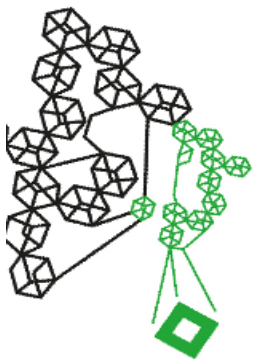


# **Shifting Habits, Shrinking Waste**

Exploring Perceived Barriers and Motivators Among Potential  
Consumers of Zero-Waste Plastic Stores



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**Bachelor's Thesis**

**Josefina Luchia Puig (s2705869)**

**University College Twente, University of Twente**

**dr.ir. P.W. de Vries & dr. A.D. Beldad PhD**

## **Abstract**

Plastic packaging waste remains a significant environmental concern, with single-use plastics contributing heavily to pollution and ecological degradation. Zero-waste stores offer a promising alternative by eliminating packaging through bulk purchasing and reusable containers. While previous research has focused on current environmental consumers, little attention has been paid to potential consumers with lower environmental engagement. This study addresses that gap by examining the attitudes, perceived challenges, and motivations of the University of Twente (UT) community regarding zero-waste shopping. Using a qualitative approach, five focus groups and ten interviews were conducted with a total of 37 students and staff members. Thematic analysis revealed that although most participants held positive attitudes towards zero-waste stores, few expressed a clear intention to use them. Key perceived barriers included inconvenience, price, and incompatibility with existing lifestyles. Motivations for sustainable behaviour were largely egoistic, rather than altruistic concern for the environment. The study provides practical recommendations for improving the appeal of zero-waste stores, particularly by aligning strategies with egoistic motivators. It also suggests revising pro-environmental behaviour models to better account for prior knowledge, and self-interest motivators.

## Table of contents

|                                                             |           |
|-------------------------------------------------------------|-----------|
| <b>1. Introduction.....</b>                                 | <b>4</b>  |
| <b>2. Theoretical framework.....</b>                        | <b>6</b>  |
| <b>3. Method.....</b>                                       | <b>10</b> |
| 3.1. Participants.....                                      | 11        |
| 3.2. Interview guides and procedure.....                    | 11        |
| 3.3. Data analysis.....                                     | 12        |
| <b>4. Result.....</b>                                       | <b>12</b> |
| 4.1. Prior knowledge of zero-waste stores.....              | 13        |
| 4.1.1. Anemoia.....                                         | 14        |
| 4.2. Attitude towards zero-waste stores.....                | 15        |
| 4.3. Perceived challenges.....                              | 16        |
| 4.3.1. Inconvenience of zero-waste stores.....              | 17        |
| 4.3.1.1. Before.....                                        | 17        |
| 4.3.1.1.1. Need for planning.....                           | 17        |
| 4.3.1.1.2. Proximity to the consumer.....                   | 17        |
| 4.3.1.1.3. Need for containers.....                         | 18        |
| 4.3.1.2. During.....                                        | 18        |
| 4.3.1.2.1. Cognitive load.....                              | 18        |
| 4.3.1.2.2. Need to refill dispensers.....                   | 19        |
| 4.3.1.2.3. Crowded.....                                     | 19        |
| 4.3.1.3. After.....                                         | 20        |
| 4.3.1.3.1. Heavy transportation.....                        | 20        |
| 4.3.1.3.2. Limited storage.....                             | 20        |
| 4.3.1.3.3. Labeling.....                                    | 21        |
| 4.3.1.3.4. Need for other stores.....                       | 21        |
| 4.3.2. Availability of products.....                        | 21        |
| 4.3.3. Price.....                                           | 22        |
| 4.3.3.1. Limited income.....                                | 22        |
| 4.3.3.2. Price uncertainty.....                             | 22        |
| 4.3.3.3. Perception price & Economic condition of area..... | 23        |
| 4.3.4. Change in shopping habits.....                       | 23        |
| 4.3.5. Hygiene concerns & Food safety.....                  | 25        |
| 4.3.6. Perceived behavioural control.....                   | 25        |
| 4.4. Motivation factors.....                                | 26        |
| 4.4.1. Altruistic factors.....                              | 26        |
| 4.4.2. Egoistic factors.....                                | 26        |
| 4.4.2.1. Hedonistic factors.....                            | 27        |
| 4.5. Recommendations for attracting consumers.....          | 28        |
| 4.5.1. Awareness.....                                       | 28        |
| 4.5.2. Ease of Use & Reduction of Inconvenience.....        | 28        |
| 4.5.3. Community-Building & Impact.....                     | 30        |
| 4.5.4. Marketing & Incentives.....                          | 30        |

|                                                         |           |
|---------------------------------------------------------|-----------|
| 4.5.5. Products.....                                    | 31        |
| <b>5. Discussion.....</b>                               | <b>32</b> |
| 5.1. Practical implications for a zero-waste store..... | 36        |
| 5.2. Academic Implications.....                         | 40        |
| 5.3. Future research.....                               | 42        |
| <b>6. Conclusion.....</b>                               | <b>43</b> |
| <b>7. References.....</b>                               | <b>45</b> |
| <b>Appendix I.....</b>                                  | <b>49</b> |
| <b>Appendix II.....</b>                                 | <b>50</b> |
| <b>Appendix III.....</b>                                | <b>51</b> |
| <b>Appendix IV.....</b>                                 | <b>52</b> |
| <b>Appendix V.....</b>                                  | <b>52</b> |

## 1. Introduction

Following the Bronze and Iron Ages, the current era is increasingly referred to as the ‘Plastics Age’ due to the material’s pervasive presence and influence (Porta, 2021). The overuse of this versatile material has caused irreversible environmental damage, from the spread of microplastics in ecosystems to the acceleration of climate change (Tang, 2023 & Kemper et al., 2024). According to the European Environment Agency (EEA), the plastics value chain within the EU generated approximately 193 million tonnes of CO<sub>2</sub> emissions, exceeding Belgium's total annual emissions of 123 million tonnes in 2019 (European Parliament, 2024). The most harmful form of plastic is single-use, such as that used in food packaging (Fava, 2022; Kemper et al., 2024). Packaging constitutes the largest share of global plastic waste, accounting for nearly 50% of the total weight (Ncube et al., 2021; Tekman et al., 2021). Approximately 8 to 10 million tonnes of plastic enter the oceans each year, contributing to about 80% of total marine pollution (Fava, 2022). More than 100,000 marine mammals die annually due to plastic pollution, primarily through ingestion, entanglement, or habitat disruption (WWF Australia, 2023). These plastics break down into smaller particles, forming micro and nanoplastics that enter the human food chain (Thompson et al., 2009; Kemper et al., 2024; Cozar et al., 2014; Tekman et al., 2021). Plastic pollution is a critical issue that must be addressed; therefore, this study focuses specifically on food packaging.

Although some efforts have been made to address this problem, the most common strategy, recycling, remains insufficient. For instance, the Netherlands managed to recycle only 45.7% of its plastic waste in 2022 (Eurostat, 2025). The key challenges in plastic recycling involve the inferior quality and higher cost of recycled materials compared to virgin plastics (European Parliament, 2024). Moreover, plastic is often “downcycled,” meaning it cannot be reused for the same applications due to quality degradation (Durand-Silva & Smaldone, 2020). These limitations highlight the urgent need for alternative solutions that prioritise behavioural change to reduce plastic use at the source. A shift from reactive to preventive action is essential.

One alternative to conventional groceries systems is the emergence of zero-waste stores, groceries that avoid single-use plastics entirely (Sari et al., 2024). These stores typically offer dry,

bulk goods and encourage customers to bring their own containers to fill only the amount they need. Products are often local, seasonal, and unbranded, with the store requiring customers to weigh containers before filling them, ensuring they pay only for the product.

A growing body of literature has explored consumer behaviour in packaging-free systems, but several important gaps remain. Jiménez Romanillos et al. (2024) conducted a comprehensive review showing that most existing studies focus on packaging types, such as reusable or refillable options, rather than on the stores themselves. This is reflected in Lofthouse et al. (2009), who examined drivers and barriers related to refillable packaging but not in the store context. A significant gap identified by Jiménez Romanillos et al. (2024) is the lack of consumer categorisation. While age and gender are commonly addressed, factors such as living situation, lifestyle, and geographic location are underexplored, though they may significantly influence consumer behaviour.

Only a limited number of studies directly examine zero-waste stores. For instance, Gordon-Wilson et al. (2022) explored how pro-environmental values and personality traits influence consumer motivation in packaging-free products. Similarly, Kemper et al. (2024) employed a practice-theoretical lens to highlight four mechanisms, destabilisation, envisioning, emotional connection, and adaptation, that support sustained plastic-free shopping. Setiawan and Rizkalla (2022) study the consumers' intentions to shop at zero-waste stores in Indonesia.

These studies note that while this behaviour can be challenging, it also fosters emotional satisfaction and community engagement. However, the previous studies acknowledge a limitation: their exclusive focus on environmentally motivated consumers. They call for future research that includes individuals with lower environmental concern to better understand how broader populations can be engaged.

In response to this gap, the present study investigates the attitudes, motivations, and perceived challenges of individuals with no prior experience and with low pro-environmental values. Unlike earlier research that focused primarily on consumers' age and gender, this study considers diverse factors such as living situations, lifestyle, and geographic proximity to a zero-waste store, as proposed by Jiménez Romanillos et al. (2024).

Accordingly, this study conducts exploratory research into the barriers preventing the adoption of zero-waste shopping, with a specific focus on attracting individuals who are less environmentally motivated. The research is situated at the University of Twente (UT) in the Enschede (Netherlands) and includes focus groups with bachelor's and master's students, as well as interviews with lecturers, employees, and PhD candidates. At the time of this study, there were no zero-waste stores operating in the city of Enschede. Therefore, participants' perceptions and attitudes were based on their understanding or assumptions of the concept. The study aims to answer the central research question: **What are the key shop-related factors influencing the UT community's intention to shop at a zero-waste store?** As sub-questions: **What are the challenges perceived from a zero-waste store? What would motivate the community to use zero-waste stores?**

This study is significant for both academic and societal reasons. As the plastic impact on the environment continues to escalate, addressing consumption behaviours at the source becomes increasingly urgent (Jiménez Romanillos et al., 2024; Tekman et al., 2021). While zero-waste stores offer a compelling alternative, existing literature has primarily focused on consumer groups. By examining a broader demographic, this study contributes to a more inclusive understanding of behavioural drivers and barriers. The findings aim to inform strategies that make zero-waste shopping more accessible and appealing to a wider public, ultimately supporting systemic efforts toward sustainable consumption.

## **2. Theoretical framework**

In this study, Pro-Environmental Behaviour (PEB) refers to deliberate actions by individuals aimed at reducing negative environmental impacts and contributing to environmental conservation. This includes behaviours such as recycling, energy conservation, sustainable consumption, use of eco-friendly products, and support for environmental policies (Steg & Vlek, 2009, Octav-Ionut, 2015). Pro-environmental consumer behaviour refers to the actions of individuals who make purchasing decisions, both consciously and unconsciously, with the intention of preserving the environment and supporting the sustainability of future generations (Odhiambo Joseph, 2019). These behaviours are shaped by a complex interplay of cognitive, affective, and social factors. To understand

what motivates or inhibits sustainable consumption, a theoretically integrated perspective is required, one that draws on multiple, well-established psychological frameworks.

A key foundation for understanding environmentally responsible behaviour is provided by Schwartz's (1992) theory of human values, which categorises core values as guiding principles in people's lives. Of particular importance are biospheric values, which reflect a deep concern for nature and environmental protection (Schwartz, 1992). When these values are internalised, they influence the way individuals see themselves, forming what is known as environmental self-identity (Schwartz, 1992). This refers to the extent to which people perceive themselves as someone who acts in environmentally conscious ways (Van der Werff et al., 2013). A strong environmental self-identity enhances the likelihood of engaging in sustainable actions, as individuals are motivated to act in alignment with their self-image (Van der Werff et al., 2013).

Building on this motivational base, an especially relevant and comprehensive framework is Macovei's (2015) Consumers' Pro-Environmental Behaviour Model (CPEBM), which integrates constructs from several leading behavioural theories. Among these, the Theory of Planned Behaviour (TPB) (Ajzen, 1991) plays a foundational role in CPEBM. Kaiser et al. (1999) findings strongly support the use of the TPB as a frame for research on environmental attitude. TPB introduced three critical predictors of behavioural intention, attitude towards the behaviour, subjective norms, and perceived behavioural control, and established that intention is the most immediate antecedent of action (Ajzen, 1991). Macovei's model (2015) retains these elements, but extends the framework by integrating additional variables to more fully capture the dynamics of pro-environmental consumer decision-making.

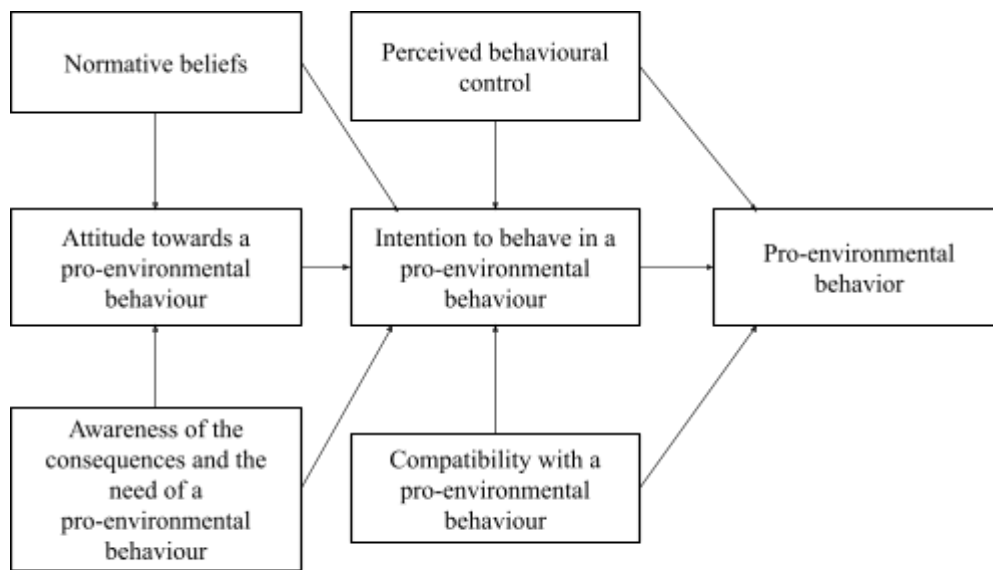
Central to this integrated model is environmental awareness, which refers to an individual's knowledge of environmental problems and understanding of their personal responsibility in mitigating them. Awareness, when paired with biospheric values, strengthens moral concern and increases the likelihood of behavioural engagement. Macovei's model builds on this by linking awareness directly to attitude and intention, indicating that individuals who are well-informed about ecological consequences are more likely to perceive sustainable behaviour as both necessary and favourable.

Attitude towards pro-environmental behaviour, a construct also rooted in TPB, is retained in CPEBM to reflect how favourably or unfavourably individuals evaluate environmentally responsible actions (Octav-Ionut, 2015). Positive attitudes are formed when behaviours such as shopping at zero-waste stores are perceived to bring beneficial outcomes, whether these are environmental (e.g. reduced plastic use), personal (e.g. pride or moral satisfaction), or social (e.g. recognition by peers). Negative perceptions of inconvenience or cost, on the other hand, may reduce positive attitude. Another important component, inherited from TPB and developed further in CPEBM, is perceived behavioural control. This reflects the extent to which individuals believe they have the capacity and resources to perform the behaviour, such as time, knowledge, and access (Octav-Ionut, 2015). While TPB highlights the moderating role of control in the intention-behaviour relationship, Macovei's model emphasises its dual influence: both as a precursor to intention and as a direct predictor of actual behaviour. A strong sense of control enhances the likelihood that a consumer will follow through on their pro-environmental intentions (Octav-Ionut, 2015).

Normative beliefs are also central to understanding pro-environmental behaviour. Drawing on TPB, these refer to the perceived social pressure to engage in or refrain from a particular behaviour (Ajzen, 2020). In Macovei's framework, normative beliefs are conceptualised more broadly to include both the actual behaviours and the approval or encouragement of important referent groups such as family, friends, and peers (Octav-Ionut, 2015). These social signals reinforce personal motivation and help to internalise environmental values, thereby shaping both attitudes and intentions (Octav-Ionut, 2015).

A distinctive contribution of the CPEBM is the inclusion of compatibility, derived from Diffusion of Innovation Theory (Rogers, 1995). This construct refers to the perceived fit between a pro-environmental behaviour and the individual's lifestyle, needs, and values (Octav-Ionut, 2015). Behavioural adoption is more likely when it does not require significant sacrifice or deviation from existing habits (Octav-Ionut, 2015). For instance, consumers who already carry reusable bags may more readily transition to zero-waste stores, whereas those who perceive such actions as disruptive are less likely to adopt zero-waste store.

These interrelated constructs collectively shape behavioural intention, which is the strongest direct predictor of actual behaviour within this model. Intention is understood as a conscious commitment to act, representing the culmination of motivational, social, and cognitive influences (Ajzen, 2020). When intention is supported by a high level of control and behavioural compatibility, it is more likely to be realised in actual practice (Ajzen, 2020). The following figure shows the complete model proposed by Macovei Octav-Ionut.



**Figure 1.** Framework of pro-environmental behaviour by Macovei Octav-Ionut (2015)

To enrich the understanding of what drives sustainable consumption, Macovei's model is complemented here by Sheth et al. 's (1991) Theory of Consumption Values. This framework identifies five distinct value types that influence consumer choice: functional, emotional, epistemic, social, and conditional (Sheth et al., 1991). Functional value pertains to the practical utility or effectiveness of a product or behaviour; emotional value refers to the affective states it evokes, such as satisfaction or pride; epistemic value involves the novelty or curiosity it satisfies; social value stems from perceived approval or group association; and conditional value depends on the context in which the behaviour is performed (Sheth et al., 1991). These values operate in tandem to shape consumer preferences, especially in the context of green consumption, where emotional and functional satisfaction must often outweigh cost or inconvenience.

Empirical findings support the idea that combinations of values, particularly functional and emotional, are highly predictive of pro-environmental choices (Gonçalves et al., 2016). Consumers are more likely to adopt sustainable behaviours when they find them not only environmentally beneficial but also rewarding on a personal and practical level (Gonçalves et al., 2016).

Moreover, demographic and cultural moderators add further nuance to these predictors. Research indicates that age, gender, and cultural orientation can shape how theoretical constructs manifest (Odhiambo Joseph, 2019). For example, while younger consumers often report stronger environmental concern, their behaviour may not consistently reflect this concern due to practical limitations or competing interests (Odhiambo Joseph, 2019). Gender studies have found that women are generally more environmentally conscious, possibly due to heightened socialisation around care and empathy (Odhiambo Joseph, 2019).

Taken together, this theoretical framework provides a robust and multi-layered foundation for examining pro-environmental consumer behaviour. It foregrounds the Consumers' Pro-Environmental Behaviour Model as an advanced, integrated structure that builds on and extends the Theory of Planned Behaviour, while incorporating value-driven motivations, perceived feasibility, and behavioural relevance. This approach offers a coherent and empirically grounded explanation for the decision-making processes that underlie environmentally responsible consumer behaviour, and sets the stage for the empirical investigation to follow.

### **3. Method**

This study employed two approaches: focus groups and semi-structured interviews. The focus groups were conducted exclusively with bachelor's and master's students, while the interviews were carried out with university staff members. The distinction between the two methods was made due to the challenges of coordinating a focus group with staff members, given their conflicting schedules. These methods were appropriate as they allowed participants to share their opinions freely. To best represent the campus population, participants were drawn from multiple faculties. The focus groups and interviews were conducted between March and April 2025. The research was approved by the

Ethics Committee Humanities & Social Sciences (HSS) of the University of Twente, in the Netherlands.

### **3.1. *Participants***

In total, thirty-seven students and staff members of the University of Twente participated in this study. Of these, twenty-seven took part in focus groups and ten were interviewed. Participants were recruited without any specific inclusion criteria other than being members of the Twente community. Recruitment aimed to reflect the current demographic composition of the university, including diversity in faculties (academic backgrounds), genders, and nationalities.

An overview is provided of participants' nationalities, age, gender, and their current roles within the University of Twente in Appendix II. In 2023, international students made up 34% of the total student body of 12,147, alongside 4,136 employees and 208 PhD graduates (University of Twente, 2023). In this study's sample, 24% (13 participants) were international, and 73% (28 participants) were bachelor's and master's students. From which nine participants were employees, including two PhD candidates. There were 25 male and 12 female participants, with ages ranging from 20 to 69 years ( $M_{\text{age}} = 27.92$ ,  $SD = 11.73$ ).

### **3.2. *Interview guides and procedure***

The aim of both the focus groups and the interviews was to explore participants' current levels of awareness, as well as their perceived challenges and motivators regarding zero-waste stores. During the recruitment process, a broad invitation was issued to participate in a "consumer behaviour study". This approach was chosen to avoid attracting only those with strong pro-environmental values, as the study aimed to focus on the segment of the community where such values may be less prominent or absent. A total of five focus groups were conducted, each with an average of 5.6 participants and an average time of 33 minutes, alongside ten individual interviews with an average of 21 minutes.

Throughout the focus groups and interviews, five main topics were addressed: participants' current behaviour (including sustainable practices and decision-making when grocery shopping), their perceptions of zero-waste stores, their reasons for potentially using such a store, the challenges they

anticipated, and their recommendations for improving the concept (see Appendix III & IV). In the middle of the sessions there was an educational video, to immerse participants in a more vivid and realistic experience, mainly for participants who were not acquainted with the concept of zero-waste stores. The video was three-minutes long news report from News abc Localish (2023), where they explained the concept and practical use of zero-waste stores. This was followed by a more detailed verbal explanation provided by the researcher. The researcher maintained a neutral stance, intervening as little as possible and acting primarily as a facilitator during the sessions. All interviews and focus groups were audio recorded and transcribed, with participants providing signed consent forms.

### **3.3. *Data analysis***

The data analysis method used in this research was thematic analysis. This involved filtering out non-relevant content, identifying and highlighting key insights, recognising and grouping emerging themes, and ultimately coding the relevant constructs. The themes were developed based on participants' responses, and the main categories were informed by the existing literature. The study aimed to identify prior knowledge, attitudes towards zero-waste stores, perceived challenges, motivational factors and recommendations for the store.

Once the researcher had identified all sub-themes, they were organised and presented according to the frequency and emphasis given by participants. To enhance the reliability of the analysis, a second coder reviewed the transcripts from two randomly selected sessions (one focus group and one interview) intercoder agreement (75%) appeared to be sufficient.

## **4. Result**

During the focus groups and interviews, several key themes emerged. The elements discussed across all sessions are summarised below, with participant quotations edited for clarity. The findings are organised into five overarching categories: (1) Prior Knowledge of Zero-Waste Stores, (2) Attitudes towards Zero-Waste Stores, (3) Perceived Challenges, (4) Motivational Factors, and (5) Recommendations for Attracting Consumers.

#### **4.1. Prior knowledge of zero-waste stores**

When participants were asked about their familiarity with the term "zero-waste store", only 13 out of 37 individuals stated prior knowledge of this type of store. Of those 13, eight were students and five were staff members. One student stated, *"I did know they existed"* (P#26, female student, age 23), while others referenced similar stores in different Dutch cities, suggesting some regional awareness: *"I think we have a store in the Netherlands like this as well. I'm pretty sure"* (P#7, male student, age 22). Notably, staff members demonstrated a higher level of prior knowledge compared to students. While only 28% of students were familiar with the concept, 55% of staff members indicated awareness of such stores.

Of the 13 participants, several reported having some prior knowledge of similar initiatives. According to these participants, the initiatives they had encountered had generally not been successful. The recollections were predominantly negative, with Albert Heijn and Pieter Pot cited as the most common examples. For instance, one student noted during a focus group: *"I knew there was such a store, a supermarket kind of thing in the Netherlands a few years ago, but I think it went bankrupt."* (P#19, male student, age 24), to which another participant added, *"Pieter Pot!"* (P#21, male student, age 21). Similarly, during a different focus group, one student remarked: *"I know Albert Heijn experimented with this concept, but it was not really successful. I don't remember why. I also know there's this website: Pieter Pot, but it also has the same concept."* (P#25, female student, age 25).

More than one participant concluded different definitions of the term "zero waste shop". One participant believed that it was a "Food Bank": *"I think it is probably one of these places that collects the food that's borderline close to the due dates from supermarkets, and then assembles it in a way that you can get it for very cheap or free. [...] I don't know."* (P#33, male professor, age 46).

Some participants (n=2) interpreted the concept of a zero-waste store as referring to the shop's own efforts to minimise waste. For example, one student remarked: *"When I heard zero waste. I like the first thing that came into my head were that they were going to focus on maybe about the quantity*

*of consumption, not necessarily the lack of packaging, because I would think that in most supermarkets, one of their main problems is having too much on stock.*" (P#3, male student, age 23). Similarly, one professor stated: *"If I enter a zero-waste store. I would assume that the store itself is responsible for paying attention to reducing their waste."* (P#36, male professor, age 35). In addition, two participants associated the concept with second-hand shops. For example, one staff member commented: *"A zero waste store? You mean a Kringloopwarenhuis (english: secondhand store)?."* (P#31, female UT staff, age 54).

The majority of participants (n=22) reported having no prior knowledge of what a zero waste store entails. When asked by the researcher whether they had ever encountered the term, two participants responded affirmatively. One stated, *"I never heard the term."* (P#34, male professor, age 52), while another remarked, *"No, I don't know what it is."* (P#29, male professor, age 55).

Three participants initially indicated that they were unfamiliar with the term "zero waste store". However, after viewing the video shown during the interview, the visual content appeared to trigger recognition. The video prompted visual memories of such stores, and some participants realized they had encountered a similar store previously, though they had not associated them with the term. As one participant reflected, *"Pretty cool. Now that I see what a zero waste store is, I have been to one before."* (P#35, female PhD candidate, age 26).

#### **4.1.1. Anemoia**

Throughout the discussions, a few participants (n=3) noted similarities between zero-waste stores and traditional store formats. Participants often referenced older, specialized stores that predated the rise of modern convenience stores, such as bakeries selling only bread or butcheries offering only meat. Although many of those who expressed such comparisons had not personally experienced these earlier stores models, their responses reflected a sense of nostalgia for an old era, a sentiment often referred to as *anemoia*. One participant remarked, *"It reminds me of an old general store you might find in the late 1800s somewhere."* (P#33, male professor, age 46). Another, after watching the video, reflected on a personal connection: *"It feels like the dairy store my grandparents used to have because back in the days, there would just be milk and these massive steel canisters, and*

*you'd come by with your pot and they'd fill it. [...] So there was no packaging."* (P#34, male professor, age 52).

#### **4.2. Attitude towards zero-waste stores**

The majority of participants expressed a generally positive attitude toward the concept of zero-waste stores. For example, one participant remarked, *"I like the concept."* (P#35, female PhD candidate, age 26), while another, a senior professor, stated, *"I like the idea."* (P#29, male professor, age 55). However, despite this overall positive perception, fewer than one-third of participants indicated a clear willingness to use such stores in practice. Some, like Participant 35, had prior experience with zero waste stores and expressed interest in continued use, stating, *"I think I would be definitely interested if there is one zero waste store here."* (P#35, female PhD candidate, age 26).

All participants (n=37) were able to recognize the positive environmental impact associated with zero-waste stores. The most frequently cited benefit was the reduction of single-use plastics. One student reflected on the extent of plastic consumption and its visibility in everyday shopping experiences, stating, *"When you're thinking about it, you're making so much plastic waste, so we recycle of course. But then if you look at how many times you have to change the bag because it's full, it's really a lot! And then when you walk into the supermarket, you see all these vegetables and stuff wrapped in plastic, is that really necessary?"* (P#6, male student, age 24).

Three participants, two students and one professor, associated zero-waste stores with a particular social stereotype or demographic, suggesting that such stores tend to attract individuals from specific socioeconomic backgrounds. Moreover, these participants expressed doubt about the presence of such consumer groups in Enschede. One student remarked, *"Generally these stores if you find them around the places that they pop up now, then they're also a little bit tailored to the people who go to them. And those are a little bit more of the high class people. So they tend to be more expensive stores."* (P#27, male student, age 24). Another participant emphasized the importance of geographical context, stating, *"I think it would work in some places, maybe not on campus, but for example, if you are in LA, I think you could very easily convince people to go to stores like this. So*

*also location wise I think is also very important. I think some location would work, but I don't know if in Enschede would be the location." (P#18, male student, age 24).*

While participants generally expressed a positive attitude toward zero waste stores, several also articulated concerns or challenges associated with their implementation. One participant acknowledged the environmental benefits but raised doubts about the feasibility of sustaining such models in the current economic system: *"I think it's really nice to reduce plastic, but I also see some issues with implementing it because I think that it would require you to have a really strong community if you want to have a same supply of all the ingredients that you have in a grocery store. [...] I think that kind of smaller community growth, is a lot more difficult to sustain in a system of capitalism. And that's the only problem that I kind of foresee with it."* (P#8, female student, age 23).

In contrast to those who expressed interest, some participants indicated that they would be unlikely to use a zero-waste store due to perceived practical challenges. These individuals identified barriers such as inconvenience and logistical limitations. For example, when asked about the likelihood of doing his grocery shopping at such a store, particularly considering his residence in Germany, one participant responded, *"I would have to say it's rather unlikely. To be completely honest, due to the inconvenience."* (P#36, male professor, age 35). This illustrates that, while participants were generally receptive to the concept, they were also able to articulate personal constraints and contextual factors that could hinder their adoption of such stores.

#### **4.3. Perceived challenges**

All participants were able to identify at least one challenge they might encounter when using a zero-waste store. While some of these challenges were commonly shared across the sample, others were highly specific to individual participants' circumstances or preferences. These perceived barriers were categorized into seven thematic areas: (1) Inconvenience of zero waste stores, (2) Availability of products, (3) Price, (4) Time constraints, (5) Changes in shopping habits, (6) Hygiene concerns and food safety, and (7) Perceived behavioural control.

#### **4.3.1. Inconvenience of zero-waste stores**

The participants mentioned that a large majority of their foreseen challenges were seen as an inconvenience. Inconvenience is a large term therefore, the findings are represented in three stages of the utilisation of zero waste stores: Before, During and After.

##### **4.3.1.1. Before**

###### **4.3.1.1.1. Need for planning**

Some participants (n=5) emphasized the need for increased planning prior to visiting a zero-waste store, noting that the shopping process requires more forethought than conventional grocery shopping. One key aspect frequently mentioned was the necessity of bringing reusable containers, which limits opportunities for spontaneous purchases. As one participant explained, *"I think you have to think about going to the store. You can't be like: I'm going to uni and think I'll go after. You have to have your jars and everything with you."* (P#11, female student, age 26). In addition to remembering to bring containers, participants also noted the need to anticipate the quantity of products they intended to buy. As one student reflected, *"You need to decide how big your containers are. You need to decide if you want a little bit extra or you expect the recipe to be fully correct."* (P#18, male student, age 24). Others highlighted the cognitive burden of estimating not just volume but also the number of containers required. For instance, one participant remarked, *"It really reduces the convenience. But I have to like, think about how many glass jars do they need to take with them?"* (P#21, male student, age 21).

###### **4.3.1.1.2. Proximity to the consumer**

Participants across both interviews and focus groups consistently emphasized the importance of store location as a key factor influencing their willingness to shop at a zero-waste store. Proximity was often cited as essential to offset the perceived inconvenience associated with this type of shopping. For example, one participant noted, *"If it's cheaper, I'd have to walk or cycle for a few minutes, it is not really a problem. But if it's on the other side of town, then it does become a problem."* (P#14, male student, age 22). Similarly, a senior participant who has family stated, *"I think it would depend a lot on the distance. I'm a convenience seeker."* (P#29, male professor, age 55).

Several participants explicitly expressed a preference for a store to be located in very close proximity to their residence. When asked about factors that would influence their decision to shop at a zero waste store, one student responded, *"I would go to the store if it was under my house."* (P#3, male student, age 23). This statement could be interpreted in two distinct ways: either as an expression of conditionality, implying that proximity ("under my house") is a prerequisite for visiting, or as a more general preference for convenience, suggesting that while proximity is highly desirable, it is not necessarily an absolute requirement. Another participant in response to the question, *"Where is it a good location?"*, another participant replied, *"Well, next to my house."* (P#1, male student, age 21). These responses could suggest that for many, the decision to engage with zero-waste stores is closely tied to ease of access and the minimization of additional effort or travel.

#### **4.3.1.1.3.    Need for containers**

Participants emphasized the practical demands associated with the use of containers in zero-waste shopping, particularly the requirement to have a separate container for each product. This was perceived not only as a logistical inconvenience but also as a financial burden. As one participant noted, *"It's also an upfront investment. You have to pay quite some money to get all these jars. But then after that, you don't have to do anything more. It can be expensive."* (P#25, female student, age 25). In addition to the initial cost, participants also highlighted the ongoing extra tasks of cleaning these containers. For example, one participant remarked, *"You have to take care of cleaning the jars before buying new stuff, especially with the jars with honey."* (P#37, male PhD candidate, age 31). These reflections point to a broader concern regarding the added effort and responsibility required from consumers in adopting zero-waste practices.

#### **4.3.1.2.    During**

##### **4.3.1.2.1.    Cognitive load**

Zero-waste stores require consumers to undertake additional steps compared to conventional shopping, such as weighing containers prior to filling them with products. This process introduces an extra cognitive load, which many participants identified as unfamiliar and potentially burdensome relative to their current shopping behaviours. One participant articulated this concern, stating, *"I think*

*one issue is also that it requires an extra step from the consumer, like you have to bring your own pot, you have to weigh it, and then she has to trust that you weighed it correctly. So I think unless this becomes like really mainstream, I don't think this is going to be very sustainable in a way.*" (P#20, female student, age 23). This view was echoed by another participant who described the weighing process as a significant inconvenience: *"The weighing step looked really like a hassle. I mean what if you forget to weigh it."* (P#19, male student, age 24).

Additionally, some participants with direct experience observed that the novelty of the process could pose challenges for unfamiliar consumers. One participant recounted, *"Anecdotally, my supermarket that I usually go to had this or like [...] But I also saw other people struggling to use it because they didn't know how to, because the entire concept was so foreign to them."* (P#36, male professor, age 35). These insights highlight the learning curve and potential barriers to the broader adoption of zero-waste shopping practices.

#### **4.3.1.2.2.    *Need to refill dispensers***

One participant, who had direct experience with zero-waste stores, highlighted an inconsistency in stock levels as a significant challenge. Unlike the other perceived barriers, this issue reflects an experience that may critically impact consumers' willingness to use such stores. The participant described this unreliability as a key obstacle, stating, *"Speaking for again anecdotally, the first one I used, it was not frequently enough refilled. Sometimes you go there and it's like the third week in a row that you want to get quinoa and they didn't refill the quinoa."* (P#36, male professor, age 35). It is important to highlight that the perceived challenge was only identified by an experienced consumer.

#### **4.3.1.2.3.    *Crowded***

Crowding and long wait times emerged as practical issues influencing participants' willingness to shop at zero-waste stores. Several students expressed concerns about the potential frequency of visits and the resulting congestion, with one participant remarking, *"I wonder if students have to go more frequently because of certain factors, then how crowded it might be, how much supply there would be for this kind of thing."* (P#9, female student, age 22).

Another student highlighted the desire for efficiency and minimal social interaction, stating, *“I think if a store like that was there, I would like go. But oftentimes I would be like, I could go, but I want to be quick. I don't want to talk to people.”* (P#11, female student, age 26). Similar concerns were also raised by senior staff participants; one noted, *“If I went there and there was a long line in front of items and I had to wait to fill my jar, that would be an inconvenience that might play into my decision.”* (P#30, female UT staff, age 33).

#### **4.3.1.3. After**

##### **4.3.1.3.1. Heavy transportation**

Concerns about the physical strain associated with transporting groceries in reusable containers, particularly glass jars, were primarily raised by participants with limited incomes, mainly students. Given that cycling is the predominant mode of transport in the Netherlands, the added weight and bulkiness of containers were identified as significant inconveniences. This burden would discouraged participants from purchasing in larger quantities or reducing the frequency of shopping trips. One participant explained, *“I also think maybe the weight of your groceries then become a factor, because then if you're biking here in the Netherlands to the store and you have a bunch of jars in your backpack, I don't think you're buying that much.”* (P#9, female student, age 22). Similarly, another participant noted, *“Because for me, I think carrying ten different glass jars home will be an issue. It's way more half way half here. It's not really convenient to put in your backpack for example.”* (P#19, male student, age 24).

##### **4.3.1.3.2. Limited storage**

Zero waste practices were also perceived as challenging due to storage limitations in the home environment, a concern particularly pronounced among students living on campus (n=13). Given that many student participants reside in small apartments or shared housing, limited storage space was frequently reported as a barrier. One student explained, *“You need somewhere to store all empty plastic containers, like a stack. And you need like a special space or cupboard just for storing all these.”* (P#15, female student, age 21). Another participant highlighted the bulky nature of reusable containers, which contributes to clutter and inefficient use of space: *“Say how much space it takes up*

*at home. Like if you have something in a plastic bag and it runs out, the space it takes up clears up, but the jars don't shrink. So you keep a bunch of jars somewhere?"* (P#7, male student, age 22).

#### **4.3.1.3.3. Labeling**

Since consumers bring their containers to zero-waste stores, there is no way to identify the products within them. Consequently, it becomes the consumer's responsibility to know the contents or to label the containers appropriately. One participant noted this added responsibility, stating, *"I think also it takes more effort from the consumer because you need to label everything, which is also an extra step. I think the main issue is that it adds just a lot of extra steps."* (P#18, male student, age 24).

#### **4.3.1.3.4. Need for other stores**

A common perceived challenge among participants (n=7) was the limited selection of goods available at zero-waste stores. This limitation was seen to necessitate visits to multiple locations in order to complete a typical grocery list, which participants perceived as inconvenient. The inconvenience of "store hopping" was viewed not only as a time issue but also as a logistical and motivational barrier to adopting zero-waste shopping. When asked, *"What challenges can you see when using a store like this?"* one participant responded, *"I think basically the limitation of the amount of products that they will sell. That means that you still have to go to another shop as well to buy the rest of the groceries. So it might be more time consuming than just going to the supermarket where everything is available."* (P#37, male PhD candidate, age 31).

#### **4.3.2. Availability of products**

Multiple participants (n=10) expressed concerns regarding the limited availability of core grocery items, such as fresh produce and culturally specific ingredients. One participant emphasized the convenience offered by mainstream supermarkets, stating, *"I think it's mainly indeed having the availability of all things, because at Albert Heijn you can buy everything you want. And then it's also for me, (...) not having to go to like three different shops for different products."* (P#10, male student, age 21). Another participant highlighted the challenge of sourcing ingredients for diverse cuisines, remarking, *"But I also wonder about, for example, other cuisines, I like to get Asian food."* (P#9, female student, age 22).

Participants further noted that the bulk-display format typical of zero-waste stores imposes space limitations, restricting product variety. As one participant observed, *“I also don't think the store wants to have that many different products, because in the video you saw that one product takes up a whole wall. So if you have the same assortment of things. It's just not going to work.”* (P#20, female student, age 23), with another adding, *“That works if you if you have only one brand.”* (P#21, male student, age 21). This limited assortment was also linked to a reduction in consumer choice, especially for individuals who prefer specific brands. One participant explained, *“You need to have enough options as well. That's because people are going to buy your favourite kind of crispy from some packaging plastic thing, or a variant that's less in glass bottles that I think a lot of people will still be like: I just want my previous one.”* (P#13, female student, age 22).

### **4.3.3. Price**

#### **4.3.3.1. Limited income**

A recurring theme among student participants (n=10), and some staff participants (n=3), was the constraint of limited income, which often took precedence over environmental concerns when making purchasing decisions. Several students expressed that cost was a more immediate and tangible factor influencing their shopping behaviour. For instance, one participant remarked, *“Yeah. I'd also still say as a poor student it's still the price. Because if it's more expensive, then I'll still go to Lidl even though it's less sustainable.”* (P#10, male student, age 21). Another echoed this sentiment by emphasizing the financial barriers to sustainable living, stating, *“But I think it's also very, like, important to realize that for students, it probably is not feasible because a lot of students don't have a lot of money and sustainable living and sustainable eating and a lot of sustainable things are easier if you have money.”* (P#18, male student, age 24).

#### **4.3.3.2. Price uncertainty**

Additionally, one participant highlighted a challenge related to price transparency in zero-waste stores, where goods are sold by weight and self-filled. Unlike conventional grocery stores with prepackaged items and fixed prices, customers often do not know the exact cost until checkout. As the participant explained, *“When you go there you know the price per kilo probably. But then you*

*don't know how much you're filling it up. So you don't know beforehand exactly how much you're going to pay. When you go to the grocery store, you have the prepackaged stuff. You already know exactly how much.*” (P#26, female student, age 23).

#### **4.3.3.3. Perception price & Economic condition of area**

Many participants (n=12) perceived zero-waste stores as more expensive than conventional supermarkets, a perception often linked to the broader belief that sustainable products typically come at a premium, especially when offered by small, niche businesses. One participant articulated this concern by stating, *“So that's always the difficult part with this is to compete with the price of the supermarket is quite difficult. And then all of these small businesses are quite expensive. So you still the issue now is that you pay the price for being um zero waste or ecological.”* (P#1, male student, age 21).

However, this view was not unanimous. A few participants (n=2) suggested that zero-waste stores could potentially be more affordable due to the elimination of packaging costs and the possibility of purchasing in bulk. For example, one participant speculated, *“It might be cheaper because they can buy in a lot of bulk. So that should be cheaper. That would be my guess.”* (P#16, male student, age 21).

Despite these differing perspectives on price, several participants expressed skepticism regarding the viability of zero-waste stores in Enschede. One participant commented on the city's economic context, noting, *“Enschede is (...) a poorer city. (...) So the answer is, we like our cheap stuff. (...) So I'm not too optimistic for Enschede, but it depends a bit on the neighbourhood.”* (P#34, male professor, age 52).

#### **4.3.4. Change in shopping habits**

Participants (n=5) recognised that zero-waste shopping demands a significant shift from established consumer habits and routines. Engaging with such practices was described as a process of leaving one's comfort zone and embracing inconvenience for a greater environmental good. As one participant reflected, *“If you have to, you really must change your routines in shopping. (...) And now we know how much waste it creates and how much trouble it creates for our climate. But you have to*

*change your routines.*” (P#32, female program director, age 69). Similarly, a student noted that adopting zero-waste practices would require considerable societal transformation, stating, *“If this were to become a thing, it would require a massive change.”* (P#17, male student, age 21).

For some, the behavioural change demanded by zero-waste shopping felt, at times, beyond their individual control. This was articulated by a participant who explained, *“The way we behave is really connected with these flows. These habits are the way in which our daily lives are structured and run, and sometimes you have some control over those things. Sometimes you don't.”* (P#33, male professor, age 46).

Resistance to change was also acknowledged, particularly when unfamiliar behaviours challenge ingrained consumer norms. As one student observed, *“With some types of products, it's very difficult to put them in a jar.”* (P#6, male student, age 24). Another participant emphasised the cultural tendency to initially resist new practices, stating, *“Whether people like it or not is a second thing. (...) It's always like it's a new thing, so people have to get used to it and then complain, and then later you don't hear them about it anymore. (...) But people are always going to complain about things.”* (P#28, male student, age 24).

In addition to individual behaviours, participants identified contextual factors such as their living environment and household dynamics as influencing the adoption of zero-waste practices. For students, particularly those living on campus, kitchen logistics and shared responsibilities were viewed as barriers. One participant explained, *“I was thinking one of the problems of going there (...) Strategically, like setting up the kitchen like that, especially for campus houses, it's going to be very difficult to organise something like that.”* (P#27, male student, age 24).

For older participants with families or partners (n=7), the decision to shop zero-waste was often perceived as a collective one. The same participant noted, *“I think the only people who matter are the people for whom I am doing the groceries, so the people in my household, my family. That will have a big impact if they feel like we as a family should do our shopping there.”* (P#27, male student, age 24).

#### **4.3.5. Hygiene concerns & Food safety**

Several participants (n=3) raised concerns about the sanitation of refill systems, especially for perishable products such as dairy or liquids. They perceived a lack of hygiene assurance in refill-based store, which they compared unfavourably to pre-packaged goods. One student observed, *“It's going to be more difficult. I can imagine why supermarkets don't do this on a large scale, there's also a big part of cleaning. If you do this with milk, you have to clean that milk bottle quite frequently and quite well.”* (P#1, male student, age 21). Similarly, another student noted: *“Maybe for me also like the guarantee that it's sanitary is that. Like just that everything I get is clean.”* (P#9, female student, age 22).

In addition to hygiene, some participants (n=2) highlighted potential risks related to food allergies and intolerances, especially concerning cross-contamination in bulk containers. One of the students remarked: *“Cross-contamination can also be an issue for people with allergies or intolerances or food preferences in general. That's maybe also something to look into.”* (P#17, male student, age 21).

Participants also raised questions about product expiry and freshness. Some were unsure how consumers could verify expiry dates or ensure proper food rotation without standardised labelling. As one student noted: *“I'm wondering, like if there's some items in there that have an expiration date, how that works with like small batches.”* (P#18, male student, age 24).

#### **4.3.6. Perceived behavioural control**

One participant expressed doubt about their ability to make a meaningful impact through such a store, reflecting low perceived behavioural control. This was particularly evident among students, who often felt that their limited financial resources, time constraints, and lack of a strong social influence in society. The student, stated, *“I think it's just really hard to make that work, especially because if you're looking at now like a focus group of students, we are both poor and very busy (...). And that's kind of difficult. Especially because students aren't particularly known for having the loudest voice in the world. You know, when it comes to the kind of change that we want to see around us in the world.”* (P#8, female student, age 23)

#### **4.4. Motivation factors**

##### **4.4.1. Altruistic factors**

Some participants indicated that their interest in zero-waste stores was driven by altruistic and pro-environmental values, with a sense of environmental responsibility emerging as a key motivational factor. Two participants stated: *“The only reason for me to go to such a shop, I think, is to be sustainable.”* (P#19, male student, age 24) and *“The whole concept of not using plastic to buy things is appealing. And it's very frustrating that my supermarket offers it only in a limited capacity.”* (P#36, male professor, age 35).

Moreover, several older participants expressed a deeper sense of responsibility. One participant noted: *“You have to be aware why you're doing it. And also, I have a, uh, I feel a great responsibility for: How do I leave this earth behind for my children and especially for my grandchildren.”* (P#32, female programme director, age 69).

##### **4.4.2. Egoistic factors**

In contrast to altruistic motivations, many participants described egoistic drivers rooted in personal benefit and self-perception. These motivations highlight the appeal of zero-waste shopping not only as an environmentally responsible action, but also as part of a desired lifestyle. Several participants noted that engaging in pro-environmental behaviours at a zero-waste store gave them a sense of personal satisfaction. For example, one female student remarked: *“The zero-waste store has actual fresh ingredients so I think it kind of excites me. (...) and that it doesn't feel like you're just getting your hands on another plastic packaging.”* (P#8, female student, age 23). Another participant, when asked what would motivate them to shop at such a store, simply stated: *“Just feeling good about myself.”* (P#20, female student, age 23).

Several participants also cited perceived health benefits, cost savings, and the convenience of buying tailored quantities. Some participants referred to the personal health advantages of reducing plastic consumption. One professor noted: *“That's not directly a health benefit for me as a customer. I mean, not short term. Long term yes. Less plastic means less plastic also that we eat.”* (P#34, male professor, age 52).

Two participants highlighted the possibility to be influenced by the people around them, the participant stated *"If you do it with friends, you decide to do it: We're going to try this now! So that's social pressure."* (P#14, male student, age 22). Another participant prompted in response: *"Yeah. With the house [housemates]."* (P#12, male student, age 22).

Price and product exclusivity also emerged as significant motivators. Some participants emphasised that they would be more inclined to shop at zero-waste stores if prices were lower than those at conventional supermarkets, or if they could access unique products. One student explained: *"I would go there if they are either cheaper or they offer stuff that I cannot get at other places."* (P#4, male student, age 22).

Finally, a few participants valued the ability to purchase precise quantities, which they considered both practical and economically advantageous. One student stated: *"The convenience that if I need a small amount of something, or I know I'm going to make, for example, a dish where I need a tablespoon of sauce, which I'm not going to buy a whole pack of because I'm not going to use it otherwise. But that's really one of the only things where I can see it being relevant for me personally."* (P#17, male student, age 21).

#### **4.4.2.1. Hedonistic factors**

Participants also highlighted hedonistic factors, emphasising enjoyment and sensory appeal as motivations to visit zero-waste stores. Some respondents noted that the novelty of the experience and its playful aspect could initially attract them. One professor reflected: *"That mostly I think it's a fun experience, but that will wear off. It should wear off otherwise."* (P#34, male professor, age 52).

In addition to excitement, taste and product quality were frequently mentioned as important considerations. One student remarked: *"So price is one of the key factors. And second is taste. So you should not compromise on taste is what my feeling is. And both of the things play a huge role in the things that I buy."* (P#5, male student, age 20).

Moreover, participants placed considerable value on the store's visual appeal, ambience, and overall 'vibe' as part of the shopping experience. Many romanticised selecting items in a thoughtfully designed, welcoming space and appreciated the enjoyment of a more sensory and aesthetic store

setting. One student explained: *“Also, to be honest, it looks kind of cute. I would feel very like: I’m walking around there and putting these things from the jars into my own little jars. I’d be like: oh my God, look at me homesteading, you know, which is not true. But then, yeah, I think I would actually enjoy the experience itself.”* (P#8, female student, age 23). Another student stated why they would go to such a store, *“If it has like a cute vibe: I’m going to the zero-waste store again! They play such nice music there and that kind of thing.”* (P#22, male student, age 23).

#### **4.5. Recommendations for attracting consumers**

All participants were asked what measures the store could implement to encourage their visits. Their responses may be categorised into the following themes: (1) Awareness, (2) Ease of Use & Reduction of Inconvenience, (3) Community-Building & Impact, (4) Marketing & Incentives, and (5) Products.

##### **4.5.1. Awareness**

Participants emphasised that raising awareness among potential consumers would be a valuable strategy to encourage engagement with the shop. Specifically, they argued that the store should make deliberate efforts to highlight the impact of plastic pollution. One participant expressed this view as follows: *“It’s a change in the way of thinking. I think that that’s the most important part: to make people aware of the importance of that [the need for a change].”* (P#31, female UT staff, age 54).

Three participants suggested that demonstrating the tangible, positive impact of one’s consumption could further motivate sustainable behaviour. For instance, one student proposed a system to visualise the environmental benefits of using the shop, noting: *“Also maybe that you know how much carbon dioxide you saved, like you have a kind of footprint.”* (P#11, female student, age 26).

##### **4.5.2. Ease of Use & Reduction of Inconvenience**

Two senior participants highlighted the challenges posed by an unfamiliar system, arguing that the store should strive to mitigate these difficulties by making its processes more user-friendly and

providing additional guidance. One participant emphasised the importance of accessibility, observing that *“I guess it should be easy to use. That would also be important.”* (P#30, female UT staff, age 33). Another participant, who had previous experience with similar shops, noted that some customers are curious yet hesitant due to a lack of understanding of the process. Reflecting on this, they stated: *“For people that are sort of curious and maybe want to try it out. I guess making it easy to weigh your thing, to select the product to weigh again, you pay. It's addressing the fears of people not knowing how to operate this. [...] But after you've done it once it's actually easy.”* (P#36, male professor, age 35).

Students living on campus also highlighted practical barriers to participation that could be alleviated through clearer instruction. In particular, two students discussed the difficulties of organising communal living spaces for sustainable practices. One participant reflected that *“Setting up the kitchen like that [only with refillable containers], especially for campus houses, it's going to be very difficult to organise. So if something is provided [by the store]: Do it like this! I think that would help as well”* (P#27, male student, age 24). Another agreed, suggesting that *“A lot of information needs to be given beforehand on: how it works, and what's the best way to do it”* (P#26, female student, age 23). Building on this point, the first participant proposed providing a simple, structured plan for implementation, noting that *“Or even just the baby step, like a plan. We're lazy students. We won't do a lot out of ourselves.”* (P#27, male student, age 24).

Participants also discussed ways to improve efficiency by borrowing elements from conventional stores. One participant noted that innovations such as self-scanning tills could streamline the process and make shopping more enjoyable: *“I think the self-scanning might be nice to do it even quicker because for most people it's not that much fun to go for groceries.”* (P#37, male PhD candidate, age 31). Another senior participant suggested that the store could offer pre-filled containers to minimise the extra steps involved. Drawing on his knowledge of existing store models, he explained that *“The enterprise can do pre-packaged: where there is a mason jar that we already filled for you. You just need to grab it. And then maybe you order it. Because they also sell containers there. And so maybe they can have some pre-filled.”* (P#36, male professor, age 35). Finally, one student introduced the idea of ‘recipe boxes’ that simplify food preparation, by providing a box with the right

amount of ingredients and the recipe. The participant explained that this could reduce both the cognitive load and the effort involved in meal planning: *“If you have the jar with all the ingredients and then the recipe, [...] but then you can just buy it. It’s very easy. You can just cook it and it’s all there for you.”* (P#6, male student, age 24).

#### **4.5.3. Community-Building & Impact**

Two participants emphasised the value of cultivating a sense of community around customers’ positive impact as a means of encouraging store engagement. The students exchanged ideas about fostering this collective motivation. One participant suggested tracking the amount of plastic saved, noting that *“so you could relate the amount of packaging that hasn’t been sold. And then you can make charts. You could also do an app which people can check in easily. And everyone is like: look at this!”* (P#27, male student, age 24). Another participant supported this concept, responding simply, *“Like a community!”* (P#26, female student, age 23).

Beyond sustainability achievements, participants also proposed that cultivating a sense of community with the shop’s staff could encourage loyalty. This relational dynamic was seen as a key differentiator from mainstream stores. One participant explained, *“I was built to the same place and we have a little chat and you feel like you know the people working there. And I think I’ve never had that at the supermarket. But I think with these types of shops, they’re getting a smaller audience. I think that you could develop an emotional bond by the people working there, the type of contact you’ve got.”* (P#29, male professor, age 55). Another student similarly highlighted the importance of friendly, approachable employees, stating, *“Good servers! Like friendly people.”* (P#14, male student, age 22).

#### **4.5.4. Marketing & Incentives**

Students predominantly emphasised the significance of discounts and their influence on purchasing decisions, identifying them as an effective strategy for the store to implement. Two students remarked on this point explicitly. One participant noted that promotions can encourage immediate purchases, stating: *“I usually get emails when there are any discounts from Lidl so sometimes it triggers me to go there and buy stuff. Because then I can go on the same day, and I can*

*save some money and use it for the next shopping.*” (P#5, male student, age 20). Another similarly asserted that *“Discounts. Great marketing!”* (P#1, male student, age 21).

Additionally, one student proposed introducing competitive incentives as a means of fostering increased consumer engagement: *“Maybe if I go there and could get back to the jars because you can win something like a prize, some kind of bargain: you get a discount or a gift or free jar. Start a jar collection.”* (P#13, female student, age 22).

A senior participant highlighted the importance of ensuring public exposure and accessibility for attracting new customers, as well as the role of product sampling in demonstrating quality. This participant observed that taste could play a critical role in driving consumers: *“You got to have foot traffic. You got to be exposed to the public in an easy place to access. It has to have like maybe have like little sampling situations where people can kind of try stuff there. [...] If the taste is better, I think people would go back.”* (P#33, male professor, age 46).

Moreover, one participant noted a common misconception surrounding zero-waste stores and proposed improving messaging through stronger branding, suggesting *“A good name [for the store].”* (P#30, female UT staff, age 33).

#### **4.5.5. Products**

Two participants highlighted the potential for the store to differentiate itself by offering exclusive prices and products. One participant emphasised that competitive pricing and a distinctive product range would encourage visits, stating, *“I would say I would go there if they are either cheaper or they offer stuff that I cannot get at other places.”* (P#4, male student, age 22). Other participants, although not part of the same focus group, similarly supported this emphasis on exclusivity. One participant noted that offering speciality items could attract customers, commenting, *“If it has some speciality items, if you get some different kinds of tea or coffee beans or organically sourced.”* (P#7, male student, age 22). Another student drew attention to the origin of products as a key factor, suggesting that the store’s environmental significance could be strengthened by sourcing locally: *“I think maybe if those stores work together with the local farmers and sell some local products, that would encourage me to go there.”* (P#11, female student, age 26).

Participants also highlighted the importance of ensuring an appropriate range of products. One participant noted that *“the variety of products should be in line with what people buy in the supermarket.”* (P#37, male PhD candidate, age 31), reflecting the need for a comparable level of convenience. Similarly, one student argued for careful curation of stock to suit the target demographic, explaining that *“if it's here on a like student surrounded or on the campus, they should look into what we would want as students because I don't think a lot of students are going to buy dry peaches or something like that.”* (P#26, female student, age 23).

## **5. Discussion**

The study revealed a range of perspectives among participants concerning zero-waste stores. Only two participants had previous experience purchasing from such groceries, the only factor that was only highlighted by one of these participants was ‘Need to refill dispensers’, all other challenges were also raised by non-experienced participants. Although the store was generally viewed as a positive concept, all participants anticipated potential challenges as consumers. These included practical constraints, such as the store’s accessibility, limited product availability, and the need to modify established shopping habits, among other factors. Moreover, the findings indicated that motivations to use a zero-waste store could stem from a combination of altruistic and egoistic values. Respondents also proposed a series of initiatives that could enhance the store’s appeal and encourage a greater percentage of consumers. Overall, the findings highlight a substantial gap between participants’ positive attitudes and behavioural intentions, which are influenced by both logistical and psychological barriers. These insights address the research question of this study and contribute to a deeper understanding of the factors shaping perception of zero-waste stores.

The findings were notable in that all participants demonstrated environmental awareness and recognised the necessity of a zero-waste store. This outcome may be partly attributed to the study’s context, conducted within a university environment, where participants generally possess a high level of education. As highlighted in Liu et al. (2020), environmental knowledge has a significant positive influence on environmental attitudes. Also, Setiawan and Rizkalla (2022) conducted a structural equation modelling study of 125 consumers and found that environmental knowledge had a positive

effect on attitudes towards shopping at zero-waste stores, which subsequently influenced purchasing behaviour. While the majority of participants expressed a positive attitude towards the store, it is important to note that some still reported negative attitudes. This reinforces the argument made by Xie et al. (2019), who found that although knowledge is a necessary condition for pro-environmental behaviour, it is not sufficient on its own. Individuals may be well-informed about climate change yet remain reluctant to act if they perceive their efforts as ineffective or overly inconvenient (Xie et al., 2019).

A significant proportion of participants demonstrated a lack of familiarity with the concept of zero-waste stores. This can partly be attributed to the various names associated with such stores, as well as the potentially misleading or ambiguous term "zero-waste store" itself. Another contributing factor may be the absence of social pressure to adopt the environmentally friendly behaviour. Without a social environment that encourages behavioural change, individuals may feel little compulsion to alter their habits. This challenge was also highlighted in the study by Heidebreder et al. (2019), which conducted a comprehensive review of the existing social-scientific literature on plastic usage. One of the key perceived challenges identified was the influence of social and cultural norms. Heidebreder et al. (2019) argue that behaviour is strongly shaped by these norms, stating that individuals are more inclined to act in an environmentally conscious manner when they observe others doing the same. The need for belonging is a central concept Social Identity Theory (SIT) introduced by Tajfel & Turner in 1986, which posits that individuals are most influenced by the groups with which they most strongly identify.

Further evidence for the role of social norms emerged from this study. Several participants expressed scepticism about the feasibility of such a store in a city like Enschede, citing social barriers as a critical concern. The normative beliefs reflected a perceived lack of environmental urgency among local residents. Participants characterised Enschede as a relatively less affluent city, resistant to lifestyle changes. Despite national-level efforts, such as the Dutch government's ban on single-use products, disposable plastic containers, and free plastic bags, there remain no specific regulations for conventional convenience stores (Infrastructure and Netherlands Enterprise Agency RVO, 2023). This regulatory gap results in minimal external pressure to modify consumer behaviour.

The study revealed certain discrepancies with the model presented by Octav-Ionut (2015), particularly in that the model does not explicitly account for the influence of prior knowledge. This study suggests that prior knowledge significantly influences attitudes towards zero-waste stores. In this study, five participants reported having previous exposure to, or awareness of, similar initiatives. However, many of these past initiatives were perceived as unsuccessful, leading to scepticism about the concept's viability. Conversely, other participants lacked any prior awareness and misconstrued the nature of zero-waste stores. For instance, some associated the concept with second-hand clothing stores, reflecting a misunderstanding of the store's environmental objectives. When individuals are unaware of what specific pro-environmental behaviours entail, their attitudes towards such behaviours are unlikely to be well-formed or accurate.

An unexpected finding that emerged from this study was the presence of '*anemoia*', a sense of nostalgia for a time one has never experienced. While this report does not directly examine the impact of this emotional response, it is probable to suggest that *anemoia* may influence participants' perceptions and/or attitudes toward zero-waste stores. However, the role of *anemoia* in shaping consumer behaviour remains largely underexplored, with limited academic literature addressing the phenomenon in this specific context.

There was a clear relationship between the participants' attitudes and their behavioural intentions. If a participant did not hold a positive attitude, their unwillingness to engage in zero-waste stores was voiced. Participants frequently cited large challenges that would hinder their intentions, after expressing the unlikelihood of such a store prevailing. This relationship is well-supported by Kim and Hunter's (1993) meta-analysis, which demonstrated that attitudes are strong predictors of behavioral intentions across a wide range of domains, with negative attitudes being particularly associated with lower intention to act.

It is important to highlight the significant variation in participants' perceptions of the challenges associated with adopting zero-waste shopping behaviours, particularly the perceived inconvenience of such practices. This perception aligns closely with the findings of Heidbreder et al. (2019), who identified *convenience* as a major barrier to reducing plastic consumption. Plastic

products are often regarded as more convenient and affordable than sustainable alternatives, and for many consumers, this perceived convenience outweighs environmental concerns.

The challenge of inconvenience can also be interpreted through the lens of *compatibility with pro-environmental behaviour*, a factor presented in the model proposed by Octav-Ionut (2015). This factor captures the degree to which a given behaviour aligns with an individual's existing habits and lifestyle. Many participants in the present study expressed that the behavioural demands of shopping at zero-waste stores were incompatible with their daily routines. These stores require consumers to adopt new habits, often involving more time and effort, which presents a considerable barrier for those accustomed to the convenience of traditional store practices.

In addition, Heidbreder et al. (2019) also emphasise the role of *strong habits* in impeding behavioural change. The habitual use of plastic is deeply embedded in daily life, making transitions to sustainable alternatives particularly challenging (Heidbreder et al., 2019). However, participants who reported a willingness to overcome these barriers tended to demonstrate a strong alignment with pro-environmental values and a well-developed environmental self-identity.

Moreover, two of the most frequently cited limitations among student participants were financial cost and time constraints. These barriers are accurately represented in the Theory of Planned Behaviour as elements of *perceived behavioural control*. Both Heidbreder et al. (2019) and the model developed by Octav-Ionut (2015) acknowledge these factors as significant obstacles to behavioural change, highlighting their relevance in understanding the gap between intention and action in pro-environmental behaviour.

As the results have demonstrated, several participants expressed both a desire and an intention to engage with zero-waste stores. The motivations behind these intentions were varied, stemming from multiple underlying factors. Some participants were acutely aware of the environmental consequences associated with not adopting more sustainable consumption practices, and their expressed intention was grounded in a general aspiration to behave in a more environmentally responsible manner.

However, the motivation for pro-environmental behaviour among most participants did not appear to originate from altruistic values. Rather, it was primarily driven by egoistic concerns. This

observation is supported by Lou (2024), who found that egoistic values can significantly predict pro-environmental attitudes and behaviours. In such cases, self-interest becomes a strong motivator for environmentally friendly actions. Similarly, De Dominicis et al. (2017) argue that self-interested appeals may be as effective, if not more so, than altruistic messages in encouraging sustainable behaviour. Notably, such egoistic motivational pathways are not accounted for in the model proposed by Octav-Ionut (2015).

### ***5.1. Practical implications for a zero-waste store***

The findings of this study reveal that the success of a zero-waste store within a university community relies on understanding the behavioural, practical, and emotional drivers of consumption. While individuals with a strong environmental self-identity are generally open to adopting sustainable behaviours, they are only a part of the target market. The true challenge lies in motivating those who do not possess such intrinsic pro-environmental values or who perceive significant barriers to changing their current habits.

The evidence from this study suggests that an approach is needed to target the individuals who do not possess such pro-environmental values. Based on the results and the recommendations provided by the participants, the following suggestions have been identified for future implementation of a zero-waste store.

Participants whose values were aligned with pro-environmental behaviour and who held a strong environmental self-identity demonstrated the willingness to adapt their habits and support a zero-waste store. For these individuals, the environmental benefits of such a store resonated with their self-perception, making the adoption of sustainable practices a natural extension of their values. However, for those who lacked this alignment, increased environmental awareness alone was insufficient to trigger the willingness to change. Although reinforcing environmental awareness remains useful, particularly for those already inclined toward sustainability.

Instead, a more effective approach may involve framing the shopping experience in a way that highlights individual and community impact. Rather than relying solely on the environmental message, communication strategies should focus on positive self-image and health benefits.

Emphasising how individual choices contribute to a personal sense of accomplishment may be more persuasive for individuals whose motivations are not primarily environmental.

A key insight from this research is that inconvenience constitutes the most significant barrier to behavioural change. Participants consistently cited convenience as a deciding factor in their consumer choices, suggesting that unless zero-waste shopping can match or exceed the conventional options, the adoption is unlikely. For students in particular, price plays a crucial role in decision making. Their shopping behaviour is largely driven by affordability, and they indicated that unless a zero-waste store could offer prices competitive with or lower than those of traditional convenience stores, they would not be inclined to switch.

For university staff, the primary concern was product quality. High standards, freshness, and a preference for locally sourced goods would be a good solution. Ensuring that a zero-waste store meets these expectations is vital for engaging this demographic. Based on the participants' values in this study, offering local products that exceed existing store options would convince them to switch from their current patterns.

Time efficiency also emerged as a valuable factor. Busy schedules and academic commitments mean that consumers would be unlikely to invest extra time in unfamiliar or complicated shopping processes. Therefore, zero-waste stores must be designed for speed and clarity. This includes having an adequate number of staff to prevent queues, creating a store layout that allows for easy navigation, and providing pre-filled jars for those who prefer not to measure and portion items themselves. Reducing friction in the shopping experience is essential to lowering the barrier to entry for new users.

Another practical implication is the importance of clear, accessible guidance. Some experienced participants started helping other users who were confused about how to shop in a zero-waste store. To mitigate this, stores should include visual guides, step-by-step signage, and instructional materials tailored to the local university. As one participant suggested, distributing guides to students and offering support on how to transition to new shopping habits can ease the adoption process and encourage behavioural change over time. Having such incentives for student housing on campus can create a community or social pressure to change.

As multiple participants highlight the challenge of availability, the store's product selection should also reflect the specific needs and preferences of the university community. Selling items that align with the typical Dutch student diet. Furthermore, integrating the store with existing systems such as the Dutch deposit-return scheme (dutch: statiegeld) for bottles and containers can leverage existing habits and reduce resistance to new ones.

To appeal to a younger audience, the store should also function as a social and aesthetic space. A well-designed, inviting atmosphere, with music and a clean, can attract students and staff. It may also be possible to deliberately evoke the feeling of *anemoia* in potential customers by designing the store with a nostalgic theme that reflects traditional or historical retail systems.

Friendly, helpful employees are essential in creating a positive first impression and building a sense of community. Organising workshops or events and combining the store with a café or lounge area could enhance its social function and make visiting the store a regular, enjoyable experience.

Regarding location, the most strategic site for such a store would likely be on or near the university campus. Given that many staff members do not reside in Enschede, and that the broader city population is less inclined toward environmental practices. Proximity also enables the store to become embedded in the daily routines of both students and employees, increasing the likelihood of habit formation. It does pose challenges with students and staff who live in Enschede but not on campus; the chances that those non-environmental individuals using such a store would decrease.

Finally, the terminology used to describe the store is important. Participants noted that the label “zero-waste store” could be misleading, particularly for those unfamiliar with the concept. Alternative terms such as “refill grocery store,” “zero-plastic grocery store,” or “package-free grocery store” may more accurately convey the store’s function.

In order to account for the varying living arrangements and lifestyles of potential consumers, a more targeted approach was adopted to address their perceived challenges. Participants were categorised into three main groups: students (further divided into those living in the city centre and those residing on campus), junior staff members, and senior staff members. Students living in the city centre typically have more living space and fewer housemates, while those residing on campus often face limited storage capacity and share accommodation with up to sixteen other students. Most

students rely primarily on bicycles for transportation. Junior staff members generally live in the city centre with their partners and also predominantly use bicycles as their main mode of transport. In contrast, senior staff participants tend to live outside of Enschede, often have families, and primarily rely on cars for commuting. The following table presents a summary of tailored strategies for each of these consumer categories, taking into consideration their specific contexts and constraints.

Table 1  
*Summary of strategies for each the consumer categories*

| Consumer categories                | Strategies                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Students living in the city center | <ul style="list-style-type: none"> <li>• Aesthetic of the store/vibe of the store</li> <li>• Financial incentives</li> <li>• Pre-packed/statiegeld as they need are further away from campus</li> <li>• Targeted products for students</li> <li>• Store designs for time-efficiency</li> <li>• Visual guidance inside the store</li> </ul>             |
| Students on campus                 | <ul style="list-style-type: none"> <li>• Aesthetic of the store/vibe of the store</li> <li>• Financial incentives</li> <li>• Guide-how-to for a student house</li> <li>• Targeted products for students</li> <li>• Store designs for time-efficiency</li> <li>• Visual guidance inside the store</li> </ul>                                            |
| Junior Staff                       | <ul style="list-style-type: none"> <li>• Good quality of the product</li> <li>• Good hygiene</li> <li>• Financial incentives</li> <li>• Promote pro-environmental behaviour</li> <li>• The store should be on campus</li> <li>• Pre-packed/statiegeld as they need are further away from campus</li> <li>• Visual guidance inside the store</li> </ul> |
| Senior staff members               | <ul style="list-style-type: none"> <li>• The store should be on campus</li> <li>• Good quality of the product</li> <li>• Good hygiene</li> <li>• Promote pro-environmental behaviour</li> <li>• Visual guidance inside the store</li> </ul>                                                                                                            |

To summarise the practical implications, implementing a zero-waste store in the University of Twente demands a good understanding of consumer behaviour and an approach to habit change. By addressing practical challenges, aligning with different values, and creating an attractive and user-friendly environment, such a store could become an influential part of the university

community's shift toward sustainable consumption. Most of the recommendations developed in this study are transferable to other store types seeking to encourage sustainable practices.

## **5.2. *Academic Implications***

As previously mentioned, this study has revealed several areas where the theoretical framework presented by Octav-Ionut (2015) in the Consumers' Pro-Environmental Behaviour Model could be further developed or refined. While the model offers a valuable foundation for understanding pro-environmental behaviour, the findings from this research suggest that there are additional dynamics worth considering, particularly in the case of individuals who do not yet exhibit strong pro-environmental tendencies.

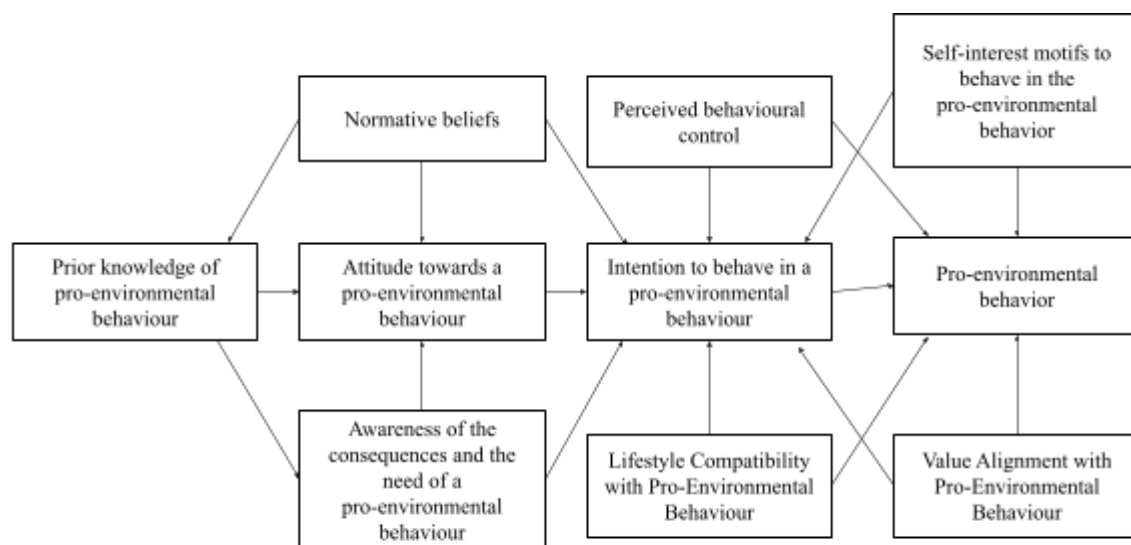
It is important to highlight that the original model seems to focus primarily on individuals who lack an existing pro-environmental behavioural pattern. In such cases, motivations to engage in sustainable practices may not stem from ecological intention alone. This study highlights the influence of alternative value, particularly egoistic value, which may drive individuals to engage in environmentally friendly behaviour for reasons unrelated to environmental concern, for 'self-interest motives'. This underlying motivator may affect both the intention to act and the actual behaviour itself.

In addition, the model may benefit from integrating the role of prior knowledge, which this study identifies as a significant influence on both awareness and attitude. If individuals are unaware that certain sustainable options exist, it is unrealistic to expect behavioural change. Therefore, prior knowledge might be considered a component influencing individuals' attitude and perceived need for such behaviour. It is important to highlight that prior knowledge can be obtained in certain settings, such as social groups or external pressure.

The previously analysed factor, *Compatibility with Pro-Environmental Behaviour*, represents a highly relevant consideration in the context of sustainable behaviour. However, the label itself does not fully convey the conceptual distinction that Octav-Ionut originally intended. Within this factor, two distinct dimensions appear to be at play: first, the compatibility between an individual's lifestyle and the pro-environmental behaviour in question; and second, the alignment between the behaviour

and the individual's personal values. Both of these sub-factors are important and influential, yet they may not always align. For example, an individual may strongly support pro-environmental actions on a value level, while simultaneously finding such behaviours incompatible with their current lifestyle due to practical constraints. In light of this, it is recommended that the factor be divided into two separate components to improve conceptual clarity: '*Lifestyle Compatibility with Pro-Environmental Behaviour*', and '*Value Alignment with Pro-Environmental Behaviour*'. This distinction would allow for a more understanding of the barriers and drivers influencing sustainable actions.

In light of these findings, this study proposes a potential refinement of the original model that includes these additional variables: self-interest motivated, prior knowledge and the split of the compatibility factor. These additions could increase the model's understanding of individuals with diverse motivational profiles and varying degrees of environmental engagement. The following figure shows the potential additions to the model.



**Figure 2.** Framework of pro-environmental behaviour by Octav-Ionut (2015) with suggestions (made by author)

However, it is important to recognise that these recommendations are exploratory. Further empirical research is necessary to validate the proposed extensions to the model. Future studies should aim to test these additional variables across different demographic groups and cultural contexts. Ultimately, these recommendations aim to enrich the academic literature in regards to pro-environmental consumer behaviour and to offer constructive insights that support the ongoing development of theoretical models in this field.

### **5.3. *Future research***

This study generated multiple findings and offers a meaningful contribution to the existing literature on sustainable consumer behaviour and zero-waste stores. However, several limitations point to opportunities for future research.

Firstly, although the research aimed to include participants with lower pro-environmental values, the sampling method did not allow for rigorous selection or exclusion. As a result, a portion of the sample ( $n = 8$ ) consisted of individuals with stronger environmental values than other participants. This was difficult to control due to the use of focus groups, where pre-screening was limited. While the majority of participants did not actively engage in pro-environmental behaviour, future studies could benefit from more targeted participant selection, allowing for clearer segmentation between consumer types.

Secondly, the sample was drawn entirely from the University of Twente community. While convenient due to time constraints and researcher accessibility, this limits the generalisability of the findings. The university setting constitutes a unique social environment, what might be considered a “bubble” within the broader city of Enschede. The perspectives of individuals outside this context, such as those with lower educational levels, different political ideologies, or those living in smaller towns and rural areas, are underrepresented. Future studies should aim to include more diverse populations to better understand broader societal attitudes toward zero-waste stores.

Finally, the study uncovered a novel emotional factor, anemoia. While this emotion was noted by a few participants in connection with traditional shopping methods, its influence on sustainable consumption remains underexplored. Given that many sustainability practices draw inspiration from pre-industrial lifestyles (e.g. repairing, local sourcing, minimal packaging), anemoia may play a unique role in shaping attitudes and intentions toward such behaviours. Future research should investigate the psychological and behavioural impact of this emotional response, particularly in relation to sustainable consumption and identity formation.

## 6. Conclusion

This study set out to explore the key shop-related factors that influence the intention of individuals within the University of Twente community to shop at zero-waste plastic stores. Through a combination of focus groups and semi-structured interviews, the research aimed to identify the motivations and barriers that shape consumer attitudes and intentions toward adopting more sustainable shopping behaviours.

The findings revealed that while there is widespread recognition of the environmental importance of reducing plastic consumption, this awareness does not consistently translate into behavioural intention. Although many participants expressed positive attitudes toward zero-waste stores, few reported a strong likelihood of using them in practice. This attitude–intention gap was largely attributed to perceived behavioural and contextual challenges, including inconvenience, limited product availability, financial cost, and a lack of compatibility with existing lifestyles.

Furthermore, the study found that participants' motivations to engage in pro-environmental behaviour were predominantly egoistic, focusing on personal benefits such as health, practicality, and emotional satisfaction, rather than altruistic environmental values. This highlights a need for behavioural models, such as that of Octav-Ionut (2015), to account more explicitly for the role of egoistic motivation, as well as prior knowledge, which was shown to shape perception and openness toward the zero-waste concept.

The results also underscore the importance of perceived behavioural control, normative beliefs, and social context in influencing consumer intentions. For many participants, the absence of strong social norms, particularly within the city of Enschede, reduced the perceived feasibility and desirability of engaging in zero-waste shopping. Moreover, participants viewed zero-waste practices as requiring substantial behavioural change, reinforcing the need for interventions that lower the cognitive and logistical demands of sustainable shopping.

To promote broader adoption, the study highlights the importance of raising awareness, reducing inconvenience, providing incentives, and creating a sense of community. By tailoring store

design, marketing strategies, and product offerings to address these consumer insights, zero-waste initiatives can become more inclusive and accessible to a wider demographic.

In conclusion, while the idea of zero-waste stores was positively received in principle, practical challenges and motivational dynamics must be addressed to translate favourable attitudes into sustained pro-environmental action. This research contributes to a more deeper understanding of these dynamics and provides actionable insights for stakeholders aiming to foster sustainable consumption in more mainstream populations.

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## **Appendix I**

During the preparation of this work, the researcher used artificial intelligence tools such as Grammarly and ChatGPT to improve sentence structure, grammar based on the text of the author. The researcher used DeepL an artificial intelligence tool to translate part of the document from english to dutch. After using this tool it was thoroughly reviewed and edited the content as needed, taking full responsibility for the final outcome.

## Appendix II

**Table 2**

*Participants' Demographics*

| Participant | Nationality | Age (yrs) | Gender <sup>1</sup> | University Role     |
|-------------|-------------|-----------|---------------------|---------------------|
| 1           | Dutch       | 21        | M                   | Bachelor Student    |
| 2           | Dutch       | 22        | M                   | Bachelor Student    |
| 3           | Indonesian  | 23        | M                   | Bachelor Student    |
| 4           | Dutch       | 22        | M                   | Bachelor Student    |
| 5           | Indian      | 20        | M                   | Bachelor Student    |
| 6           | Dutch       | 24        | M                   | Master Student      |
| 7           | Dutch       | 22        | M                   | Bachelor Student    |
| 8           | Dutch       | 23        | F                   | Master Student      |
| 9           | Filipino    | 22        | F                   | Bachelor Student    |
| 10          | Dutch       | 21        | M                   | Master Student      |
| 11          | Dutch       | 26        | F                   | Master Student      |
| 12          | Dutch       | 22        | M                   | Active Student*     |
| 13          | Dutch       | 22        | F                   | Bachelor Student    |
| 14          | Dutch       | 22        | M                   | Bachelor Student    |
| 15          | Dutch       | 21        | F                   | Master Student      |
| 16          | Dutch       | 21        | M                   | Master Student      |
| 17          | Dutch       | 21        | M                   | Master Student      |
| 18          | Dutch       | 24        | M                   | Bachelor Student    |
| 19          | Dutch       | 24        | M                   | Master Student      |
| 20          | Dutch       | 23        | F                   | Bachelor Student    |
| 21          | Dutch       | 21        | M                   | Bachelor Student    |
| 22          | Dutch       | 23        | M                   | Bachelor Student    |
| 23          | Turkish     | 23        | M                   | Master Student      |
| 24          | Dutch       | 23        | M                   | Bachelor Student    |
| 25          | Dutch       | 25        | F                   | Bachelor Student    |
| 26          | Dutch       | 23        | F                   | Master Student      |
| 27          | Dutch       | 24        | M                   | Bachelor Student    |
| 28          | Dutch       | 24        | M                   | Master Student      |
| 29          | Dutch       | 55        | M                   | Assistant Professor |
| 30          | Italian     | 33        | F                   | UT Staff            |
| 31          | Dutch       | 54        | F                   | UT Staff            |
| 32          | Dutch       | 69        | F                   | Program Director    |
| 33          | American    | 46        | M                   | Assistant Professor |
| 34          | German      | 52        | M                   | Assistant Professor |

|    |        |    |   |                            |
|----|--------|----|---|----------------------------|
| 35 | Indian | 26 | F | PhD Candidate <sup>2</sup> |
| 36 | German | 35 | M | Assistant Professor        |
| 37 | Dutch  | 31 | M | PhD Candidate <sup>2</sup> |

<sup>1</sup> F=female, M=male

<sup>2</sup> PhD Candidate = Doctor of Philosophy (PhD) Candidate

\*Active student means a student who is involved in student life beyond their academic curriculum by participating in or organizing extracurricular activities through associations, committees, or independent initiatives. (Student Union, 2025)

## Appendix III

### *Questions from focus groups*

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Data Demography Questions</p> <ol style="list-style-type: none"> <li>1. Age of the participant</li> <li>2. Gender of the participant</li> <li>3. What is their role in the university (Student, faculty, staff, researcher, etc.)</li> <li>4. How often do you do your grocery shopping?</li> <li>5. Where do you usually shop?</li> <li>6. Do you primarily shop for yourself, or do you share groceries with others (housemates, family, partners)?</li> </ol> |
| What are some sustainable behaviours that you currently perform?                                                                                                                                                                                                                                                                                                                                                                                                    |
| What influences your decision when purchasing?                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ————— [Show the educational video of Zero Waste stores] —————                                                                                                                                                                                                                                                                                                                                                                                                       |
| What do you think of a zero-waste shop? Have you ever heard of such store?                                                                                                                                                                                                                                                                                                                                                                                          |
| What would be the reasons to shop in a place like this?                                                                                                                                                                                                                                                                                                                                                                                                             |
| What problems do you expect when doing grocery shopping in a zero-waste shop?                                                                                                                                                                                                                                                                                                                                                                                       |
| What should the store do to encourage you to go there?                                                                                                                                                                                                                                                                                                                                                                                                              |

## Appendix IV

### *Questions from interviews*

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Theme 1: Data Demography</p> <ol style="list-style-type: none"> <li>1. Age of the participant</li> <li>2. Gender of the participant</li> <li>3. Nationality</li> <li>4. What is their role in the university (Student, faculty, staff, researcher, etc.)</li> <li>5. How often do you do your grocery shopping</li> <li>6. Where do you usually shop?</li> <li>7. Do you primarily shop for yourself, or do you share groceries with others (housemates, family, partners)?</li> </ol>                                                     |
| <p>Theme 2: Current Sustainable Behaviour</p> <ol style="list-style-type: none"> <li>8. What are some sustainable behaviours that you currently perform?</li> <li>9. What influences your decision when purchasing?</li> </ol>                                                                                                                                                                                                                                                                                                                |
| <p>Theme 3: Perception &amp; Attitude</p> <ol style="list-style-type: none"> <li>10. Have you ever shopped at a zero-waste before? If yes, what was your experience like? If not, why not?</li> <li>11. When you hear the term "zero-waste store" what comes to mind?<br/> <div style="border-bottom: 1px solid black; width: 100%;"></div> [Show the educative video of Zero Waste stores] </li> <li>12. To what extent do you consider zero-waste stores appealing?</li> </ol>                                                              |
| <p>Theme 4: Motivations and Challenges</p> <ol style="list-style-type: none"> <li>13. Assuming a zero-waste shop will start its operation in Enschede, how likely will you do your grocery shopping there?</li> <li>14. What factors do you think will influence your decision to shop in such a place?</li> <li>15. What challenges or issues do you expect to influence your decision to shop in that place?</li> <li>16. To what extent will these challenges impact your decision not to do your grocery in a zero-waste shop?</li> </ol> |
| <p>Theme 5: Communication Preferences/selling points</p> <ol style="list-style-type: none"> <li>17. How do you want a zero-waste shop to be marketed to increase your interest in such a shop?</li> <li>18. How do you see the (business) feasibility of a zero-waste shop?</li> <li>19. OR: What are the important factors that would ensure the success of a zero-waste shop?</li> </ol>                                                                                                                                                    |

## Appendix V

### *Popularizing Science*

The following section presents a pamphlet aimed at prospective zero-waste store owners, designed to translate the findings of this research into practical guidance for broader public application.

## BEVINDINGEN UIT HET ONDERZOEK:

- De meeste mensen hadden nog nooit gehoord van zero-waste winkels of wisten niet echt wat dat waren. Sommigen verwarde ze zelfs met tweedehandswinkels of voedselbanken.
- De reacties waren overwegend positief. Mensen vonden het een goed idee en begrepen de voordelen voor het milieu, met name de vermindering van plastic afval.
- Maar goede bedoelingen leidden niet altijd tot actie. Velen zeiden dat ze er waarschijnlijk niet zouden winkelen omdat het te veel moeite kostte of niet bij hun levensstijl paste.
- De grootste uitdaging was het ongemak. Mensen zeiden dat het moeilijker is om te plannen, dat je containers mee moet nemen, dat het meer tijd kost en dat het gewoon niet zo gemakkelijk is als naar een gewone supermarkt gaan.
- De prijs was ook een punt van zorg, vooral voor studenten met een beperkt budget.
- De motivaties waren overwegend persoonlijk. Mensen waren eerder geneigd om erheen te gaan als het hen geld bespaarde, hen een goed gevoel gaf of unieke producten aanbood.
- Een verrassend inzicht was het gevoel van "anemoia", een soort nostalgie naar vroegere tijden. Sommige mensen hielden van de ouderwetse sfeer van zero-waste winkels, ook al hadden ze die tijd zelf nooit meegemaakt.



### 5 Gemeenschapsvorming en sfeer

- Ontwerp de winkel als een sociale en esthetische ruimte: schoon en uitnodigend.
- Je kunt de winkel ontwerpen als een winkel met een oude esthetiek, die aansluit bij het gevoel van anemoia. "Het oude is het nieuwe nieuwe".
- Speel muziek af en zorg voor een prettige winkelomgeving.
- Neem vriendelijk, toegankelijk personeel in dienst om de klantervaring te verbeteren.
- Combineer de winkel met een café of lounge om de aantrekkingskracht en het regelmatige gebruik te vergroten.
- Moedig gemeenschapsnormen aan, vooral in campuswoningen.



## ZERO WASTE STORE

### AANBEVELINGEN VOOR HET OPZETTEN VAN EEN ZERO-WASTE WINKEL IN UW GEMEENSCHAP!

## Het verschil maken in deze wereld door het verminderen van plastic afval

Scriptieonderzoek: praktische implicaties  
op basis van de gemeenschap van de  
Universiteit Twente

# INLEIDING TOT HET ONDERZOEK:

Plastic verpakkingsafval vormt een groeiend probleem voor het milieu, vooral als het gaat om wegwerpplastic. Een oplossing die steeds populairder wordt, zijn zero-waste winkels. Deze winkels moedigen klanten aan om hun eigen verpakkingen mee te nemen en voedsel en andere producten in bulk te kopen, waardoor onnodige verpakkingen worden vermeden. Om hun mening te begrijpen, hebben we met 37 studenten en medewerkers van de Universiteit Twente gesproken via focusgroepen en interviews. Dit onderzoek biedt ideeën over hoe zero-waste winkels meer klanten kunnen aantrekken door zich te richten op persoonlijke voordelen en de ervaring gemakkelijker en aangener te maken. Dit geldt met name voor toekomstige potentiële consumenten die geen sterke pro-milieuwaarden hebben. Er is geen dergelijke winkel in Enschede; daarom zijn alle resultaten gebaseerd op wat mensen van winkels vinden, aangezien ze geen ervaring hadden met deze winkels. De volgende aanbevelingen zijn onderverdeeld in vijf thema's.

## CONTACT

Onderzoek uitgevoerd door Josefina Luchia Puig  
Voor het volledige onderzoeksrapport kunt u contact opnemen met: [JosefinaluchiaPuig@gmail.com](mailto:JosefinaluchiaPuig@gmail.com)

# DIT REALISEREN IN ONZE GEMEENSCHAP:

## 1 Doelgroepbepaling en berichtgeving

- Ontwikkel strategieën die aantrekkelijk zijn voor mensen zonder sterke pro-milieuwaarden.
- Richt de winkelervaring op persoonlijke en maatschappelijke impact, in plaats van alleen op milieukwesties.
- Benadruk de gezondheidsvoordelen en het positieve zelfbeeld dat gepaard gaat met duurzame keuzes.
- Gebruik terminologie die het doel van de winkel duidelijk beschrijft, bijvoorbeeld 'hervulbare supermarkt' of 'verpakkingsvrije supermarkt'.

## 2 Ontwerp en gebruiksgemak

- Minimaliseer ongemak door de winkel zo in te richten dat alles snel en overzichtelijk verloopt.
- Zorg voor voorgevulde potten en vooraf afgemeten porties om tijd en moeite te besparen.
- Creëer een intuïtieve winkelindeling met duidelijke bewegwijzering.
- Zorg voor voldoende personeel om klanten te helpen en wachtrijen te voorkomen.

## 3 Onderwijsondersteuning

- Bied visuele gidsen, bewegwijzering en stapsgewijze instructies in de winkel.
- Bied klantgerichte informatiebronnen of oriëntatiesessies over hoe je zero waste kunt winkelen, bijvoorbeeld voor studenten.
- Organiseer workshops of demonstraties om vertrouwdheid en vertrouwen op te bouwen.

## 4 Product- en prijsstrategie

- Bied artikelen aan die veel worden gebruikt.
- Zorg voor concurrerende prijzen ten opzichte van conventionele supermarkten om prijsbewuste studenten aan te trekken.
- Handhaaf een hoge productkwaliteit, versheid en hygiëne om aan de verwachtingen te voldoen.
- Gebruik een borg zodat klanten potten en flessen mee naar huis kunnen nemen en terugbrengen.



## FINDINGS FROM STUDY:

- Most people had never heard of zero-waste stores or didn't really know what they were. Some even confused them with second-hand or food bank shops.
- Attitudes were mostly positive. People liked the idea and understood the environmental benefits, especially the reduction of plastic waste.
- But good intentions didn't always lead to action. Many said they probably wouldn't shop there because it was too much effort or didn't fit their lifestyle.
- The biggest challenge was inconvenience. People mentioned it's harder to plan, you need to bring containers, it takes more time, and it's just not as easy as going to a regular supermarket.
- Price was also a concern, especially for students on a budget.
- Motivations were mostly personal. People were more likely to go if it saved them money, made them feel good, or offered unique products.
- A surprising insight was the feeling of "anemoia", a kind of nostalgia for older times. Some people liked the old-fashioned feel of zero-waste stores, even if they never experienced that era themselves.



## 5 Community Building and Atmosphere

- Design the store as a social and aesthetic space: clean and welcoming.
- You can design the store as an old aesthetics store, connection it to the feeling of anemoia. "The old is the new new"
- Play music and ensure a pleasant shopping environment.
- Employ friendly, approachable staff to enhance the customer experience.
- Combine the store with a café or lounge area to increase appeal and regular use.
- Encourage peer influence and community norms, especially in campus housing.



## RECOMMENDATIONS ON HOW TO IMPLEMENT A ZERO-WASTE STORE IN YOUR COMMUNITY!

**Making the difference in this world by reducing the plastic waste**

**Thesis research: practical implications based on the University of Twente's community**

# INTRODUCTION TO THE STUDY:

Plastic packaging waste is a growing problem for the environment, especially when it comes to single-use plastics. One solution that's becoming more popular is zero-waste stores. These shops encourage customers to bring their containers and buy food and other products in bulk, avoiding unnecessary packaging. To understand their views, we spoke with 37 students and staff members from the University of Twente (Netherlands) through focus groups and interviews. This research offers ideas on how zero-waste stores can attract more customers by focusing on personal benefits and making the experience easier and more enjoyable. Specially for future possible consumers who do not have a strong pro-environmental value. There is no such store in Enschede; therefore, all the results are from what people think of stores, as they did not have any experience with these stores. The following recommendations are categorised into five themes.

## CONTACT

Research done by Josefina Luchia Puig  
For the complete research report, please contact: [Josefinaluchiapuig@gmail.com](mailto:Josefinaluchiapuig@gmail.com)

# MAKING THIS REAL IN OUR COMMUNITY:

## 1 Targeting and Messaging

- Develop strategies that appeal to individuals without strong pro-environmental values.
- Frame the shopping experience around personal and community impact, rather than only environmental concerns.
- Highlight health benefits and positive self-image associated with sustainable choices.
- Use terminology that clearly describes the store's purpose, e.g., "refill grocery store" or "package-free grocery store."

## 2 Design and Convenience

- Minimise inconvenience by designing the store for speed and clarity.
- Provide pre-filled jars and pre-measured portions to reduce time and effort.
- Create an intuitive store layout with clear navigation.
- Ensure enough staff are present to help customers and prevent queues.

## 3 Educational Support

- Offer visual guides, signage, and step-by-step instructions in-store.
- Provide customer-targeted resources or orientation sessions on how to shop zero-waste, for example, for students.
- Organise workshops or demos to build familiarity and confidence.

## 4 Product and Pricing Strategy

- Offer items commonly used by the population.
- Ensure competitive pricing with conventional supermarkets to attract price-sensitive students.
- Maintain high product quality, freshness, and hygiene to meet expectations.
- Use known systems like the Dutch deposit-return (statiegeld).

