowledge of the issue has been connected to several elements that contribute favourably to food waste reduction such as consumers' food quality expectations, low acceptance of imperfect foods, and their inability to buy and eat foods that are considered suboptimal. Several motivational barriers have been identified in literature, some of which include concerns regarding food safety, aversion of repeating meals or eating leftovers, social incentives for hospitality like

the desire to be a good provider for one's family or to be a good host causes consumers to waste food (Liao et al., 2018; Stangherlin & de Barcellos, 2018; Zeinstra et al., 2020).

3.1.2 Opportunity

The opportunity part of the framework refers to the external, situational requirements for engaging in food waste reduction behaviour. Opportunity is divided into two categories: social and physical (Aramyan et al., 2021). The significance of social networks and cultural norms in influencing how humans think about things is referred to as social opportunity. On the other hand, physical opportunity includes the environment in which humans exist, such as time, resources, and locations. Different sorts of instruments are appropriate depending on a person's (or group of people's) individual capabilities, motivations, and possibilities.

Lack of opportunity may have a direct impact on behaviour thereby preventing customers from reducing food waste despite their internal motivation to do otherwise (van Geffen et al., 2020). It can also have an indirect impact on moderating consumers' motivation to reduce food waste. For this study, the local food waste initiatives have been identified as the opportunity part of the framework. Therefore, consumers awareness of existing local food waste initiatives including the activities being carried out by these food waste initiatives can result in them participating more in these activities while sometimes their dissatisfaction with the groceries gotten from these initiatives can also make them throw away already purchased food. Besides, their ability to navigate the technologies employed by these initiatives can also make or mar their opportunity to reduce their food waste.

3.1.3 Ability

Ability focuses on the available knowledge and the skills needed by the consumers to carry out food waste prevention behaviours. In some cases, consumers may not change their food waste behaviour even if they are motivated and all situational preconditions are satisfied, due to a lack of capacity. Because human behaviour is mostly determined by automated and frequently unconscious processes, it is difficult to eliminate food waste. Habitual behaviour creates a barrier for any behavioural change, including food waste reduction behaviour, as it frequently occurs without our knowledge (Zeinstra et al., 2020). Moreover, poor knowledge of proper food management such as the difference between the 'best before' and 'use by' dates that leads to food

waste because consumers throw away good food unnecessarily (Liao et al., 2018; Stangherlin & de Barcellos, 2018). In addition, unintentional food spoilage results from improper fresh food storage techniques or forgetting about food that has been stored. Moreover, planning, purchasing, and cooking habits are frequently included in articles as ability-related determinants of food waste behaviour. Improving one's home cooking abilities (such as learning how to prepare foods or how to repurpose leftovers into new meals) may help prevent food waste in the kitchen. Checking one's food stock, making a shopping list, and sticking to it may prevent consumers from making impulse purchases and overbuying foods in the supermarket (Porpino et al., 2015; Principato et al., 2015; Quested et al., 2013b; Stefan et al., 2013b).

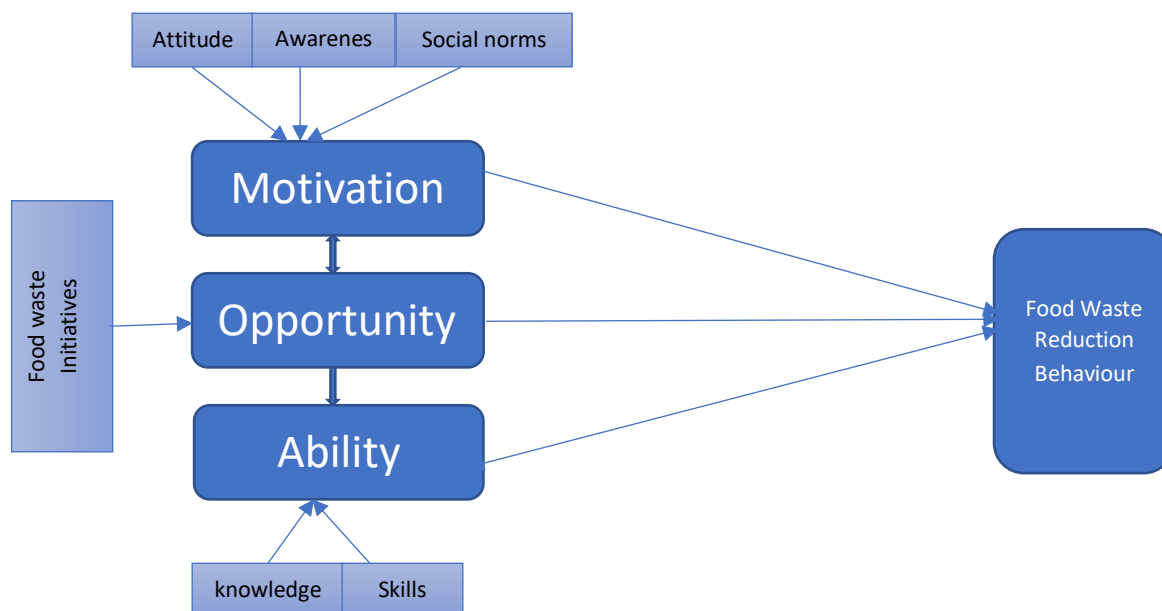


Figure 1: The Motivation, Opportunity, and Ability framework, adapted to this study from van Geffen et al., (2020)

4 Case Description

Food waste Initiatives in the Netherlands

There have been many interventions aimed at reducing food waste. The Sustainable Development Goal 12.3 calls for post-harvest losses to be eliminated as well as a global per capita reduction in food waste at the retail and consumer sectors by 2030 (Reynolds et al., 2019). In developed countries where majority of the food wasted (about 50%), occur at the consumer

level, it is important that these interventions make meaning impact in reducing the level of food wasted (Reynolds et al., 2019).

To achieve SDG 12.3 and reach their objective of a totally circular economy, the Dutch government has established several well-intended programs, including the zero-waste campaign and the United Against Food Waste, with the goal of reducing food waste by half by 2030. (wur.nl, 2018). In line with this, a lot of local private food waste initiatives have sprung up to undertake actions that can reduce food waste from the farm to home. In this section, we are going to look at some of the initiatives and what they do. It is important to note that there are many more local food waste initiatives out there that carry out different activities. However, for the purpose of this study, only these few were identified because they are specifically engaged in awareness activities and community engagement.

Buurtbuik: Buurtbuik, founded in 2014, is a food waste firm that saves food from local food companies that would otherwise go to waste. They reduce food waste while also boosting participants' social lives (combat loneliness) by organizing dinners where individuals can meet new people. At the same time, they strive to combat poverty by improving the lives of the people in the communities in which they operate. Their business model is based on the intrinsic drive and trust of their partners, volunteers, and participants. Impacts in 2020 include: collaboration with over 100 organizations and businesses who provide food, money, and partnerships, 115,331 kg of food saved, 194.565 meals served, and crowdfunding. They have branches in cities of Amsterdam, Rotterdam, and Utrecht (buurtbuik.nl)

Taste before you waste: Started in 2016, this organization fights food waste through education, workshops, presentations, cultural events, food cycle markets, wasteless meals and weekly surplus food market based on donations. They also contribute to a social movement of promoting a just and sustainable food system. They collaborate with supermarkets, farmers, and producers. Collaborate with educational institutes. Social catering to refugee camps, cultural centers, festivals, conferences, and other movements. They were able to conserve an estimated 2,547kg of edible goods and encourage 481 face-to-face contacts, according to their 2021 reports. It has offices in Amsterdam, Utrecht, and Bussum. However, from 2016 to 2021, there was a significant reduction in the number of individuals reached (tastebeforeyouwaste.org).

Kromkommer: Since its inception in 2012, kromkommer has worked to reduce food waste in the Netherlands by creating soups from crooked cucumbers. They are, however, currently active in educating people about food waste. They work with schools to create children's books, educational materials, and toys that teach children about crooked fruits and veggies in an entertaining way (kromkommer.com).

Zero waste: Zero Waste Netherlands educates, motivates, and encourages people to reduce their food waste. They give lectures and organize workshops, they advise companies, organizations, and governments, they connect parties working on innovations, they point polluters to better alternatives, they create and share zero waste tips and information, they conduct actions and campaigns, and they promote solutions, initiatives, and events (zerowastenederland.nl).

Groente zonder grenzen: collects food waste to plan free, healthy, and environmentally friendly meals. They aim to improve consumer awareness about food waste, healthy and sustainable food, and social inclusion. They arrange free buffets and develop recipes for things that might otherwise go to waste thanks to a network of volunteers (groentenzondergrenzen.nl).

Food cabinet: This campaign was launched in 2012. Through their educational campaigns and programs, they hope to persuade people to choose healthy, sustainable meals. They appeal to a diverse audience as they work to reduce food waste and affect change in the food chain. They monitor current consumer developments and trends through their network of chefs, growers, and food changers along the supply chain to increase fruit and vegetable consumption (foodcabinet.nl).

5. Methods

The study used primary and secondary sources of data collection to acquire information on how awareness about food waste efforts might drive consumers to reduce their food waste by participating in the initiatives. The secondary sources include existing information or literature on the topic of food waste reduction. This information was collected from reports, peer-reviewed articles, journals, and initiatives websites. The search words include words like ‘food waste’, ‘food waste reduction’, ‘motivation’, ‘food waste and awareness’, ‘attitudes to food waste’, and ‘food waste behaviours’, ‘social norms on food waste’.

5.2 Primary Sources: This study used two primary sources of data collection to get information about food waste awareness, motivation, attitude, and barriers, namely: interviews and an online survey.

5.2.1 Interviews: Unstructured interviews were used to get detailed information about the existing food waste initiatives in the areas of study, their activities, and problems, as well as their personal view on the issue of food waste and consumer participation. The unstructured interview was used because it has the advantages of being flexible and less formal which ensures that the interviewee feels at ease with the interviewer. Twenty-one (21) interview invites were sent to ten of the initiatives identified in the proposal. These invites were sent to the members of the respective initiatives through their emails as well as through their LinkedIn messages. Out of the twenty-one invites, only two positive responses were gotten by the researcher. Seven members sent regret emails about how busy they were. While twelve of the invites went unanswered. Though the two interviews were interesting and gave us insight into the initiatives' activities. Because the two initiatives are comparable in terms of what they do, the range of activities described is not all-inclusive of what the other initiatives perform. The interview with the two positive responders were conducted through Microsoft teams and their response recorded. The questions asked covered topics such as the goals of the food waste initiatives, their day-to-day activities, mode of operations, means of raising awareness, their view on how people can be encouraged to reduce their food waste. The interview was conducted in English.

5.2.1 Online Survey: Furthermore, a well-structured online survey was used to answer the broad research question as well as the sub questions. Some factors at the consumer level, such as knowledge and skills related to food and grocery shopping planning (Aktas et al., 2018; Qusted et al., 2013a), proper storage of (fresh) foods (Porat et al., 2018), concerns about resources and the environment (Qusted et al., 2013a); attitudes or values towards food waste, such as guilt, ethical considerations, and strong personal norms (Morone et al., 2018); barriers to reduce food waste such as habits and lack of motivation were captured in the survey. Prior to participating, respondents were given online information about the study and their consent was confirmed before they were given access to the online questionnaire. The study information made it clear that all replies would be utilized solely for academic research and that no personally identifying information would be gathered. The survey was used to answer the sub questions as follows:

To measure the barriers to food waste, the study identified various barriers already studied in the literature. Such barriers include quantity discounts from the supermarket, lack of time to go shopping often (Nunkoo et al., 2021), the habit of shopping without a shopping list, desire to be seen as a good provider, poor shopping planning, and poor knowledge of ‘use by’ and ‘best before’ dates (Quested et al., 2013b; Stefan et al., 2013b; Zeinstra et al., 2020).

To answer this question, the respondents were asked questions on the effect of quantity discounts by supermarket, wanting to be a good provider for their family, and going to the supermarket without first checking what they have at home affects their ability to carry out food waste reduction behaviour. In addition, an option for other barriers was given so the respondents can include other barriers that they have that were not identified by the survey. A Likert scale rating ranging from extremely weak (-3) to extremely strong (3) were given to the respondents to rate the strength of these barriers in preventing them from reducing their food waste. A descriptive analysis of this barriers shows how much each barrier affects the respondents against the other barriers.

To measure the perception of respondents to food waste. The respondents were asked how often they think about food waste. Questions that aim to find about what they think about food waste and its effects were used to measure this. Such questions which include questions on awareness of wasting food, food waste as a waste of resources, treatment of leftover food, treatment of non-aesthetic fruits and vegetables and the effect of food waste on the environment such as pollution were included in the survey. The aim was to get an insight into consumers’ perception about food waste, their attitude, level of awareness, and the social norms guiding their thinking. Their response was measured on a seven-point frequency scale ranging from strongly disagree (-3) to strongly agree (3).

The factors that can influence consumers to join food waste initiatives were identified through interviews with the local food waste initiatives operating in the Netherlands. At the same time, the perspective of the consumers of what can motivate them to join the food waste initiative was taken. This was measured by identifying statements about food waste and how they think being part of an initiative will be a steppingstone to reducing their food waste. Such questions include “I am open/willing to follow any activities that can help me to reduce my food waste”, and the vignette questions.

Sub question 4 was also answered through the vignette experiments where each respondent was asked to rate how likely they would want to join a food waste initiative given what the activities they do and the type of members they would like to be.

5.3 The factorial survey/Vignette Experiment

A factorial survey experiment was incorporated into the survey to understand how the different identified characteristics of the initiatives can motivate consumers to want to join food waste initiatives and reduce their food waste. The factorial survey is an experimental strategy that involves presenting respondents with various hypothetical descriptions of an object or circumstance to test how individuals form judgement across multiple scenarios (Auspurg & Hinz, 2015). In a factorial survey, it becomes possible to determine the weight each respondent gives to the various vignette qualities indirectly using respondent-specific regression analysis if each respondent is given enough vignettes. The notion that the respondent must evaluate concrete vignette descriptions without being required to explicitly state the influence of each vignette characteristic is one of the benefits of this technique. Evaluating concrete vignettes is thus, considerably more like real-life assessment than responding to relatively general and, most of the time, very abstract questions, as is common in survey research (Dülmer, 2016). As a result, the factorial survey allows a respondent's viewpoint to be ascertained with greater reliability and validity than more broad single questions. However, to reduce the complexity attributed to most factorial survey research, this design was used in only sub question 5 to answer the likelihood of each identified characteristics to influence respondents' motivation and as such answer the broad research question. The study identified three factors to study this influence: location, activities, and type of membership. The study hypothesizes that opportunity which is presented by the location of food waste initiatives, their activities, and the type of membership they operate can motivate people to join the food waste initiatives and reduce their food waste. These factors were used because it was a recurring theme in the interviews with the members of the food waste initiatives. According to the result of the interviews (personal communication, 2023), "we operate in almost every path of the city of Amsterdam because we want to make the opportunity available to everyone who wishes to join us, and they can join us by either volunteering for the tasks of picking the vegetables or cooking the meals or being a partner and ensuring the smooth operation of the initiative". Also, the characteristics of the initiatives were identified through literature on

food waste campaigns and the websites of the initiatives, and from the interviews with the members of the initiatives themselves. Some of the characteristics identified include education and workshop, free weekly dinners, free food markets, volunteer/social catering at refugee camps, sharing recipes for reusing food. To infer which of these characteristics that are likely to have more effect on the respondents, the characteristics were grouped as levels to the themes/factors already identified through interviews with the members of the initiatives; location of the food waste initiatives, their activities/attributes, and the type of membership they provide as follows:

Table 1: The factors and levels of the food waste initiative.

Characteristics	Levels
Location	(20 mins travel time) (30 mins travel time) (More than 40 mins travel time)
Activities of the initiatives	Education and workshop Free weekly dinners Free food markets Volunteer/social catering at refugee camps Sharing recipes for reusing food
Type of members	Partners Volunteers

The vignette gave a hypothetical description of a food waste initiative and contained a combination of levels that were gotten from extensive literature search and activities gotten from the interview with food waste initiatives. The vignette body looks thus:

*A food waste initiative exists in your city that is **{location/distance}** from your home. Every week, they promote social interaction and teach people to reduce their food waste by organizing **{activity}**. At the same time, there is an opportunity to be a **{type of membership}** at the initiative for at least 2 hours a week.*

Each hypothetical description was followed by the respondent's task of evaluating their likelihood of joining the food waste initiatives based on the scenarios given with the levels. Each vignette was given an 11-point scale from extremely unlikely (-5) until (extremely likely (+5), with zero

value reflecting “I have no idea”. This rating scale pattern was used because they have been identified in literature to offer more variance and produce reliable results (Abascal et al., 2013; Dawes, 2008; Saris & Gallhofer, 2007). This factorial survey was used to identify the likelihood of the respondents joining the initiatives given varying types of characteristics and activities. The aim of using this type of survey was to explore which of the attributes the consumers value better.

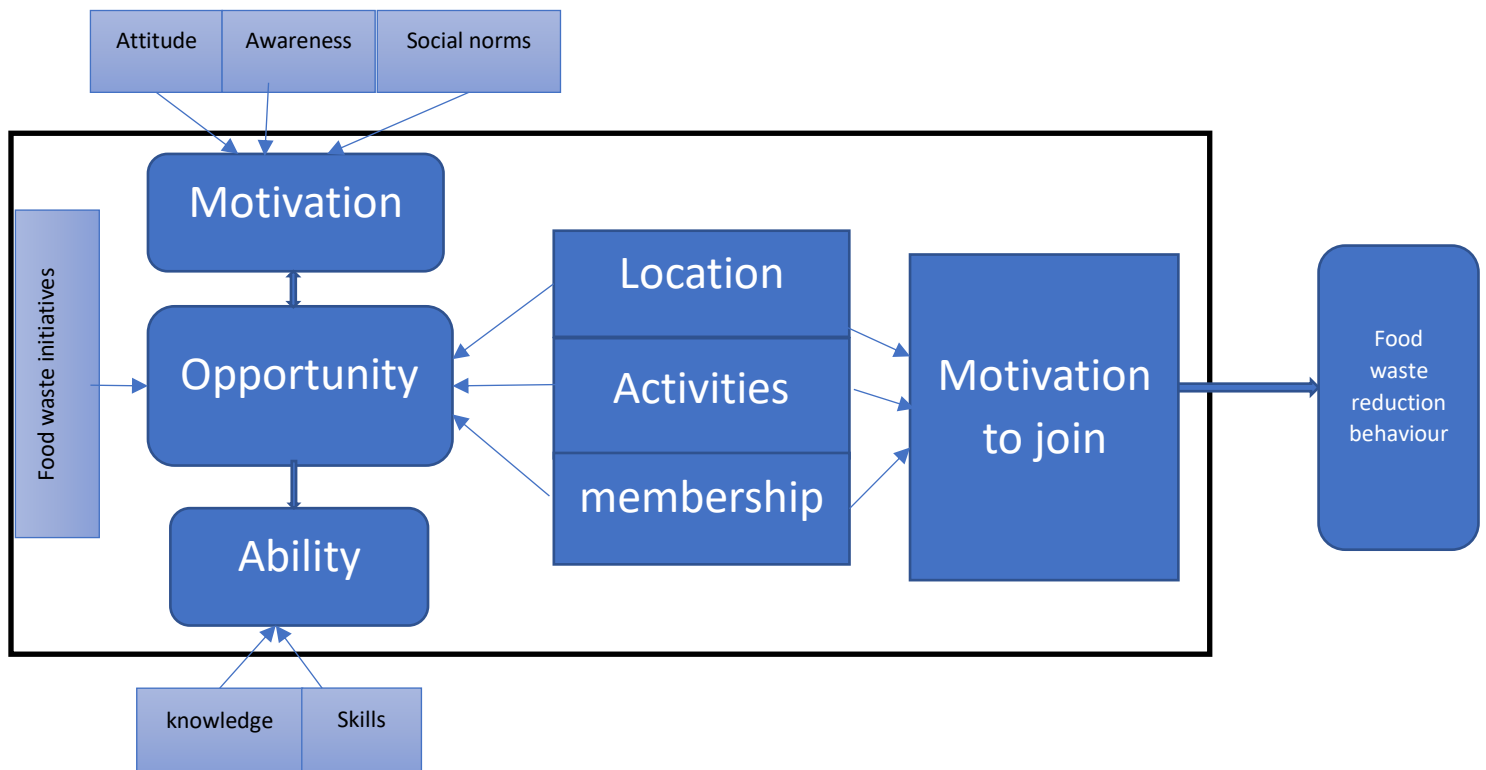


Figure 2: The reduced experimental model

5.3.1 Attributes and levels

According to the MOA framework, local food waste initiatives were modelled as the opportunity part of the framework. Since I aimed to explore how the various attributes of food waste initiatives can motivate consumers to reduce their food waste, we used a vignette experiment to determine the likelihood of joining by identifying major factors with their levels, that are likely to influence the respondents. Out of all the factors identified from both literature and the interview, only three were used to construct the vignette. These three factors were identified based on the interview with the food waste initiatives where they identified important things they

do and how it fits into what consumers sometimes want. These three factors/dimensions include location (20 mins, 30 mins, and 40 mins travel times), attributes (education and workshop, free weekly dinners, free food markets, volunteer/social catering at refugee camps, sharing recipes for reusing food), and type of members (partners, volunteers, partners/volunteers).

As already stated above, the factors used for the experiments were identified from literature and the interviews. The factors/dimensions used are all an integral feature of food waste initiatives divided into three distinct subheadings: location, activities, and type of membership.

Location was used as a factor because several of the initiatives already operate in different parts of the cities, their activities are accessible to many individuals. Due to people's need for convenience and ease of access, the values found for this component were measured in terms of travel distance. The means of travel considered were walking, cycling, and taking a bus. I chose the levels in terms of travel time because distance has been identified as a salient factor that determines peoples' motivation to be a part of a group activity. Also, travel time has been shown to bridge the gap between intention and action especially for people who are not good travelers (Kah et al., 2016; Nicolau, 2008).

In the case of attributes/characteristics, they were used because they are the core part of the local food waste initiatives, their own unique way of fighting food waste. The five levels of these factors were made up of these activities such as education and workshop, free weekly dinners, food cycle markets, social catering at refugee camps, recipe sharing. This factor had more levels because of the local food waste initiatives are engaged in a lot of activities. These activities were characterized into the five levels adopted for this study.

Finally, the type of membership represents the people that make up the food waste initiatives. It shows the capacity in which people can work to reduce their food waste, which in this case were volunteers or partners. The choices of these factors make the vignette scenarios, even though hypothetical, a little closer to the real-life situation.

The motivation for using these three factors was based on the information from the website of the initiatives and from the interviews. These features of the initiatives were then classified into the three factors used for the vignette. Aside from that, using three factors for the vignette helped

us to assign an efficient number of vignettes to the respondents without overloading with information. At the same time, the use of 3 x 5 x 2 levels for the three factors helped to construct realistic vignettes. According to Auspurg & Hinz, 2015), a small number of levels lead to a more efficient vignette samples and helps to avoid number of levels effects.

The collection of sociodemographic parameters is vital for the vignette data analysis since it aids in the investigation of varied response behaviors and the reduction of error variance at the respondent level. Overall, we collected six (6) demographic measures/variables: age, gender, educational background, net income, employment status, and type of household. This will help us to identify the effects of the factors on food waste reduction given each of the demographic factors.

5.3.2 Experimental Design

The study design consists of three factors A, B, and C (Location, Attributes, Type of membership) with three factor levels each in A and C and 5 factor levels in B. This causes additional demands concerning the design and analysis in comparison to a design with the same number of factor levels for each factor (Kirk, 1995, p. 640ff).

For the vignette, there are n factors: f_1, \dots, f_n factors with f_i factor levels, where $n = 3$, and $(i = 1, \dots, n)$. Our factorial survey design has 3 factors with 2, 5, and 2 factor levels respectively:

Therefore, the total number of possible vignettes is given as $f_1 \times f_2 \times \dots \times f_n$.

The vignette population = $a_1, a_2, a_3 \times b_1, b_2, b_3, b_4, b_5 \times c_1, c_2 = 30$

Just as identified above, the vignettes were randomized to ensure that each respondent gets six (6) vignettes from the vignette population. These six vignettes per respondent were set for two reasons:

first, each respondent can judge six vignettes without becoming tired or frustrated by the repetitious activity. Second, instead of comparing and assessing the six vignettes sequentially, they can compare them concurrently by placing them next to each other and then, rank and rate them. This increases the accuracy of the experiment by eliminating sequence and carryover effects Atzmüller & Steiner, 2010; Hedayat & Kirk, 1970; Steiner & Atzmüller, 2006; W & Hamada, 2009, Auspurg and Hinz, 2015).

5.4 Sampling Designs

5.4.1 Selecting the sample

The respondents were recruited through various social media platforms such as WhatsApp, Facebook, Instagram, supermarkets bulletin boards, survey circle, survey swap, and the university bulletin boards. The aim was to have a wide range of respondents of not just students but also, other types of households. The survey was sent out between the 18th of March. and the 8th of April. It should be noted that the survey involved people over the age of eighteen and includes both people living in shared apartments and those living in family homes.

5.4.2 Pretesting the survey

To verify the viability of our vignette experiment in measuring what it was supposed to measure and to test for the understanding of the survey by the respondents, we carried out a small pretest with 10 respondents randomly chosen from the desired population. This pretest was also carried out to test the clarity of the survey and check if the respondents understand what is expected of them, especially on the vignette part. Questions on the clarity of the words were included as part of the survey questions with an open question on which part of the survey was not clear. 90% of the pretest sample responded that the words used in the survey were clear and easy to understand while 10% of the sample reported that some words were not clear. However, further feedback was not given by the respondents on which part of the survey was not clear to them.

5.4.3 Econometric Model

For this study, the response from the respondents were treated as our dependent variable while the vignette factors and the demographic factors were treated as our independent variables. It is expected that the consumers desire to join the food waste initiative and reduce their food waste is a function of the three identified factors. This assumption is expressed in the following equations:

$$Y_{ij} = \beta_0 + \beta_1 X_{ij1} + \dots + \beta_p X_{ijp} + \dots + y_1 Z_{j1} + \dots + y_q Z_{jq} + \varepsilon_{ij}$$

with $i = 1, \dots, n_d$; $j = 1, \dots, n_r$

Where X denotes the p vignette factors/dimensions(1, ...3), Z denotes the q respondent variables, β and y are the regression coefficients that describes the relationship with the factors, j is an index for singl respondents, n_d is the number of vignettes shown to each respondent, and n_r is the number of respondents while e_{ij} is the error terms assumed to be centered around zero i.e., $e = 0$.

For the reduced model, the interactions between factors/dimension are given by the equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

6 Results

6.1 Sample statistics

A total of 171 respondents filled the survey. Out of the total responses, 30 of them were incomplete. Hence the sample size for the study was 141 respondents. A frequency table of the demographic data (Table 2) provides a snapshot of the survey respondents including the cities, gender, and education level. It good to note that values (.) represent the missing values.

The table shows that the respondents were from twenty-six (26) cities in the Netherlands, with Wageningen having the highest number of respondents at 44% (See Appendix 2). As can be seen in Table 2, In terms of shopping times, a large percentage of the respondents (60%) do their groceries once to twice a week and are single (41%) and comprised mostly of female (50%). Of importance to note is that 58% of the respondent's attended university, which means that the participants in the sample are highly educated. The implication of a highly educated sample could be that they are aware of food waste and its effect on the environment and the economy. A greater percentage (38%) of the sample do not have jobs (students) and consequently, have income below 500 Euros per month.

Table 2: Frequency distribution of the demographics

Shopping times	Freq.	Percent	Cum.
1 - 2 times a week	84	59.570	59.570
3 - 4 times a week	37	26.240	85.820
1 - 2 times a month	10	7.090	92.910
3 - 4 times a month	5	3.550	96.450
Other	5	3.550	100.000
Total	141	100.000	

Gender	Freq.	Percent	Cum.
Male	33	23.400	23.400
Female	71	50.350	73.760
Non-binary / third gender	1	0.710	74.470
Prefer not to say	1	0.710	75.180
.	35	24.820	100.000
Total	141	100.000	

Income	Freq.	Percent	Cum.
Below 1500	66	46.810	46.810
1500 - 2000	15	10.640	57.450
2001 - 2500	10	7.090	64.540
2501 - 3000	3	2.130	66.670
3001 - 3500	1	0.710	67.380
3501 - 4000	3	2.130	69.500
Above 4000	2	1.420	70.920
.	41	29.080	100.000
Total	141	100.000	

Education	Freq.	Percent	Cum.
Secondary School	8	5.670	5.670
Vocational School	6	4.260	9.930
University	83	58.870	68.790
.	44	31.20	100.000
Total	141	100.000	

Employment	Freq.	Percent	Cum.
Student	53	37.590	37.590
Employed	40	28.370	65.960
Unemployed	7	4.960	70.920
Self-employed	3	2.130	73.050
others	3	2.130	75.180
.	35	24.820	100.000
Total	141	100.000	

Age	Frequency
18	1
20	2
21	2
22	8
23	6

24	5
25	11
26	8
27	11
28	7
29	4
30	3
31	2
32	3
33	5
34	3
35	4
37	1
38	1
39	1
40	2
43	3
44	2
45	2
48	1
49	1
51	2
63	1
.	39

household type	Freq.	Percent	Cum.
Single (never married)	58	41.130	41.130
Living with partner	18	12.770	53.900
Married	20	14.180	68.090
Separated	2	1.420	69.500
Divorced	3	2.130	71.630
I prefer not to answer	5	3.550	75.180
.	35	24.820	100.000
Total	141	100.000	

6.2 Food waste Awareness, social norms, and barriers.

6.2.1 Barriers to consumers' motivation to engage in food waste reduction

As already stated in the methods above, several barriers to food waste reduction were identified in literature. In addition to those identified barrier, there was room for the consumers to write down other barriers not identified by literature. The respondents were asked the strength of each identified barriers in affecting the food waste reduction behaviour. The most frequently identified barriers by the respondents include buying things that I do not need because I like them (62%),

lack of time to visit the supermarket (43%), discount from supermarkets (37%), inability of the products to last before their best before dates (38%). Nevertheless, of all the barriers Identified, the respondents identified the less with checking food items at home before going to the supermarket. This shows that the respondent samples greatest barrier to food waste reduction is their impulse buying (overbuying) simply because they like them (see figure 3 below).

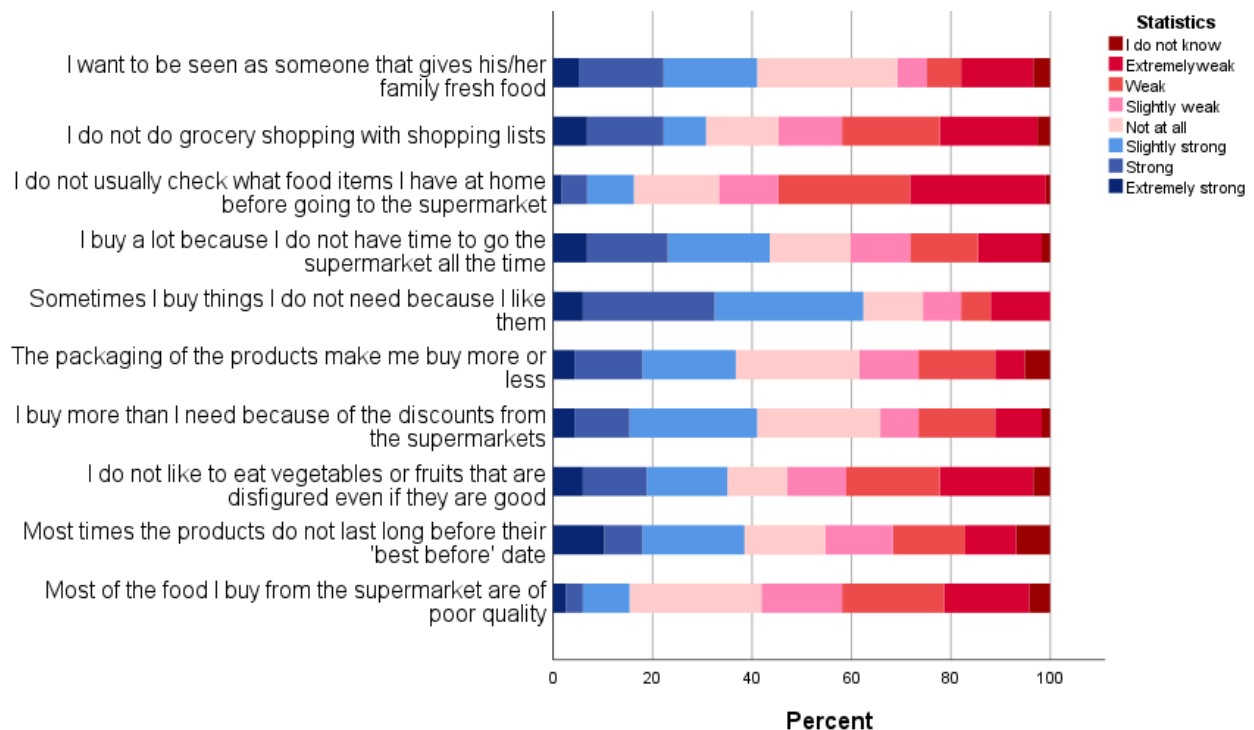


Figure 3: Barriers to food waste reduction

6.2.2 Perception of about food waste and food waste initiatives

The score ratings of respondents on statements about food waste was taken to measure their perception and awareness about food waste (Figure 5). A look at the frequency distribution of these ratings show that the consumers are aware about the problems of food waste and its effect on the environment in terms of pollution (64%), greenhouse gases and climate change (62%), and resources (78%). It also shows that the respondents are aware of the difference between best before and use by dates which has been identified by Wang et al., (2021) as one of the problems of awareness of consumers about food waste. However, it is interesting to note that their claim of

the knowledge of best before and use by date is confliction of whether to consume or throw away food that are not consumed by their best before dates (33%).

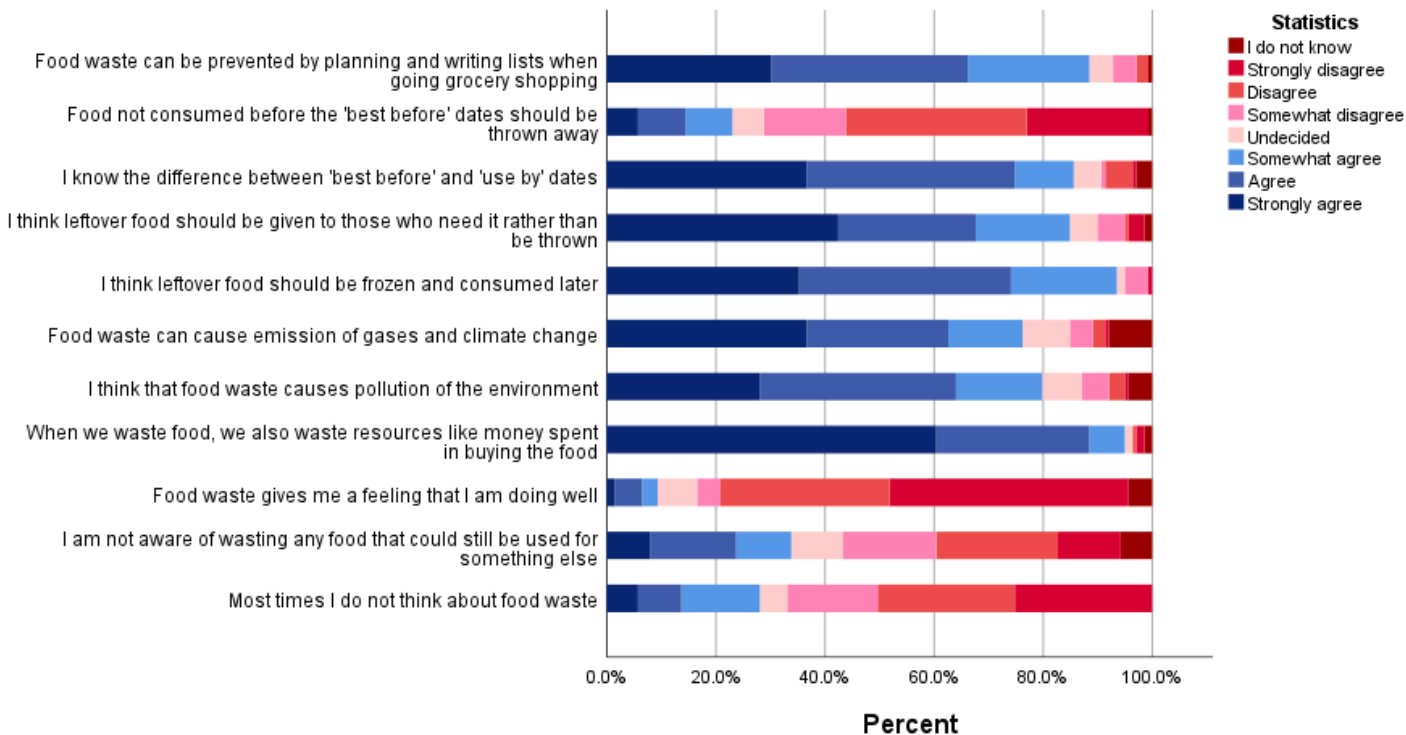


Figure 4: Awareness and perception about food waste

The study also tried to look at the attitudes of the respondent to wasting food (Figure 4). The results shows that most of the respondents reported to having a feeling of guilt when they waste food (74%). Feeling of guilt has already been identified in literature as one of the concerns about food waste (Graham-Rowe et al., 2014).

At the same time, 38% of the respondents reported that they would prefer to buy goods that look good physical to those that are not aesthetic. Consumers desire for aesthetic looking fruits and vegetables have been identified as one of the causes of food waste behaviour (Graham-Rowe et al. 2013).

Of interest to note is that 36% of the respondents disagrees that they are too tired or busy to carry out food waste prevention behaviours while 76% of the responded that are open and willing to take part in any activities that can help them to reduce their food waste. This result here highlights the knowledge-action that is the main scope for this study as well as the intention - action gap which is beyond the scope of this study.

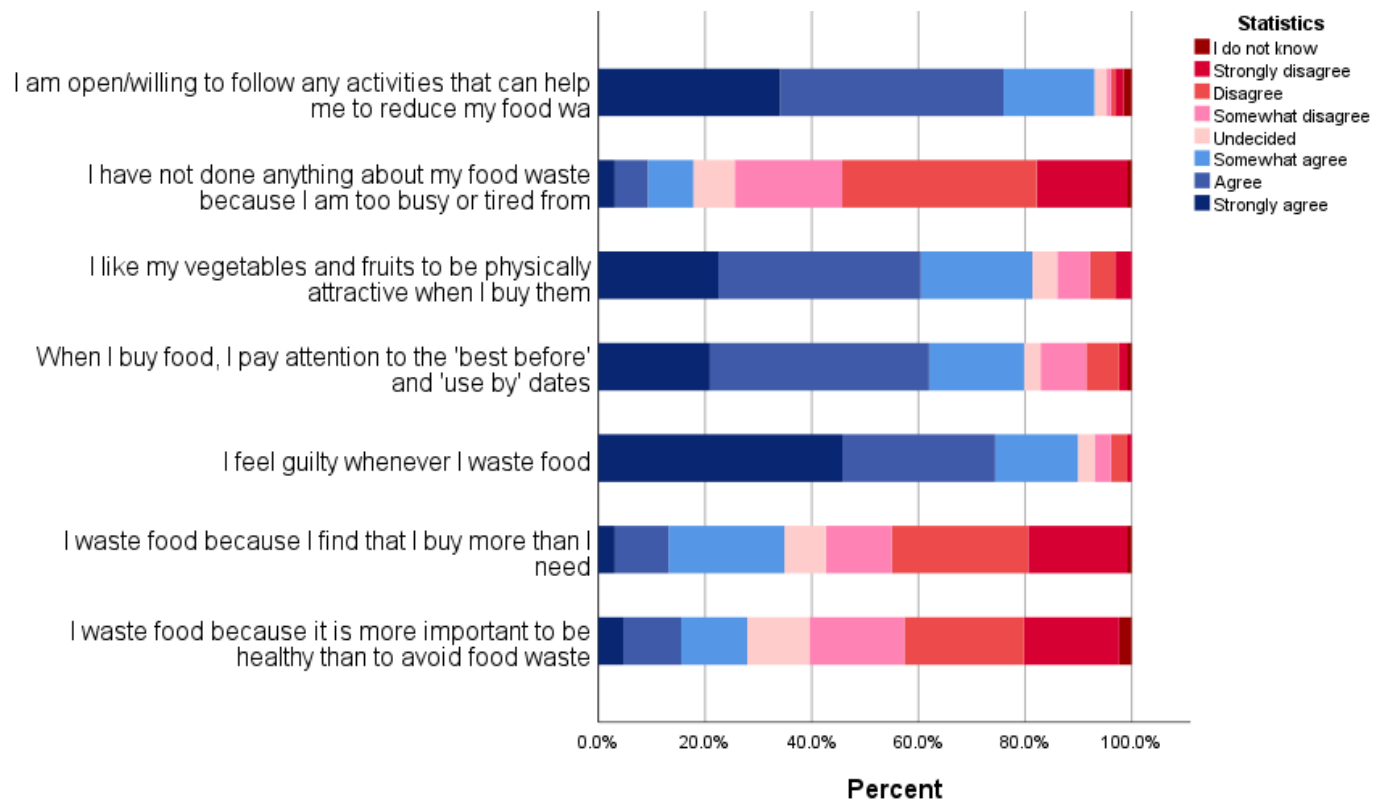


Figure 5: statements about attitudes of respondents to food waste

Furthermore, social norms and culture have been identified in literature as two of the factors that affect food waste reduction (cite). From figure 6 below, we can see that 80% and 57% of the respondents agree with these findings.

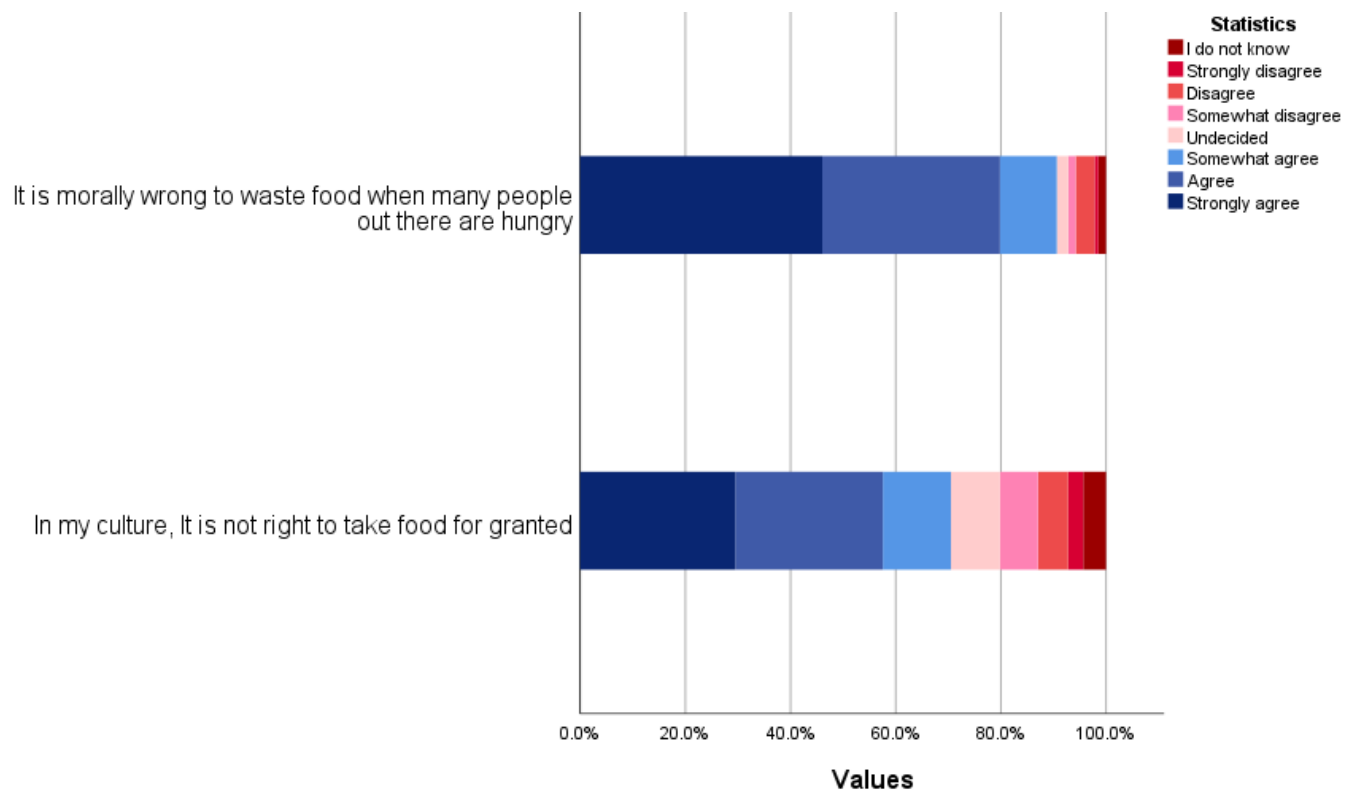


Figure 6: Role of culture and social norms on food waste behaviour

6.2.3 Factors that can influence consumers to join food waste initiatives.

Moreover, the result of the interviews with the food waste initiatives identified activities that are carried out by the initiatives on a weekly basis. A rating of the importance of each activity to the respondents shows that 45% of the respondents see the travel time involved as the most important attribute in their motivation to join the food waste initiative while the least important factor for the respondents is being a partner in the initiative at 19%. As already identified in literature, location plays an important role in people's determination to be a part of a group because of their need for convenience and easy access. It has also been shown that it does help to bridge the gap between intention and action (Kah et al., 2016; Nicolau, 2008). Knowledge of this will benefit the local food waste initiatives by helping them to adopt a strategy to attract more consumers. For example, by making sure they have multiple sightings in each city especially really large cities so as to remove the barrier of longer travel times that might diminish people's motivation to join.

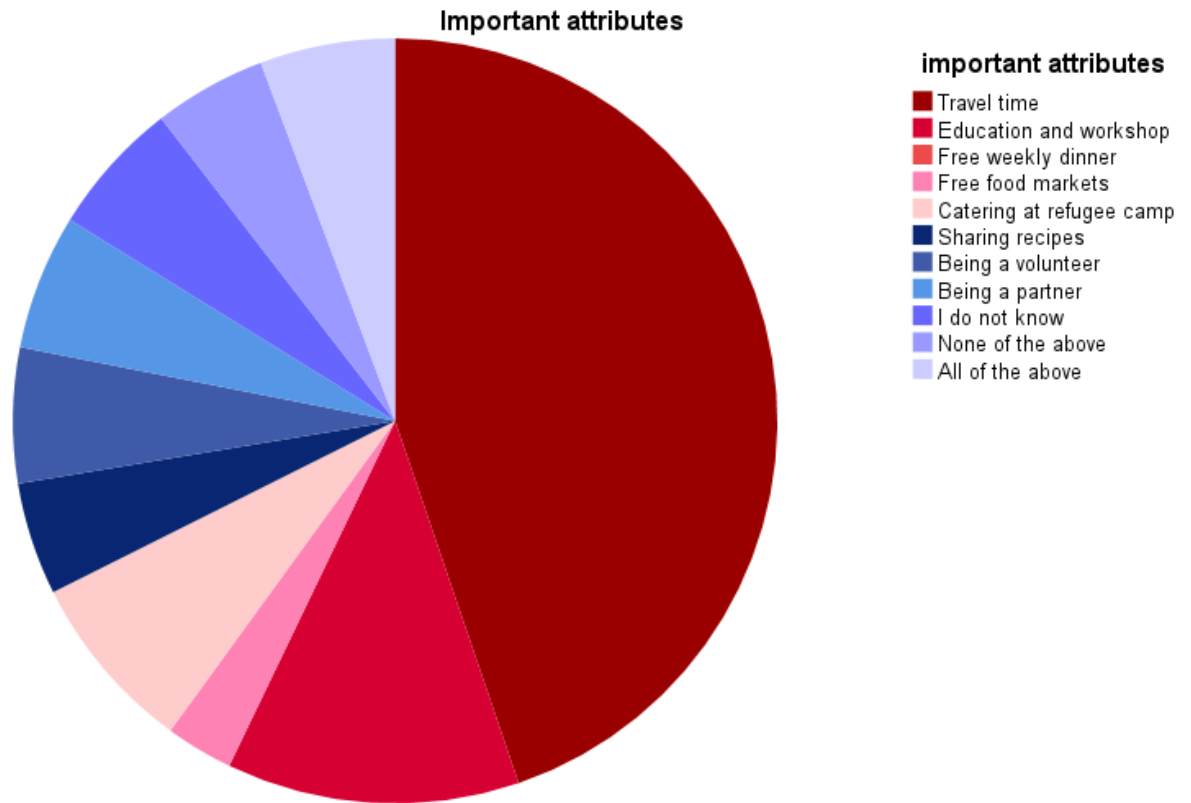


Figure 7: Ratings of importance of each attribute

6.2.4 What characteristics of the food waste initiatives can improve consumers' desire to reduce food waste?

The vignette experiment was used to capture which activities of the food waste initiatives can motivate consumers to join, and hence, increase their desire to reduce food waste. The distribution of the vignette ratings (-5 to +5) was checked by looking at the frequencies of each vignette ratings and presenting them in a bar chart. Figure 8 shows the impression of the respondents' evaluations of the attributes. The bar chart of the ratings shows that a great percentage of the respondents reported likelihood of joining the food waste initiatives given different factors and their levels. The mean likelihood to join among the respondents is statistically significant based on two-sided t-tests. Vignettes were given a rating of "likely" 115 times (18%) by the respondents, "moderately likely" was given 89 times (14%), slightly likely and extremely likely were given 54 (8%) and 41 times (6%) respectively. However, some

respondents were not likely to join the food waste initiatives given the attributes by rating “unlikely” 99 times (15%).

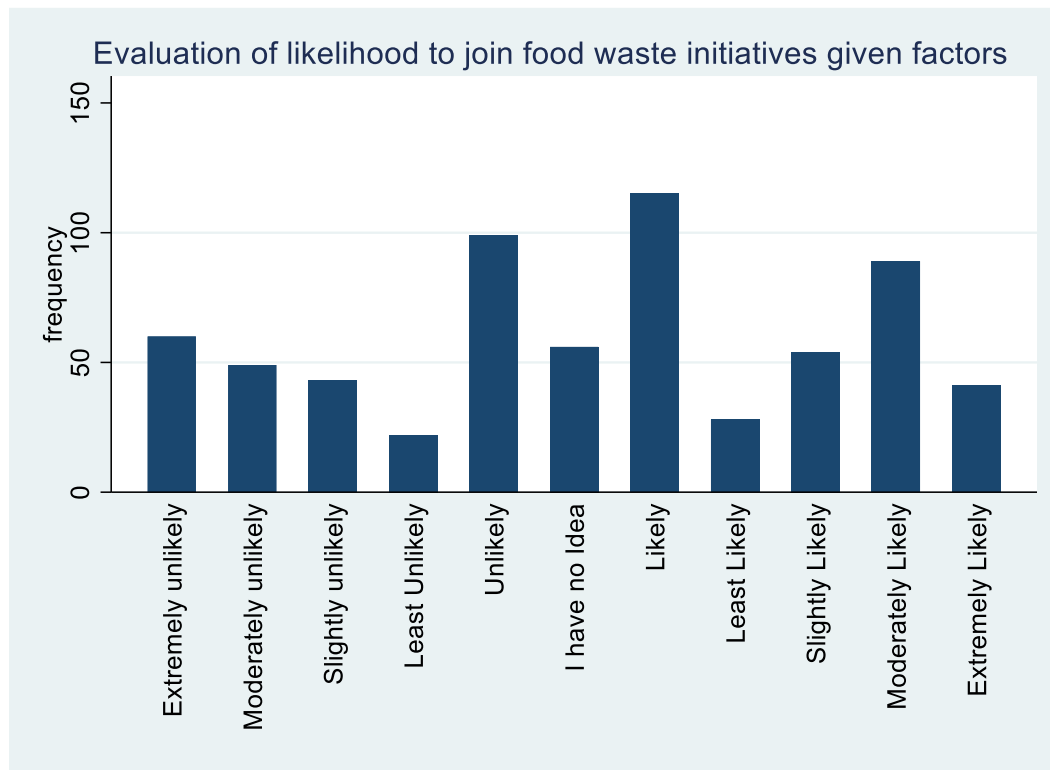


Figure 8: Vignette ratings by respondents on different attributes of the food waste initiatives

The normality of the ratings was checked using a boxplot (Figure 9 below). The plot of the distribution shows that the ratings are not normally distributed. A large part of the ratings is found on the right; hence, we can say that they are positively skewed to the right of the distribution. Also, it has been shown that 1 (Likely) occurred the highest with a frequency of 17.42% while -2 (least unlikely) occurred the lowest with a frequency of 3.33%.

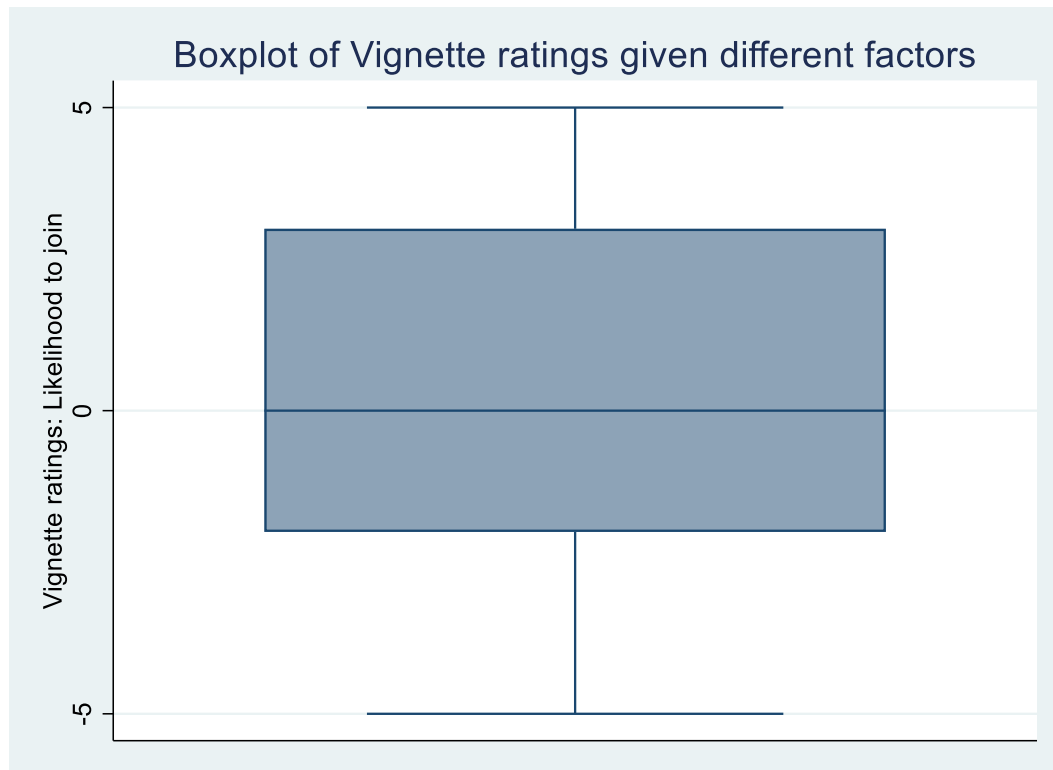


Figure 9: Evaluation of the likelihood to join food waste initiatives given factors/dimensions.

The factorial experiment was analysed using a linear regression and a multilevel model that account for standard errors both at the respondent level and at the vignette levels. Here, we obtain an estimate of the effect of each vignette levels on the vignette ratings. As can be seen in Table 3, in the multilevel model, we have two variances, the variance at the respondent level (0.90) and the variance at the vignette level (0.53). I used this type of analysis in order to help me to separate the error terms in to 2 parts to account for the clustering in the data to compute correct standard errors.

Table 3: Regressions of Food waste initiatives attributes on people's desire to join

Variables	Robust	ML	MElogit
Location:			
30 mins travel time	1.017*** (0.213)	1.213*** (0.167)	0.644 (0.555)
More than 40 mins travel time	0.181 (0.175)	0.409** (0.165)	-0.648 (0.476)
Activities:			
Free weekly dinners	-0.0967 (0.335)	-0.0202 (0.227)	- (0.727)
Free food markets	-0.533 (0.359)	-0.337 (0.231)	-1.134 (0.717)
Volunteer/catering at refugee camps	-1.039*** (0.358)	-0.658*** (0.228)	0.537 (0.831)
Sharing recipes	-0.612 (0.414)	-0.396* (0.228)	-0.904 (0.686)
Membership:			
Volunteer	0.0251 (0.256)	0.00841 (0.145)	0.662 (0.453)
var(_cons[id])		0.531*** (0.0303)	13.72** (6.473)
Constant	0.246 (0.353)	-0.0310 (0.301)	5.466*** (1.030)
Var(vignette level)	1.088*** (0.0388)	0.887*** (0.0725)	
Observations			656
Number of groups			112

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

In table 3 above, the location of the food waste initiative at 30 minutes travel time is statistically significant at p<0.01 in the Robust and Multilevel model (1.017, 1.213). The coefficients are also positive which implies that people are more likely to join the food waste initiative when the

travel time involved is 30 minutes. In the Multilevel model, a travel time of more than 40 minutes is statistically significant ($p < 0.05$, 0.409) and positive, implying the willingness of the respondents to join the food waste initiatives given the distance. This could be attributed to a lot of reasons like high motivation to be part of a group for altruistic purposes. The coefficient of the activity, Volunteer/catering at refugee camps is negative and statistically significant ($p < 0.01$, -1.039, -0.658) implying that people are not willing to join the initiatives when the activity involves volunteering at refugee camps. Furthermore, sharing of recipes is statistically significant at $p < 0.1$ in only the multilevel model but has a negative coefficient (-0.396). This suggests that people have no desire to join the food waste initiative even when they can get access to various recipes to reuse their foods.

Table 4: Results of the Multilevel modeling for the Vignette Attributes and controls for social demographics.

Variables	Robust	ML	Melogit
Location;			
30 mins travel time	1.068*** (0.221)	1.199*** (0.177)	0.860 (0.653)
more than 40 mins travel time	0.293* (0.177)	0.449** (0.175)	-0.713 (0.546)
Activities:			
Free weekly dinners	0.116 (0.328)	0.0412 (0.243)	-0.960 (0.843)
Free food markets	-0.512 (0.355)	-0.324 (0.246)	-1.087 (0.835)
Volunteer/social catering at refugee camps	-1.021*** (0.346)	-0.627*** (0.240)	0.883 (0.948)
Sharing recipes for reusing food	-0.725* (0.415)	-0.387 (0.244)	-0.629 (0.808)
Membership			
Volunteers	0.158 (0.264)	0.0722 (0.154)	0.533 (0.523)
Age	3.361*** (1.018)	3.324* (1.949)	-0.590 (3.207)
Gender:			
Female	0.419 (0.545)	0.399 (0.547)	1.597 (1.000)
income	0.211 (0.142)	0.207 (0.131)	0.00239 (0.242)
education	0.189 (0.373)	0.204 (0.375)	-0.232 (0.841)
Type of household:			

Living with partner	-1.527** (0.746)	-1.519** (0.688)	2.534 (2.182)
Married	-0.225 (0.683)	-0.250 (0.672)	-2.671** (1.073)
Separated	0.964** (0.427)	0.921 (1.785)	-1.562 (2.616)
Divorced	-3.914*** (1.237)	-3.822** (1.664)	
var(_cons[id])	1.063*** (0.0427)	0.853*** (0.0776)	8.222* (4.327)
Constant	-4.388** (1.804)	-4.594* (2.477)	6.337 (4.855)
Var(vignette level)	0.539*** (0.0319)		
Observations	591	591	573
Number of groups		99	96

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

I ran a robust model with id clustering and a multilevel model at both the respondent and vignette level to test for the effect of demographic characteristics on the respondent's likelihood to join food waste initiatives (Table 4, column 2 & 3). From the table above, it is shown that locations with 30 minutes travel time are statistically significant at $p<0.01$ and positive (1.068, 1.199) in both models. Also, more than 40 minutes travel time is positive (0.430) and statistically significant at $p<0.1$ and $p<0.05$ (0.293, 0.449). This implies that people are more likely to join the food waste initiatives if the proximity or travel time involved is at most 30 to 40 minutes. In the activities, volunteer/social catering at refugee camps is negative and statistically significant in both the robust model and the multilevel model at $p<0.01$. This implies that people are less likely to join the food waste initiative when the activity is to volunteer at refugee camp. At the same time, sharing recipes for reusing food is negative and statistically significant ($p<0.1$, 0.725) in the robust model, indicating that people are not likely to join because of this activity of the local food waste initiative. Age is statistically positive ($p<0.01 = 3.361$, $p<0.1 = 3.324$) and statistically significant.. In the type of household, people living with partners are less likely to join the food waste initiative in

the Robust and Multilevel model ($p < 0.05$, -1.527, -1.519) while married people are less likely to join in the Multilevel logit model ($p < 0.05$, -2.671). However, people who are separated are more likely to join the food waste initiatives ($p < 0.05$, 0.964) while people who are divorced are less likely to join ($p < 0.01 = -3.914$, $p < 0.05 = 3.822$).

Furthermore, the intercept ($_cons$) for the three models above are positive and statistically significant. This means that when the values of the independent variables are zero, the likelihood of the people to join food waste initiatives increases. Also, this suggests that there is an effect that is not captured by the independent variables included in the model.

Table 5 show model interactions between the different factor levels. Previously in Table 3, I discovered that travel time is statistically significant attribute to the respondents. Therefore in table 5, I tried to interact the most significant travel time (30 mins travel time) with other activities of the initiatives to see how these interactions affect people's likelihood to join the food waste initiative. We interacted seven (7) models. From the table, it can be seen that age is positive and statistically significant in all the models. This shows that people who are young (between 18 and 30 years) are more likely to join. This eagerness to join the food waste initiative can be attributed to a lot of reasons such as wanting to make a difference or to look good in their CV (peric j, et al., 2021), concern for the environment (principato et al., 2015).

In model, volunteer/social catering at refugee camp is negative and statistically significant at (-0.584, $p < 0.05$). This implies that people are less likely to join the food waste initiative when they volunteer at refugee camps. This contracts the findings of peric j et al., (2021) that people join/volunteer in non-paying organizations for altruistic purposes.

The interaction between 30 mins travel time and the activity of sharing recipes (loc_s) is statistically significant at (-1.120, $p < 0.01$) albeit negative. This implies that a combination of 30 mins travel time and sharing of recipes has a reverse effect on people's likelihood to join. On the other hand, the interaction between 30 mins travel time and Education/workshop (loc_at) is positive but not statistically significant. This means that likelihood of people to join the food waste initiative increases by 0.710 when the distance to the food waste initiative is 30 mins and they offer education/workshop. 30 minutes travel time and free weekly dinner (loc_f) increases people's likelihood to join at the value of 0.299 but not at a significant level.

Table 5: results of the logistic regression models of the attributes with the demographics.

Variables	Model1	Model2	Model3	Model4	Model5	Model6	Model7
30 mins travel time	0.605** (0.246)	0.460** (0.194)	0.522*** (0.195)	0.573*** (0.196)	0.525*** (0.197)	0.813*** (0.199)	0.548** (0.250)
Volunteer	0.0226 (0.200)						
loc_mem	-0.0573 (0.351)						
Age	2.418*** (0.925)	2.484*** (0.951)	2.464*** (0.928)	2.418*** (0.921)	2.394** (0.935)	2.388** (0.934)	2.418*** (0.925)
Living with partner	-0.396* (0.226)	-0.411* (0.227)	-0.382* (0.226)	-0.389* (0.225)	-0.409* (0.227)	-0.406* (0.227)	-0.396* (0.226)
Married	-0.156 (0.217)	-0.144 (0.218)	-0.146 (0.218)	-0.154 (0.217)	-0.160 (0.219)	-0.145 (0.218)	-0.156 (0.217)
Separated	2.267** (1.054)	2.312** (1.052)	2.260** (1.054)	2.262** (1.053)	2.319** (1.057)	2.357** (1.055)	2.267** (1.054)
Divorced	-2.142*** (0.794)	-2.370*** (0.814)	-2.164*** (0.794)	-2.144*** (0.796)	-2.206*** (0.789)	-2.189*** (0.795)	-2.142*** (0.794)
Education/Workshop		0.243 (0.248)					
loc_at		0.710 (0.479)					
Free weekly dinners			0.160 (0.247)				
loc_f			0.299 (0.452)				
Free food market				-0.136 (0.252)			
loc_ff				0.0233 (0.439)			
Volunteer/social catering at refugee camp					-0.584** (0.256)		
loc_vs					0.274 (0.441)		
Sharing recipes						0.305 (0.250)	
loc_s						-1.120*** (0.434)	
Partnership							-0.0226 (0.200)
loc_p							0.0573 (0.351)
Constant	-0.0920 (0.154)	-0.128 (0.131)	-0.117 (0.132)	-0.0563 (0.130)	0.0446 (0.135)	-0.141 (0.132)	-0.0694 (0.161)
Observations	656	656	656	656	656	656	656
r2_p	0.0416	0.0494	0.0438	0.0420	0.0486	0.0494	0.0416

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

loc_at (30 mins travel time*Education/workshop). loc_f (30 mins travel time*free weekly dinners). loc_ff (30 mins travel time*free food markets).loc_vs (30 mins travel time*volunteer/catering at refugee camps). loc_s (30 mins travel time*sharing recipes). loc_p (30 mins travel time*partner). loc_mem (30 mins travel time*volunteer)

7 Discussion

This research explored the MOA framework to study the role the food waste initiatives in the Netherlands can play in food waste reduction by exploring how their activities and attributes can motivate consumers to desire to join the initiatives. These activities are carried out in order to help fight food and create a sustainable circular economy. This research extends the existing literature on food waste reduction by demonstrating the untapped potential nested in the local food waste initiatives. Moreover, we demonstrated that these activities of the food waste initiatives if properly harnessed might be a great tool in reducing food waste in the Netherlands.

7.1 Motivation

Attitude, awareness, and social norms

In general, the level of food waste awareness is quite high among the respondent sample. About 70% of the respondents saw food waste as a waste of resources both material and financial and are aware of the environmental effect of food waste. Of course, this increased level of awareness could be attributed to a lot of factors such as increased education, age etc. This increased level of awareness is seen to be high among women and young people. However, according to (The Netherlands Nutrition Centre Informs Consumers about Sustainable Food Choices, n.d.), people below 34 years waste more food. This contrasts with our findings, where most of the respondents are between the ages of 18-30 and are shown to be aware and have a negative attitude to food waste. Hence, showing a clear attitude behaviour gap in food waste reduction. Research has shown that the young people play a vital part in the fight against food because the more aware they are, the more likely they will adopt waste reduction behaviours like shopping with list (principato et al, 2015).

Furthermore, a great number of the respondents were from Wageningen, which houses one of the universities known for its stand on sustainability, this could account for the increased level of awareness among respondents. In addition, a large percentage (74%) of the respondents noted to have a feeling of guilt when they waste food. This finding aligns with the effect of guilt found in literature (Graham-Rowe et al. 2015; WRAP, 2009; Quested et al, 2013). These authors argued that these feelings of guilt make people concerned about food waste and is thus, an essential factor in reducing food waste.

Many reported that they are aware of food waste as a problem and expressed willingness to engage in activities to reduce food waste. The barriers to food waste found in this study reads similar to those found in (van Geffen et al., 2020, Soma et al., 2021). 37% reported discounts from supermarket as one of the barriers to reducing food waste. This barrier is one of the prominent barriers found in literature (Aschemann-Witzel et al., 2017; Lee, 2018). They found bulk buying and promotions are two of the prominent causes of food waste behaviour. Respondents reported other barriers to their motivation to carry out food waste reduction behaviours such as laziness to cook, not going to the supermarket with a shopping list which leads them to overbuy. Moreover, it is important to note that while most of the respondents agree to knowing about food waste, there are also others who prefer that the foods they buy be aesthetic and who prefer health and safety over reducing food waste. This is in line with the works of (Cicatiello et al., 2016; Graham-Rowe et al., 2015; Papargyropoulou et al., 2014), who found refusal to buy foods that do not look good or approaching the best before dates, buying more than needed and not consuming in time as the barriers to food waste. Also, like other studies, the demographics such as age and education were found to have an influence on consumer food waste. In addition, a greater percentage agree to know the difference between best before date and used by dates, though these reports were not actively measured. However, access to more information on these two dates should be made available to improve peoples' knowledge of the proper way to store their leftover foods.

Furthermore, social norms and cultural orientation were found to play a critical role in consumers' knowledge and attitude about food waste. As was seen from the study, 58% of the respondents agreed that it is not culturally right to waste food. On the other hand, some of the respondents identified eating with others as a barrier to their reducing their food waste as this impedes their food planning routine leading them to waste food. About 44% of them strongly disagree that wasting food makes them feel they are doing well. This contrasts the findings of Wang et al., (2021) and Aschemann-Witzel et al., (2018) that social norms can help to reduce food waste even though they are suppressed by factors like the good provider norm. It is however important to note that while these norms affect intention, they do not directly translate to food waste reduction behaviour. Also, measuring the full impact of social norms on food waste behaviour is not easy. However, I strive to gain an insight into how people are affected by the social norms around them.

7.2 Opportunity

Research has shown that it is easier to design and implement the motivation and ability category of the MOA framework than the opportunity category (soma et al. 2021). As identified earlier, the opportunity category is difficult to address because it is tied to structural and systemic changes. However, in this study, the local food waste initiatives have been identified as the opportunity tools to bring about changes in consumer food waste behaviour through their unique activities targeted towards food waste reduction. Based on the vignette experiment, respondents identified activities such as education and workshop, free weekly dinners and free food markets as activities that are likely to motivate them to join the food waste initiative. The location of the food waste initiative was also found to play a critical role as 45% of the respondents noted that travel time is an important characteristic that can affect their likelihood to join. From the regression analysis done, it was seen that when the distance to the food waste initiative involves a 30-minute travel time, people are more likely to join the food waste initiative. Thus, agreeing with (Kah et al., 2016; Nicolau, 2008) on the importance of distance to people's intention and motivation to join a group activity.

In contrast, 19% of the respondents did not find being a partner an important characteristic that can affect their likelihood of joining the initiative. However, they are positive to being a volunteer at the food waste initiative.

When asked if they are part of or know any food waste initiatives, 76% of the respondents reported they are not while 24% reported that they are part of or know a food waste initiative. This shows that a lot of work needs to be done to increase the visibility of the local food waste initiatives.

7.4 Ability

One of the benefits of local food waste initiatives is that they provide consumers with the ability to reduce food waste. They do this through their numerous activities such as education, workshops, and recipe sharing. The challenge is whether the consumers can take advantage of these abilities by translating these knowledge and skills into actions to reduce food waste. Since majority of the respondents are not part of know of any food waste initiative, this category of the MOA framework is lagging because consumers need the knowledge and skills impacted by the food waste initiative to carry out behaviour aimed at reducing food waste. From the result, the activity of sharing recipes for reusing food is significant in all the models of the experiment at

$p < 0.1$. However, the coefficients are negative, which can be interpreted to mean that people are not really interested in this activity. Nevertheless, the food waste initiative can build on this activity to develop people's skill by giving them options to reuse their food instead of just throwing it away. At the same time, volunteer/ social catering at refugee camps is also a statistically significant activity. This activity can provide consumers with not just knowledge about what is going on out there but can also build their social interaction skill, helping them to meet people of like minds in the pursuit of food waste.

Even with those respondents that are part of or know food waste initiatives, they are hindered from implementing their ability because of eating with others (social norm), understanding of best before dates, as well as different circumstances surrounding different households (Soma et al, 2021)

Furthermore, demographic characteristics were found to be statistically significant in motivating people to join food waste initiative. In our study the respondents and their level of education increased their likelihood to join the food waste initiatives whereas no such effect was found for gender, income, and household type. This finding is in line with the works of Szakos et al. (2021) who found a statistically significant result on age, education, and income, and no statistically significant difference in terms of sex, level of awareness and living with children. Though their work was done on a smaller sample size, they argue that there is likelihood of finding a relation with a higher sample size.

8. Conclusion

The aim of this study was to find the role the local food waste initiatives can play in motivating people to reduce their food waste in the Netherlands through their activities. Using the MOA framework, with initiatives as the opportunity, the study looked at the attributes of the initiatives. In general, the MOA framework was effective in identifying the activities of local food waste as an opportunity to reduce food waste among consumers. These food waste initiatives target the motivation and ability of consumers to carry out food waste reduction behaviour through their activities and characteristics. This study found promising results that location provides great advantages for the initiative in motivating consumers to join them. On the activities, even though some of them were statistically significant, their coefficients which suggests that people are not

willing to join the food waste initiatives given these activities. Hence, these activities can be upscaled and made attractive to boost their effect in influencing people to join the food waste initiative.

9. Limitations and Further Research

The analysis of this study is not without its limitation. The survey had a lot of incomplete observations which could have affected the results of the analysis. Also, the participants of the survey were scattered across 26 out of about 122 cities in the Netherlands, so the sample is not representative of the population. The result of this study is applicable to certain groups of people characterised by high level of education. Nevertheless, this study has tried within the timeframe allotted to the researcher to explore the role of local food waste initiative in food waste reduction in the Netherlands. However, it did not appraise in detail all the activities of the food waste initiative, therefore, further studies should be carried out to explore these activities. Studies should also be done that focus explicitly on food waste initiative.

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Appendix I: Survey questions

Welcome to the survey!

Hi! We are interested in finding ways to help citizens to reduce their food waste. In this study, we will show you some information on food waste and food waste initiatives. Next, we will ask you some questions about your experiences. Your responses will be kept completely confidential.

The survey should take you approximately 10 minutes to complete. It is voluntary to participate in the survey and there is no wrong or right answer. For more information, please contact Ifunanya Anaduaka (viviananaduaka@gmail.com).

By clicking the button below, you acknowledge:

- **Your participation in the study is voluntary.**
 - **You are 18 years of age.**
 - **You are aware that you may choose to end the survey at any time for any reason.**
- I consent.
.... I do not consent.

Section 1: Introduction

Q1. In which city do you live? -----

Q2. How often do you do your grocery shopping (e.g., the supermarket, bakery, farmers market etc)?

Once a week
Twice a week
Three times a week
Once a month
Twice in a month
Three times in a month

Section 2: How do you feel about food waste?

Q3. Below is a list of statements about food waste, please rate how much you agree or disagree with the statements.

S/N	Statement	Strongly Disagree -3	Slightly Disagree -2	Disagree -1	Undecided 0	Agree 1	Slightly Agree 2	Strongly Agree 3
1	Food waste is not good for society							
2	Most times I do not think about food waste							

3	I am not aware of wasting any food that could still be used for something else							
4	Food waste gives me a feeling of luxury that I am doing well							
5	When we waste food, we also waste resources like the money used in buying the food							
6	I think that food waste causes pollution in the environment							
7	Food waste can cause emission of gases and climate change							
8	I think leftover food should be frozen and consumed later							
9	I think leftover food should be given to those who need it rather than be thrown away							
10	Food not consumed before the 'best before dates' should be thrown away.							
11	Food waste can be prevented by meal planning and writing lists for grocery shopping							
12	Where I am from, it is not right to take food for granted							
13	Food that is not good-looking physically but is still eatable can be used to make other foods							
14	It is morally wrong to waste food when many people out there are hungry							

Q4. Which of the following statements apply to you?

S/N	Statement	Strongly Disagree -3	Slightly Disagree -2	Disagree -1	Undecided 0	Agree 1	Slightly Agree 2	Strongly Agree 3
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1	I do not give much thought to food waste							
2	I waste food because it is more important to be healthy than to avoid waste of food							
3	I waste food because I find that I buy more than I need							
3	I feel guilty whenever I waste food							
4	I am more concerned about the quality and safety of the food I consume							
5	It is important to me that my food is always fresh							
6	When I buy food, I pay attention to the 'best before' and 'use by' dates							
7	I like my vegetables to be in good form when I buy them							
8	I think food waste is bad because everybody says so							
9	I think everybody in my neighbourhood wastes food							
10	I have not done anything about my food waste because I am too busy or tired from work to do anything							
11	I am open/willing to follow any activities that can help me to reduce my food waste							

Others.....

Section 3: Opportunity + Ability -Food waste Initiatives

Food waste initiatives are non-profit organizations, made up of people whose sole purpose is to rescue good food that otherwise would have been wasted from supermarkets and farmers. These initiatives operate in some of the cities in the Netherlands, including Amsterdam, Rotterdam, Utrecht, Bussum. The initiative is made up of partners and volunteers. Partners are people who support the initiative by donating money which can be used to buy additional things for every meal prepared. The volunteers help with picking up the foods, cooking, and distributing them. And you

can do that once, weekly, or monthly, whenever it suits you. You can volunteer as much as 2 hours a week or however many hours you like. In some cases, you can work in the capacity as both a partner and a volunteer depending on your preference.

The food waste initiatives do the following activities: a) they teach people about food waste through education and workshops, b) they organize weekly dinners where people can come and eat for free, c) they organize food markets where people can get fruits and vegetables for free, d) they volunteer to cook at refugee camps and e) they share recipes to reuse food.

In this section, we have examples of scenarios food waste initiatives and their activities. For each scenario, rate how likely it is that you will join the food waste initiatives given the travel time involved, their weekly activities, and the type of member you want to be.

Note: There is no right or wrong answer

What characteristics of the food waste initiatives can improve consumers' desire to reduce food waste?

Characteristics	levels
Location	<3km (20 mins travel time) >5km (30 mins travel time) 8km or (more than 40 mins travel time)
Attributes of the initiatives	Education and workshop Free weekly dinners Free food markets Volunteer/social catering at refugee camps Sharing recipes for reusing food
Team/ type of members	Partners Volunteers Partners/Volunteers

Q5. 1) A food waste initiative exists in your city that is 20 minutes travel time from your home.

2) Every week, they promote social interaction and teach people to reduce their food waste by organizing education and workshops.

3) At the same time, there is an opportunity to be a volunteer at the initiative for at least 2 hours a week.

How likely are you to join this food waste initiative?

Extremely Unlikely -5	Highly Unlikely -4	Slightly Unlikely -3	Least Unlikely -2	Unlikely -1	I have no Idea. 0	Likely 1	Least Likely 2	Slightly Likely 3	Highly Likely 4	Extremely Likely 5
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1. A food waste initiative exists in your city that is 20 minutes travel time from your home.

2. Every week, they promote social interaction and teach people to reduce their food waste by organizing Free weekly dinners.

3. At the same time, there is an opportunity to be a partner at the initiative for at least 2 hours a week.

How likely are you to join this food waste initiative?

Extremely Unlikely -5	Highly Unlikely -4	Slightly Unlikely -3	Least Unlikely -2	Unlikely -1	I have no Idea 0	Likely 1	Least Likely 2	Slightly Likely 3	Highly Likely 4	Extremely Likely 5
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1. A food waste initiative exists in your city that is 20 minutes travel time from your home.
2. Every week, they promote social interaction and teach people to reduce their food waste by organizing Free food markets.
3. At the same time, there is an opportunity to be a partner/volunteer at the initiative for at least 8 hours a week.

How likely are you to volunteer and be a part of this organization?

Extremely Unlikely -5	Highly Unlikely -4	Slightly Unlikely -3	Least Unlikely -2	Unlikely -1	I have no Idea 0	Likely 1	Least Likely 2	Slightly Likely 3	Highly Likely 4	Extremely Likely 5
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The level in the characteristics above creates a vignette universe of 45. The 45 vignettes were used to create 9 vignette decks with 5 questions in each deck. Each deck was randomized to evenly appear once to each respondent. This means that every respondent gets 9 randomised vignettes.

Q6. Which of the following stops you from reducing your food waste?

S/N	Barriers	Extremely Weak -3	Slightly Weak -2	Weak -1	Not Applicable 0	Strongly 1	Slightly Strongly 2	Extremely Strong 3
1	Most of the products I buy from the supermarket are of poor quality.							
2	I buy more than I need because of the quantity discounts I receive from the supermarkets							
3	I do not like to eat vegetables or fruits that are disfigured							
4	Most times, the products do not last long before their 'best before' date							

5	I want to be seen as someone that gives his/her family fresh food							
6	I do not do grocery shopping with a shopping list							
7	I do not usually check what food items I have at home before going to the supermarket							
8	Sometimes, I buy things I do not need simply because I like them							
9	I buy a lot because I do not have time to go to the supermarket all the time							
10	The packaging of the products makes me buy more/less							

Others.....

Section 4: Socio-Demographics:

Q7. Please state your age

Q8. Please state your gender

Female

Male

Non-binary

Prefer not to say.

Q9. What is the range of your monthly net income?

0 - 500

501 - 1500

1501 - 2000

2001 - 2500

2501 - 3000

above 3000

Q10. Please state your type of household:

Single (never married)

Living with partner
 Married
 Separated
 Divorced
 Widowed
 I prefer not to answer.

Q11. What is the highest level of education you have completed?

Primary School
 Secondary School
 Vocational School
 University
 Other:

Q12. Employment status:

Student
 Employed
 Unemployed
 Self-employed
 Retired
 others:

Q13. How well did you understand the survey questions?

The questions were easy to understand and answer
 The questions were difficult to understand and answer
 Some of the words used were not clear.
 The words used were very simple and clear.

Thank you!

Appendix 2

Descriptive statistics of the city and vignette ratings of respondents

city	Freq.	Percent	Cum.
Alkmaar	1	0.71	0.71
Amstelveen	1	0.71	1.42
Amsterdam	10	7.09	8.51
Apeldoorn	2	1.42	9.22
Arnhem	3	2.13	10.64
Bennekom	2	1.42	12.77
Breda	2	1.42	15.60
Den Bosch	1	0.71	17.02
Den Haag	7	4.97	19.15

Deventer	1	0.71	21.28
Ede	5	3.55	24.11
Eindhoven	3	2.13	26.95
Enschede	1	0.71	27.66
Groningen	7	4.97	29.79
Herveld	1	0.71	33.33
Leiden	1	0.71	34.75
Leidschendam-voorborg	1	0.71	35.46
Lelystad	1	0.71	36.17
Nijmegen	3	2.13	38.30
Renkum	1	0.71	39.72
Rotterdam	7	4.97	41.84
Tilburg	1	0.71	48.23
Utrecht	7	4.97	51.77
Venlo	1	0.71	53.19
Wageningen	63	44.68	77.30
Zoetermeer	1	0.71	97.87

Vignette ratings: Likelihood to join	Freq.	Percent	Cum.
Extremely unlikely	60	9.15	9.15
Moderately unlikely	49	7.47	16.62
Slightly unlikely	43	6.55	23.17
Least Unlikely	22	3.35	26.52
Unlikely	99	15.09	41.62
I have no Idea	56	8.54	50.15
Likely	115	17.53	67.68
Least Likely	28	4.27	71.95
Slightly Likely	54	8.23	80.18
Moderately Likely	89	13.57	93.75
Extremely Likely	41	6.25	100.00
Total	656	100.00	

Appendix 3: Interviews

Interview with Buurtbuik

Q: Hi I'm writing my thesis on food waste. Uh specifically on the role uh that the local food waste initiatives can play in helping people to reduce their food waste. So, I was trying to, I'm trying to make a connection between how uh, the food waste initiatives can motivate people to engage in food waste. Well, probably by them joining the food waste initiative, and I came about this topic because I didn't know a lot of food waste initiative exist. I'm from a culture where food is very important and it's not something to waste. It's difficult to see it wasted food, but then I came here to the Netherlands and it's a

different story. And like people throw away stuff even when they are still good enough to eat. Yeah, so. But then I was talking with someone, and the person was, like, mentioned one of the IT was an app called too good to go, and it was my first time hearing it. And then I'm like, oh, like, maybe there are people like me that didn't know they had this kind of platform where they can get rid of things, they don't need even when they're still good. So that's why. So, for the Thesis, I'm focusing on local food waste initiatives, yeah, and how they can help motivate consumers to reduce waste. Uh, so you are from buurtbuik, right? It's a food waste organization.

R: Uh, yes, buurtbuik. It would translate into a neighborhood belly.

Q: I know. But uh, what did you call it again? Can you pronounce it again?

R: And like neighborhoods belly. Yeah, I'm in the Dutch version.

Q: Uh, so, can you tell me about the initiative? Like what they do?

R: Well, buurtbuik was founded in 2015 by someone who was inspired by the real food movement in Portugal. Where they also make meals out of Well saved food. Uh, that would otherwise have been thrown away and they distributed for free. The Dutch twist on it was that we don't do take away, but we eat together. This is more like a restaurant experience. Umm and more community building. UM, since the first meals were served in 2016. And now there are 14 local buurtbuiks. 4 in Utrecht. One in Rotterdam and nine in Amsterdam. There is one in almost every uh part of that to them. and what happens is it's always a local circle of volunteers. They have one day in a specific. Yeah, semipublic space it could be at church. It could be like a neighborhood center. It could be like a cultural meeting place, and they have one day a week where they have the kitchen and, well, a place where you can set tables and then the day starts with collecting food from a set of shops, usually supermarkets. Umm, a lot of produce shops, sometimes restaurants. Uh. Sometimes businesses with a catering restaurant. So, we get a lot of food from Tommy Hill figure. Instance and they know we are coming. And we have a cargo bike with the logo on it and then the food gets picked up and it gets delivered to our location. And then there's the cooks who go to work. And they cook with whatever comes in. So, it's a sort of a quick hustle to decide what we're going to make or what they're going to make. And then cooking starts and then a few hours later, the tables are set, and people come and eat. Uh, if there's anything left over uh, they can also take it and then clean and gone. And next week we do it again.

Q: Oh, that's nice. That's impressive. Oh, but for the participants. Like how? How do you get them? Because I'm also like imagining like, like people that don't know things like this is it so? Because then if you collect a lot of food from different shops, that means you also need quite a lot of participants and never. Yeah. To get rid of food. So, how do you get these participants? How do you create awareness about what you do?

R: Umm. Well, we have the volunteers, of course, who come in and we have the people who come in and eat. And you mean the last the latter group?

Q: Yeah, a lot of the people that come into it, yeah.

R: Well, because we're often in community centers, we fly here in the neighborhood, we put a poster in community centers. And sometimes we're all on good terms with the local government, so they can also sometimes send people to us people who are lonely, who have very little money, or who could maybe just be lonely and can't cook. Then, they find us. During the COVID period, so the last two years, we did a lot of take away because it wasn't. Yeah, it's not. It wasn't a good model to put people together who are also usually Sometimes struggling financially, sometimes struggling socially, so it's also a vulnerable group.

Q: OK. Yeah.

R: And you don't want to add calls to that mix necessarily. So, but so during COVID we could serve a lot more people. But we decided as like the board that and coming from the locations themselves, that what makes buurtbuik is also eating together and getting to know your neighbors. And having volunteers like Amsterdam, for instance, also Utrecht has a lot of students. With they come from other towns they come to live somewhere in the neighborhood, and they just see their other students. They see their own friends on social media. They it's. It's hard to get a connection with your neighborhood and with your neighbors. But if you see all the shopkeepers every Saturday, and they know your name and you know their name, and you see the old lady from down the street or like crazy gentleman. You moved away. Who comes and eats, and you can feel more at home in your neighborhood. And it's also, yeah, mixing. Groups of people who wouldn't necessarily mix and it's not, it's not everybody's going to be best friends and coming to Christmas dinner necessarily, but it is interaction, and it is sort of creating a feeling that you're all living in the same neighborhood.

Q: Uh, so besides the dinner, it's also like a way for people to make friends, like meet people where not, not necessarily friends, but like, meet people. But OK, but aside from the dinner, is there also like other ways, like other things? you do that you think attracts people like that can attract people like any other activities. Aside from every week dinner?

R: Well, we, we don't organize other things. We do organize volunteer outings because that's. Because I'm also, look, I'm looking from also a different perspective. We need volunteers to do what we do. But everyone who does this work, we also want them to feel appreciated. Umm, because you are sometimes. And if you give people food, it can be hard to be thankful sometimes. Sometimes people show their care by being very critical. And not everyone has great social skills, so if you are like giving your spare time for four hours in the kitchen and you get, like, a nasty old lady saying it just doesn't taste good, but you also need other forms of appreciation, I think to keep going.

Q: Oh OK, because I saw the idea of my research is also to like maybe get people interested, right? Because when they know these things exist and this is what they do, and then maybe they might be interested. Because then when they are interested, then like it's also means you don't run out of full tiers because people also like I want to be a part of people always like sometimes want to be part of something bigger, something greater than certain. Yeah. So, we are also looking at that. But like now. What do you say about the participant like the turn up every week? Is it the same or is it dwindling like?

R: Now it's, I think, and this is different for every location, but there's quite a steady group. Uh, that's always there. So, if there are like 40 people who come every week there might be like 5 to 10 new ones or people who come in sometimes and sometimes not and. But I think 90% is quite stable.

Q: OK, so uh, these people that are coming, is there also like any like activities in in place maybe by the initiative to see if they are like a because the idea is to reduce food waste, right? It's not just to eat them because now it's more like it's focused mainly on.

R: No, we don't do that. And we don't want it because also the. Food hygiene rules in the Netherlands are quite strict. So sometimes we don't accept certain foods because it really isn't good anymore. But when it's on a date or just well, it depends on what it is we for instance meet that is beyond the date. We are not going to cook it and we're not going to distribute it. So having people bring their own food is going to be too much and they must bring it in at 11. But dinner is at three. So, what do you do? We don't do that, and we also do not. For the participants who come and eat, we offer a a social experience with food. I think the thinking about food waste is more with the volunteers. Really want to do something with that, but also help someone, but how do you help someone that is sometimes difficult? Because I want to do something good, but I don't know what or how. And I think on the volunteer side, there is more awareness of the problem. I think on the side of the eaters' people because of low of little means because they don't have a lot of money, they are more frugal to start with. I think the problem well I've been with buurtbuik for some years and there is never a shortage of food. Maybe once or twice a year. But usually, it's so much more than you can cook. Or you can give away. And it also. It must be. This is not a problem you can solve at the end of the market. It must be addressed higher up in the chain and we should not. I mean supermarkets are like Horns of plenty. Everything is there in excess just to make it look like it is there an excess and so much gets thrown away and this is what I think should be consumer behavior should be regulated more from above. We shouldn't be able to buy everything all the time in, in great quantities and expect that because this also means waste.

Q: Yeah, because I also agree with you because I in some research it was also found like why people like at least at the consumer level why they waste is also because in part because of this shops that do things like discount like buy one, get one free and then because we try to make the best out of our money will buy sometimes more than we need and more than we should yeah because. It's cheaper, so yeah. So, in a way, I also agree that, like reducing, it can also come from up there instead of just at the consumer level. Yeah. Because for this is I was more focused on. The consumer and how we can help like help them through this food initiative. So, I also saw on your websites like you have uh, things like uh recipes, is this something you give to the participants or it's strictly for the initiative like for the cooks or some?

R: it's for the cooks. It's also for maintaining and building the volunteer community. Not 100% sure, but I think most of our website and social media presence is geared more for Volunteers, potential volunteers, and donations. And for professional people who want to direct either volunteers or participants to us. Uh participants themselves are not necessarily looking at the website very much. So, this is I think the awareness Buurtbuik creates is less with the participants than with volunteers. People who give donations, professional networks, etcetera. I think it's more of from oh this exists. Oh, it's so good. Oh, we should help, or we could do something about it. So, I don't think we. Because participants are usually. It's also we want to. Why build better neighborhoods? Help with that, and we also want to support people who are in financial need by giving food. But that's yeah. Yeah, because participants there are usually enough. It's easier to come and have dinner somewhere than to ask people with full lives to dedicate every Saturday to be right back. It's more of a time effort.

Q: Yeah, but OK, that's something. But I I just think because now. Amsterdam is a big city, right? Like with a lot of people and if I just believe that if you like, get enough participants, then definitely you're going to get volunteers. Because if I'm coming for the first time, maybe I'm just there maybe to for the food and then. But then like I felt at home I met people I discussed not like but more than I usually do. Oh, the participants are also like importance like yes, there's also like a steady participant but like maybe increasing it because. Amsterdam is a big city. Yeah, that's more like.

R: Absolutely everybody's. Everyone is welcome to come and eat and everyone is welcome to come and volunteer. Umm. But we've also had some experiences where people Are hard to fit into a like a makeshift kitchen which must work in six hours.

Q: What?

R: I mean, if people have severe mental problems or they cannot work together, there was one man who showed up naked at some point. Yeah. It attracts all sorts of people so. You have a little bit of a shifting process in place in some in some ways because you're working closely together. There's time pressure, there is a, there is social pressure. It doesn't always translate from one to the other. I must say in Italian. They, they do mix more in their locations. That's really part of their strategy. So, people participating, people cooking. They are the same, but they always must be like a few. Your function and others. And I also know Amsterdam North. Yeah. There are like 3 board members and one of them is the most active and every week he sends. Oh, I'm here with the food. Who's coming to help me cook? Who's coming to eat and then? Everything goes smoothly, but it really depends on the people. Now on the on the volunteers and how well they manage with. Would either leading or not leading or so. It does work that way, but it's slightly more complex than that.

Q: OK so I am I just like to have a question like OK how like now based on what I'm looking into, how do you think? oh, like an initiative Like you guys can help to like make people want to be part of it. Like, how do you think, what do you think like if done it can help people to want to be part of what is going on. Want to follow volunteer or want to participate? Is that something you think can be done?

R: Well, I think. There are of course more similar things to what we do, so the food at the bank is also. Uh, doing a lot with food that otherwise would be wasted. You have rest of one heart, and they have a, but they are. You pay. I think we are still a little bit too small. The nonprofessional enough, but I think that things we could do is have like a food truck and go to festivals and give people a no ways too. I think that would be and give them a flyer with it you get free soup. You get a flyer about buurtbuik. And maybe you want to start as well. That that was, uh, like a small dream of mine. But it's a I mean, I think.

Q: Yeah, but like, it's something like you already part of the of the bigger picture. So, it's also something that can be implemented. Yeah, because I also talked to one of the initiatives that they also work in Amsterdam test before you waste and like, yeah, so there's this year they were thinking of like having like they usually have workshops. Less interesting because I mean, if every maybe the first Monday of every week, they do yoga and I'm interested in yoga, then I don't need to come for the other week because then I'm not interested. So, their own strategy was to combine all the lectures into one. So, every week there's the same thing. So, people can be consistent. So, I mean your idea is also a good idea for food. Work is a nice one. And then, yeah, I mean it's a dream, but it's also something like that can be achieved.

R: Yeah, a food truck. Or like, sometimes you have these tiny snack bars. Somewhere like a place like that, I think that would be super nice where you can also pay for your soup, but then you donate. Or if you don't have money, you can get soup for free. I think that would be a lovely way. Uh to do something with all the waste, on the other hand. It's so awful that there's so much waste. And I'm also going to build free in this. I mean, I also enjoy going to supermarket and buying things I want. And I'm an OK cook, so I usually seldom have leftovers, or I know what to do with them. But yeah, I throw cabbage out occasionally. I like going to restaurants and me you I mean there's.

Q: Yeah, but the idea is, I mean, like uh, it's there's going to be waste, right? Like, it's kind of like comes with having eating food. But then, like, the, the idea is just to like true as little as possible, like to some people like, like I've, I've interviewed people that that don't eat something once the expiry dates are fast. But then the expiry date doesn't mean it's not good, right? It's just mean. Like a the maybe the quality is has reduced by some percentage.

R: Well, sometimes you have. You have the good until and you have at least good. Until I do think that with high protein foods like fish and meat. Milk, yogurt. Less so because they think that's so acid that will. Then I smelled it. I touch it. I.

Q: I mean, there are also other ways to like check that like. Yeah. And here there's like steady lights. You can always freeze them. Stuff like that makes them stay longer and so yeah. But I think what you guys are doing is great. I was like impressed when I heard about it because it was like, oh OK like this something as good as this. I got a recipe from your website so.

R: What did you make?

Q: It's with not so good banana. I forgotten the name. Yeah, so it's. It's like I had to download it because it was it was sorry. I like trying new things, but yeah. So, I think it's also a good thing. And if if there's a way to, like, get this across to the respondents, like it can also go a long way. I mean, even if they're not there to eat. Gina, they can get insights on how to waste less by using maybe this food that would have been thrown away to maybe make something else they can eat or yeah. I think you guys are doing a good job. So, thank you.

R: Thank you too. Yeah, I'm. I'm. I'm leaving as a board member.

Q: OH why?

R: I have a new job and I have two kids. And I could combine it easily, but with my former job, because I was, I didn't have to work so hard. Really nice though. OK. OK first. But now I have a really nice job and I must work hard, so I don't want to. I want to feel responsible for like. Spending money as.

Q: Yeah, but yeah, but like, you can also be like a silent board member.

R: Yeah. Yeah. No, no, no, really, it's it is. You need like 6 hours a week to put it into it. No, but. I mean if you think if you feel inspired. Uh. And you think you might know other people who are inspired as well? Umm, you can always just start. It doesn't have to be under the name of dirtbag, but if you have a few people and we're always happy to share tips and tricks. Do something completely different because it is I I'm. That serve makes me cry sometimes. How much food there is? And again, emails from people who say oh yeah, well, we usually have lunch leftover. You could pick it up if you like. And I'm like, well, no, I'm not your garbage lady. It means if you have good stuff.

Q: Why would you make more than you need?

R: If you have good stuff, come, and bring it to us. If you really want to do good and don't, don't e-mail me if I can pick it up. Don't e-mail me with high word Giant Corporation and we would like to like to Burt bike with like 50 people. Can you make it happen? We want to volunteer our time and I'm no this is not how it works. You don't know what you must do. I'm not here to babysit you. I can make it happen if you give me joy and donation with your giant corporate firm then. But I'm not here to provide free outings for team building. This is not the way. But there is the I think there's awareness. Uh, But there's also very easy awareness. Like, yeah, we make money by doing it. Really not so good stuff. But we want to feel good for an afternoon. Isn't that great of us? Yeah. So that's.

Q: Yeah, I think I think a lot of a lot of initiatives are going through that. The green washing where corporate corporations are trying to make yourself look good by staying. They are working with. Uh, an organization that does something good. So yeah, it's also like a problem were, yeah. You guys encounter laws, but uh, aside from that, I think it's a good initiative. So yeah. Then it's a shame you're living because I would also, like, want to, like, come to one of the events just to.

R: You are always welcome you you've discovered a website. You can see where we cook every week. As a lot of places in Amsterdam that do Saturdays in Ukiah, there are a lot of places I think they're all throughout the week. You're always welcome to just come in and have a meal, you know? See what it's like. That's a.

Q: Yeah, it's, it's something.

R: Opening station.

Q: It's something I would like to explore, so thank you very much Kathelijne for your time. Thank you. I'm going to send out my survey to participants and then see what they think and then is it OK if I still maybe if I get something from them that I think needs clarification. Is it OK if I send you a message?

R: Yeah, that's cool. You will probably get a sort of out of office reply, but I will still check my mail every month until I'm completely wrapping it up. But you have my number if it's. If I take too long, yeah.

Q: Ohh, thank you very much for your time. Thank you. Thank you.

R: Are they, though? Thank you for your interest and well, who knows.

Q: Yeah, who knows? But I think I think it's a good thing and you guys are making it part. I also read your like impact reports and yeah. It's good to know. Like, yeah, it's at least for Amsterdam. It's making a lot of waves and if imagine if this can be done across cities in the Netherlands, I believe like give it take give or take like 5-10 years, everything will be at least lesser than it is now. It's not in a good place right now, but yeah.

R: I think so too, but for an organization of buurtbuik to do that we would have to scale up. Immensely and you would need well at least three to four people on a permanent well-being full time available to sort of organize this. And I have been thinking about if you have a hub where you can store food because we have no storage. If you have vans which can sort of pick-up things and it's to really make an impact, we should scale up. And then and then you go beyond a volunteer organization? Then you

become an organization, but I think that there is potential to do that, but it's also. I yeah, I have a career in a museum. You know, this is not my part, I think.

Q: Yeah, but I also think it's also possible because now it's just needs...

R: Yeah.

Q: Well, maybe I don't know how. How involved the founder is, but it's also all about like, OK, this is what we want to do. Then put everything in, maybe retain some of the volunteers that you think that's wanting to do this kind of thing long term and then everything goes from there. I think it takes time. It is like it's a process. Yeah. But if there is like, a possibility of a scale up in the future. Then it's going to happen, yeah.

R: Yeah, I think so, too. OK. I'm going to pick up my kids and. Thank you so much. It was nice meeting you.

Q: OK. Thank you so much. Thank you. I really appreciate it. It was nice meeting you too. Have a great day. And my regards to your kids.

R: OK. Thank you.

Q: OK, bye.

[Interview with Taste before you waste](#)

Q: So, tell me about Taste before you waste.

R: Okay. So, the thing is that um, this foundation is open for everybody. But because this is my theory, because this is my theory, because Dutch people, they already have their group of friends or the activities, personal activities, they don't really need or want to come to volunteer. They come as a guest. And when they know about, um, that we do the volunteering part, some people come. But the majority of the people, they are international students that they find this place and they think that the, um, action that we are, um doing, it's a very good action. And pretty not only for the people but for the environment. So, they want to come, and its people that, maybe they have arrived here just 2 weeks ago, and they want to um, communicate, and make new friends. So, for this reason, we always say this thing about the international community because, um this is open for everybody. But normally who comes, it's people from like foreign people.

Q: so, what other kinds of activities do you people do aside from the weekly dinners? Are there like other activities that you guys also do that you think might be something uh worth mentioning, something that can um also be channelled towards enticing people to also be a part of it?

R: yeah, apart from the Wednesday dinners, that it's every Wednesday. And nothing has changed here. The only thing that changed is that after dinner, we do a performance. Well, we don't do the performance, other people do it. And it's like music. Sometimes a theatre, sometimes it's sustainability talk. For example, three or four weeks ago, um, Greenpeace came, and they talked about um, airplanes, pollution, and the importance of this factory, how damaging it is for us and for the environment. So, they talked about that uh, this on Wednesday, and we have Monday workshop. It was like, um, I'm talking in the past because now, because it's a new year, we are going to try a different thing. It is similar but different. So, I will explain you first what we do in the past and then what we are going to do this

2023. In the past, we used to do the Monday workshops. The Monday workshops were, um, workshops. But every Monday they used to be of a different topic. For example, the first Monday of the month, it used to be something related to yoga and mindfulness. And then the second one, it used to be related with uh upcycling materials for example, with recycled cartons, how to do a decoration. I will show you. We did it for the upcycling Christmas workshop that we did last December with papers that is, recycled papers that we find in the bin in the trash bin. We took it and we did some, um, origami Christmas trees and because one of the volunteers, she knew how to do it, so she explained it to us, and it was very cool. So, the third Monday, it's always related with these recycled materials and decorations and these kinds of things. And the fourth, um, Monday, it was always related with, um, sustainability talks. And um, before the workshop we used to do no, we used to do not well, and now we are going to do it too. It hasn't changed. So, before the workshop, we always do a food market. And what is this food market? So, in the morning we have some volunteers that today for example, they have done a pickup in javastraat. Javastraat is a street from Amsterdam where you can find a lot of different shops. And we have already talked with them, and they told us that they used to waste a lot of food. So, we said don't worry, we can help you because we are opening this, uh, foundation that is called Davy for you. I was not there when they talked because it was like ten years ago. Because this foundation has ten years. Yeah, it's a lot. Um since that moment, we are going there every Monday and Wednesday. And they, um, always try to reduce their waste but somehow, they always have waste. So, they give it to us because it's very difficult to calculate the demand like how many oranges, for example, do I have to buy and um, how many oranges I will sell. So sometimes there's leftovers that would go to the waste if we were not there. So, we take the oranges and other vegetables on Monday mornings and then we um use it for the food market on Mondays. And then after the food market, because the food market, it's like 30 minutes, people come, they grab their vegetables, they do a donation if they want and if they can and if they cannot do it, it totally fine. And then after these 30 minutes, we um start the workshop. And now it's not this kind of workshop that we change every Monday. Now that the year is starting, we wanted to do just one topic. Why? To always have the same kinds of guest. Otherwise, people, maybe they used to, like the first, um, Monday of the month, but later they wouldn't come until one month later. We saw that the workshop, that is the most interesting workshop for the people is the one related with yoga, mindfulness, and food. So, we tried to mix these both workshops, the cooking workshop, and the yoga workshop. And we are going to do, uh something called, um, consumer and sustainability workshop, where we are going to do mindfulness and some snacks, meditation. And also, we are going to do some talks, um, but not one person talking just talking between us, uh, about uh, how to consume in ah, a responsible way. Avoid waste. This is the new thing that we are going through. Apart from the Mondays, ah, workshops and food market, w also do cater as a service. Normally we try to serve um, little, uh, other foundations or people that it's into this field. Like for example, universities. There's a lot of universities that they need caterings. So, we help them like UVA or HBA, like kind of, um, other foundations. Also, green offices, like um green peace or little businesses that they are related with um, green thigs and they want catering. We are sometimes a little bit selective because, um, we don't want to be part of the greenwashing because there are some companies that they have tried to contract, uh, like hire our services for greenwashing. Like okay, for example, uh, big company that they are not very responsible with the environment. They try to say, okay, we are going to, um hire them as a catering. We are going to put that taste before you waste is going to help us doing catering in our social media. And this way we are cleaned. So, this happened to us. And we don't want to repeat this because we

don't want to be related with, um, how do you say this? Like corruption and these kinds of things, so we are very selective of and apart from that, we don't do anything else.

Q: okay. So, um, I have a question. So, the food market that lasts for approximately 30 minutes is just like you only sell the things you get, right? Like do you sell them to members or uh, anybody else. Like anybody within the area?

R: buy from but it's very important to know that we don't sell anything.

Q: okay so the food market is just to give out these vegetables?

R: exactly. We are like, uh, an um, intermediary factor. Why? Because we go to the shop, we take the waste food and then we place it in our space. And then people can come to grab their vegetables. And if they want, um, they can give us money as a donation, of course. And they give us, a lot of and people with limited resources too. They give us donations. And this is how we pay our rent. Because we rent a space and how we live. Um, but we don't sell anything. We just place the food there and anybody can come. Yes, anybody can come.

Q: but so far, I believe you guys have participants. How do you guys tell people about what you do? Like bring in people to join you guys in all your activities. So how do you do that?

R: because we have been here for ten years. We have a group chat, um, in the WhatsApp. We have a huge group chat of 250 people. And that group chat is our key to, um, find even more volunteers to, uh, spread our word and to communicate our message. And for example, if we need volunteers, we always, like every week this goes this way every week. We know that on Wednesdays, Mondays, we don't need volunteers because the interns like me and other interns we can do everything. The pickup place, the food, and the workshop. The workshop is run by a person who is an, uh intern and he has, um, a certificate of yoga, um, and mindfulness. So, on Mondays, we don't need volunteers. What we need is like guest, people to grab the vegetables, to participate, um in the workshop. But on Wednesdays, yes, we need volunteers, and we have to spread the word. So how do we create this engagement? Through the social media, we always say, hey, this day we are doing an event. Don't forget to come. Do you want to come to volunteer? Please join us. We always post uh plan of the month. For example, this Wednesday we are going to do the dinner plus these events, this performance. Um so this way, the people they can know about our plans and also, they can spread the word. For example, um I can send it to my sister and my sister to their friends. At the same time, we have the group that is the more like faithful volunteers, where every week we always send a message and we put hello, we are searching for volunteers. And we need eight volunteers for cooking, eight volunteers for serving, one person for doing the bar. Because when you come, you will see that we have a bar. And one person for the bar and two or three people for the pickup. And they join in the google sheet because it's a public, ah, they put their names there like Julia for the cooking chef. And then they come, so this is how we try to create the engagement. And also, when they come for the first time and they see how it works, they understand everything, and they say okay this is very good thing for sharing with the community and to give for the community. So, I think I will repeat the experience.

Q: Okay, yah that's very good because what actually prompted, um, my thesis on this was because I actually didn't know things like this existed. And I have been here for like a year, and I come from, uh, Nigeria and there, food is meaningful. I don't like the idea of waste. When you grow up in a place where

it's majorly hunger, uh, you find training for the weight, and stressful. And then uh during a discussion, somebody actually mentioned, and I was like why haven't I heard of it? So, I was actually like, maybe I uh can also I maybe focus my thesis on this and maybe try to find um ways to increase this awareness at the same time. I know everybody, it's ok no matter to waste food because sometimes we get more than we actually need. But it's all good to know you have a way of channelling this food instead of throwing it all away. You can also do a lot of things with it. So um, that's why I just want to know do you think there is any way? Because now I believe in the group chat it's more of people that already heard about this taste before you waste. What about people out there? people like me that before now they haven't heard about it. They don't know something good like this exists somewhere around the. How do you think, uh we can be able to uh motivate them to actually ser aside, motivate them to actually join? I would like to be a part of it. Do you think uh there is a way it's possible to actually do that? Because I believe when everybody or uh at least a majority joins, it also helps to create more impact.

R: Yeah, totally sure. So, this year, um, because we have this group chat, but we always try to create more awareness and we want people to join us. Not only for volunteers but for people who need to eat. Or maybe they want to go out and Amsterdam, it's so expensive and they can come to our place to eat and to hear some live music. It's like perfect place to come. We always want to have more and more people to help them. And not only to help them but to spread the word about the environment because what you said, we cannot waste food. Horrendous high quantity of food we throw away. Um and also the individual like us throws a lot of food too. We have to have very good organization of the food to not create waste. Well, this is another thing but um yes. How do we create awareness? Um because now we more, even more volunteers and more guest. We are going to do two strategies. The first one, social media. Because nowadays everyone has social media. So, it's like a very easy channel to use. So um, we are going to do some um, reels as an advertisement. Actually, we did. We did four kinds of videos, and we are going to promote these videos. We are going to pay Instagram and Instagram is going to spread the word. So, this way we can get more guests and volunteers. We have done four kinds of videos saying what is easy for you to waste, why you should come and volunteer. Telling them that hey you can come and get free food. Also, that we are um donation-based foundation. But if you cannot donate, it's totally fine. And these videos are going to come up in maybe two or three weeks because we have to edit it first. But the recording is done at least. So, we are doing these videos every week. We are doing some posts. And um also now what we are going to do another strategy for this year is to do a flyer, a little flyer saying what we are and what we do, who we are and what we do. And we are going to different universities, me and one colleague. We are going to explain who we are and what we do and give them the flyer. And hopefully we can um spread more word. And I think they are going to come because if I got the university, I explain to them um this situation that we have with food, with wasting food. And at the same time, I explained to them that you can get free food and that you are going to meet new people. For sure they are going to come. Because apart that is a very good thing for the employer, it is good for you because you can come also for free because there's a lot of students who don't have money because we are young and maybe you have to study, and we don't have time to work. So yeah, these two main strategies are the best ones for now so fa, to create more awareness. But I'm sure that during the months we are going to create more things like when we go to universities and the flyers are given, this action will finish. So, we will think about another one.

Q: okay. Uh, right now, uh you are based in Amsterdam, right? Do you also have other locations? Because I don't know if the flyers that you're going to send to the universities are they only in

Amsterdam? Because if you are going to go to other cities, also it might help to also create awareness. Um but what about people that doesn't really stay close to Amsterdam, but maybe seeing your flyers or the reels, they might be interested. Is there a way to also bridge that gap?

R: Yeah, the thing is that we normally um try to if we got to universities, we go to Amsterdam universities. We go to um schools from Amsterdam. Why? Because we don't know if someone would be interested in coming from, I don't know Rotterdam. Because if you're a person that maybe you don't have a lot of money, you cannot use your money for the train and not for food. If you come, it's because you're very into the field of sustainability and you have resources to come. For example, because they will find something in Utrecht. So, we are based in Amsterdam, and we try to um engage people from Amsterdam. Uh obviously people from around like the surrounds are also invited. Like everybody can come. But our first um target is Amsterdam.

Q: so, you guys don't have any other branch? Just the one in Amsterdam.

R: we used to have a branch in Utrecht but now they are working like independent. And um they used to be very active, but we don't know what happened there. But now maybe they do an event once a year or something like that. We don't have a lot of communication with them. So yeah, there is only one taste before you waste here. But the founder has done a lot of Ted talks explaining what is taste before you waste. She has moved on to Portugal. So, she is going to try to create a taste before you waste there. So maybe we are going to have a new branch there. Yeah, but it is something we are working on.

Q: You said you are doing an internship. Is it like part of your studies or it's just a normal internship. How does that work?

R: so, in Barcelona I studied sustainability and development and I wanted to go abroad um one year or more. Because in Spain the sustainability field it was very developed, and they had a lot of foundations and a lot of green offices. So, I tried to find an internship there. Well, here in Spain because it is Europe, we have a thing called Erasmus plan. It is done when you finish your degree. You finish your degree and then you can do until one year internship. You can do six months, three months but the maximum is one year. So, um through different websites I finally found this place and I applied here. I told them Hey I would like to do an internship. Do you need people? And would you be able to do a contract or something like this? Because when you are doing Erasmus plus, if you handle the contract to the university, they give you grant. So yeah, I did this and now I'm going to stay here until uh the 30 June. And I started in August. And there are a lot of interns that are joining. Sometimes people in taste before you waste. So far⁴ what I have seen is that the internships that we have normally is like three months and they are people from other countries and also from Amsterdam. So now we have six interns, and they are all from different countries. We don't have anyone that is Dutch. Only last semester, we had one guy that he was Dutch, but all the others are like from Budapest, Iran.

Q: if you don't mind me asking, is it like a paid internship or a volunteer something.

R: Because it's a little foundation. We don't have a lot of money. We only pay three different positions only. and we pay um 180 euros. Yeah, it's a bit uh a little bit of money but it helps because at the same time I don't go to the supermarket. Because on Mondays like today, I'm going to the supermarket, that is taste before you waste. I always bring a bag with me, and I put all the vegetables. On Wednesdays, I go there, and I bring my Tupperware and food for the week. I only go to the supermarket if I have

cravings of chocolate. In taste before you waste, we only have vegetables. We don't pay all the interns because some only need to work 4 hours per week. I work 5 hours a day, so yest it's a paid position.

Q: That's good to know. Thank you very much. It was really insightful talking to you. I can't wait to be there next week Wednesday witnessing it in person and being a part of it. I was asking because I am looking for an internship, I also have applications in other places but I'm just thinking like the probability of doing it maybe in a food waste initiative. And then I also have to think about what it would mean for me in the future if I were looking for a job. But um I guess I'll just see when I get there. Thank you very much for all the information. It was really nice and helpful talking to you.

R: we are here to help and also spread the word. And for us, it's very important to do these kinds of meetings with different people to um know and explain these kinds of things. Because now you know this, and you are going to come and volunteer and maybe you have a friend in Amsterdam, and you will tell them. And this is how the team works. Spreading the word is the most important thing. And also, it's very important. If you don't want to come alone and you want to come with friends, don't worry, you can come with friends, okay? You just have to tell me because um if they are coming as volunteers, I have to put their name on the list but if they are coming as guest, you don't have to tell me. They can come and that's it.

Q: Thank you very much for the information, Bye

R: Bye.