Bachelor Thesis

Stop wasting, start waiting - Nudging customers' intention to wait in take-away restaurants to reduce food waste

Researcher:	Michelle Kehl
Student number:	1921495
Supervisor:	Dr. Joris J. van Hoof
Institution:	University of Twente
Faculty:	Faculty of Behavioural, Management and Social Sciences
Department:	Communication Science
Date:	26th of June 2020

Abstract

Aim: Nowadays, take-away restaurants are often the time-saving alternative to home-cooked meals because they are easier to incorporate into a busy lifestyle. As most customers are unwilling to wait, take-away restaurants produce enormous amounts of food leftovers caused by over-preparation due to a lack of predicting customers' demand. Waiting and wasting behaviour consist of contradictions. Acceptance of waiting depends on positive emotions and certainty about the cause of the waiting duration. Whereas individuals perceive a feeling of guilt and waste food without any intention. Previous research about food waste mainly focused on private, but changes are also required in public contexts. Therefore, this study investigates the effectiveness of visual prompts on customers' intention to wait, under the influence of environmental concerns, in take-away restaurants, to reduce food waste.

Method: A 2 (waiting awareness: framed positively versus negatively) X 2 (food waste claim: included versus not included) X 3 (environmental concerns: high versus medium versus low) between-subject design was used to investigate the effect on customers' intention to wait. For this purpose, 155 participants filled out an online survey that was designed to test these manipulations and their effects on individuals' intention to wait.

Results: Results showed that neither different framed waiting awareness nor including a claim about food waste has a significant effect on customers' intention to wait. Further, an interaction effect between those was found on one concept measuring customers' intention. Even if environmental concerns did not strengthen the relationship, it was found that they have a significant effect on intention towards acceptance of waiting.

Conclusion: This study did not provide evidence for the effectiveness of different framed waiting awareness and the inclusion of a food waste claim on customers' intention to wait. Nevertheless, this study confirmed the importance of environmental concerns. Further, the unexpected interaction effect provides a promising direction for future research.

Keywords: food waste, nudging, visual prompt, take-away restaurant, pro-environmental behaviour, waiting, message framing, awareness

Table of content

1. Introduction

One of the main reasons that cause shifts in the resource's consumption, from primary eating at home to eating on the run, is time scarcity (Manala-O & Aure, 2019). This is a common phenomenon within industrialized societies, which can be best defined as the concern of having not enough time (Jabs & Devine, 2016), considering the constraints humans face nowadays in its everyday life like work, social- and family responsibilities (van der Horst, Brunner, & Siegrist, 2011). Thus, people's food selection is massively affected by time scarcity as they depend on effortless and quick preparation of food. Therefore, take-away restaurants seem to be a better alternative to home-cooked food as they are easier to incorporate into a busy life (van der Horst et al., 2011).

Since dining out has developed into a frequent practice, food services produce an immense amount of food waste. The fundamental cause is the difficulty in predicting the demand (e.g. number of customers) that leads to several food leftovers produced (Priefer, Jörissen, & Bräutigam, 2016). As most customers are not willing to wait, considerable amounts of food are produced in advance. Besides, food services must follow strict hygienic rules and standards, that generates wastage due to a provided timeframe of prepared and cooked food goods. Consequently, it is important to reduce the amount of food waste in such services (Dzumbunu & de Villiers, 2018). In that way, not only the cost for the food services but also for the environment can be reduced (Mabaso & Hewson, 2018).

Food waste is a major global issue. According to the study of the FAO (2011), approximately one-third of the food that is produced for human utilization was wasted, which equals the amount of 1.3 billion tons per year. On account of the worldwide increasing population, the environmental damages caused by food production tend to evolve to a greater extent (Vandenbroele, Vermeir, Geuens, Slabbinck, & Van Kerckhove, 2019). The consequences of wasted food derive from every step of the supply chain (Graham-Rowe, Jessop, & Sparks, 2015) and the environmental impact becomes even more drastic when produced food is not consumed but rather wasted (Scherhaufer, Moates, Hartikainen, Waldorn, & Obersteiner, 2018). Because it is not only a waste of the energy from agribusiness, transport, process but also of distribution, warehousing, and preparation (do Carmo Stangherlin, de Barcellos, & Basso, 2018). Therefore, it is economically and ecologically unsustainable to not consume edible food, as the production and procession of raw materials are senseless (Silvennoinen, Katajajuuri, Hartikainen, Heikkilä, & Reinikainen, 2014). It is undoubtedly important to manage the challenge of food waste; in this way, the carbon footprint can be reduced (Mabaso & Hewson, 2018).

Former studies mainly focused on individuals shopping, storage, and recycling behaviour (Quested, Marsh, Stunell, & Parry, 2013, Sussman & Gifford, 2012), but changes in food waste behaviour are not only required in the private, but also within the public context, like take-way restaurants (Stöckli, Dorn, & Liechti, 2018). Usually, food producers are held accountable for climate damage, but the role of each individual should not be underestimated. Even small changes in customers' patterns can have a huge positive impact on the environment (Vandenbroele et al., 2019). Food waste is a growing problem in industrialized countries, 65% of food waste could be avoided by more sustainable behaviour (Stöckli et al., 2019). Hence, customers are considered as the most important target group to reduce food waste (do Carmo Stangherlin et al., 2018).

A common way of changing individuals' behaviour predictability is the concept of nudging (Vandenbroele et al., 2019). The key point of nudging is small unpretentious hints leading to a change in humans' behaviour (Wilkinson, 2012). To encourage customer's pro-environmental behaviour (PEB), visual prompts are the most frequently applied and effective nudging intervention (Stöckli et al., 2019), that triggers individuals to act in a certain way (Siaw Chui, Weng Wai, & Ahmad, 2015). Notwithstanding, nudging starts from the perspective of customer's, which makes it crucial to understand the behaviour to change it (Vandenbroele et al., 2019).

The theory of planned behaviour (TPB) was successful in explaining pro-environmental behaviour and proven a good predictive power of food waste behaviour (Mahon, Cowan, & McCarthy, 2006). The TPB states that intention is an instantaneous progenitor of behaviour. Further, intention is based on three different predictors: attitude subjective norm and perceived behavioural control (Ajzen, 1991). Additionally, the TPB was widely discussed in the literature, and it was found that adding another predictor to intention, namely emotions, can increase the explained variance of the model in explaining PEB's (Soorani & Ahmadvand, 2019).

Previous research established that emotions play a crucial role in the context of food waste behaviour, in particular negative like guilt. Contrastingly, customer's acceptance of waiting duration depends on positive emotions, because people with a positive mood rather accept to wait as they want to protect their present affective state (Sun & Wu, 2008). Hence, framing a message about waiting awareness (positive or negative), was proven to stimulate individuals´ awareness and affect their behavioural intention and attitude towards a behaviour (Chen & Jai, 2018).

It is essential to raise awareness about the problem to encouraging customers to act in

PEB's, in particular, consciousness about the consequences caused by food waste (do Carmo Stangherlin et al.,2018). Mostly, humans are not aware that food waste is produced in restaurants. Besides, waiting stress and frustration for customers, often caused by a lack of information because they want to understand the rationale behind the waiting. Moreover, waiting durations tend to be accepted if the service is purposeful and important to them. (Luo, Liberatore, Nydick, Chung, & Sloane, 2004).

Environmental concerns play an essential role because they serve as a pre-condition for individuals to act in PEB's. Generally speaking, a concern points out that a certain problem is important to address (Van de Velde et al, Verbeke, Popp, & Van Huylenbroeck, 2010). Environmental concerns refer to a person's attitudes about the environment. Environmental behaviour expresses them as (un) favourable (Janmaimool & Chudech, 2020). Seeing that individual's behaviour is usually consistent with their values, general beliefs are a predictor of environmental attitudes and behaviours (Wong & Wang, 2009).

To sum it up, if customers would accept longer waiting durations, less food needs to be pre-produced. Correspondingly, fewer amounts would be wasted. By increasing the awareness about waiting and the environmental impact of food waste, even if saving time is the most obvious factor of convenience food (Brunner, van der Horst, & Siegrist, 2010), positive consequences by reducing food waste can emerge (Quested et al., 2013).

This leads to the formulation of the following research question: *"How does different framed waiting awareness and including a claim about food waste influence customers' intention to wait in a take-away restaurant to reduce food waste, and what is the role of environmental concerns?"*

This study aims to test whether different framed (positive/negative) waiting awareness and including a food waste claim (included/ not included) under the influence of environmental concern affect customers' intention to wait. Therefore, the effect of framing and inclusion of a food waste claim with a 2 (waiting awareness framed positively versus negative) X 2 (food waste claim included versus not included) X 3 (Environmental concerns low versus medium versus high) between-subject design was tested.

2. Theoretical Framework

If customers in take-away restaurants would accept expanded waiting times, less food needs to be prepared in advance. Correspondingly, fewer amounts would be wasted. To influence their intention to wait, several concepts are relevant to be discussed. Therefore, this chapter explains first, visual prompts as nudging intervention. Then, the theory of planned behaviour and the role of emotions will be examined. Next, waiting behaviour will be demonstrated. Followed by emotions in food waste and waiting behaviour. Afterwards, the relevance of including a claim about food waste will be discussed. Lastly, the importance of environmental concerns will be demonstrated.

2.1 Visual prompts as nudging intervention

To encourage customers engagement in sustainable behaviours, nudging is a frequently applied method to change people's behaviour predictably without prohibiting any option (Vandenbroele et al., 2019). The main idea of nudging is that small and unobtrusive hints are capable of changing humans' behaviour (Wilkinson, 2012). Further, they did not require a lot of individuals' cognitive effort. This difference in the cognitive effort is what differs from the classic information movement and education, which aims to persuade customers to change their attitudes based on rational arguments, that needs more cognitive effort (Vandenbroele et al., 2019). It is effective to shape the environment with cues; therefore, the nudging can contain divergent approaches (e.g. physical or social) to stimulate behaviour in a certain way (Marteu et al., 2011). Thus, instead of making a behaviour illegal, aim to nudge an individual to act in certain behaviours (Wilkinson, 2012).

Visual prompts are the most frequent applied nudging intervention when it comes to stimulating an individual's sustainable behaviour (Stöckli et al., 2018). In general, prompts are defined as everything that triggers people to act in a certain manner (Siaw Chui et al., 2015) or serve as a reminder of a particular behaviour that under other conditions may be forgotten (Shearer et al., 2017). They can range from simple notifications (which can increase awareness of provider information) to more comprehensive statements (provide context and reason). Earlier research has established that prompts are considered to be one of the most powerful intervention types when it comes to encouraging PEB´s (Shearer et al., 2017). There are various types of prompts existing like verbal or visual (Siaw Chui et al., 2015). According to Shearer et al., (2017) "Visual prompts usually take form of poster, signs, stickers or flyers, and display factual or persuasive information, or provide cues to aid behavioural decision

making." In most cases, those visual (or verbal messages) have the intention to underline the desired behaviour in which customers should engage (Sussman & Gifford, 2012).

Interventions based on information are most commonly used to promote PEBs', but information alone rarely changes behaviour (Stöckli, Niklaus, & Dorn, 2018). Based on the belief that information (positive or negative) about the consequences generate consciousness for the problem and thereby leads to a change in individuals' behaviour. However, from an academic perspective, to provide only information infrequently causes a behavioural change (Stöckli et al.,2018). Previous research shows that information tends to be more persuasive in combination with other types of interventions (Stöckli et al., 2018). By combining different types of intervention, that is, information intervention and prompts tend to be an effective strategy (Stöckli et al., 2018).

Besides the type of intervention, framing of the message is crucial in influencing people's perception and evaluation of a message (Chen & Jai, 2018). Because individuals do not only react to stimulations, facts, and beliefs but also to how they are advertised and framed (Byerly et al., 2018). In line with the prospect theory, people's attitudes are impressionable to the structure of information and how they are framed. Persuasive information can focus on the positive (gain) or negative (loss) consequences of taking part in that particular behaviour (Chen & Jai, 2018). Research has concluded that the framing of a message influences individuals' attention to a situation, their effectiveness in dealing with a situation, and further, their attitudes and behavioural intentions (Van de Velde et al., 2010).

Visual prompts are most effective when they are placed close to where the target behaviour takes place and should understandably display the desired behaviour. A visual prompt needs to be very simple, clear and in addition to that perceptible to the target persons (Shearer et al., 2017). The desired behaviour should be explicitly described and easy to be accomplished (Sussman & Gifford, 2012). Furthermore, prompts tend to be greatly useful, if they are arranged at the place, the target behaviour takes place. (Sussman & Gifford, 2012). In the process of influencing behaviour, the placement of the prompt seems to be more influential than the design of the prompt (Sussmann, Greeno, Griffortd, & Scannell 2012). Moreover, in line with Geller, Winett, & Everett's (1982) five characteristics of effective visual prompts, they should be formulated in a polite way of wording. After all, nudging begins from the customer's perspective (Vandenbroele et al., 2019). On this account, it is necessary to understand the behaviour to influence it.

2.2 Theory of planned behaviour as an explanation for pro-environmental behaviours

One of the most prominent theories used to explain and predict pro-environmental behaviour is the theory of planned behaviour (TPB). It is improbable that individuals will change their food waste behaviour without any encouragement. In favour of reducing the amount of food waste, intervention needs to focus on essential psychological processes that are based on impulses and/or obstructions to cut down wasteful behaviour (Graham-Rowe et al., 2015). The TPB is based on the prerequisite that individuals behave in rational ways and are able to recognize accessible information (implicit or explicit) concerning suggestions of their own behaviour (Soorani & Ahmadvand, 2019). A numerous of current literature on the application of the TPB in various pro-environmental behaviours (e.g. recycling, travel mode choices) have demonstrated the effectiveness of this theory in predicting intention (Graham-Rowe et al., 2015).

The theory of planned behaviour suggests that intention is necessary for carrying out a specific behaviour. Intentions are presumed to carry the factors of motivation that lead to behaviour. Therefore, they can be seen as an indication of the effort an individual plan to perform a behaviour (Ajzen, 1991). In most cases, the stronger the intention, the more likely it becomes to perform a certain behaviour. Attitude, subjective norm, and perceived behavioural control are the three factors that predict an individuals' intention (Graham-Rowe et al., 2015). Using this approach, researchers have been able to evaluate the effectiveness and underline the significance of attitude, subjective norm and perceived behavioural control as prognosticator of customers' food waste behaviour (Russell, Young, Unsworth, & Robinson, 2017).

Attitude refers to the (un)favourability of an individual regarding a particular behaviour. Subjective norms are an indicator of expectations coming from other people who are important to the individual. Perceived behavioural control points out the degree of capability an individual believes to have to perform a specific behaviour (Ajzen, 1991). The TPB consist of two components, the first reflects on persons available resources that are required to fulfil a behaviour (e.g. time, money or other resource's). The second refers to an individual's self-confidence to perform behaviour. The TPB have been used in various studies dealing with pro-environmental behaviour and tend to have strong predictive power (Mahon et al., 2006).

A number of studies have begun to extensively discuss the TPB, and it is suggested to add additional predictor variables to intention (Graham-Rowe et al., 2015). In general, the TPB is open to the adaptation of new predictors, if they are increasing the explained variance

of a model (Ajzen, 1991). Therefore, various studies include non-cognitive predictors, based on the fact that those also need to be considered in predicting behaviour (Soorani & Ahmadvand, 2019). Especially emotions tend to affect an individual's intention of performing a behaviour. According to the dual-process theory, people employ both a cognitive (rational) and an affective (emotional) system to construct their attitudes and behaviours (Marteau et al., 2011). Various studies underline the importance of emotions in food waste. Often, a feeling of guilt is experienced when individuals engage in wasteful behaviour, which motives them to alleviate the negative feeling to reduce their wasteful behaviour. Guilt was identified as a key motivation in reducing food waste. Moreover, negative emotions can have a positive impact on pro-environmental behaviours. The study of Soorani & Ahmadvand (2019), proved that the TPB and emotion, in particular guilt, explain a greater variance of food waste behaviour.

2.3 Waiting behaviour

Waiting is an unavoidable everyday situation that causes a lot of stress and frustration. An average customer spends about two or three years of their whole life waiting (Giebelhausen, Robinson, & Cronin, 2010). Former studies have shown that time is the most prominent aspect of food-related choices. Nevertheless, waiting is unavoidable in high-contact services, but customers' in take-away restaurants do not expect waiting durations (Iqbal, Whitman, & Malzahn,2012). Waiting can be best defined as an imbalance between demand and supply. Furthermore, literature illustrates the phenomenon of waiting causing frustration, solicits anger, tension, and other negative mental states and emotions (Pàmies, Ryan & Valverde, 2015). Waiting within high-contact services (in which the customer needs to be present) is unavoidable by means of the undetermined vary demands (Luo et al., 2004). Besides the stress customers experience, they also lose valuable time. In other words, waiting has not only psychological but also economic costs.

2.4 The role of emotions in food waste and waiting behaviour

It is now well established from a variety of studies that emotions play a crucial role in the context of food waste. Emotions are a reaction to an event or object and encompass cognitive and feeling components. Thereby, providing the impetus for actions as they signal the relevance of an issue. Emotions likely drive food waste behaviour because they are the key driver for decision making (Russel et al., 2017). Seeing that emotions can be either positive or negative, in term of their valence, past studies of food waste were dominated by guilt (Sirieix et al., 2017). The majority of humanity does not like food waste, the

consequence whenever food has been wasted results in a feeling of guilt (Mabaso & Hewson, 2018). In line with other researches, most humans feel uncomfortable about food waste. But the concerns of customers in quick service- or take away restaurants have not been examined yet (Sirieix et al., 2017). Nevertheless, several studies have assessed the efficacy of unfavourable emotions having a positive impact on pro-environmental behaviour.

Contrasting to food waste, the essential factors influencing customers waiting acceptance is being in a positive mood. Negative as well as the positive mood has an effect on the subjective assessment of time (Baker & Cameron, 1996). Customers in a positive mood, perceived waiting duration to be shorter than under negative conditions (Chebat, Chebat, Filiatrault, & Vaninsky, 1995). Considering the stress management theory, people under emotional and/or physical stress identify the wait to be longer (Luo et al., 2004). Customers tend to protect their present affective state when they are in a good mood. According to the mood maintenance hypothesis, "happy people may perform mood lifting behaviour and tend to avoid messages that may be depressing" (Sun & Wu, 2008, p.593). Furthermore, individuals in a positive mood accelerate the processing of a message to allow them to stay in that pleasant state and they interpret the information more positive, in order to keep their positive mood (Sun & Wu, 2008). In a positive emotional state, an environment is rather observed as an "okay place" (Chebat et al., 1995). To conclude, people in a favourable mood, who enjoy the present situation focus less on the passed time and therefore underrate the passing time (Baker & Cameron, 1996).

2.5 Message framing

Previous research has established that framing of a message in food services is a fruitful manner to stimulate customers' awareness towards food waste and can, therefore, alert their attitude and thus, their behavioural intention approaching the prevention of food waste (Chen & Jai, 2018). The concept of framing can be easily explained as highlighting different valence of a message, which means that an identical information is presented either in a positive or a negative way (Van de Velde et al., 2010). Literature about framing has highlighted several different types of message frames namely risky choice, attribute and goal framing (Levin, Schneider, & Gaeth, 1998). The risky choice frame relates to options which are presented with various levels of risk. When using an attribute frame, some aspects of an object are in the focus, while other aspects are not mentioned, which works as a manipulation. Goal framing focuses on the behavioural goal or the results of specific behaviour, which can be formulated in a positive as well as a negative way and therefore highlighting either gains or

losses of performing the behaviour (Levin et al., 1998, Van de Velde et al., 2010). Each of those frames has a different effect on individuals' behavioural intention (Van de Velde et al., 2010).

Recently attention has focused on using a goal frame to provoke customers engaging in PEBs', as multiple motivations can cause the desired behaviour. Furthermore, it influences the way individuals process a message and therefore, behave in certain ways (Steg & Vlek, 2009). A message using a goal frame can be formulated positive and thereby focusing on attaining gain or prevent losses by following the required behaviour. However, a negatively framed message using a goal frame focus on forfeit gain or losses by not following the required behaviour (Levin et al., 1998). The way individuals think, to which information they are sensitive to, and the way they are going to act is influenced when a goal is activated (Steg & Vlek, 2009). Using this approach, research has been able to demonstrate that a positive goal frame is more effective compared to a negative in engaging customers into the hotel's sustainability program (Chen & Jai, 2018). A positive framed pro-environmental message focusing on behaving in the right way, that creates an encouraging attitude concerning the message and influences customers to behave in that particular manner (Steg & Vlek, 2009, Chen & Jai, 2018).

The gain goal frame is extremely useful when provoking customers to perform sustainable behaviour and is in line with the TPB, individuals focus on the positive result of engaging in this behaviour. In addition to the previous section, there are three different types of goal frames. The gain goal frame (to keep or enhance one´s resources), normative goal frame (to behave suitably) and the hedonic goal frame (to perceive a better feeling at the moment) (Steg & Vlek, 2009). It is very unlikely, that these different types are uniformly effective. Previous research has shown that the theory of planned behaviour focal points the gain goal frame, moreover, a significant relationship between gain goals and pro-environmental behaviour was found (Tang, Chen, & Yuan, 2019). Since customers are more willing to behave in a pro-environmental manner, when they perceive a sense of contentment performing a particular behaviour (Lindenberg & Steg, 2007) and focus on the positive outcome from which they benefit (Tang et al., 2019). To realize a goal an "improvement of (or prevention of decrease in) one´s resources or efficiency of resources" is mandatory (Lindenberg & Steg, 2007).

This leads to the formulation of the following hypothesis:

H1: Positive framed waiting awareness is expected (opposed to negative) to have a positive effect on customers' intention to wait

2.6 Including a claim about food waste

To encourage customers' engagement in pro-environmental behaviour it is essential to raise problem awareness. More accurately, awareness about the consequences that occur due to food waste (do Carmo Stangherlin et al., 2018). In general, individuals often waste food without any intention and little awareness about the consequences of their behaviour (Manala-O, & Aure, 2019). Overall, there is a lack of knowledge about the outcome of food waste and therefore, education about the problem is required, in particular, about the amount and the results of food waste for the environment. (Thyberg & Tonjes, 2020). It is necessary to understand the perception about food waste customers have, to understand their waste behaviour (Russell et al., 2017). Various aspects of food waste are related to awareness, as people are uninformed of the environmental impact their cause even though the economic issue is understood (Gaiani, Calderia, Adorno, Segrè, & Vittuari, 2018). Increased knowledge about the problem of food waste tends to have a positive effect on the environmental awareness (Abdelradi, 2018). For that reason, increasing an individual's awareness about the results of wasted food leads to positive consequences of food waste reduction (Quested et al., 2013). Thereby, even if saving time is the most obvious factor of convenience food (Brunner et al., 2010), positive consequences of reducing the amount of food waste can emerge (Quested et al., 2013).

As previously mentioned, waiting causes stress, irritation, tension and other unfavourable mental states and emotions (Pamies et al., 2015). The main reason that causes stress for a customer is a lack of information which leads to uncertainty of waiting duration. Prior investigations proved that by providing feedback on the expected waiting duration influences individuals perceived waiting (Luo et al., 2004). Customers actively look for the reason behind the waiting and therefore search for their own information (Pàmies et al., 2015). One option to reduce the dissatisfaction is to provide information about the longitude of the wait or constantly inform the customer about the progress, thereby, the duration is perceived as shorter (Hui & Tse, 1996). One explanation provides the attribution theory, which states that customers want to understand the causes or reason of an unwanted event. Also, they tend to tolerate longer durations if the service is meaningful to them (Luo et al., 2004). If they understand the rationale behind the waiting time, they are more likely to accept the situation. As information increases the certainty of a situation waiting is more controllable and predictable for the customer. This is based on the cognitive reappraisal effect, getting

information and reappraisal are both cognitive efforts that a person can process to cope with the situation (Hui & Tse, 1996). Moreover, unoccupied time feels longer than occupied, with the knowledge about waiting periods, customers find ways to fill the time while unexplained waits feel longer (Pàmies et al., 2015).
This leads to the formulation of the following hypothesis:

H2: Including a food waste claim (opposed to not including) is expected to have a positive effect on customers' intention to wait

2.7 Environmental concerns

In literature, multiple definitions of environmental concerns exist. Currently, there is no definition of stability and consensus on the concept of environmental concerns since it holds a broad facet towards environmental issues (Bouscasse, Joly, & Bonnel, 2018). In general, a concern refers to an individual's assumption that an issue is important to address (Van de Velde et al., 2010). Different scholars explained the concept of environmental concerns as personal attitudes about the environment and environmental behaviour, expressed them as (un) favourable (Janmaimool & Chudech, 2020). Therefore, people with high environmental concerns are those who have a sufficient understanding of environmental challenges (cognitive aspects). Further, they are concerned about these challenges (emotional aspects) and intend to take action to protect the environment (Bouscasse et al., 2018). Since individuals' behaviour is often consistent with their values, general beliefs can predict environmental attitudes and behaviours (Wong & Wan, 2009). Considering this, it is necessary to look at environmental attitude and environmental behaviour more closely.

Environmental attitude refers to individuals paying attention to the impact of environmental issues on themselves, others and the biosphere (Li & Chen, 2018). Explaining this as a personal belief, influencing behavioural intentions related to the environment (Janmaimool & Chudech, 2020). Also, concerns about the environment are different for each (Wong & Wan, 2009). Previous research has established that attitudes affect people's behavioural intention and that those who are more concerned about the environment rather behave in PEBs´ than those who are less concerned (Li & Chen, 2018). This is in line with the TPB (Ajzen, 1991), as attitudes are an important prerequisite for participating in pro-environmental behaviour (Detenber, Ho, Ong, & Lim, 2018). According to the value-belief-norm theory individuals holding a positive environmental attitude are capable to acknowledge negative consequences for the environment caused by certain behaviours. This

acknowledgement tends to produce a sense of personal responsibility, that is, environmental protection actions must be taken (Janmaimool & Chudech, 2020).

To carry out PEB´s like food waste prevention, the individual must be concerned about environmental issues to some extent (do Carmo Stangherlin et al., 2018). Therefore, a low amount of concern is needed to influence customers' intentions towards the desired behaviour. Furthermore, individuals have a higher likelihood to perform a certain behaviour when they believe to contribute to a problem solution (Van de Velde et al., 2010). Since it can be difficult to evaluate behaviour in many research contexts, behavioural intention is often an alternative indicator is measured. Even if it is not an impeccable predictor of behaviour, it is significantly correlated with moderate degrees (Detenber et al., 2018).

It is necessary to remember that the persuader has made judgements earlier about the (unwanted) behaviour, thus, different frames determine the persuasiveness of the message, but not the desirability of actions (Van de Velde et al., 2010). In the context of framing environmental messages (highlighting environmental causes of behavioural change), evidence shows a positive impact on environmental behaviour (Steinhorst, Klöckner, & Matthies, 2015). Further, the degree to which individuals care about the subject matters. If a customer only cares slightly about food waste, negative framing tends to convince people of the severity of the problem, if they greatly care, the issue will be considered as unsolvable and therefore result in a reduction of perceived effectiveness. Thus, a message focusing on possibilities and solutions is more persuasive to engage customers to enact in the prevention and reduction of environmental problems (Van de Velde et al., 2010).

Prior research found that environmental knowledge can improve awareness and understanding of environmental issues, which shows that individuals with greater awareness tend to exhibit more in pro-environmental manners (Janmaimool & Chudech, 2020). It is necessary to increase awareness of the environmental impact caused by food waste, and the positive impact of reducing this waste (Quested et al., 2013). If people think that their behaviour may lead to consequences that conflict with their own interest, they are more likely to adapt or change this behaviour (Chen & Jai, 2018). People are not aware of the fact that in a take-away restaurant food waste is produced. Even if they understand the economic consequences, these are not aware of the environmental impact (Gaiani et al., 2018) Therefore, increased understanding of food waste issues often has a positive impact on environmental awareness (Abdelradi, 2018). Taking customers' intention to wait into account, it is not challenging to determine situations in which they are willing to wait (Giebelhausen et

al., 2010). Waiting is often associated with value, therefore, the intention to wait increases if they believe the result is worth waiting for (Pàmies et al., 2015).
This leads to the formulation of the following hypotheses:

H3: It is expected that higher environmental concerns will increase the effect of positive framed waiting awareness (opposed to negative frames waiting awareness) on customers' intention to wait in take-away restaurants

H4: It is expected that higher environmental concerns will increase the effect of including a food waste claim (opposed to not including a food waste claim) on customers' intention to wait in take-away restaurants

This section has discussed the relationship between inclusion of a food waste claim, different framing and environmental concerns on customers' intention to wait. Based on this framework, a model was created.

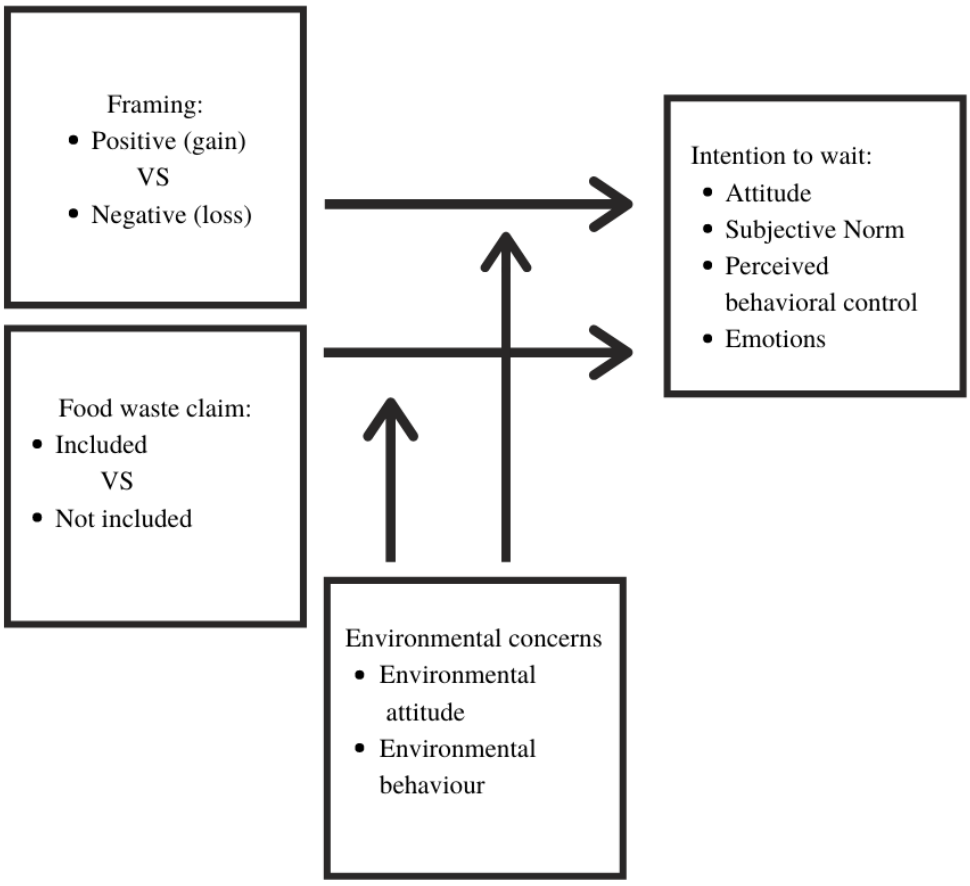


Figure 1. Hypothesized model

3. Method

3.1 Pre-study

To investigate the influence of different framed waiting awareness and the inclusion of a claim about food waste under the influence of environmental concerns on customers' intention to wait in take-away restaurants, stimulus material, in this case, visual prompts need to be designed. Therefore, a small pre-study was conducted to examine participants preference for different designs and statements. On this basis, the visual prompt was designed.

Participants. Participants were selected based on a personal network, all of them are of German nationality. In total, seven participants were interviewed. All of them were ensured confidentiality and anonymity of their information and further, have been made aware that these interviews are not mandatory. The majority were females with a number of 4 participants and 3 of them were male. Furthermore, they were aged between 19 and 33 years old (M:26.85, SD: 4.87).

Table 1
Participants demographics

Male	Female	Age	
N	N	M	SD
3 (42.9%)	4 (57.1%)	26.85	4.87

Procedure. Due to the current situation of the corona pandemic, the interviews were conducted via Skype. In the beginning, the purpose of the study was explained, as well as the manipulations that were going to be tested in the survey. Also, participants have been made aware that based on their preferences a visual prompt will be designed. First, participants were asked to rank seven different designs based on personal preference. Afterwards, different statements were presented. For each category (framed waiting awareness positive/negative + food waste claim) two different statements among which they had to choose from. Upon the participant's agreement, the interview began. Those were not recorded, only notes were taken based on participant' s preference of the designs and statements, as it was not necessary to collect further in-depth information.

First, seven different designs of visual prompts were presented (see appendix). The designs did not include any text to avoid a bias based on the content of the prompts. Participants were asked to rank the designs based on their personal preferences. From the one, they liked the most to the one they liked the least.

Afterwards, different statements were presented. For each category (positive framed waiting awareness, positive framed food waste reason, negative framed waiting awareness, negative framed food waste reason) two different statements (see Table 2).

Table 2
Summary of Statements presented to interviewee´s

Framing	Food waste reason not included	Food waste reason included
Framed positive (gain)	1.“Dear Customer, we prepare your food fresh and only for you! Thank you for waiting.”	3.“Further, you help to save the environment, as we produce less food waste due to a reduction of preparation
	2.“Dear Customer, you wait, meanwhile we prepare your food fresh for you! Thank you for your understanding and assistance!”	4.“Together we can save the environment! You wait, and we only produce what is wanted. Therefore, less food is going to be wasted.”
Framed negative (loss)	1.“Dear Customer, prepared in the morning and sold in the evening? That’s what you get when you don’t want to wait.”	3.“And if no one wants? We need to throw it away, which further causes environmental damages.”
	2.“Dear Customer, the price for freshly prepared food is your time.”	4.“Further huge environmental damages are caused by the amount of food that is going to be wasted by means of pre-production.”

Results. Based on the notes that were taken upon participants’ favourability following results were found. Regarding the visual prompt, answers showed that the two options were ranked quite close to each other. Three of them indicated that Poster 7 (42.9%) is their preferred poster, whereas four (the majority) state that Poster 2 is their favourite (57.1%) (see Table 3).

In consideration of the positively framed prompt and the claim about food waste, results were unambiguous. In total five participants preferred statement 1 “Dear Customer, we prepare your food fresh and only for you. Thank you for waiting!”. When including food

waste reason all respondents voted unanimously for statement 4 “Together we can save the environment! You wait, and we only produce what is wanted. Therefore, less food is going to be wasted.”

To examine the negatively framed waiting awareness and the claim about food waste, the following results were found upon participant’s likeability. Four of the interviewees choose statement 1 “Dear Customer, prepared in the morning and sold in the evening? That is what you get when you don’t want to wait!” over statement 2 “Dear Customer, the price for freshly prepared food is a bit of your time”. Also, the results considering the food waste claim were almost unanimously. As six respondents decided on “And if no one wants it? We need to throw it away which further causes environmental damages!” Based on these results the stimuli material was designed.

Table 3
Participants Preferred Poster

Poster	Frequency	Percent
Poster 2	4	57.1%
Poster 7	3	42.9%

Table 4
Participants Preferred Statements

Condition	Statement	Frequency	Percent
Statement Positive	Statement 1	5	71.4%
	Statement 2	2	28.6%
Statement Positive + Food waste Claim	Statement 3	0	0%
	Statement 4	7	100%
Statement Negative	Statement 1	5	71.4%
	Statement 2	2	28.6%
Statement Negative + Food waste Claim	Statement 3	6	85.7%
	Statement 4	1	14.3%

3.2Stimulus Material

This study tests the effect of positive (gain) and negative (loss) framed waiting awareness and including a claim about food waste on customers' intention to wait, to reduce food waste in take-away restaurants. For this purpose, four visual prompts were developed to test a 2 (waiting awareness: framed positive (gain) versus framed negative (loss)) X 2 (food waste reason: included versus not included) between-subjects design.

The first independent variable is framed waiting awareness, positive, as well as negative, tests the effect of customers' intention to wait in take-away restaurant. The positively framed variant focuses on the gain an individual earns if they wait, which is freshly prepared food. Therefore, the prompt state "Dear Customer, we prepare your food fresh and only for you. Thank you for waiting!". The negative framed focuses on the losses an individual could have if he/she does not perform the goal of waiting for fresh food. Thus, the negatively framed variant states "Dear Customer, prepared in the morning and sold in the evening? That's what you get when you do not want to wait!".

The second independent variable tests the effectiveness of including a claim about food waste on customers' intention to wait. Because individuals are often not aware of these consequences of their behaviour (Sirieix et al., 2017). Therefore, one variant of the prompts includes a food waste claim while the alternative did not mention food waste at all. Further, the mentioned reason of food waste was also framed. The positive framed focus on the gain of fulfilling the desired behaviour and state "Together we can save the environment! You wait, and we only produce what is wanted. Therefore, less food is going to be wasted." The negative framed focus on the losses an individual has if he/she does not want to wait and state: "And if no one wants it? We need to throw it away, which further causes environmental damages."

Furthermore, several aspects of the statements of the prompt are highlighted, to underline the importance of the messages. The positively framed prompt highlights "Thank you for waiting", to raise individuals' intention. In the variant with the food waste claim the word "together" is emphasized to point out that bilateral actions are necessary to reduce the amount of wasted food. Within the negatively framed prompts, "when you don´t want to wait" is put into focus to show clearly the losses caused by not fulfilling the desired behaviour of waiting. In addition to that, the negative one with the inclusion of a food waste claim stresses "environmental damages", to raise awareness about these consequences that can occur.

At the top of the prompt, a paper bag and to-go cup in cartoon optic are displayed.

Both have a sticker which states “Take Away”. The background is orange, as well as the bottom line of the prompt. In the middle of every poster “Dear Customer” is placed to gather their attention. Thereafter, for every prompt, the individual statement is placed.

Visual prompt framed positively

Food waste claim not included

Food waste claim included

Visual prompt framed negatively

3.3 Study

Study design and procedure. This study aimed to investigate the influence of visual prompts with waiting awareness framed positive/negative and including a claim about food waste, under the influence of environmental concerns as a moderator variable on customers' intentions to wait in take-away restaurants. For this purpose, an online survey was designed and conducted on the platform "Qualtrics". Data collection took place between the 5th of May 2020 until the 19th of May 2020. The questionnaire was spread through an anonymous link to the participants. As take-away restaurants are commonly visited by individuals of all ages, genders, and professions, no further restrictions made of participation except that they need to be at least 18 years old. Responses were collected using a snowball sample. First, the study was distributed due to a personal network, then participants were asked to further distribute the survey to their family, friends, and acquaintances.

At the beginning of the questionnaire, an introduction provides the participant an explanation about how data will be stored and analysed in the future and confidentially and anonymity is ensured. Also, it is explained that participation is voluntary and the option to do consent or not is given. Upon respondent's agreement, four questions about the demographic background are asked which examine age, gender, highest finished degree of education, and current profession. Afterwards, a question about individuals' frequency of visiting take-away restaurants is asked, ranging from: never, 1-3 times a month, 4-6 times a month, more than 7 times a month, to, everyday. Following, the stimulus design was presented, the participants saw either a positive framed, a negative framed prompt which include and/or not include a claim about food waste. That was accomplished through the randomizer function of "Qualtrics", which ensured equal distribution and equal group sizes. Then, questions regarding individuals' attitudes, subjective norms, perceived behavioural controls and emotions were asked. Each of these constructs consists of four items evaluated based on literature. Responses are being recorded using a 5-point Likert-scale, ranging from the values 1 (completely disagree) to 5 (completely agree).

Participants. In total, 178 responses were collected. However, outliers and not fully answered surveys were removed. Some of the participants were removed already in Qualtrics because the survey was evidently not completed, others during the analysis due to outliers. Therefore, 155 participants completed the survey. The majority were male with a number of 80 (51,6%) and 74 participants were female (47,7%), and 1 other (0,6%). Furthermore, the they were aged between 18 and 55 years old (M:25,29, SD: 6,59). Most of the participants

indicated to be either a student (45,2%) or an employee (43,9%). Half of them (50,3%) indicate to visit a take-away restaurant between 1-3 times a month, 45 participants (29%) stated to visit a take-away restaurant 4-6 times a month, and 29 (18,7%) more than 7 times a month.

Table 5
Demographics of participants per stimuli group

Stimuli	Participants	Age	Gender (in %)	
	N	Mean (SD)	Male	Female
Positive	40	24.7 (4.36)	57.5%	42.5%
Negative	50	25.5 (6.12)	44%	56%
Positive + Claim	29	24.2 (6.72)	62.1%	37.9%
Negative + Claim	36	26.5 (8.62)	47.3%	52.7%
Total	155	25.2 (6.59)	51,6%	47.7%

Measures.

Environmental concerns. First, environmental concerns were measured. As individuals need at least to certain degree care about the environment to engage in pro-environmental behaviours (do Carmo Stangherlin et al., 2018). Environmental concerns were divided into environmental thoughts and behaviour. This was measured in advance to reduce the participants' desire to present themselves in the best light and avoid biases (Philips & Clancy, 1972). To do so, each construct consists of four items that were evaluated based on literature.

Environmental attitude. Environmental attitude was measured using four items. They were asked to express their level of agreement with the statements: "I think that in general humans treat the environment right" (reverse coded), "I think it is important to engage in sustainable behaviour", "I think if things continue as they have, in the near future, and ecological catastrophe will develop" and "I think that food waste can be reduced through a more sustainable behaviour".

Environmental behaviour. Next, individual's pro-environmental behaviour was tested, also by using four items. Therefore, participants were asked to indicate to which degree they agree with the following statements: "I try to save water", "I try to recycle", I try to save electricity" and "I try to reduce food waste".

Stimulus Material. Thereafter, they were informed that they are going to see a poster, which they should read carefully because some questions are going to be asked afterwards. Each participant saw one out of the four visuals prompts (framed positive, framed positive + inclusion of food waste reason, framed negative, framed negative + inclusion of food waste reason) which was randomly assigned.

Intention to wait. As mentioned before, an individual's intention is based on attitude, subjective norms, and perceived behavioural control (Ajzen, 1991). As previously discussed, this study added emotions as a further predictor to intention. For each construct, again, four items were presented, and participants were asked to indicate their degree of agreement.

Attitude. To evaluate participants attitude regarding waiting duration in take-away restaurants, they were asked to indicate their degree of agreement to the following statements: "I think waiting for freshly prepared food is appropriate", "I think that waiting for my food order to be ready is unpleasant" (reverse coded), "I think waiting is unavoidable in take-away restaurants" and "I think it is outrageous to wait for my food order to be ready" (reverse coded).

Subjective Norm . To gain insights into participants influence of subjective norms regarding waiting durations, they were asked to indicate whether they agree to the following statements: "Most of the people who are important to me think that it is okay to wait for their food order", "My friends and family would expect me to wait for my order to be ready", "Most of my friends do not like to wait till the food order is ready" (reverse coded) and "My family members think it is the restaurant's responsibility to make customers not wait" (reverse coded).

Perceived Behavioural Control. To measure individuals perceived behavioural control of waiting, the construct was measured using four items as well namely: "Waiting for my food to be ready is under my control", "For me, it is hard to wait for my food order to be ready" (reverse coded), "For me, it is effortless to wait for my food order to be ready", and " I am capable of occupying myself during the waiting duration".

Emotions. Finally, to gather insights into participants emotions, they were asked to indicate their level of agreement about how they feel during waiting times in take-away restaurants. The items to measure the constructs were: "I feel good during the waiting duration until my food order is ready", "I am annoyed during the waiting duration until my

food order is ready"(reverse coded), "I am in a positive mood during the waiting duration as I am looking forward to my food" and "I am in a negative mood during the waiting duration as I feel stressed" (reverse coded).

Questions regarding the prompt. After the constructs that measure customers' intention to wait, questions regarding the manipulation they saw took place, to ensure that the they read the statement on the visual prompt. Participants were asked to express their level of agreement regarding statements about the posters they saw: "The poster I saw was formulated in a positive way", "The poster I saw was about food waste", "The poster I saw was formulated in a polite way" and "The poster I saw was only about waiting".

Table 6
Summary of the Cronbach's alpha for constructs used

Construct	Cronbach's alpha*
Environmental concerns	.78*
Attitude	.73*
Subjective Norm	.73*
Perceived Behavioural Control	.77*
Emotions	.81*

Note. * alpha > .70

4. Results

4.1 Manipulation Check

An independent samples t-test was conducted to compare participants perception of the manipulation they saw of the visual prompt positive/negative and prompt food claim included/not included conditions.

A t-test was conducted using the item "The poster I saw was formulated in a positive way" to compare the groups which saw a positively formulated prompt to those who saw a negatively formulated. A significant difference in the scores for the positive framed prompt (M = 4.74, SD = .50) and the negative framed prompt (M = 2.21, SD = 1.39) was found, conditions; t(153) = -14.37, p = .00.

Further, a t-test was conducted using the item "The poster I saw was only about waiting" to compare the groups who saw a claim about food waste with those who did not. A significant difference in the scores for the groups who saw a claim about food waste (M = 1.80, SD = .79) and the group who did not saw a claim about food waste (M = 3.94, SD = 1.25) was found, conditions; t(153) = 11.97, p = .00.

4.2 Results of the Multivariate Tests

To investigate the main effects of the independent variables, a multivariate analysis of variance (MANOVA) were conducted with prompt framed waiting awareness (positive/negative) and food waste claim (included/not included) and the factors attitude, subjective norm, perceived behavioural control and emotions as dependent variables. Further, environmental concerns were included as the moderator variable, which was transformed into a categorical variable using a percentile split. Therefore, participants environmental concerns were divided into low (1 to 3,75), medium (3,75 to 4,25), and high (4,25 to 5). The results of the multivariate test are displayed (see appendix).

The results showed that there was no significant main effect of the prompt framed positive/negative F(4,140) = 1.99, p = .09, Wilks' Lambda = .95). There was no significant main effect of the prompt food waste claim included/not included F(4,140) = .63, p = .65, Wilks' Lambda = .98). A significant main effect of environmental concerns F(8,282) = 4.82, p = .00, Wilks' Lambda = .77, partial η^2 = .12) was found. Surprisingly, a marginally significant interaction effect between the prompt framed positive/negative and prompt food waste claim included/not included was found F(4,140) = 2.15, p = .08, Wilks' Lambda = .94, partial η^2 = .06). There was no significant interaction effect between the prompt framed positive/negative and environmental concerns (F(8,282) = .73, p = .67, Wilks' Lambda = .96).

Also, no significant interaction effect between the prompt food waste claim included/not included and environmental concerns was found F(8,282) = .62, p = .75, Wilks' Lambda = .97). Lastly, there was no significant interaction effect between the prompt framed positive/negative, prompt food waste claim included/not included and environmental concerns (F(8,282) = 1.35, p = .22, Wilks' Lambda = .93).

4.3 Tests of Between-Subjects Effects

For comparison, the results of the Between-Subject Effects (see appendix) for the significant effects of the variables environmental concerns and prompt framed positive* prompt food waste claim included from the multivariate analysis of variance were further investigated per construct.

Table 7

Tests of Between-Subjects Effects

IV	Construct	df	Error df	F	p	η^2
Environmental Concerns	Attitude	2	143	18.38	.00**	.21
	Subjective Norm	2	143	7.52	< . 01**	.09
	Perceived Behavioural Control	2	143	8.01	< .01**	.10
	Emotions	2	143	12.64	.00**	.15
Prompt positive/ Negative * prompt Claim included/not included	Attitude	1	143	.03	.86	.00
	Subjective Norm	1	143	<. 01	.98	.00
	Perceived Behavioural Control	1	143	5.63	< . 01*	.04
	Emotions	1	143	.95	.33	< .01

Note. **significant, p < .05

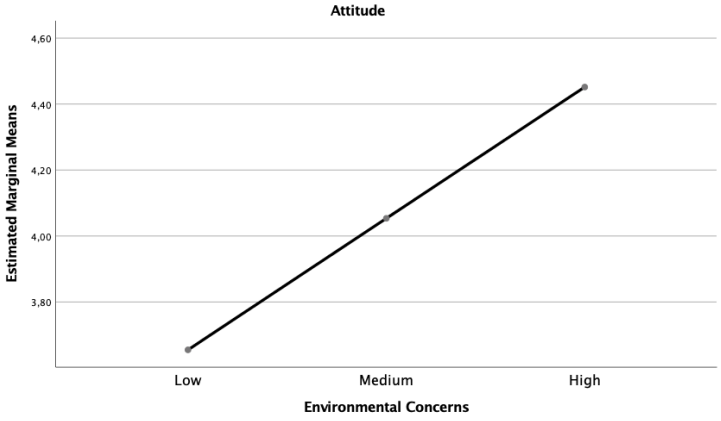
Prompt framed positive/negative. Because the effect of the poster framed positive/negative was found to be not significant, thus, no further analyses were conducted. The null hypothesis could not be rejected. Therefore, the hypothesis H1:"Positive framed waiting awareness is expected (opposed to negative) to have a positive effect on customers' intention to wait" needs to be rejected too.

Prompt food waste claim included/not included. As poster food waste claim included/not included was found to be not significant, no further analyses were conducted. The null hypothesis could not be rejected. Thus, hypothesis H2 "Including a food waste claim (opposed to not including) is expected to have a positive effect on customers' intention to wait" needs to be rejected too.

Environmental Concerns. As mentioned in the section above, surprisingly it was found that environmental concerns have a significant effect. In this paragraph, the results of the Tests of Between-Subjects Effects for environmental concerns is going to be explained per dependent variable.

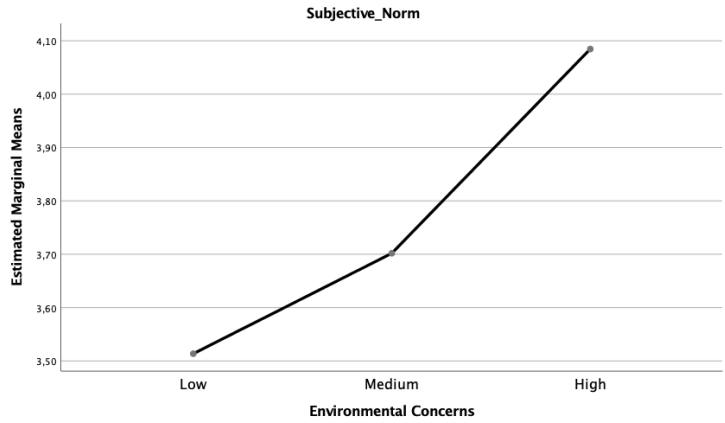
Attitude. A significant effect of environmental concerns on attitude was found $F(2,143) = 18.38$, $p = .00$, partial $\eta^2 = .21$). There was a significant difference between the participants with low ($M = 3.65$, $SD = .80$), medium ($M = 4.07$, $SD = .61$) and those with high ($M = 4.02$, $SD = .74$) environmental concerns on attitude towards waiting. Participants with higher environmental concerns, therefore, have a greater attitude towards acceptance of waiting durations than those with medium and low environmental concerns.

Figure 1. Effect of environmental concerns on attitude



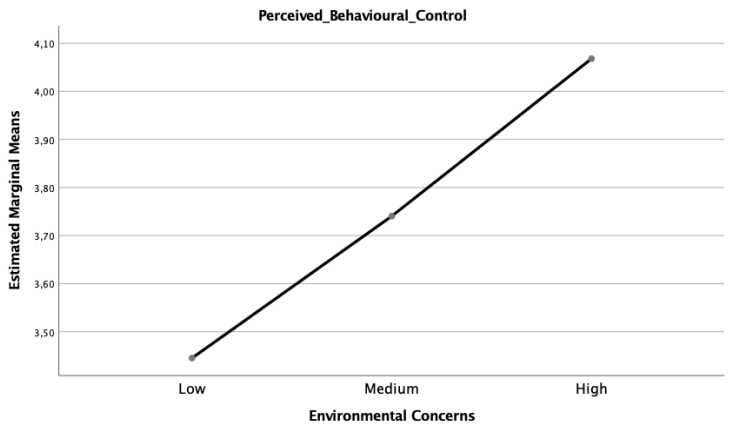
Subjective Norm. Also, a significant main effect of environmental concerns on subjective norm was found F(2,143) = 7.52, p = < .01, partial η^2 = .10). Participants with low (M = 3.54, SD = .82), and medium (M = 3.71, SD = .66) environmental concerns, differ significantly from those with high (M = 4.04, SD = .74) on influence of subjective norm towards waiting. Thus, individuals with higher environmental concerns are greater influenced by subjective norms towards acceptance of waiting durations.

Figure 2. Effect of environmental concerns on subjective norm



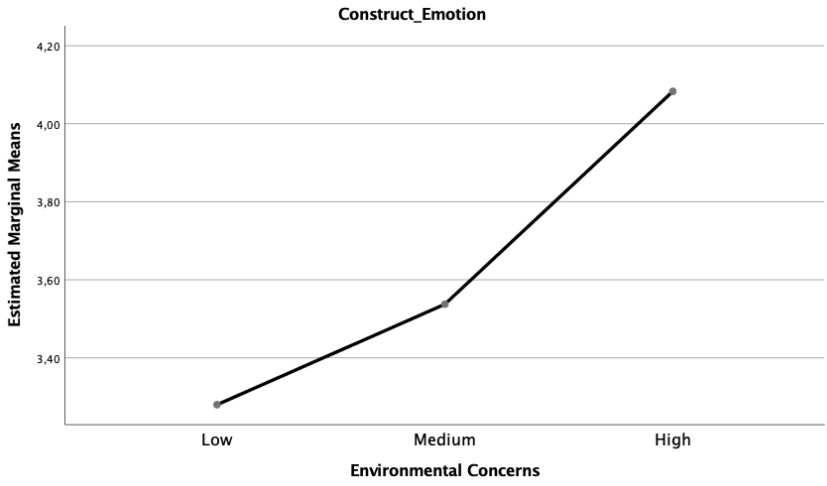
Perceived behavioural control. Furthermore, a significant effect of environmental concerns on perceived behavioural control was found F(2,143) = 8.01, p = < .01, partial η^2 = .10). Comparing participants with low (M = 3.43, SD = .93), and medium (M = 3.77, SD = .66) environmental concerns to those with high (M = 4.05, SD = .72), individuals with higher environmental concerns have a greater perception of perceived behavioural control towards waiting in take-away restaurants than those who have lower environmental concerns.

Figure 3. Effect of environmental concerns on perceived behavioural control



Emotions. Results show a significant effect of environmental concerns on emotions F(2, 143) = 12.63, p = .00, partial η^2 = .15). Participants with low (M = 3.28, SD = .92=, medium (M = 3.55, SD = .80) and high (M = 4.05, SD = .67) differ significantly in emotions towards waiting. Therefore, participants having high concerns about the environment feel more positive during waiting times in take-away restaurants than those with medium and low concerns.

Figure 4. Effect of environmental concerns on emotions



4.4 Interaction effect

Interaction effect between prompt positive/negative and environmental concern. As previous results showed that there is no significant interaction effect was found between poster positive/negative and environmental concerns. For that reason, no further analyses were conducted. The null hypothesis could not be rejected. Thus, hypothesis H3 "It is expected that higher environmental concerns will increase the effect of positive framed waiting awareness (opposed to negative frames waiting awareness) on customers' intention to wait in take-away restaurants" also needs to be rejected.

Interaction effect between prompt food waste claim included/not included and environmental concerns. The results of the MANOVA analysis presented that there was no significant interaction effect between poster food waste claim included/not included and environmental concerns. Hence, the null hypotheses need to be accepted. Accordingly, hypothesis H4 "It is expected that higher environmental concerns will increase the effect of including a food waste claim (opposed to not including a food waste claim) on customers' intention to wait in take-away restaurants" needs to be rejected.

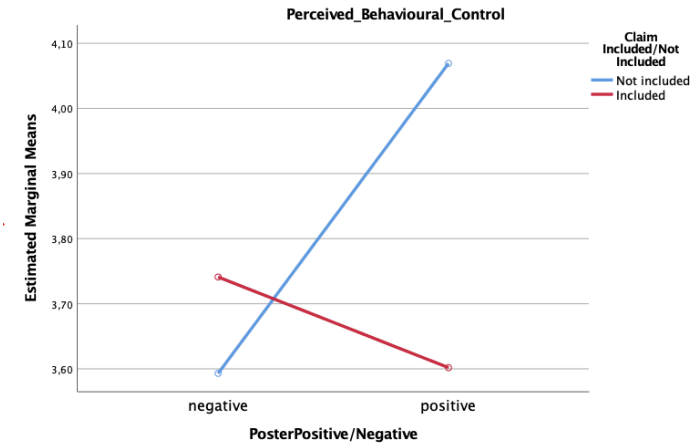
Interaction effect between prompt positive/negative and prompt food waste claim included/not included. As seen in the section above, a marginally significant interaction effect between prompt positive/negative and prompt food waste claim included/not included was found. This was an unexpected finding; therefore, this was investigated further. In this paragraph, the results of the MANOVA for this interaction effect are going to be explained per dependent variable.

Attitude. No significant effect of this interaction was found on attitude $F(1,140) = .03$, $p = .86$).

Subjective Norm. Further, no significant effect between this interaction on subjective norm was found $F(1,140) = .00$, $p = .98$).

Perceived behavioural control. A significant effect of the interaction on perceived behavioural control $F(1,143) = 5.63$, $p = .02$, partial $\eta^2 = .04$) was proven. A linear regression was used to analyse this effect further. Therefore, an interaction variable was computed. Results of the regression analysis indicated (as previously stated in the results of MANOVA analysis) that without the interaction effect, visual prompts framed positively/negatively and visual prompt with food waste claim included/not included are not a significant predictor of the construct perceived behavioural control $F(2,152) = 1.691$, $p = .188$, $R = .148$). Through the interaction effect, the model becomes significant, and thereby makes it an adequate predictor of individuals perceived behavioural control towards waiting $F(3,151) = 3.084$, $p = .029$, $R = .240$). Participants who saw the positively framed prompt indicated to have a higher capability of waiting when no claim was included ($M = 4.05$, $SD = .75$), whereas those who saw the negative prompt expressed to feel a higher degree of behavioural control when the claim was included ($M = 3.74$, $SD = .83$).

*Figure 5. Interaction effect prompt positive/negative*prompt food waste claim included/not included*



Emotion. Also, no significant effect between the interaction and the dependent variable emotions $F(1, 140) = .96$, $p = .33$).

4.5 Summary of the results

This study aimed to investigate the influence of different framed waiting awareness and the inclusion of a food waste claim under the influence of environmental concerns on customers' intention to wait in take-away restaurants to reduce food waste. Neither different framed waiting awareness nor including a claim about food waste had an influence on customer' intention to wait. Not any of the hypotheses could be proven with this study. Table 8 provides an overview of formerly developed hypotheses and the results of the investigation. However, this study found some unexpected results, which are going to be further discussed in chapter 5. It was demonstrated that environmental concern has a positive impact on individuals' attitude, subjective norm, perceived behavioural control and emotions towards waiting in take-away restaurants compared to those with medium and low concerns about the environment. Additionally, there was an interaction effect between the prompt framed positive/negative and prompt food waste claim included/not included. Apparently, participants who saw the positively framed prompt expressed that they have a higher degree to wait if the claim about food waste was not included. Contrastingly, participants who saw the negative formulated prompt indicated to perceive a higher ability to wait if the claim about food waste was included.

Table 8
Overview hypotheses

Hypotheses	Results
H1: Positive framed waiting awareness is expected (opposed to negative) to have a positive effect on customers' intention to wait	Rejected
H2: Including a food waste claim (opposed to not including) is expected to have a positive effect on customers' intention to wait	Rejected
H3: It is expected that higher environmental concerns will increase the effect of positive framed waiting awareness (opposed to negative frames waiting awareness) on customers' intention to wait in take-away restaurants	Rejected
H4: It is expected that higher environmental concerns will increase the effect of including a food waste claim (opposed to not including a food waste claim) on customers' intention to wait in take-away restaurants	Rejected

5. Discussion

Since food waste is a major global issue, and changes in food waste behaviour are required not only in the private but also in public contexts, this study aimed to answer the research question: *"How does different framed waiting awareness and including a claim about food waste influence customers' intention to wait in a take-away restaurant, to reduce food waste, and what is the role of environmental concerns?"* The hypotheses developed in the theoretical framework were tested in the study. In this section, the results will be discussed. Afterwards, the limitations of this study and implications for future research will follow.

The results showed that the nudge of the visual prompt framed positive/negative did not influence customers' intention to wait. In earlier studies it was found that framing of a message is an effective way to stimulate customers' awareness and serve as a reminder of their attitudes, thereby, improving behavioural intention (Chen & Jai, 2018). As recently more attention focused on using the goal frame, to attract individuals participating in PEB´s as multiple motivations can lead to the desired behaviour. The goal frame affects the way individuals handle a message and therefore, behave in a certain manner (Steg & Vlek, 2009). Furthermore, the goal gain frame is in line with the TPB, and studies have shown that a positive goal frame is more effective in comparison to the negative (Chen & Jai, 2018). However, this was not confirmed in this study. As previously mentioned in the framework, it is crucial to keep in mind that the persuader has already made a judgement about the behaviour, therefore, different frames determine the persuasiveness of information and not the desirability of actions (Van de Velde et al., 2010). By using a convenience snowball sample, it is expected that the sample is nearly homogenous. Accordingly, it is expected that the attitude towards waiting was quite conforming, thus, not affected by the visual prompts. Therefore, the findings cannot be generalized. If a heterogeneous group would be tested, it is predicted that the visual prompts would increase the effectiveness of different framed waiting awareness.

Further, the results indicated that there is no effect of including a claim about food waste on customers' intention to wait in take-away restaurants. The existing literature of nudging towards PEB´s pays particular attention to the importance of problem awareness. More precisely, it is crucial that the individual understands the consequences of food waste to promote sustainable behaviours (do Carmo Stangherlin et al., 2018), because food is often wasted without any intentions and the consequences are usually not realized (Manala-O & Aure, 2019). In general, individuals lack knowledge about the consequences and education is

necessary, especially about the amount of food waste and its impact on the environment (Thyberg & Tonjec, 2020). Therefore, it was expected that including a claim about food waste would increase customers' intention to wait, for the reason that the rationale behind the waiting can be understood. Consequently, the stress level is reduced due to a reduction of uncertainty. Notwithstanding, the result of the study showed that this was not the case. The visual prompts that included a claim about food waste stated, "We need to throw it away, which further causes environmental damages" and "Together we can save the environment! You wait, and we only produce what is wanted. Therefore, less food is going to be wasted". Overall, it was only mentioned that food waste causes environmental damages. Customers have been made aware of the fact that food waste happens in take-away restaurants, but as education is the key, further information about the consequences for the environment could be included. For example, the amount of food that could be saved by their acceptance of waiting. As an alternative, the environmental damages that are caused through food waste could be mentioned and therefore, increase not only the awareness of the fact but also increases an individual's knowledge about the damages that are caused. Hence, including a claim about food waste could be more effective if further information about the consequences would be included.

In addition to that, prior studies confirmed that prompts are considered to be the most effective type of nudging intervention in encouraging PEB´s (Shearer et al., 2017). Therefore, the desired behaviour should be clearly described and easy to be performed for individuals. Prompts are most effective if they are placed in a proper location, close to where the target behaviour will occur (Sussmann & Gifford, 2012). In the process of influencing behaviour, the placement of the prompt is even more important than the design (Sussmann et al., 2012). It should be taken into account, that due to the current corona pandemic, it was not possible to test the effectiveness of the visual prompts in a real-life setting. In that event, only customers' intention to wait was measured using an online survey. It should be kept in mind, that intention only represent the motivation of a behaviour and not the actual behaviour. Also, behaviour in a take-away restaurant would probably happen more spontaneously, than the self-reported inferences about participants behaviour. Considering, that placement of visual prompts is most important, it is very likely that the results of the study would be different. Hence, it is expected that the effectiveness of different framed waiting awareness and including a claim about food waste may be more effective in a real-life setting than in an online survey.

After cleaning the dataset, by taking out the uncomplete responses, it attracts attention that the groups differ in size. Overall more participants dropped out when a claim about food waste was included (n= 65) compared to those who did not saw a claim about food waste (n = 90). Beyond, more participants did not complete the survey when they saw the positive formulated visual prompt which included a claim about food waste. Only 29 participants who saw this manipulation filled out the entire survey. In contrast 50 participants completed the survey if they saw the negative formulated prompt with a claim about food waste. It could be the case that this is not a coincidence. Further investigations are needed to explore what causes the likelihood of dropping out for certain conditions.

Environmental concerns were supposed to strengthen the effectiveness of the independent variables framing and the inclusion of a claim about food waste on customers' intention to wait. At least to some extent, individuals need to be intrinsically concerned about environmental issues to affect their intentional PEB´s (do Carmo Stangherlin et al., 2018). Also, environmental knowledge can improve people's understanding of environmental issues, which demonstrated that people with higher awareness tend to perform rather pro-environmental behaviours (Janmaimool & Chudech, 2020). Subsequently, if individuals think that their behaviour is conflicting with their interest, they will easily adapt or change their action. (Chen & Jai, 2018). To some extent, this was proved in this study. Even if environmental concerns did not strength the effectiveness of the independent variables (which may be caused by the lack of significance for the independent variables), it was found that environmental concerns as an individual variable have affected all four dependent variables: attitude, subjective norm, perceived behavioural control and emotions. As environmental concerns were divided into low, medium and high, the differences between those groups were illustrated. As earlier stated in the result section, participants with high (compared to medium and low) environmental concerns have a higher attitude, subjective norm, perceived behavioural control and emotion towards waiting.

In general, individuals holding high environmental concerns, tend to have an adequate understanding of environmental challenges (Bouscasse et al., 2018). Individuals with high environmental concerns have a superior attitude towards waiting. This could be explained by those holding a positive attitude about the environment, can easier acknowledge the negative consequences that are caused by food waste for the environment. Therefore, they often feel a sense of responsibility and accept waiting time as their pro-environmental action (Janmaimool & Chudech, 2020). Those with high environmental concerns indicate that they are influenced by their subjective norms and indicated that "people who are important to them would expect

them to wait for their food order to be ready". It could be because values are often shared within the family and social groups. In addition to that, the level of concern has an impact on individuals perceived capability to wait (perceived behavioural control). Those with low and medium environmental concerns indicated that they have a lower degree of capacity to wait than those with high concerns. May individuals with high environmental concerns feel like they can contribute to the solution of food waste and therefore feel more capable to wait. Lastly, those who indicated to have high environmental concerns have decisive emotion towards the acceptance of waiting. Whereas those with low and medium concerns experience negative emotion during waiting durations. Because emotions are a reaction to an event and consist of a cognitive as well as feeling component, they provide impetuous for actions and thereby signal the relevance of an issue (Wong & Wan, 2009). As in this case, waiting is related to food waste, concerns about the environment prove how individuals feel about the environment. To sum it up, individuals holding high environmental concerns are more likely to accepted waiting durations in take-away restaurants compared to those with medium and low levels of concerns.

Moving on to the most interesting finding of this study, a marginally significant interaction effect between the positive/negative framed prompt and prompts with food waste claim included/not included was found. After investigating this effect, it was found that this interaction effect is only significant on perceived behavioural control. That indicates an individual's degree of capability to perform a certain behaviour (Ajizen, 1991). The finding is very contradictory, people who saw the positively formulated prompt indicated to have a higher capability to wait, if no claim about food waste was included. In contrast, those who saw the negative framed prompt, expressed that they feel more capable to wait if a claim about food waste was included.

5.1 Limitations

The main limitation of this research is caused due to the current corona pandemic. The initially planned study aimed to test the effects of framing and inclusion of a food waste claim on customers' willingness to wait within a take-away sushi restaurant. Nevertheless, it was not possible to test this in a real-life setting. Consequently, it was not attainable to measure the effects on customers' actual behaviour in an experimental study. Instead, an online survey took place to measure their intention to wait. As previously discussed in the theoretical framework, visual prompts are especially effective if they are placed close to the target behaviour (Sussman & Gifford, 2012) and the placement is more important than the design of

the visual prompt (Sussmann et al., 2012). Therefore, it is expected that findings would be different if the visual prompts were tested in a real-life scenario, the prompts probably be more effective than in an online survey.

Furthermore, only customers' intention to wait was measured. Even if intention frequently lead to behaviour (Ajzen, 1991), it is not always the case. Often caused by the intention-behaviour gap. The intention is only an indicator of the motivation an individual has to perform the behaviour, but the gap is often vast, even if the intention is high. In addition to that, only the constructs that are leading to intention according to the theory of planned behaviour and emotion as an additional predictor were measured. Questions about an individual's likelihood to wait the next time they are going to visit a take-away restaurant could have been asked to gather better insights and understanding of this phenomenon.

One participant shared the following suggestion *"I think in general that waiting time for food is inavoidable and the more fresh we want it the more time we need to wait. If I go to a fast-food restaurant I can expect to get served quickly and if I go to a normal restaurant waiting-time is no problem at all."* It is expected that not all participants are aware of the differences between take-away restaurants and classic fast-food restaurants like McDonald's, Kentucky Fried Chicken and co. Considering this, at the beginning of the survey, an explanation about these differences could have been included. To make participants aware that take-away food is usually fast-food, but not always. Take-away restaurants are usually small businesses that provide traditional foods, and often of high quality, whereas fast-food restaurants are global chains with standardized products. Thus, participants answers could have been different if they were aware of these differences.

Moreover, respondents' social desirability to present themselves in the best light should be taken into account. Because the survey draws inferences from self-reports of the participants' behaviours and feeling, it is expected that distortion from actual behaviour exists. In this manner, they tend to present a certain picture of themselves in their survey answers (Philips & Clancy, 1972). Even if participants were ensured anonymity and confidentially this should be considered, especially because questions about sustainable behaviours and environmental attitudes were asked. As climate change and sustainability are current topics, individuals may tend to present themselves as more sustainable and concerned about the environment than they actually are.

Looking at the different groups of manipulations it is noticeable that they vary in size. This is caused by removing incomplete responses, as in Qualtrics (the website where the survey was designed) a randomizer was included, to ensure the same number of participants

saw the different visual prompts. As a result of removing everyone who did not fully complete the survey instead of replacing missing values, the groups sizes differ. Forty participants were recorded for the positive prompt (without food waste claim) and fifty for the negative (without food waste claim). Divergent, "only" twenty-nine respondents saw the visual prompt with positive framed waiting awareness and food waste reason, and thirty-six the negative framed with food waste reason. Hence, larger and equal distributed groups could have led to other results.

5.2 Implications for future research

The topic of food waste generates recently more and more attention. Frequently research starts to investigate the causes of food waste behaviour. Thereby mainly focusing on an individual's food shopping and storing behaviour. Therefore, this study offers some fruitful directions for further research.

As stated in the previous section, due to the corona pandemic it was not possible to test the effectiveness of different framed waiting awareness and including a claim about food waste in a real life-setting. Perhaps future research could aim to do so. Possibly different results will be found by observing real customers behaviour in a take-away restaurant in an experimental study. Further, the right target group would be observed and probably avoid the possibility of homogeneous sampling groups. Moreover, behaviour mostly happens more unaware. By filling out an online survey, participants have more time to think about their answers and present a certain picture of themselves and not of their actual behaviour.

Even if this research did not find a significant effect of both independent variables on customers' intention to wait, that did not mean that framing and including a claim about food waste are ineffective. As stated in the discussion, future research could test the visual prompts which include additional information about the environmental damages that are caused by food waste in take-away restaurants. For example, more concrete facts and/or figures about the consequences could be included to educate customers to a greater extend and raise more awareness.

Further, the surprisingly interaction effect between different framed waiting awareness and the inclusion of a food waste claim on perceived behavioural control provide an interesting starting point for further research. Maybe a qualitative research method could be appropriate, to gain more in-depth information about this phenomenon. Thereby investigate why individuals consider to have a higher ability to wait in take-away restaurants if the prompt is framed positively and did not include a claim about food waste and when the

prompt is formulated negatively and include a claim about food waste. It would be interesting to examine how this interaction influences individuals' beliefs about their abilities.

6. Conclusion

To sum it up, this study aimed to test the effectiveness of positive and negative framed waiting awareness and the effectiveness of including a food waste claim on customers' intention to wait in a take-away restaurant to reduce of food waste. Also, an individual's level of environmental concerns (low, medium, high) was taken into account. It was expected that environmental concern strengthens the influence of framing and inclusion of a food waste claim. However, this research has shown that neither different framed waiting awareness nor including a claim about food waste have a significant effect on customers intention. Also, environmental concerns did not strength the relationship. Instead it was found that environmental concerns play a crucial role on customers intention to wait. Moreover, an interaction effect between framing and including a claim about food waste on perceived behavioural control was found. Further research is needed to examine this effect.

.

References

Abdelradi, F. (2018). Food waste behaviour at the household level: A conceptual framework. *Waste Management*, *71*, 485–493. https://doi.org/10.1016/j.wasman.2017.10.001

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-t

Baker, J., & Cameron, M. (1996). The Effects of the Service Environment on Affect and Consumer Perception of Waiting Time: An Integrative Review and Research Propositions. *Journal of the Academy of Marketing Science*, *24*(4), 338–349. https://doi.org/10.1177/0092070396244005

Bouscasse, H., Joly, I., & Bonnel, P. (2018). How does environmental concern influence mode choice habits? A mediation analysis. *Transportation Research Part D: Transport and Environment*, *59*, 205–222. https://doi.org/10.1016/j.trd.2018.01.007

Brunner, T. A., van der Horst, K., & Siegrist, M. (2010). Convenience food products. Drivers for consumption. *Appetite*, *55*(3), 498–506. https://doi.org/10.1016/j.appet.2010.08.017

Byerly, H., Balmford, A., Ferraro, P. J., Hammond Wagner, C., Palchak, E., Polasky, S., … Fisher, B. (2018). Nudging pro-environmental behavior: evidence and opportunities. *Frontiers in Ecology and the Environment*, *16*(3), 159–168. https://doi.org/10.1002/fee.1777

Chebat, J. C., Chebat, G. C., Filiatrault, P., & Vaninsky, A. (1995). The impact of mood on time perception, memorization, and acceptance of waiting. Genetic Social and General Psychology Monographs, 121(4), 411-424.

Chen, H. S., & Jai, T.-M. (Catherine). (2018). Waste less, enjoy more: forming a messaging campaign and reducing food waste in restaurants. *Journal of Quality Assurance in Hospitality & Tourism*, *19*(4), 495–520. https://doi.org/10.1080/1528008x.2018.1483282

Detenber, B. H., Ho, S. S., Ong, A. H., & Lim, N. W. B. (2018). Complementary Versus Competitive Framing Effects in the Context of Pro-Environmental Attitudes and Behaviors. *Science Communication*, *40*(2), 173–198. https://doi.org/10.1177/1075547018758075

do Carmo Stangherlin, I., de Barcellos, M. D., & Basso, K. (2018). The Impact of Social Norms on Suboptimal Food Consumption: A Solution for Food Waste. *Journal of International Food & Agribusiness Marketing*, *32*(1), 30–53. https://doi.org/10.1080/08974438.2018.1533511

FAO, 2011. Global food losses and food waste – Extent, causes and prevention

Gaiani, S., Caldeira, S., Adorno, V., Segrè, A., & Vittuari, M. (2018). Food wasters: Profiling consumers' attitude to waste food in Italy. *Waste Management*, *72*, 17–24. https://doi.org/10.1016/j.wasman.2017.11.012

Geller, E. S., Winett, R. A., & Everett, P. B. (1982). Preserving the environment: New strategies for Behavior Change.

Giebelhausen, M. D., Robinson, S. G., & Cronin, J. J., Jr. (2010). Worth waiting for: increasing satisfaction by making consumers wait. *Journal of the Academy of Marketing Science*, *39*(6), 889–905. https://doi.org/10.1007/s11747-010-0222-5

Graham-Rowe, E., Jessop, D. C., & Sparks, P. (2015). Predicting household food waste reduction using an extended theory of planned behaviour. *Resources, Conservation and Recycling*, *101*, 194–202. https://doi.org/10.1016/j.resconrec.2015.05.020

Hui, M. K., & Tse, D. K. (1996). What to Tell Consumers in Waits of Different Lengths: An Integrative Model of Service Evaluation. *Journal of Marketing*, *60*(2), 81. https://doi.org/10.2307/1251932

Iqbal, Q., Whitman, L. E., & Malzahn, D. (2012). Reducing Customer Wait Time at a Fast Food Restaurant on Campus. *Journal of Foodservice Business Research*, *15*(4), 319–334. https://doi.org/10.1080/15378020.2012.706176

Jabs, J., & Devine, C. M. (2006). Time scarcity and food choices: An overview. *Appetite*, *47*(2), 196–204. https://doi.org/10.1016/j.appet.2006.02.014

Janmaimool, P., & Chudech, S. (2020). Effect of Domestic and Global Environmental Events on Environmental Concern and Environmental Responsibility among University Students. *Sustainability*, *12*(4), 1610. https://doi.org/10.3390/su12041610

Levin, I. P., Schneider, S. L., & Gaeth, G. J. (1998). All Frames Are Not Created Equal: A Typology and Critical Analysis of Framing Effects. *Organizational Behavior and Human Decision Processes*, *76*(2), 149–188. https://doi.org/10.1006/obhd.1998.2804

Li, W., & Chen, N. (2018). Absolute income, relative income and environmental concern: Evidence from different regions in China. *Journal of Cleaner Production*, *187*, 9–17. https://doi.org/10.1016/j.jclepro.2018.03.171

Lindenberg, S., & Steg, L. (2007). Normative, Gain and Hedonic Goal Frames Guiding Environmental Behavior. *Journal of Social Issues*, *63*(1), 117–137. https://doi.org/10.1111/j.1540-4560.2007.00499.x

Luo, W., J. Liberatore, M., L. Nydick, R., B. Chung, Q., & Sloane, E. (2004). Impact of process change on customer perception of waiting time: a field study. *Omega*, *32*(1), 77–83. https://doi.org/10.1016/j.omega.2003.09.010

Mabaso, C. H., & Hewson, D. S. (2018). Employees' perceptions of food waste management in hotels. African Journal of Hospitality, Tourism and Leisure, 7(4), 1-15.

Mahon, D., Cowan, C., & McCarthy, M. (2006). The role of attitudes, subjective norm, perceived control and habit in the consumption of ready meals and takeaways in Great

Britain. *Food Quality and Preference*, *17*(6), 474–481. https://doi.org/10.1016/j.foodqual.2005.06.001

Manala-O, S. & Aure, P. (2019). Food Waste Behavior of Young Fast-food Consumers in the Philippines. *Asia-Pacific Social Science Review*. 19. 72-87.

Marteau, T. M., Ogilvie, D., Roland, M., Suhrcke, M., & Kelly, M. P. (2011). Judging nudging: can nudging improve population health? *BMJ*, *342*(jan25 3), d228. https://doi.org/10.1136/bmj.d228

Pàmies, M. del M., Ryan, G., & Valverde, M. (2015). What is going on when nothing is going on? Exploring the role of the consumer in shaping waiting situations. *International Journal of Consumer Studies*, *40*(2), 211–219. https://doi.org/10.1111/ijcs.12244

Phillips, D., & Clancy, K. (1972). Some Effects of "Social Desirability" in Survey Studies. *American Journal of Sociology,77*(5), 921-940. Retrieved May 25, 2020, from www.jstor.org/stable/2776929

Priefer, C., Jörissen, J., & Bräutigam, K.-R. (2016). Food waste prevention in Europe – A cause-driven approach to identify the most relevant leverage points for action. *Resources, Conservation and Recycling*, *109*, 155–165. https://doi.org/10.1016/j.resconrec.2016.03.004

Quested, T. E., Marsh, E., Stunell, D., & Parry, A. D. (2013). Spaghetti soup: The complex world of food waste behaviours. *Resources, Conservation and Recycling*, *79*, 43–51. https://doi.org/10.1016/j.resconrec.2013.04.011

Russell, S. V., Young, C. W., Unsworth, K. L., & Robinson, C. (2017). Bringing habits and emotions into food waste behaviour. *Resources, Conservation and Recycling*, *125*, 107–114. https://doi.org/10.1016/j.resconrec.2017.06.007

Sakaguchi, L., Pak, N., & Potts, M. D. (2018). Tackling the issue of food waste in restaurants: Options for measurement method, reduction and behavioral change. *Journal of Cleaner Production*, *180*, 430–436. https://doi.org/10.1016/j.jclepro.2017.12.136

Scherhaufer, S., Moates, G., Hartikainen, H., Waldron, K., & Obersteiner, G. (2018). Environmental impacts of food waste in Europe. *Waste Management*, *77*, 98–113. https://doi.org/10.1016/j.wasman.2018.04.038

Shearer, L., Gatersleben, B., Morse, S., Smyth, M., & Hunt, S. (2017). A problem unstuck? Evaluating the effectiveness of sticker prompts for encouraging household food waste recycling behaviour. *Waste Management*, *60*, 164–172. https://doi.org/10.1016/j.wasman.2016.09.036

Siaw Chui, W., Weng Wai, C., & Ahmad, R. (2015). Local and Global Messages for Prompting Energy Conservation Behaviour: An Experimental Study in University. *Jurnal Teknologi*, *74*(2). https://doi.org/10.11113/jt.v74.4527

Silvennoinen, K., Katajajuuri, J.-M., Hartikainen, H., Heikkilä, L., & Reinikainen, A. (2014). Food waste volume and composition in Finnish households. *British Food Journal*, *116*(6), 1058–1068. https://doi.org/10.1108/bfj-12-2012-0311

Sirieix, L., Lála, J., & Kocmanová, K. (2017). Understanding the antecedents of consumers' attitudes towards doggy bags in restaurants: Concern about food waste, culture, norms and emotions. *Journal of Retailing and Consumer Services*, *34*, 153–158. https://doi.org/10.1016/j.jretconser.2016.10.004

Soorani, F., & Ahmadvand, M. (2019). Determinants of consumers' food management behavior: Applying and extending the theory of planned behavior. *Waste Management*, *98*, 151–159. https://doi.org/10.1016/j.wasman.2019.08.025

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, *29*(3), 309–317. https://doi.org/10.1016/j.jenvp.2008.10.004

Steinhorst, J., Klöckner, C. A., & Matthies, E. (2015). Saving electricity – For the money or the environment? Risks of limiting pro-environmental spillover when using monetary

framing. *Journal of Environmental Psychology*, *43*, 125–135. https://doi.org/10.1016/j.jenvp.2015.05.012

Stöckli, S., Dorn, M., & Liechti, S. (2018). Normative prompts reduce consumer food waste in restaurants. *Waste Management*, *77*, 532–536. https://doi.org/10.1016/j.wasman.2018.04.047

Stöckli, S., Niklaus, E., & Dorn, M. (2018). Call for testing interventions to prevent consumer food waste. *Resources, Conservation and Recycling*, *136*, 445–462. https://doi.org/10.1016/j.resconrec.2018.03.029

Sun, Y.-C., & Wu, S.-C. (2008). THE EFFECT OF EMOTIONAL STATE ON WAITING IN DECISION MAKING. *Social Behavior and Personality: an international journal*, *36*(5), 591–602. https://doi.org/10.2224/sbp.2008.36.5.591

Sussman, R., & Gifford, R. (2012). Please turn off the lights: The effectiveness of visual prompts. *Applied Ergonomics*, *43*(3), 596–603. https://doi.org/10.1016/j.apergo.2011.09.008

Sussman, R., Greeno, M., Gifford, R., & Scannell, L. (2012). The Effectiveness of Models and Prompts on Waste Diversion: A Field Experiment on Composting by Cafeteria Patrons. *Journal of Applied Social Psychology*, *43*(1), 24–34. https://doi.org/10.1111/j.1559-1816.2012.00978.x

Tang, Y., Chen, S., & Yuan, Z. (2019). The effects of hedonic, gain, and normative motives on sustainable consumption: Multiple mediating evidence from China. *Sustainable Development*. https://doi.org/10.1002/sd.2024

Thyberg, K. L., & Tonjes, D. J. (2016). Drivers of food waste and their implications for sustainable policy development. *Resources, Conservation and Recycling*, *106*, 110–123. https://doi.org/10.1016/j.resconrec.2015.11.016

Van de Velde, L., Verbeke, W., Popp, M., & Van Huylenbroeck, G. (2010). The importance of message framing for providing information about sustainability and environmental

aspects of energy. *Energy Policy*, *38*(10), 5541–5549. https://doi.org/10.1016/j.enpol.2010.04.053

van der Horst, K., Brunner, T. A., & Siegrist, M. (2011). Fast food and take-away food consumption are associated with different lifestyle characteristics. *Journal of Human Nutrition and Dietetics*, *24*(6), 596–602. https://doi.org/10.1111/j.1365-277x.2011.01206.x

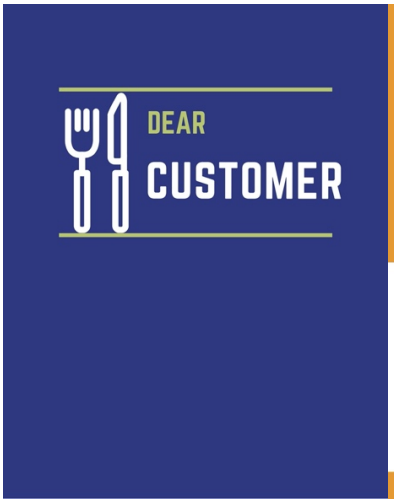
Vandenbroele, J., Vermeir, I., Geuens, M., Slabbinck, H., & Van Kerckhove, A. (2019). Nudging to get our food choices on a sustainable track. *Proceedings of the Nutrition Society*, *79*(1), 133–146. https://doi.org/10.1017/s0029665119000971

Wilkinson, T. M. (2012). Nudging and Manipulation. *Political Studies*, *61*(2), 341–355. https://doi.org/10.1111/j.1467-9248.2012.00974.x

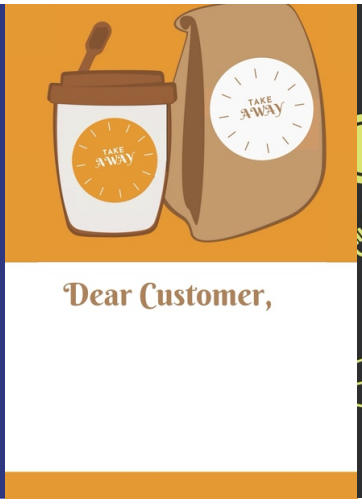
Wong, T. K., & Wan, P. (2009). Perceptions and determinants of environmental concern: the case of Hong Kong and its implications for sustainable development. *Sustainable Development*, *19*(4), 235–249. https://doi.org/10.1002/sd.429

Appendix

Posters showed to interviewee´s in Study 1



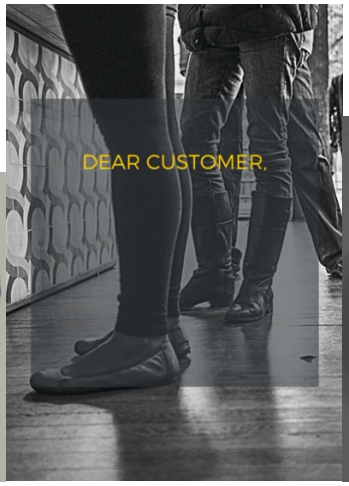
Poster 1



Poster 2

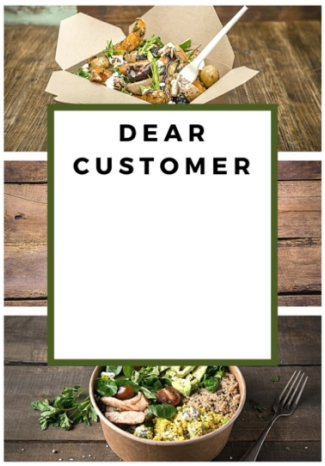
Poster 3

Poster 4



Poster 5

Poster 6



Poster 7

Results of the Multivariate Tests

Effect		Value	F	*df*	Error *df*	p	Partial η^2
Prompt positive/negative	Wilks' Lambda	.95	1.99	4	140	.09	.05
Prompt food waste claim included/not included	Wilks' Lambda	.98	.63	4	140	.65	.02
Environmental concerns	Wilks' Lambda	.77	4.82	8	280	.00	.12
Prompt positive/negative * Prompt food waste claim included/not included	Wilks' Lambda	.94	2.15	4	140	.08	.06
Prompt positive/negative * Environmental concerns	Wilks' Lambda	.96	.73	8	280	.67	.02
Prompt food waste claim included/not included * Environmental concerns	Wilks' Lambda	.97	.62	8	280	.75	.02
Prompt positive/negative * Prompt food waste claim included/not included * Environmental concerns	Wilks' Lambda	.93	1.35	8	280	.22	.04

Survey

Dear Participant,
First of all, thank you for taking part in this survey! The study is conducted by Michelle Kehl from the Faculty of Behavioural, Management, and Social Sciences at the University of Twente. Please read the following information carefully.

This study aims to investigate the effectiveness of prompts to increase customers intention to wait in take-away restaurants. It will take approximately 7-9 minutes to fill out the survey.

Your participation is voluntary. You can withdraw form this study at any time. All of your answers are going to be handled confidentially. Further, your responses are collected in an anonymous way, which means your responses cannot be traced back to you.

The only conditions to participate in this study:
· You are (over) 18 years old
· You visit a take-away restaurant sometimes

If you have any questions regarding this research, feel free to contact me:
m.kehl@student.utwente.nl
(responsible researcher)

- Yes, I consent
- No, I do not consent

The following question are related to your demographics
What is your age?

What is your gender?

- Male
- Female
- Other

What is your highest finished degree of education?

- High school diploma
- Bachelor's degree
- Master's degree
- P.h.D
- Other
- Prefer not to answer

What is your current profession?

- Student
- Employee
- Unemployed
- Other
- Prefer not to answer

Please indicate your frequency of visiting take-away restaurants.

How many times a month do you visit a take-away restaurant?

- Never
- 1 - 3 times a month
- 4 - 6 times a month
- More than 7 times a month
- Everyday

The following statements focus on your thoughts about the environment.
Please indicate to which degree you agree with the statements.

	Completely disagree	Somewhat disagree	Neutral	Somewhat agree	Completely agree
I think that in general humans treat the environment right					
I think it is important to engage in sustainable behaviour					
I think if things continue as they have, in the near future, an ecological catastrophe will develope					
I think that food waste can be reduced through a more sustainable behaviour					

The following statements are related about your engagement in sustainable behaviour.
Please indicate to which degree you agree with the statements.

	Completely disagree	Somewhat disagree	Neutral	Somewhat agree	Completely agree
I try to save water					
I try to recycle					
I try to save electricity					
I try to reduce food waste					

You are now going to see a poster, please read it carefully.
Afterwards some questions are going to be asked.

The following statements are related to your perception of waiting in take-away restaurants.
Please indicate to which degree you agree with the statements.

	Completely disagree	Somewhat disagree	Neutral	Somewhat agree	Completely agree
I think waiting for fresh prepared food is appropriate					
I think that waiting for my food order to be ready is unpleasant					
I think waiting is unavoidable in take away restaurants					
I think it is outrageous to wait for my food order to be ready					

The following statements are about how people around you perceive waiting in take-away restaurants.
Please indicate to which degree you agree with the statements.

	Completely disagree	Somewhat disagree	Neutral	Somewhat agree	Completely agree
Most of the people who are important to me think that it is okay to wait for their food order					
My friends and family would expect me to wait for my order to be ready					
Most of my friends do not like to wait till the food order is ready					
My family members think it is the restaurants responsibility to make customer not wait					

The following statements are about how you perceive to deal with waiting durations in a take-away restaurant.
Please indicate to which degree you agree with the statements.

	Completely disagree	Somewhat disagree	Neutral	Somewhat agree	Completely agree
Waiting for my food to be ready is under my control					
For me it is hard to wait for my food order to be ready					
For me it is effortless to wait for my food order to be ready					
I am capable of occupying myself during the waiting duration					

The following statements are about how you feel during waiting durations in take-away restaurants.
Please indicate to which degree you agree with the statements.

	Completely disagree	Somewhat disagree	Neutral	Somewhat agree	Completely agree
I feel good during the waiting duration until my food order is ready					
I am annoyed during the waiting duration until my food order is ready					
I am in a positive mood during the waiting duration as I am looking forward to my food					
I am in a negative mood during the waiting duration as I feel stressed					

The following statements are about how you feel during waiting durations in take-away restaurants.
Please indicate to which degree you agree with the statements.

	Completely disagree	Somewhat disagree	Neutral	Somewhat agree	Completely agree
I feel good during the waiting duration until my food order is ready					
I am annoyed during the waiting duration until my food order is ready					
I am in a positive mood during the waiting duration as I am looking forward to my food					
I am in a negative mood during the waiting duration as I feel stressed					

Search log

Research question: *"How does different framed **waiting** awareness and including a claim about **food waste** influence customers' intention to wait in a take-away restaurant to reduce food waste, and what is the role of environmental concerns?"*

Construct	Related terms	Broader terms	Narrower terms
Waiting	Customer, waiting line, queue, behaviour, uncertainty, time,	Waiting behaviour, Perception of waiting	Waiting durations, waiting times, waiting line

Date	Source	Search terms and strategies	How many hits (how many relevant)	Related terms/authors	Notes
10.03.2020	Scopus	(consumer OR customer) AND (wait OR waiting)	6.855 hits, after sorted on relevance 4 relevant sources	Waiting behaviour, uncertainty, perceived waiting times	Very broad overview of the topic, but provides an interesting stating point
	Google Scholar	(consumer OR customer) AND (uncertain OR uncertainty) AND (waiting OR waiting line) AND (experiences) AND (food OR restaurant OR fast food)	17.700 hits, relevant: 2		Lot of results, still too broad
	Scopus	(consumer OR customer) AND (waiting or waiting AND line OR queue) AND (uncertain OR uncertainty)	52 hits, relevant: 8 seem useful	Customer information	Found relevant articles, context of take-away restaurant still needed
	Scopus	(Customer OR consumer) AND (waiting AND behaviour) AND (food OR restaurant OR fast food)	31, relevant: 5		Relevant articles found about customers waiting behaviour in (takeaway) restaurants