

**THE CONSUMER JOURNEY TO  
ADAPT A ZERO-WASTE LIFESTYLE -**  
A Transtheoretical Approach



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JÖNKÖPING UNIVERSITY  
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# **The Consumer Journey to Adapt a Zero-Waste Lifestyle - A Transtheoretical Approach**

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### **Background and Literature**

Zero-waste consumers live a lifestyle that aims to minimize waste, maximize recycling, avoid excessive consumption and prefer products that can be reused, recycled or repaired (GRRN, n.d.). This study provides insights into the behavior change process of zero-waste consumers and gives details into the motivators that impacted consumers. Their journey is analyzed with help of the five stages of the Transtheoretical Model by DiClemente et al. (1991) and its behavior change constructs. Furthermore, motivators of this behavior change are categorized and analyzed by means of the concept of intrinsic and extrinsic motivation (Oakley, Chen, & Nisi, 2012).

### **Methodology**

Following the interpretive approach of this qualitative study, a total of eleven in-depth interviews with consumers who successfully adapt the zero-waste lifestyle and integrate the waste hierarchy (DEFRA, 2011) in their actions, are conducted. The received insights are used to categorize the consumer journey towards the zero-waste lifestyle according to the conceptual framework. This approach ensures the detailed presentation of personal experiences which are analyzed according to relevant theory of behavior change and motivation.

### **Outcomes**

The outcomes of this study show that zero-waste consumers are predominantly environmentally conscious before undergoing this behavior change journey. The process can be categorized according to the existing Transtheoretical Model, however, certain aspects regarding behavior change constructs within the model and the overall influence of social environment on consumers motivation opens new insights of ethical consumption that need to be further explored.

### **Added Value**

This paper provides an understanding of the previously unexplored field of behavior change and consumer motivation of zero-waste consumers. Derived from the findings of this study, valuable sustainable strategies for businesses, governments and consumers can be determined. Additionally, this paper introduces new research areas, which benefit researchers to create added value for all previously mentioned parties.

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## 1. INTRODUCTION

### 1.1 BACKGROUND

Today's consumers live in a highly globalized world that greatly impacts their daily routines and influences their consumption of goods and services. The majority of products that are offered on the market today are imported and travel great distances from manufacturing places to point of consumption. Consequently, they are characterized by a high degree of packaging to protect the goods during the distribution phase. This characteristic is particularly significant in the food industry, where the degree of packaging is increasingly evaluated by consumers as excessive and wasteful. Excessive waste describes the usage of unnecessary packaging materials, used in the production and design phase of the supply chain (Grunert-Beckmann & Thøgersen, 1997). Despite the fact that fruits often come in their natural own "packaging", which is sufficient and better qualified for humans than the manufactured one, fruits are still being overly packaged (Wind, 2015).

A study from 'Icaro Consulting' in 2012 on the attitudes of consumers towards food waste and food packaging discovered that 52% of consumers evaluated the degree of packaging on food as 'too much' and 50% stated that the amount of food packaging is 'bad for the environment' (Wrap, 2012). Packaging consists of two components: packaging material and packaging aid. Thereby, the packaging material is related to the way in which an item is being sold, namely wrapping, foil or carton. Packaging aid, on the other hand, makes the packaged goods transportable, by means of for instance air cushion foil, styrofoam or duct tape (Wind, 2015). The most common packaging waste types in the EU, in that order, are: paper and cardboard, glass, plastic, wood and metal (Eurostat, 2018).

The mass of packaging is not only accompanied by a significant cost factor in the production and disposal of those wrapping materials but also presents an environmental issue due to the natural resources that are used within that process (Song, Li & Zeng, 2015). In 2014 packaging waste, generated per EU inhabitant, took a volume of 162,9kg, which increased by almost 6 percent compared to 153,7kg in 2009 (Eurostat, 2018). Next to packaging waste in the food industry, packaging created by cosmetic and personal care industry, together with the waste generated in the fashion and electronics industry have a significant impact on the environment. Every year, 23.000 tons of toothbrushes end up in US landfill (England, 2010). Additionally, the waste produced by the disposal of clothing in the UK alone is estimated to reach a worth of £140 millions of clothing that goes into landfill every year (Wrap, n.d.).

However, the growing amount of waste encounters an increasing consumer awareness and involvement in environmental issues. The conflict between consumer intention of eco-friendly consumption and the wasteful product offerings arouses consumer initiatives that aim to adapt a zero-waste lifestyle. Consumers that live this lifestyle try to minimize waste, maximize recycling, decrease consumption and consume products that can be reused, recycled or repaired (GRRN, n.d.). As a consequence, grocery stores are successively reshaping their product portfolio to satisfy consumer needs. By offering unpackaged fruit and vegetables and eco-friendly personal care products such as bamboo toothbrushes (Balch, 2016), grocers shift towards more sustainable packaging forms to decrease the amount of package waste (Hunt, 2017).

The zero-waste movement evoked the rising of unpacked stores as new business models that can be found predominantly in the EU and U.S. Shops, such as ‘Zero market’ in Aurora, Colorado (Zero Market, 2018), ‘Wasteland Rebel’ in Kiel, Germany (Wasteland Rebel, 2016), ‘Original Unverpackt’ in Berlin, Germany (Original Unverpackt, 2014) and ‘Unpackaged’ in London, U.K. (Unpackaged, n.d.) enjoy growing international popularity. Zero-waste stores do not offer packaged products but invite customers to bring their own reusable containers or purchase those in stores to measure the amount of food and personal care items the consumer needs (Che, 2016). Another zero-waste movement visible on the online market is the emergence of online shops such as ‘Package Free’ which has its headquarters in New York, U.S. (Package Free, n.d.), ‘Original Unverpackt’ from Berlin, Germany (Original Unverpackt, n.d.) and ‘Granel’ from Barcelona, Spain (Granel, n.d.). Furthermore, social media bloggers gain more popularity by sharing their experiences and tips on the zero-waste lifestyle with their audience online. Well known zero-waste bloggers include Bea Johnson (Sia, 2017), Kathryn Kellogg (Clark, 2016) and Lauren Singer (Trash Is for Tossers, n.d.).

Nevertheless, due to the novelty of the topic and the lack of in-depth understanding of consumers who are following the zero-waste lifestyle, the majority of businesses have not further adapted to the zero-waste requirements. With the implementation of zero-waste strategies, companies could positively impact the environment, the communities through the alleviation of disposal organizations and also support local producers (Toronto Environmental Alliance, 2018).

## 1.2 PROBLEM DEFINITION

Previous research studies (Marangon, Tempesta, Troiano & Vecchiato, 2014; Plumb, Downing & Parry, 2012; Wrap, 2012) solely address the topic food waste and follow a quantitative approach regarding the intentions-behavior-gap, thus investigating consumers with a high awareness and high intentions to change behavior without actual adaptation. However, no research regarding zero-waste consumers who not only intend to change but already adapted this behavior exists. This particular area of study requires more in-depth insights for an understanding of the development process, thus the ‘stages’ consumers go through to change behavior. Moreover, previous research describes the broad picture of zero-waste, addressing businesses and the society. While outcomes of these studies merely *address* the consumer perspective, they fail to *actively engage* with those consumers. Therefore, a shortcoming of personal viewpoints of consumers who live a zero-waste lifestyle is clearly recognizable.

## 1.3 PURPOSE

Based on the above, this paper aims to explore the rising zero-waste movement through the eyes of consumers. Through the increase of business concepts, such as unpacked stores and online shops, the subject matter becomes easier accessible for consumers. The purpose of this paper is to comprehend the stages consumers undergo, as well as motives that drive a change in behavior to adapt the zero-waste lifestyle. By understanding the various stages towards this lifestyle, motives of behavioral change can be further understood. Thereby, it is crucial to actively engage with consumers to understand key experiences, viewpoints and opinions regarding their zero-waste journey. Outcomes of the study complement quantitative and mixed method studies, such as the ones from Marangon, Tempesta, Troiano and Vecchiato (2014) and Plumb, Downing and Parry (2012) and Wrap (2013), by adding in-depth consumer knowledge. Lastly, businesses can work with these insights of zero-waste consumers to increase sustainable actions and improve their Corporate Social Responsibility (CSR) efforts (Barnish, 2013).

## 1.4 RESEARCH QUESTIONS

Based on the purpose of this study, the following two research questions can be derived:

*RQ.1: How is the consumer journey towards adapting a zero-waste lifestyle encountered?*

*RQ.2: What are motives that are critical for consumers to adapt a zero-waste lifestyle?*

Through in-depth interviews with eleven participants who already adapt the zero-waste lifestyle, the researchers aim to receive insights in the development process of the five stages of behavior change by using the Transtheoretical Model, as well as intrinsic and extrinsic motivators of zero-waste consumers (Prochaska, Johnson & Lee, 1998).

## **1.5** LIMITATIONS

One of the main limitations includes restricted time and resources available to the researchers. A greater time frame could be beneficial to not only gain in-depth knowledge of consumers behavior and motivation, but further expand the research through a greater number of participants. Moreover, zero-waste is a fairly new topic, which means that there are only limited resources available and only little research to build upon. Due to the limited timeframe, this study does not consider duration of consumers who implement a zero-waste lifestyle. While some participants might implement zero-waste to a great extent and for several years, other participants might only adapt it to a lower extent and live it for a shorter period of time. However, the participants of this study are brought together and identified as zero-waste consumers when applying the Waste Hierarchy (DEFRA, 2011) in their daily life, as well as the deliberate purchasing of groceries in reusable containers and the application of the zero-waste philosophy on other purchases, such as with personal care and clothing.

## **1.6** DELIMITATIONS

As stated by the United States Environmental Protection Agency (2014), 45% of the materials that end up in the landfills in the United States come from food waste and packaging/containers and therefore present a significant environmental problem. Despite little previous research, this study focuses on the zero-waste movement in different areas of an individual's lifestyle, such as the food, fashion or personal care sector. Previous studies on zero-waste mainly focus on food waste (EPA, 2014), however, this study analyzes all aforementioned categories to which zero-waste strategies apply. As a result of this approach, this study does not provide in-depth information of individual zero-waste product areas but rather looks at the general perspective of this lifestyle. An additional delimitation of this study lies in the limitation of demographic diversity regarding age, gender and nationality of the participants. Due to exposure and accessibility through social media forums, the demographic variance of the participants who are interviewed are determined by the diversity within those online communities.

## 1.7 CONTRIBUTION

This research benefits businesses in terms of receiving a better understanding of consumers who live a zero-waste lifestyle. Not only is it crucial to comprehend consumers who have intentions to change their behavior and do not adapt it but gain in-depth insights of consumers who successfully developed a zero-waste lifestyle. This study aims to provide a mutual understanding of the development process consumers go through to change behavior to spread the zero-waste movement to a greater extent. It can offer a foundation for businesses that want to include zero-waste as part of their CSR. Moreover, outcomes of the study can be beneficial for entrepreneurial businesses that want to set foot in the industry and recognize zero-waste as a business opportunity. A study by the European Commission shows that approximately 400.000 new jobs can be created if EU waste policies were implemented (Simon, 2012), thus research in this field offers possibilities for new and existing businesses.

While previous studies investigate the intentions-behavior gap from a quantitative approach, this study can complement previous results with new qualitative in-depth insights about consumer behavior and motives in regard to zero-waste. Existing models and theories from previous research are used and transferred to the yet unexplored field of zero-waste to receive valuable information on the behavior change and motives of this customer segment. Within the model, motivating influences for the different stages of the behavior change process are combined with consumer experiences when adopting a zero-waste lifestyle. Due to the novelty of the topic, there is no analysis of the behavior change towards a zero-waste lifestyle and its accompanied motivators. This can be highly beneficial for academics who want to conduct further research in this, as of yet, unexplored field.

<b>Consumer Motivation</b>	Consumer motivation can be explained as an internal state that drives people to distinguish and purchase products or services that fulfill conscious and unconscious needs or desires. The satisfaction of those needs can then motivate the consumers to repeat purchases or to look for alternative goods and services that deliver higher value (Bown-Wilson, 2017).
<b>Excessive Packaging</b>	Excessive waste describes the usage of unnecessary packaging materials, used in the production and design phase of the supply chain (Grunert-Beckmann & Thøgersen, 1997). Despite the fact that fruits often come in their natural “packaging”, which is sufficient and better qualified for humans than the manufactured one, fruits are still being overly packaged (Wind, 2015).
<b>Transtheoretical Model</b>	The Transtheoretical Model (TTM) explains behavior change as an intentional process that develops over time and involves a series of five stages of change and supporting behavior change constructs (Prochaska, DiClemente & Norcross, 1992).
<b>Zero-Waste</b>	Zero-Waste comprises the goal of sustainable actions in daily life, including the elimination of materials or making these materials available for others to use (ZWIA, 2009).
<b>Zero-Waste Consumers</b>	Consumers who adapt a zero-waste lifestyle, incorporate the Waste Hierarchy (DEFRA, 2011) and implement sustainable actions in their daily lives.

## 2. LITERATURE REVIEW

While previous research often addressed consumer behavior in relation to countless fields, this chapter aimed to provide a brief overview of its *general definition*, as well as *ethical consumer behavior*, previous studies regarding *consumer behavior change* and *sustainable consumption*. Subsequent sections of this chapter explained the theoretical focus of this study, in terms of how behavioral change could be adapted to the *context of zero-waste*. A great amount of literature was reviewed to find a suitable model to understand behavior change, which resulted in the selection of *The Transtheoretical Model of Change* as a theoretical analysis tool for this study. The last section discussed *motivation* as the driving force behind behavior change in the context of zero-waste.

### 2.1 CONSUMER BEHAVIOR

Consumer behavior studies were often the focus of previous research (Arndt, 1986; Battalio et al., 1974; Belk et al., 2012; Hameed, Waqas, Aslam, Bilal & Umair, 2014; Hawkins & Mothersbaugh, 2009; Howard & Sheth, 1968; Robertson & Kassarian, 1991; Solomon, 2013), conducted in the previous and current century (Peighambari, Sattari, Kordestani, & Oghazi, 2016). According to Bhalerao and Pandey (2017, p. 1095), consumer behavior can be defined as “the behaviour that consumers display in scanning for purchasing, using, evaluating and disposing of products and services that they expect will satisfy their needs”. This means studying and understanding behavioral patterns of consumers, leading to buying preferences and attitudes (Bhalerao & Pandey, 2017). Researchers such as Kotler and Keller (2012) provide different reasons why consumer behavior is a widely-researched field of studies (Bhatt & Bhatt, 2015). Exemplary, an often-represented view is that understanding consumer behavior directly affects the overall performance of a business. Only when understanding different consumers and their behavior, businesses can provide meaningful experiences, beneficial for the success of a firm (Bhatt & Bhatt, 2015). In their study, Peighambari, Sattari, Kordestani and Oghazi (2016) investigate twelve years of recent scholarly research on consumer behavior to assess its importance and involvement over time. Thereby, the authors found that changes in society, economics and technology constantly impact the context of consumer behavior studies. According to their findings, the most widely-studied topics in consumer behavior research are *perception*, followed by *attitudes*, *brand awareness* and *loyalty*. The majority of those studies are of quantitative nature.

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### 2.1.1 ETHICAL CONSUMER BEHAVIOR

One of the most crucial topics of this century, often researched from a quantitative perspective, is the impact of ethics and sustainability on consumer behavior. Ethical consumerism addresses the social and environmental consequences of global trade and the possible elimination of ethical issues, which can for instance be related to human rights, environmental concerns, labor conditions or racial discrimination (Agarwal, 2013).

In his study, Agarwal (2013) elaborates how CSR gained more popularity over recent years. CSR involves a company's actions to minimize their environmental footprint, as well as negative impacts on societal and economic factors. Therefore, sustainable development and operations are the focus of businesses' CSR strategies. CSR actions are ever-increasing, and consumers demand sustainable approaches to facilitate ethical behavior in their own agenda. Nevertheless, companies are not always disclosing their practices because external parties could question and examine their published information. This makes it increasingly more difficult for consumers to comprehend whether a company is ethically-correct or not. Despite that, Piercy and Lane (2009) state that CSR generally impacts and changes a great number of businesses and their policies and procedures in terms of more ethical actions (Agarwal, 2013). Thus, it is crucial for companies to understand the impact of their CSR-actions on consumers to enhance their performance. While the present study focuses on the consumer perspective, it is still important to understand the manner in which businesses execute their CSR-actions, since business offerings and consumer choices are interrelated. Moreover, understanding consumers helps to ultimately provide managerial implications for businesses at the end of this study.

In his study, Agarwal (2013) refers to a number of previous studies, which address the consumer perspective in terms of ethical behavior as well. Michletti (2003) for instance outlines that consumers strive to improve their consumption behavior, which can imply to solely purchase products from ethically-deemed companies and boycott those displaying unethical behavior. Moreover, Devinney, Auger, et al. (2006) came up with a newer concept, which does not put the company in focus but rather consumers, namely: Consumer Social Responsibility. According to the authors, this concept implies "the conscious and deliberate choice to make certain consumption choices based on personal and moral beliefs" (Devinney, Auger, et al., 2006) and includes ethical as well as consumerism components. Thus, consumers are responsible for displaying purchasing behavior versus not purchasing behavior (Agarwal, 2013).

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### 2.1.2 CONSUMER BEHAVIOR CHANGE

Looking at current consumption patterns and behavior, a need for change is required in order to save the environment and reduce societal effects (Agarwal, 2013). Each year, consumers are consuming 30% more resources than the planet can regenerate, and this number is still increasing. However, effects of overconsumption need to be drastically decreased (Kostadinova, 2016). Without these necessary changes in consumer behavior, the environment is highly threatened. Therefore, the question arises how consumer behavior could possibly be changed to reduce the environmental footprint (Agarwal, 2013). Increased awareness of the topic also leads to consumers' urge to engage more in sustainable consumption practices, for example by requesting innovative products that reduce the environmental footprint and allow ethical choices (Kostadinova, 2016). A number of scholars (e.g. Harrison et al., 2005; Hendarwan, 2002; Shaw & Clarke, 1998; Shaw & Clarke, 1999; Strong, 1996) recognized this newly emerging group of consumers with high principles of being "aware" and "ethical" (Freestone & McGoldrick, 2007). However, choices of more sustainable products and services are only limitedly available, and many companies still struggle to improve and implement their CSR strategies (Glavas, 2016). Agarwal (2013) states that consumers can only change behavior partly dependent on the industry, offering innovative sustainable products for new consumer demands.

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### 2.1.3 CHANGE TOWARDS ZERO-WASTE BEHAVIOR

By using previous research regarding ethical consumption as a foundation, the researchers are particularly interested in one group of consumers who do not only make ethical product choices but take ethical consumption to the next level by implementing a zero-waste lifestyle. The zero-waste principle finds its roots in the long existing concept of sustainability (Connett, 2010). The idea of sustainability arose in the 1798 written 'Essay on the Principle of Population' by Thomas Malthus, in which Malthus addresses the occurrence of a growing population and the rising problem of the planet's lack in ability to produce sufficient quantities of food and other necessities (Malthus, 1798). This emerging problem has severe effects on environmental, economic and social dimensions that require society to use the planet's resources with consciousness and in an efficient manner. In 1987, guidelines applying this principle were formulated in the United Nations 'Report of the World Commission on Environment and Development: Our Common Future'. Within this report, the principle of operating accordingly to achieve a "[...] development that meets the needs of the present without compromising the ability of future generations to meet their own needs" is resumed (United Nations, 1987, p. 15). This aim can be implemented by means of arising zero-waste strategies that

address governments, businesses as well as consumers. Due to the focus of this study, zero-waste is perceived as a holistic movement in society that is characterized by the interplay between the aforementioned three parties. Therefore, relevant previous research that adds valuable insights of zero-waste strategies for all three parties, are presented.

The most applicable theory on zero-waste strategies derives from the waste hierarchy (see Figure 1) as the basis and addresses guidelines for organizations along the supply chain to create sustainable waste management strategies that impact producers, consumers, municipalities as well as society and environment at large (Connett, 2013; Papargyropoulou, Lozano, Wright & Ujang, 2014; Zaman, 2017).

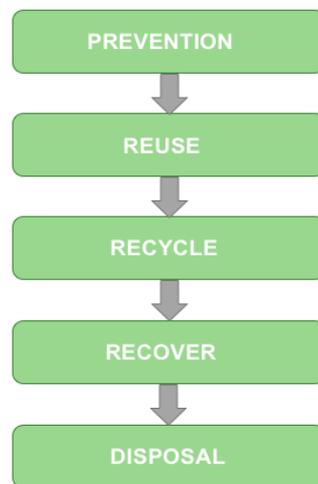


Figure 1: The Waste Hierarchy adapted from (DEFRA, 2011).

Zero-waste consumers pursue a lifestyle that minimizes waste, maximizes recycling, avoids excessive consumption and follows the preference of products that can be reused, recycled or repaired (GRRN, n.d.). Guidelines of zero-waste strategies include the design and management of products and processes that eliminate waste and materials, to restore all resources instead of burning or burying them (ZWIA, 2009). This proposition incorporates the principle of the waste hierarchy which is shown in Figure 1. The waste hierarchy consists of the five dimensions: *Prevention*, *Reuse*, *Recycle*, *Recovery* and *Disposal* and shows the chronological procedure and prioritization of how waste shall be managed (DEFRA, 2011). Prevention describes the active avoidance of products that are not meeting the requirements of zero-waste products. These requirements include packaging material that is not recyclable, or the inability of transference to one of the later dimensions that results from a lack of complete consumption of a product. If products from the first dimension are not fully consumed, they proceed to the next dimension where the good is reused as a whole or to a subordinate degree

(DEFRA, 2011). In the dimension of recycle, the good is turned “into a new substance or product [which] includes composting if it meets quality protocols” (DEFRA, 2011 p.3). If the product does not meet the aforementioned quality protocols, goods are recovered, and their usability is transferred to a different purpose. Lastly, products that go through all of the previous stages and can not be further used, end in landfill (DEFRA, 2011). This hierarchy sets the foundation for a zero-waste lifestyle (Durbanova, 2017) and furthermore functions as the basis for governments and businesses that implement zero-waste measurements in their strategic and operational strategies.

In his study about working towards zero-waste societies, Zaman (2017) found approaches to incorporate zero-waste strategies in an economic and societal framework. This quantitative study mentions *sustainable production*, *responsible consumption* and *conservation of resources* as crucial factors for zero-waste societies. According to the aforementioned author, the implementation of a holistic zero-waste strategy through these three phases appeals to producers as well as consumers to use the resources more consciously. The focus lies on quality of resources and the reduction of waste in the process of production and consumption. In the third phase, Zaman addresses necessary changes in politics towards a circular economy by creating green job opportunities and strategic strategies which lead to a bigger societal effect (Zaman, 2017).

In 2014, Papargyropoulou, Lozano, Wright and Ujang used the waste hierarchy to generate a framework to create global waste management strategies throughout the food supply chain to minimize food waste and establish waste prevention systems. This approach addresses stakeholders from agriculture, food processing and manufacturing, retail as well as food services and institutions that serve the food to end consumers (Papargyropoulou, Lozano, Wright & Ujang, 2014). Within the study, the authors conducted semi-structured and in-depth interviews with food waste specialists from institutions such as Wrap, DEFRA and Fareshare (Papargyropoulou et al., 2014). Papargyropoulou et al. (2014) specify waste management on the three dimensions of sustainability, namely *economic*, *environmental* and *social*. The authors’ strategies include the prevention of food surplus, avoiding food waste, and the management of the distribution of surplus food to people in poverty and later on animal food (Papargyropoulou et al., 2014).

Previous research addresses the rising of the zero-waste movement and introduces the importance of zero-waste management for communities and businesses, mostly in the food waste sector (Papargyropoulou et al., 2014; Zaman, 2017). However, previous research lacks in in-depth consumer understanding and does not explore the experiences and processes of those consumers that have adapted a zero-waste lifestyle. Therefore, this study explores the development zero-waste consumers go through to adapt this lifestyle and investigates their motivation during their journey.

Consequently, the sample of participants of this study consists of consumers that integrate the waste hierarchy (*prevention, reuse, recycle, recover and disposal*) into their lifestyle and purchase groceries in reusable containers instead of commercial packaging. In the following, those consumers are referred to as zero-waste consumers. The definition of zero-waste consumers helps identifying participants who are suitable to conduct in-depth interviews with, in order to receive insights into the adaptation process of the zero-waste lifestyle. With the waste hierarchy, the researchers receive an understanding of the scope of waste management according to which the zero-waste consumers structure their daily consumption routines and show the stages that these consumers have to go through when performing behavior change.

To understand this behavior change of consumers who already adapt a zero-waste lifestyle retrospectively and in greater depth, the Transtheoretical Model of Change offers a theoretical foundation for this research.

## 2.2 TRANSTHEORETICAL MODEL OF CHANGE

The Transtheoretical Model, illustrated in Figure 2, (DiClemente, Prochaska, Fairhurst, Velicer, Rossi & Velasquez, 1991) explains the behavior change of individuals through classifying consumers by their readiness to change, using its five stages: *Precontemplation, Contemplation, Preparation, Action and Maintenance*. This model is acquired from previous applications of individual behavior change in the context of individual health issues, such as drug abuse or problematic eating behavior (Prochaska, Wright & Velicer, 2008). Therefore, this model is transferred to a new context of sustainable consumption and used in this study to analyze the behavior change of zero-waste consumers towards the zero-waste lifestyle.

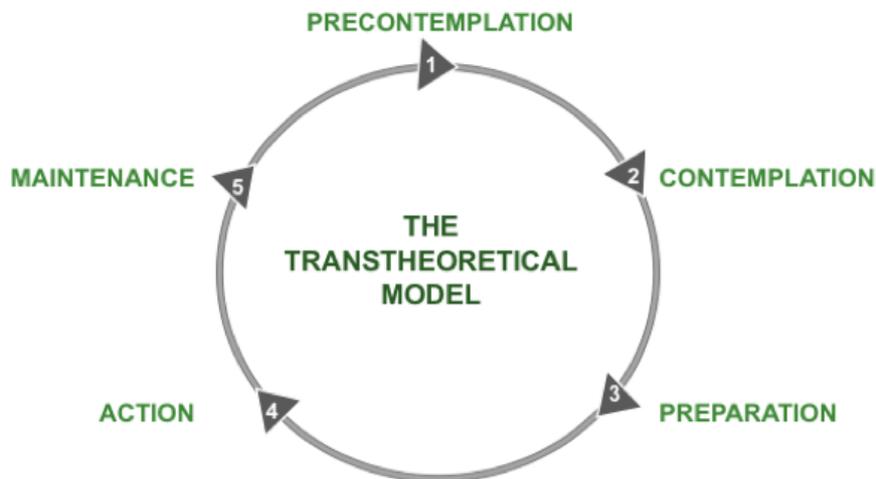


Figure 2: *The Transtheoretical Model adapted from (DiClemente, Prochaska, Fairhust, Velicer, Rossi & Velasquez, 1991).*

The model explains behavior change as an intentional dynamic process that develops over time and focuses on the decision-making abilities of an individual instead of examining social external influences (Velicer, Prochaska, Fava, Norman & Redding, 1998). The above-mentioned stages are determined by the individuals' intention and behavior along the process of changing towards the intended behavior (Marshall & Biddle, 2001).

The first stage of the Transtheoretical Model, the '*Precontemplation*' stage, addresses how individuals encounter the topic of future behavior change. The individuals realize their problematic behavior but do not show any intentions to change it at that time. In this stage, the individual's interest is aroused and the first contact point between individual and topic occurs. The duration of this stage is estimated to endure up to six months (Prochaska, DiClemente & Norcross, 1992; Prochaska & Velicer, 1997).

In the next stage '*Contemplation*', individuals deliberately decide to make a change in their behavior and show higher engagement through in-depth research of the topic that they wish to incorporate in their future behavior. Within this process, people consider advantages and disadvantages of the behavior change, and compare the lifestyle change with their current situation. Due to the in-depth analysis of the topic, this activity can lead to a prolonged state of individuals in that phase which is usually measured to last six months (Patten, Vollman & Thurston, 2000; Prochaska et al., 1992; Prochaska & Velicer, 1997; Velicer et al., 1998).

The third stage '*Preparation*' conduces the establishment of a plan of action that helps the individuals to choose between potential solutions to adapt the new behavior (Prochaska et al., 1992). The

individual is planning on taking action to perform a change of behavior and proceeds to the next step 'Action' when potential obstacles to the behavior change are minimized. The elimination of potential obstacles is achieved by a thorough analysis of the procedures within that new behavior and the planning of obstacle remedy. This stage usually persists for one month (Patten et al., 2000; Prochaska et al., 1992; Prochaska & Velicer, 1997; Velicer et al., 1998).

In the following stage 'Action', individuals take steps to alter their former behaviors, experiences and environments to adapt the aspired new lifestyle (Prochaska et al., 1992). During this stage, individuals are obliged to invest a tremendous amount of time and effort in the realization of the previously formulated plan of action and receive back the greatest amount of recognition from others due to their visible efforts. After positive performance feedback, individuals move on to the last stage of the model (Prochaska et al., 1992; Patten et al., 2000).

The last stage, 'Maintenance', occurs when meeting the aspired criterion for more than six months (Marcus, Rakowski & Rossi, 1992). During this stage, individuals sustain their progress and prevent relapses through internalized routines (Velicer et al., 1998).

In the original model, DiClemente et al. (1991) suggest that individuals move through the stages of change in a linear pattern, however, the stage progression was altered in 1992 to a cyclical pattern (Prochaska et al., 1992), as consumers were found to not follow a linear behavior change process but intermittently regress. Within this pattern, individuals undergo progress and regress throughout the five stages in order to adapt a lasting new lifestyle.

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### 2.2.1 BEHAVIOR CHANGE CONSTRUCTS

Incorporated in the Transtheoretical Model are the behavior change constructs of *self-efficacy*, *the balance of perceived advantages and disadvantages*, and *the strategies and techniques that are determining how individuals modify their thoughts, feelings, and behavior* (Prochaska et al., 1992). These behavior change constructs are crucial for guiding the individual through the intervention of problematic behavior and facilitate positive behavior change (Moore, 2016). All behavior change constructs can be found in each of the five stages of the Transtheoretical Model, however, they vary in regard to the extent in which they influence the individual (Prochaska, Wright & Velicer, 2008). This insight will be crucial in the analysis chapter of this study, where the most relevant behavior change constructs of each stage are determined and applied to the findings of the conducted interviews.

Bandura (1977) defines self-efficacy as the confidence of an individual to perform a behavior despite potential challenges or temptations. Self-efficacy also functions as a determinant to distinguish individuals in different stages (Marcus & Owen, 1992; Marcus, Selby, Niaura & Rossi, 1992). In the process of behavior change, individuals compare potential gains (pros) and losses (cons) of the intended new behavior (Janis & Mann, 1977). In the stage of *Preparation*, pros and cons are balanced evenly, whereas in higher stages the pros outweigh the cons (Buxton, Wyse & Mercer, 1996; Reed, 1999). Lastly, the strategies and techniques that determine how individuals handle the behavior change, can be characterized by behavioral- and experimental processes.

The behavioral processes are *counterconditioning*, *helping relationships*, *reinforcement management*, *self-liberation* and *stimulus control* (Prochaska, Velicer, DiClemente & Fava, 1988). *Counterconditioning* describes the substitution of the current behavior with alternative behavior. Furthermore, *helping relationships* in the process of encouraging individuals through the support of caring others that they trust (URI, n.d.). An additional supporting factor is represented in the *reinforcement management*, where the individual rewards himself/herself or is being rewarded by others for making changes. Furthermore, *self-liberation* includes the choice and commitment to change the problem behavior, including believing in the ability to change. This behavior process is often supported by commitment enhancing techniques such as new year's resolutions (URI, n.d.). The last behavior construct is established by the *stimulus control*. By removing cues that trigger relapses and encouraging cues that support progress, stimulus control aims to receive control over situations (Prochaska, Velicer, DiClemente & Fava, 1988).

The experimental processes are considered to be *consciousness raising*, *dramatic relief*, *environmental reevaluation*, *self-reevaluation* and *social liberation* (Prochaska, Velicer, DiClemente & Fava, 1988). The factor *consciousness raising* determines the analysis and therefore the learning of new facts, information and tips to gain a deeper understanding of the topic (URI, n.d.). The factor *dramatic relief* describes the process the individual undergoes when he or she experiences and expresses his or her feelings and emotions relating to the problem behavior (Patten et al., 2000; Prochaska et al., 1992). Individuals that are confronted with the problem behavior in an emotional approach are likely to move deeper into the '*Precontemplation*' phase (Patten et. al., 2000).

With *environmental reevaluation*, the individual assesses the effects of the problem behavior on his or her social environment and includes the potential impact of the individual as a role model for others (Patten et al., 2000; Prochaska et al., 1992; Prochaska & Velicer, 1997; Velicer et al., 1998). On the other hand, *self-reevaluation* reflects the internal assessment of the individual's own self-image with and without the problem behavior (Prochaska et al., 1992; Prochaska & Velicer, 1997; Velicer et al.,

1998). *Self-reevaluation* plays a significant role when the person is moving from the contemplation stage to the preparation stage (Patten et. al., 2000). Last but not least, *social liberation* describes the awareness, availability, and acceptance of alternative behavior in society. This occurs through the support of social norms in society and empowers the individual to proceed the behavior change (URI, n.d.).

This model offers a theoretical foundation to re-create the process, consumers go through when adapting a zero-waste lifestyle. Thereby, behavior change can be structured and classified according to the five stages of the model, as well as its behavior change constructs to comprehend how the consumer journey towards zero-waste is experienced by participants.

### 2.3 CONSUMER MOTIVATION

While it is often addressed, as mentioned above that consumers want to change towards more sustainable and ethical consumption choices, motives behind the change in behavior are relatively unexplored – in the field of zero-waste especially. Nevertheless, motivation is the “driving force” behind behavior (Freestone & McGoldrick, 2007) and therefore a crucial aspect to provide a greater understanding of consumer behavior and behavior change. Motivation can be defined as “the processes that cause people to behave as they do [and] occur when a need is aroused that the consumer wishes to satisfy” (Solomon et al., 1999, p. 177). In their study, Sobh and Martin (2011) elaborate that motivation is mainly connected to goals that consumers pursue in life. Thereby, consumers either increase, decrease, continue or stop buying certain products related to their current goals in life. Although motivation is goal-related and drives behavior change, it does not imply that the mere presence of motivation is sufficient enough to implement change (Clark, n.d.). However, since this research focuses on consumers who implement a zero-waste lifestyle and thus successfully changed their behavior, an investigation of their motivation helps understanding behavior change in greater depth.

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### 2.3.1 INTRINSIC AND EXTRINSIC MOTIVATION

Motivation can be divided into two categories, namely *intrinsic* and *extrinsic motivation*. Over three decades of research demonstrate that quality of experiences and performances appear to be very different among consumers in terms of behaving for intrinsic or extrinsic reasons (Ryan & Deci, 2000).

Intrinsic motivation is related to a person's actions based on own beliefs, perceptions, values or interests rather than external influences. Hereby an individual's motivation is evoked by personal interest, enjoyment or pleasure (Lai, 2011). Furthermore, when it comes to intrinsic motivation, individuals follow the belief that reaching a desired outcome is controllable by them (Oakley, Chen, & Nisi, 2012). In the early phases of their lives, children execute their actions almost entirely based on intrinsic motivation such as playing, discovering and seeking pleasure. However, while growing up, those motivators slowly adapt due to external demands. It is expected of children to mature and fulfill certain externally-related responsibilities. Therefore, individuals are to lesser extent motivated by intrinsic motives since they are asked to perform tasks. When becoming an adult, intrinsically motivated individuals often perform actions due to their interest and because they seek pleasure in these actions (Fayet & Tran, 2016). Despite the fact that intrinsic motivation is highly important for displaying certain behaviors, most activities that people conduct are not, strictly speaking, intrinsically motivated (Ryan & Deci, 2000).

Extrinsic motivation, on the other hand, is related to the achievement of external goals. It has been said that sustainable behavior is often related to extrinsic motivation, linked to saving money or receiving the respect of others (Oakley, Chen, & Nisi, 2012). According to Ryan and Deci (1985), extrinsic motivation can be divided into four sub-categories, namely *external regulation*, *introjected regulation*, *identification* and *integrated regulation*. The first category, *external regulation*, refers to behavior which is conducted to satisfy an external demand or receive external rewards. This category portrays the least independent aspect of extrinsic motivation. *Introjected regulation* is linked to behavioral avoidance or anxiety and within this category, individuals seek control in order to strengthen their self-esteem. The third category, *identification* is a rather autonomous one and related to behavior which is crucial for an individual to reach a personal level of achievement. Last but not least, *integrated regulation* is the most autonomous category of all. The individual conducts behavior related to self-determination, thus all actions are fully internalized to oneself. Nevertheless, this category should not be confused with intrinsic motivation (Fayet & Tran, 2016). Intrinsic and extrinsic motivation are highly related to the kind of behavior individuals display. Thereby,

individuals act either based on personal matters and beliefs (intrinsic motivation) or based on external rewards or concerns (extrinsic motivation) (Lai, 2011).

Consumers that undergo the transition of the adaptation of a zero-waste lifestyle are led by intrinsic and extrinsic motivators to achieve a lifestyle that minimizes waste, maximizes recycling, decreases consumption and motivates the consumption of products that can be reused, recycled or repaired (GRRN, n.d.). These motivators are influenced by the implementation of zero-waste management strategies into environmental, economic and social frameworks and therefore impact the characteristics and the weighting of intrinsic and extrinsic motivators.

Within this study, findings and discussion show that in some cases, intrinsic motivation to change behavior can be internally and externally triggered. Extrinsic motivation, on the other hand, can also partly be internally and externally triggered. To fully understand the motivation of the growing number of zero-waste consumers (Sheridan, 2017), one needs to explore intrinsic, as well as extrinsic motives or a combination of both to determine which of those two categories applies within the five stages of the Transtheoretical Model. Understanding consumer motivation for adapting a zero-waste lifestyle can help clarifying the drive behind this behavior change.

## 2.4 CONCEPTUAL FRAMEWORK

With the help of the conceptual framework (Figure 3), the researchers can analyze the behavior change of the zero-waste consumers towards the aspired lifestyle and further examine the stages participants undergo within that process. Furthermore, this framework addresses intrinsic and extrinsic motivation that, to a varying extent in each stage, both play a significant role in driving zero-waste consumers towards behavior change. The behavioral and experimental processes within the behavior change constructs exert additional influence on the motivators in each stage. Further analysis of those will result in a more detailed understanding of the motivation spectrum of zero-waste consumers.

Figure 3. shows the conceptual framework that is used in this study to answer the following research questions:

*RQ1: How is the consumer journey towards adapting a zero-waste lifestyle encountered?*

*RQ2: What are motives that are critical for consumers to adapt a zero-waste lifestyle?*

The aim of RQ1 is to follow up on consumers and their ability to recollect thoughts, feelings and processes related to their transition towards becoming zero-waste consumers. RQ1 follows the five stages of the Transtheoretical Model of Change. By exploring this process in depth, a better understanding of consumer behavior change for the context of zero-waste can be developed.

The goal of RQ2 is to understand motives that drive behavior of zero-waste participants. Understanding intrinsic and extrinsic motives is beneficial to ultimately understand the consumers' driving force per stage of the Transtheoretical Model, from the first encounter with the topic zero-waste towards adapting and maintaining this lifestyle.

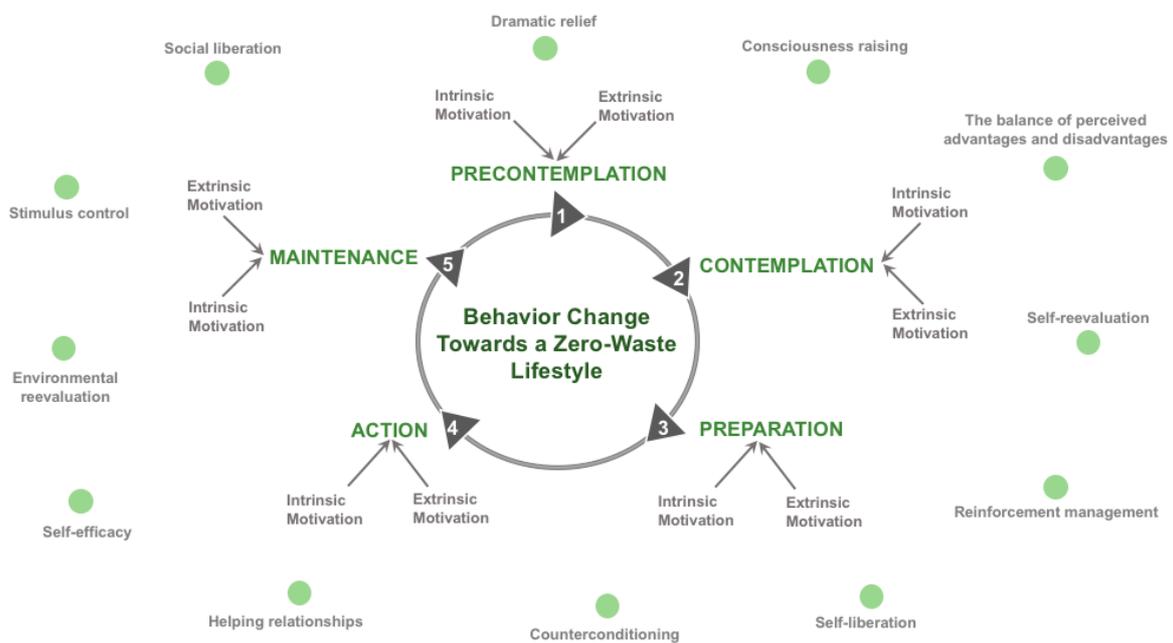


Figure 3: Conceptual Framework.

### 3. METHODOLOGY

The following chapter described the methodology relevant to conduct the study and ultimately answer the research questions, by applying the theoretical framework. Moreover, exact procedures to collect and analyze data were elaborated on. By means of Saunders' (2009) research onion, a structured model for developing a research strategy was being provided (Saunders, Lewis, & Thornhill, 2009). The modified research onion that was applicable for this study was illustrated in Figure 4.

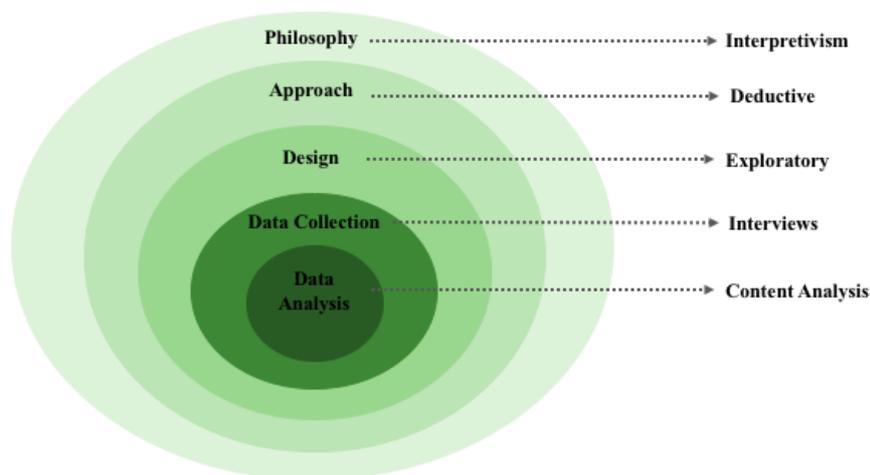


Figure 4: Applied Research Onion.

Saunders' model presents the various layers, researchers have to go through, in order to develop an appropriate research methodology. The process starts broader by defining research philosophy until the inner layer is reached, namely data- collection and analysis (Saunders, Lewis, & Thornhill, 2009). It is significantly important to select a suitable research method, as it forms the foundation for investigation. If executed accurately the research onion model helps minimizing errors, inaccuracy and confusion on the one hand and maximizing reliability of findings and discussion on the other hand (Sahay, 2016).

#### 3.1 RESEARCH PHILOSOPHY

The research philosophy of the study is related to the development of knowledge and nature of that knowledge (Saunders, 2009). By defining a philosophy, a foundation in terms of how the research was undertaken, is formed. These philosophies can contrast, depending on objectives of the research and in the most ideal way, they should be utilized to accomplish those research objectives. However, this is dependent on the sort of knowledge, being investigated. Accordingly, through a well-

considered philosophy, interpretations and assumption of the environment can be explained (Saunders, 2009). In total, Saunders (2009) defines four main research philosophies: positivism, realism, interpretivism and pragmatism. They all differ from one another in terms of epistemology (assumptions about human knowledge), ontology (perceptions of reality) and axiology (impact of values within the research) (Saunders, 2009).

To understand various perspectives and motivators of consumer to adapt a zero-waste lifestyle, the epistemological perspective of this study tended to be interpretivist. Epistemology can be considered the theory of knowledge, trying to seek answers regarding what is perceived as valid knowledge (Flick, 2014). Knowledge is thereby referred to as what individuals think they know (Hofer, 2016). Soini, Krongvist and Huber (2011) stated that an epistemological interpretivist approach specialized on comprehending diverse interpretations and meanings rather than making logical implications. To answer the main research question, this approach seemed most suitable, as the goal was exploring opinions and viewpoints of multiple individuals. Due to the fact that the study aimed to provide consumer understanding and in-depth outcomes, interpretivism allowed the researcher to take an interactive role. Throughout the study, the researchers remained an open attitude and constantly developed knowledge by means of participants' answers (Edirisingha, 2012).

### **3.2 RESEARCH APPROACH**

The third layer of the research onion determines the research approach researchers can pursue. Researchers can either follow a deductive approach, which is primarily used to connect existing theory with findings and testing present theories (Bryman & Bell, 2011), or an inductive approach, which aims to create new theory from collected data (Saunders, 2009). Additionally, a mixed approach, namely abduction, can be used to combine the characteristics of both approaches in a bidirectionally manner (Saunders, 2009). The research approach chosen for the study was a deductive one, mainly due to the fact that the researchers moved from a theoretical foundation and previous literature towards qualitative interviews (Pathirage, Amaratunga, & Haigh, 2008).

Moreover, with this approach, the researchers aimed to make use of existing theory and applied it to the context of zero-waste. The goal of the deductive approach was therefore to provide a more coherent theoretical framework than previous studies have done, in order to explore relatively uninvestigated fields of research (Pathirage, Amaratunga, & Haigh, 2008). Due to the fact that deductive research was based on previous literature, the researchers Collis & Hussey (2013) argued that this approach is preferred in social sciences (Saunders, 2009).

### 3.3 RESEARCH DESIGN

The study followed a qualitative research approach to discover motivators of consumers to adapt a zero-waste lifestyle. Qualitative research should be conducted when the research goal is exploring behaviors, opinions, emotions or beliefs of individuals (Mack, Woodsong, MacQueen, Guest, & Namey, 2005). This approach was chosen to obtain insights of multiple individuals and explore their viewpoints and experiences regarding their zero-waste journey. Qualitative research was a supportive approach in identifying consumer behavior and change in behavior (Bristol, 1993). By actively engaging with consumers to determine key experiences, viewpoints and opinions regarding their zero-waste journey, the researchers obtained rich data that was crucial to answer the given research questions.

Saunders (2009) points out three types of research designs, namely exploratory, descriptive and explanatory. Exploratory studies are especially conducted when a lack of knowledge exists in a new area of studying. Therefore, studies which follow this research design often investigate the nature of the phenomenon and problem. Zero-waste was an example of a topic, which was not often addressed within previous research, and therefore lacked an extensive investigation of this phenomenon through engaging with consumers. Moreover, exploratory studies can be associated with an epistemological interpretivist approach (Saunders, 2009) and thus this research design appeared most suitable for the conduction of this study.

### 3.4 PARTICIPANTS

The sample of participants of this study consisted of consumers who fit the definition of a zero-waste consumer. As previously defined, zero-waste consumers are individuals that integrate the Waste Hierarchy, namely *Prevention, Reuse, Recycle, Recover* and *Disposal* (DEFRA, 2011) into their lifestyle and purchase, for instance, groceries, in reusable containers instead of commercial packaging. Due to the highly specified participant profile, the researchers approached the sample through a self-selection convenience sample. With the technique of a non-probability convenience sample (Bryman & Bell, 2011), the researchers were enabled to draw a suitable sample of participants through their framework of accessibility.

The participants of this research were approached through social media groups that comprised the common interest of the zero-waste lifestyle. Consequently, the researchers chose the Facebook groups 'Journey to Zero-Waste' and 'Journey to Zero-Waste in the UK' as well as individuals through

personal networks as their sample. Accordingly, eleven classified zero-waste consumers who showed interest in participating in this study, understood as self-selection, were chosen as participants (Figure 5). Within the sample, the focus lied on the exploration of experiences that accompanied the adaptation of the zero-waste lifestyle. Therefore, this study aspired to receive in-depth knowledge of behavior change and detailed consumer profiles in regard to the zero-waste lifestyle.

Code	Gender	Age	Nationality	Application of all Waste Hierarchy stages	Duration of Living the Zero-Waste Lifestyle
Participant A	Female	24	Finnish	Yes	2 years
Participant B	Female	50	British	Yes	2 years
Participant C	Female	26	British	Yes	2 years
Participant D	Female	36	Scottish	Yes	4 years
Participant E	Female	42	Australian	Yes	3 years
Participant F	Female	24	German	Yes	2-3 years
Participant G	Female	23	German	Yes	2-3 years
Participant H	Female	31	Australian	Yes	6 years
Participant I	Female	33	German	Yes	1 ½ years
Participant J	Female	24	American	Yes	8 months
Participant K	Male	41	British	Yes	1 year

*Figure 5: Participant Overview.*

### 3.5 DATA COLLECTION METHOD

In order to receive precise and detailed results to answer the research questions, the researchers performed eleven in-depth interviews with a duration of 45 to 85 minutes. In-depth interviews are characterized by their highly detailed and rich information and open-ended questions (Faulkner & Trotter, 2017). The interviews were designed according to this approach, which allowed follow-up questions to gather even more specific information, obtain clarification and complete missing

information (Crowther & Lancaster, 2009). This technique was evaluated as most suitable for the aim of this research, as the researchers pursued to obtain information on personal behavior change journeys and motivation that were not influenced by a third party, which could occur through different interview conditions, such as focus group settings (Bryman & Bell, 2011).

The interviews of this study were carried out face-to-face and via Skype conversations. Additionally, due to physical limitations, entailed in the international character of the sample, the researchers focused on individual in-depth interviews. As part of the preparation process, interview questions were structured according to the five stages of the Transtheoretical Model of Change and intrinsic as well as extrinsic motivation. Firstly, the researchers developed an extensive question overview per stage to ensure that all five stages of the model were sufficiently covered. In a second step, all questions were categorized into themes which were supposed to be addressed during interviews, such as daily routines, invested resources, inspiration, social environment or memorable experiences, to name a few. Based on these themes, an abbreviated list of questions emerged, which were based on the content of but not structured according to the order of the five stages. The interview guide, which was used during all interviews can be found in Appendix A.

By means of open-ended questions, researchers aimed to generate extended and detailed responses, without leading participants in a certain direction. Additionally, several spontaneous questions were added in the context of the individual interview and therefore not planned beforehand. The researchers used mobile phones to record the interviews in order to transcribe the responses to a written document right after the conduction. This approach was beneficial to evaluate the responses in the data analysis phase.

The interview method implied direct interaction with individuals on a one-to-one basis and delivered extensive insights into the phenomenon of the zero-waste lifestyle. Moreover, the method of data collection demonstrated a high temporal expenditure which was accompanied by a significant effort of data preparation after the data collection phase. However, this approach delivered the most value to the research objective, as only in-depth interviews provided a profound understanding of the consumer perspective in regard to the zero-waste lifestyle.

### 3.6 DATA ANALYSIS

After the interview phase, the gathered data was transcribed into Microsoft Word and evaluated according to the theoretical framework of this research. In this step, content was analyzed with the help of the five stages of the Transtheoretical Model (DiClemente et al., 1991), namely *Precontemplation, Contemplation, Preparation, Action and Maintenance*. Consequently, the journey of the participants to the adaptation of the zero-waste lifestyle was examined. Answers of the interviews were coded according to each stage of the model, as well as themes, based on topics that were recurrently mentioned by multiple participants and therefore seemed to be most incorporated in the change towards a zero-waste lifestyle. These themes should not be confused with those themes, developed prior to the interview guide, which were solely used for the purpose of developing interview questions. In a next step, relevant outcomes and quotes per stage were filtered according to similarities and differences.

The different behavior change constructs, incorporated in the Transtheoretical Model and presented within the literature review and conceptual framework (Figure 3), were assigned to each of the stages (see Appendix B). In this process, the researchers compared what each stage comprised thematically and opposed it to the different constructs. Those constructs which matched the particular stage closest, were then chosen. While consumers needed to implement all of these constructs while going through the different stages to successfully adapt behavioral change, some of the constructs were more dominant per stage than others. Therefore, the researchers decided to elaborate on the most dominant behavior change constructs for each stage to avoid an overabundance of information. These constructs were usually conceptualized as behavioral and experimental processes, which were incorporated in the behavior change construct '*the strategies and techniques that are determining how individuals modify their thoughts, feelings, and behavior*'. However, this was not further categorized in the findings and discussion since the importance lied in understanding the influence of the constructs itself rather than further dividing them into the two categories. Therefore, this particular behavior change construct was not mentioned within the conceptual framework. The behavior change constructs were partly connected to the main themes which were previously identified for each stage and partly disconnected and therefore added new information to each stage. Furthermore, drivers for behavior, which were represented by intrinsic and extrinsic motives were outlined and assigned to the five stages in order to discover the driving force behind the behavioral change towards the zero-waste lifestyle of the individuals.

## 4. FINDINGS & DISCUSSION

In order to understand the behavior change process participants went through to adapt a zero-waste lifestyle, findings and discussion were presented according to the five stages of the Transtheoretical Model. Since all participants already changed their behavior, the first stages *Precontemplation*, *Contemplation* and *Preparation* were outlined in an abridged manner. The stages *Action* and *Maintenance* were described in more detail since they represented the participants' current state of life. Key themes were identified for all five stages, according to topics which stood out among all interviews. Similarities and differences among participants were displayed to provide a comprehensive overview of the findings. Furthermore, all stages were analyzed according to the *behavior change constructs*, incorporated in the model. Incorporated in the above, *intrinsic* and *extrinsic motivation* were illustrated to outline the driving force behind participants behavior in each stage.

### *Behavior Change Constructs (Prochaska et al., 1992)*

- ***Consciousness raising*** determines the analysis and therefore the learning of new facts, information and tips to gain a deeper understanding of the topic.
- ***Counterconditioning*** is the substitution of the current behavior with alternative behavior.
- ***Dramatic relief*** describes the process the individual undergoes when he or she experiences and expresses his or her feelings and emotions relating to the problem behavior.
- ***Environmental reevaluation*** implies that individuals assess the effects of the problem behavior on their social environment and includes the potential impact of the individual as a role model for others.
- ***Helping relationships*** relates to the process of support, which individuals receive from caring others who they trust.
- ***Reinforcement management*** implies that individuals reward themselves or are being rewarded by others for making changes.
- ***Self-efficacy*** describes the confidence of an individual to perform a behavior despite potential challenges and temptations.
- ***Self-liberation*** involves the choice and commitment to change the problem behavior, including the belief in the ability to change.
- ***Self-reevaluation*** reflects the internal assessment of the individual's own self-image with and without the problem behavior.
- ***Social liberation*** describes the awareness, availability, and acceptance of alternative behavior in society. This occurs through the support of social norms in society and empowers the individual to proceed the behavior change.

- **Stimulus control** means that, by removing cues that trigger relapses and encouraging cues that support progress, the stimulus control aims to receive control over situations.
- **The balance of perceived advantages and disadvantages** means that individuals compare potential gains (pros) and losses (cons) of the intended new behavior.

As mentioned in previous chapters, the behavior change constructs can be understood as influential forces that supported the individual in the behavior change process. Not all of these constructs played a relevant role in each stage of the model, which led the researchers to the clear attribution of significant constructs in each stage. Thereby, the procedure participants went through in a particular stage was compared to each behavior change construct to thematically determine, which constructs were most essential for each stage of the model. This approach was extensively described within chapter 3.6 Data Analysis. Figure 6 shows this conceptual framework anew, including all stages of the model as well as the behavior change constructs.

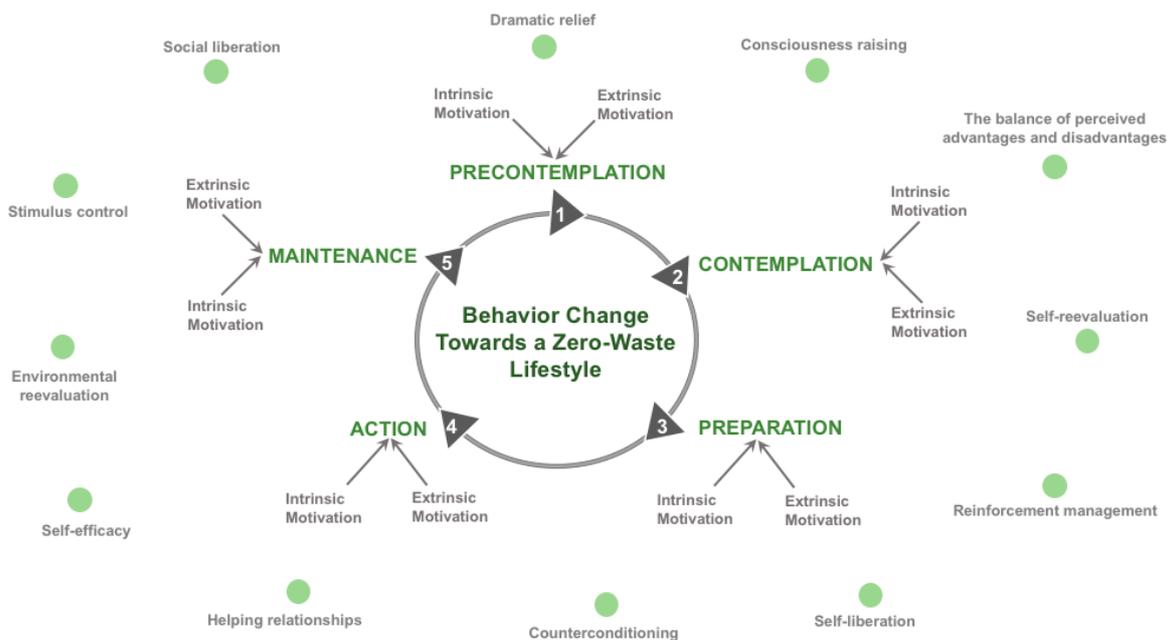


Figure 6: Conceptual Framework.

#### 4.1 PRECONTEMPLATION

According to the model, in the first stage, Precontemplation, individuals had a first encounter with the topic of ethical consumerism and started realizing problems within their lifestyle. At that point, the interest to change was aroused but they did not change their lifestyle yet. Within this stage, particular reoccurring themes could be determined according to responses given by participants, namely *environmental consciousness, type of encounter, role models*. Moreover, *dramatic relief* was the most incorporated behavioral construct and *intrinsic motivation* was found to be present in this stage.

All participants shared the characteristic of being ethically aware or raised with environmental awareness prior to adapting a zero-waste lifestyle. Nevertheless, the degree of being involved in ethical consumption behavior varied. Exemplary, Participant K stated:

*“My family was always quite forwards thinking. My dad is in his 80s now, but he has always been like-minded with me or the other way around. He is very conscious of the environment and the impact we have on the earth and people.”*

While Participant K grew up in an environmentally-conscious family, Participant J on the other hand only implemented minor actions and *“considered [herself] environmentally-friendly because [she] recycled”*. However, only one out of eleven participants was not, to a great extent, environmentally conscious before but merely driven by the urge to save money with a change of lifestyle.

In terms of **environmental consciousness**, participants started to become aware of problems within their current lifestyle in different areas of their life, such as food and fashion choices or their own household. Nevertheless, they shared the common thought of realizing the bad impact of plastic on the environment and how mass consumption harmed ethical choices. Participant F for example outlined:

*“You actually realize what sort of impact and waste you as an individual are producing on a daily basis, regarding purchasing food or clothes or anything. You just kind of realize that with any consumption behavior or consumption decision you make, you start producing waste also.”*

Thereby few participants became conscious of their waste production due to starting their own household, in terms of cooking for themselves, doing groceries and realizing the amounts of trash they were producing and purchasing. The interest to change towards more sustainable actions was aroused. Participant K realized that *“supermarkets are not the places to shop. [...] This sort of built up frustration. The more [he] noticed it the more developed in [his] mind and [he] saw plastic everywhere”*. In that stage, participants strongly felt that their actions had a negative impact on the

environment, but their behavior was incorporated, and effort was needed to change that. This finding was aligned with Kostadinova (2016), who found that increased awareness of the negative effects of consumption led to consumers' willingness to engage in more sustainable ways of consumption. Consumers increasingly show the urge to reduce their environmental footprint and replace unethical consumption choices with more ethical ones (Kostadinova, 2016).

In terms of the **type of encounter** with the topic zero-waste and the realization of the problem, participants often had one or more determining events, which made them question their consumption behavior. Those encounters were different among individuals. Some participants experienced this encounter in an emotional manner, such as Participant C who was frightened by the thought that *“there's going to be more plastic in the ocean than fish by [...] 2020”*, after watching the documentary 'Plastic Ocean'. Participant E, who began her health journey triggered by the illness of her mother in 2013 started questioning the effects of plastics on food and Participant H experienced the harm of plastic on nature personally:

*“I was on a tour seeing dolphins and seals, and there was a seal that had plastic wrapped around it and the owners of the tour actually cut it off and helped the seal. That was the first time I really saw the effects of that.”*

Other participants experienced their first encounter in a more rational way due to, for example, their educational background, such as Participant F who studied Fashion Management and *“realized how severe the impact of that industry is on the environment”*, which was why she changed her shopping behavior and *“already moved into second-hand”*. Participant D had an education in historical archaeology and therefore looked at mass consumption from a philosophical approach. Moreover, other participants stumbled upon the topic zero-waste through browsing for products online which led to researching negative effects of, for instance, plastic straws on the environment or clicking on online posts regarding 'how to be environmentally-conscious and save money'. This led to the realization of issues in their lifestyle at that time:

*Participant E: “I got rid of the nasty chemicals, but I still put the bottles into my recycling and giving me a pat on the back that I was doing the recycling. Then, about two years ago, I saw these things online about people reducing their waste and going plastic-free.”*

The character of encounter, participants had with the zero-waste topic could be explained by means of the behavioral construct **dramatic relief**. This encounter was either emotional or rational and determined the processing of information before entering the next stage. Clore (2014) argued that

those who experienced behavior change in an emotional or more personal manner showed a higher involvement to change compared to individuals who experienced it in a more rational way. However, the outcomes of this research contradict the argument of Clore (2014) and have shown that participants were all passionate about sustainable consumption and zero-waste, due to their high intrinsic motivation, regardless their type of encounter.

Among most participants, it stood out that they started becoming interested in the topics due to **role models** while coming across zero-waste blogs. Those blogs were either well-established ones, such as Lauren Singer's blog 'Trash is for Tossers' and Bea Johnson's blog 'Zero Waste Home' or local bloggers depending on the country of origin. Those bloggers were seen as an inspiration for participants to devote themselves to the topic in more depth. This finding signified the importance of sustainable consumption in the digital age where two-sided communication channels were found to be one of the most relevant sources of information (Pizzutti, Basso & Albornoz, 2016). Bloggers seemed to embody credibility and trustworthiness for participants to acquire knowledge and being inspired.

Different **intrinsic motivators** could be detected among interviewees leading to an increased interest in the zero-waste topic. Participants have partly been raised with a general consciousness about their impact on the environment, which led to a drive to deal with that topic. Moreover, Participant K stated the importance of being a good role model for their own kids and that she "*[does not] want them to grow up in a world that is a mess*".

Besides the family-aspect, participants shared the interest for the environment and value for nature. Participant D, for example, experienced a close connection to nature due to her passion for sailing and observed "*[...] that the animals are disappearing in the last 10 years. A decline in a lot of species like the basking shark, puffins, whales and dolphins*" could be observed over the years. Moreover, Participant F remembered her childhood and that she "*had to recycle and so on*" because her dad "*has always kind of been pledging that we as individuals have such a high impact on the environment and that we have to preserve it*".

With similar realizations in mind, individuals often began to question different aspects of their life and felt an intrinsic motivation to change those. Moreover, concern for their own health played a role in their increased interest for zero-waste, in terms of buying packaged food and the effect on their well-being. Beyond that, "*doing something worthwhile*" was mentioned multiple times by participants as a reason to encounter the topic. Lastly, zero-waste bloggers inspired individuals to question own consumption patterns and become more aware of alternative options. These bloggers were found to have externally triggered participants intrinsic motivation due to the fact that they

provided inspiration which resulted in the drive to deal with zero-waste as a topic. Extrinsic motivators could not be determined in this stage.

The fact that motivation in this stage was solely intrinsic could be related to the extent of which participant's own beliefs regarding sustainable behavior were incorporated over the years and drove their curiosity. This was in line with previous research, stating that intrinsic motivation was connected to goals, which consumers wanted to pursue in life (Sobh & Martin, 2011), in this case, more sustainable consumption. The fact that participants were strongly driven by intrinsic motivation in this stage also reinforced the argument of Oakley, Chen and Nisi (2012), who stated that individuals followed the belief that reaching a desired outcome was controllable by them, rather than by extrinsic motives.

Few obstacles could be detected in this stage as well, mainly related to participants perceiving the zero-waste lifestyle as difficult to implement. They were concerned about ethical consumption choices but did not feel certain enough to manage to go entirely waste-free.

## 4.2 CONTEMPLATION

According to theory, the second stage of the model, Contemplation, involved that consumers showed a higher engagement to change by conducting in-depth research regarding how to possibly change their behavior. They compared the zero-waste lifestyle with their current situation and listed advantages and disadvantages. The main themes of this stages were *role models*, *source of information* and *health* and the most dominant behavioral constructs were: *Consciousness raising*, *self-reevaluation* and *the balance of perceived advantages and disadvantages*. Motivation in this stage was found to be *intrinsic* and *extrinsic*.

Within this stage, **role models** played a more important role compared to the first stage. Participants aspired to engage more in the topic through zero-waste bloggers such as Lauren Singer, Beth Terry or Bea Johnson. Those bloggers were often pointed out as the trigger for participants to engage more in a possible behavior change. These role models supplied interviewees with zero-waste blog posts, videos, books and even documentaries, including suggestions about adapting small changes in people's lives. Exemplary, Participant G remembered that *"it was back in 2015 when it started, and I saw her [Bea Johnson] live two years later in Kiel when she was on a speaking tour and that was super cool and afterwards I was like 'I can do it, it's easy'"*.

Besides those role models, other **sources of information** were part of the in-depth research phase, participants conducted in order to familiarize themselves with the lifestyle and draw comparisons between their current lifestyle. Most common sources of information were social media platforms such as Facebook and YouTube and participants often joined zero-waste Facebook groups to receive feedback, tips and connect with like-minded people. Besides those groups, documentaries about the ocean and plastic were watched. Participant H, for example, watched ‘The War of Waste’, which was filmed in Melbourne, close to her home, which led to the realization that harm to the environment also occurred in her own surrounding.

Role models as well as sources of information can be connected to the behavior change construct **consciousness raising**. Among most participants, zero-waste bloggers, as well as Facebook groups, were seen as the most credible sources in eyes of the interviewees. In line with findings of the first stage, this demonstrated that participants relied on peer-recommendations and perceived those as more trustworthy compared to one-sided communication sources. This could be explained by the importance of interaction, taking place on two-sided communication channels (Pizzutti, Basso & Albornoz, 2016). Participants received feedback, were able to ask questions and even emulated zero-waste bloggers. While the interviewees were more passive within the first stage, they were increasingly engaged in two-sided communication channels within this stage, which also expressed their higher interest in the topic.

Moreover, participants showed skepticism regarding a possible implementation of zero-waste versus acceptance of alternative lifestyle choices, as part of the construct **self-reevaluation**. Hereby, it seemed like participants required more time to deal with the topic, since their knowledge in the area of zero-waste increased. This was in line with previous research; according to Patten, Vollman and Thurston (2000), Prochaska et al. (1992), Prochaska and Velicer (1997) and Velicer et al. (1998), the second stage of the Transtheoretical Model could be prolonged, due to the in-depth analysis, participants conduct in regard to the topic.

Other than that, participants were almost all environmentally conscious and concerned. However, they only realized how many of their actions had an actual negative impact on the environment and their **health** when they started to conduct in-depth research:

*Participant B: “I have used convenience foods and ready meals and so on, but I have not realized how bad plastics are for you – health-wise.”*

Instead of cooking for themselves, some participants often bought packaged ready-meals without having any information on ingredients. Moreover, disposable containers were often seen as more convenient. However, retrospectively, interviewees found out about the negative effects of plastic on health. Participant E added that she *“was always concerned about the environment, being a big nature lover, and after this health journey [she] found that it crossed paths with [her] environmental consciousness”*.

In this stage, the behavior change construct of **the balance of perceived advantages and disadvantages** especially occurred through unfamiliarity with the topic zero-waste. In this phase, it could be detected that disadvantages were often related to participants local environment, which did not facilitate zero-waste to a great extent and long-term advantages through intensively dealing with possible change. Due to zero-waste being a relatively new topic, businesses often did not incorporate waste-free regulations and standards (Glavas, 2016). While Devinney, Auger, et al. (2006) stated that consumers were equally responsible for making ethical purchases, this research found that even though consumers portrayed the willingness to deal with the zero-waste lifestyle, it seemed difficult to start with due to lack of available zero-waste options which were provided by companies (Glavas, 2016).

**Intrinsic motivation** in this stage was facilitated by a strong consciousness of the environmental impact of consumption. Thereby, the mass consumption culture was seen as the exploitation of landscape, resources, animals, individual people and entire communities. Participants started questioning all of the above and shifted their thinking processes from ‘I want this’ to ‘do I really need this?’. They had the urge for self-fulfillment and happiness through making a change and not through material goods.

*Participant D: “We are exploited every day, working long weeks, often underpaid, underappreciated and all that to be happy to have a bigger house, or car, or an outfit, or a perfume, or maybe holiday, or a bigger TV. We allow ourselves to be willingly exploited and turn a blind eye to the layers of exploitation underneath that. We should question all of that!”*

Next to that, Participant G stated to be driven by a general interest in the production of food and again, the interviewees own health was a recurring factor for wanting to make a change in their lives. Beyond, role models were inspiring interviewees to engage in the zero-waste topic more in depth but also own experiences with the matter, such as personally observing events when nature was harmed led to the strong intrinsic motivation for change. Among participants, it was found that role models

were externally triggering intrinsic motivation, in terms of providing interviewees with inspiration which resulted in the drive to face behavior change.

When it came to **extrinsic motivation**, family was a common theme regarding changing lifestyles. This was categorized as extrinsic motivation which was internally triggered since family had a direct motivating impact on participants actions and was therefore part of the behavior change process. Thereby, participants stated that raising own children motivated them to higher engage in the topic zero-waste for the sake of their families:

*Participant D: “At that time [giving birth to first child], I really felt that I did not only had to look after how much I was consuming, but how much we had and consumed as a family. [...] You start also thinking about the world you leave behind for your children.”*

While some participants felt strongly motivated by their children, other interviewees encountered people in their close environment that shared the same path, such as their husband or wife. Moreover, Facebook groups were found to be engaging in terms of sharing opinions and ideas with like-minded people. Participant F, on the other hand, was motivated by actively participating in alternative ways of consumption:

*Participant F: “I started working on an organic farm where I would never have to go to the shop because I could just harvest whatever I wanted and then take it home with me. So, that whole idea of going to the supermarket just died. I did not necessarily have to go to the shop and that was when I realized how easy it is if you are kind of working in that field but also how much better it is.”*

In this stage, extrinsic motivators had a greater impact on participant’s approaches compared to the first stage. This could be attributed to the fact that participants spent more time in terms of thoroughly investigating the topic, which could increase their motivation to be more invested. According to Oakley, Chen and Nisi (2012), this could partly be related to the external motivation category ‘identification’, as described in the literature review. Participants hereby aimed to reach a personal level of achievement, which could be related to the broadening of their expertise in the area of zero-waste.

Since participants were already slightly more engaged in the topic of zero-waste, the money aspect was found to be an obstacle among most participants. Due to extensive research without adapting the

lifestyle, it seemed costlier for individuals at that stage of the behavior change process. Participants felt they had to invest in some non-disposable items which were perceived to be expensive at first.

Other obstacles were related to insufficient zero-waste alternatives, which were available to participants. For example, Participant A mentioned that “*in Finland, it is very hard to find organic food that is not wrapped in plastic*” and that she “*needed to give up and buy the non-organic but plastic-free version*”, which was described as “*annoying*” by the participant. Alternatives were therefore not always a suitable replacement for the original product. Participants struggled with skepticism regarding finding reliable alternatives. Lastly, Participant D mentioned dietary restrictions as a massive obstacle to fully implement zero-waste. Due to allergies, waste-free products in this area were mostly non-existent.

### 4.3 PREPARATION

The Preparation stage comprised that participants established a plan of action and found potential solutions to adapt the zero-waste lifestyle. Thereby, obstacles on their path were minimized and they carefully planned how to become waste-free, for instance by finding alternatives to their current lifestyle. The most relevant themes within this stage were *role models*, *types of lifestyle* and *categories of change*, while *counterconditioning*, *self-liberation* and *social liberation* were the most dominant behavior change constructs. Lastly, different *intrinsic* and *extrinsic motivators* could be detected.

When participants entered this stage, the preparation phase was mainly about clarifying uncertainties and finding the purpose for changing their behavior. Therefore, the entire lifestyle of participants at that point was questioned in regard to what they really needed, what they considered valuable and reasons behind changing their lifestyle. Moreover, in this phase participants revealed their creativity to look for long-term solutions before taking actual action. At this stage also, interviewees drew on tips of their **role models**, the zero-waste bloggers. Those bloggers often provided tutorials in form of blog posts and videos with information regarding replacing non-zero-waste products with waste-free alternatives. At this stage, it was found that participants increasingly engaged with the waste hierarchy (DEFRA, 2011) to implement first changes before entering the next stage.

The majority of participants did not only aspire to change towards a zero-waste lifestyle but most often already followed different **types of lifestyles** prior to zero-waste, such as veganism or minimalism. Exemplary, Participants A, D, G, I and J shifted from mass consumption to minimalism, Participants I and G first implemented a vegan nutrition and Participant H started off with quitting

sugar in 2012. Moreover, lifestyle changes occurred in different areas of their lives. While Participant D stated that “*the more [she] learned about colonialism and textile revolution [...], the more [she] questioned what we are doing right now*”, Participant I lived an anti-capitalistic lifestyle and “*does not want feed into the system so much and [...] buy things all the time*”.

Not only did participants implement diverse lifestyle choices but also varied when it came to the **categories of change**, in regard to zero-waste, such as menstrual products, food items or fashion choices. To prepare for the action stage, participants were looking for alternative packaging such as tote bags or glass jars as well as alternative products, such as replacing shampoo from a bottle with a shampoo bar or regular toothbrushes with bamboo toothbrushes. Moreover, certain items were purchased online, such as metal containers and metal straws. Thereby, all participants were already living a very conscious life and followed their beliefs in terms of how to implement their personal values within their lifestyle. Thus, individuals aimed to combine for instances veganism, minimalism or anti-capitalism with the zero-waste lifestyle, which was accompanied by mixed feelings:

*Participant E: “You do not always find an exact swap, sometimes it is a bit inferior and then there are somethings you find where you are like ‘why is not everybody doing it?’, because it is actually better.”*

Participants prepared to replace current products with zero-waste alternatives, which was not perceived as too difficult. Participant A stated that it was not about giving up certain products but more about alternatives. Participant I made the choice of avoiding stores such as H&M and only bought clothes at second-hand shops. Moreover, individuals started to prepare by looking for supermarket alternatives which facilitated waste-free shopping.

*Participant K: “Supermarkets are very convenient with a family and little time. You can go in and get everything done but I never really liked the idea and wanted to shop more locally. We started going to different shops and taking own bags and packaging. Over the last year, we have really started doing that more and not buy anything that has plastic in it.”*

In terms of the behavior change construct **counterconditioning**, different categories of change seemed to be important for different participants, such as food, fashion or menstrual products. Resulting from this, participants seemed to have started implementing first changes in the areas where they gathered most knowledge in and thus felt able to change their behavior. This signified that participants became increasingly familiar with the topic and gained confidence in pursuing this

lifestyle. Previous literature did not specifically address more sustainable consumption behavior in terms of consumers areas of expertise and thus lacks knowledge in this field.

When it came to the behavior change construct **self-liberation**, the effort of preparation in terms of choice and commitment to change seemed to be low among participants since first changes were easily implemented. As described in the waste hierarchy, reusing and recovering/upcycling are part of the zero-waste lifestyle. Therefore, changes within the category of reusing and recovering/upcycling were perceived as lower in involvement (DEFRA, 2011). More drastic changes, such as finding new stores required higher involvement in the preparation phase.

Looking at **social liberation**, the availability of alternative products was perceived as limited. This again, can be related to zero-waste being a relatively new topic which requires more effort from companies to offer zero-waste alternatives as part of their product range and thus empower consumers to shift from packaged goods to unpacked ones (Glavas, 2016).

Within this stage, **intrinsic motivation** of individuals was driven by the feeling of making a change in their lives. Thereby, role models were a crucial influence on deciding about the areas preparing first changes. **Extrinsic motivation**, on the other hand, was partly connected to people in participants' close environment. Exemplarily, Participant H's partner replaced cleaning and skin care products with hand-made alternatives, which led to the inspiration of the participant to find alternative products as well. Besides, supporting the local community was a recurring factor among interviewees for investing money in local shops rather than supermarket chains.

Within the preparation stage, intrinsic and extrinsic motivators played a role likewise. Involvement in behavior change was higher due to previous research and a higher awareness of the topic. While intrinsic motivation was still influencing participants, extrinsic motivation, such as involving oneself in societal change had risen too. This motivation to affect society could be explained in terms of the extrinsic motivation category 'external regulation', as previously explained within the literature review. Individuals aimed to conduct behavior to satisfy an external demand or receive external rewards (Ryan and Deci, 1985). This indicated that participants seemed more confident in making a change due to higher knowledge in the field and that they followed the end-goal of making change happen for the sake of their external environment.

#### 4.4 ACTION

As part of the fourth stages of the Transtheoretical Model, participants took action to change their former behavior to adapt the aspired zero-waste lifestyle. In that stage, individuals invested a significant amount of time and effort into the realization of the aforementioned intentions. On the other hand, participants received recognition from others due to visible efforts. This recognition was obtained through positive and also negative feedback from others and impacted the individuals' process of behavior change towards the last stage: Maintenance. Central themes in this stage were found to be: *Adaptation of daily actions, empowerment, social engagement, nostalgia, health, money, social recognition, sacrifices*. According to the interpretation of the researchers, main behavior change constructs that influenced the individuals in that stage were: *self-efficacy, environmental reevaluation, helping relationships, counterconditioning, social liberation and reinforcement management*. Lastly, *intrinsic and extrinsic motivators* were illustrated.

Through the **adaptation of daily actions**, all participants incorporated changes in behavior in all areas of their daily procedures, namely personal care, food preparation, grocery shopping, clothes shopping and choice of transportation. In terms of personal care, the majority of participants took action and changed from a plastic toothbrush to a bamboo alternative and all participants used a solid shampoo bar instead of shampoo in plastic bottles. Additionally, as part of their daily actions, participants prepared food in bulk, avoided processed food, prioritized raw ingredients and therefore were found to cook more from scratch, which was supported by the statement of Participant E who said that she “*[...] started cooking more and using the raw ingredients which [she] got unpacked*”. Furthermore, all participants adapted their grocery shopping behavior and purchased products from the supermarket that were unpacked. Exemplary, Participant G stated that she went to a traditional supermarket to selected fruits and vegetables that were unpacked. Also, if accessible, the participants purchased their food at unpacked stores and visited farmers markets. Participant I and F additionally visited a store “*[...] that [rescued] food that else would be thrown away by supermarkets that is over the due date*”. To avoid using plastic alternatives while doing their grocery shopping, participants took reusable containers and reusable bags in different sizes and thicknesses.

Furthermore, participants shifted from fast fashion shops to second-hand and charity shops to purchase their clothes. All interviewees bought less, reused more, and recycled the decreasing amount of waste they had, which was found to be in line with the principle of the dimensions of the waste hierarchy (DEFRA, 2011). Participant D stated that she actively shifted “*[...] from the mentality of a disposable culture to a 'buy once and make it last' thinking*”. Within the process of reducing and

reusing the things they owned, the participants repaired and upcycled old items to find new purposes for them.

*Participant G: “I do that a lot with old clothes because there is a lot of stuff you can make from old clothes – stuff that is ripped or seems too broken to fix it, but you can make maybe bags out of it or stuff for your home. You can make so much with it. Upcycling is great I think, and it is super important to try to repair stuff instead of throwing it away and buy new stuff. You can almost fix anything I believe.”*

As part of their modified routine, participants felt the sense of **empowerment**. They enjoyed preparing the food, reused and upcycled old items. Participant A stated that she “[...] always liked to cook and bake”, and Participant E perceived upcycling as a fun activity that “[...] unleashes your creativity”. Furthermore, participants felt empowered in this lifestyle “[...] to do [their] own things instead of going to a big cooperation to buy things from them” (Participant I).

As shown by the behavior change construct **self-efficacy**, individuals showed confidence in performing the behavior despite potential challenges and temptations (Prochaska et al., 1992). Zero-waste alternatives were researched and adapted through the preparation of food and products, as well as the pre-arrangements of zero-waste utensils whenever the participants estimated that they were needed. Due to intensive preparation, participants avoided the encounter of unfamiliar challenges and temptations, which elevated their sense of self-efficacy. Within the waste hierarchy (DEFRA, 2011), participants particularly applied the dimensions ‘prevention’ and ‘reuse’ and ‘recycle’ to minimize challenging situations which increased their confidence of performing the behavior change.

Furthermore, the participants **socially engaged** by actively communicated in social media online forums and joined local activities to find like-minded people. An example was given by Participant D whose “[...] son also did a little plea on Facebook and asked people to help him saving the ocean and this video got a lot of views and great responses”. Furthermore, Participant A “[...] started blogging because [she] thought it was important to talk about this issue”. This engagement further demonstrates their high intrinsic motivation to take action, which is, in the above-mentioned cases, also supported with extrinsic motivation through positive recognition from others.

All interviewees invested time and effort to realize these actions due to the most significant intention of saving natural resources and preserving the planet. A supporting central theme for the participants was **nostalgia**, looking at “[...] how people in the past left such a limited carbon footprint and were so much gentler with the environment” (Participant D). In that perspective, interviewees found the

most or very little support by their parents and grandparents as visualized by the example of Participant K whose “[...] *family was always quite forwards thinking. [His] dad is in his 80s now, but he has always been like-minded [...] he is very conscious of the environment and the impact we have on the earth and people*”. On the other hand, Participant D stated that her “[...] *husband's and [her] family are both very consumer orientated*”, and therefore were found to be less supportive.

The behavior change construct **environmental reevaluation** demonstrated how participants evaluated themselves in their social environment. In this phase, participants were aware of their function as role models, but were also tremendously influenced by their upbringing. This often determined how individuals in an environmentally-conscious environment were influenced in the development of their personality traits as adults. This finding was supported by the results of a study by Nakao et al. (2000), which analyzed the influence of family environment on personality traits. However, as seen in this study, the upbringing of participants did not always result in conform behavior.

A recurring theme that arose among all interviewees in this stage was the improvement of their **health**. By preparing their own food, they ate healthier and avoided using products on their skin or in the household that had toxins in them. Participant B stated that she “[*felt*] *like eating more healthily*” and that she felt better as she had “*less impact on the environment*”. Supporting that statement, Participant E mentioned that “[...] *the important part of zero-waste is taking care of [her] health but also taking care of the planet's health*”.

An additional factor addressed by Participant C was the visual attractiveness of plastic-free packaged products. According to her she was “[...] *naturally attracted to a product that is in paper anyway, even before [she] was zero-waste [...] [she] cannot understand why companies are still using so much plastic packaging things*”.

Next to the aforementioned themes, money was evaluated as a relevant motive. Participants mentioned that by living this lifestyle, they encountered a beneficial monetary situation. All participants shared the opinion that the zero-waste lifestyle was ultimately cheaper because they bought less but quality products that lasted longer. According to Participant D the zero-waste lifestyle “[...] *is an investment, buying more quality items, but it ends up cheaper*.” This statement was supported by Participant C, who “[*thought*] *it is working out cheaper. [Her] bill has gone down*.”

In contrast to participants that found little support or criticism through people in their social environment, Participant D, E and K were found to have been motivated by **social recognition**. Participant D was motivated by her community that consisted of “[...] *123 people now, sharing*

*recipes, meeting regularly and also bringing back our plastic wrappings to the supermarket together*". Within their social environment, the interviewees were motivated to be a role model for their family, friends and community and took action to set a good example. Participant F, for example, outlined that *"[...] people [she] used to work with and friends of friends, that have approached [her] and said that [she] inspired them to look after how much waste they are producing"*. Furthermore, she indicated that *"it is nice to inspire people"* and that it motivated her to take actions. In other cases, negative feedback from colleagues or the general social environment was perceived as challenging. Participant B reviewed that *"[...] for many years at school [she] [has] been laughed at by [her] colleagues"*. In line with this case, Participant E referred to her colleagues, which were evasive and unwilling to encounter the topic. According to Participant E, it was because they thought that she was weird and felt guilty for not taking action themselves.

*Participant E: "Because when they would ask, and I would tell them more about it, it kind of reflects badly on them."*

Through the behavior change construct **helping relationships**, participants either found support or criticism in their close environment when implementing the new lifestyle. The missing extrinsic support of their social environment, however, did not hinder them to perform the behavior change. The participants deliberately substituted their behavior with the intended zero-waste alternatives by using the behavior change construct of **counterconditioning** and engaged in a bigger social context to a varying degree. It was found that those who enjoyed positive feedback and support from others were more likely to show zero-waste actions outside of their private settings, also supported by the assumptions of previous research on extrinsic motivation (Oakley, Chen, & Nisi, 2012). Although support systems were determined as positive amplification factors, participants only showed little interference through negative feedback. Despite the fact that negative responses can negatively influence the motivation while executing the behavior change (Oakley, Chen, & Nisi, 2012), individuals were found to proceed with their efforts which reflected their strong consciousness and personal urge to change.

Participants of this study mentioned additional **sacrifices** in that stage, influencing their motivation. First, participants needed to invest in items that were often more expensive but lasted longer. Also, interviewees agreed that the preparation of food and time invested in grocery shopping was higher compared to their previous lifestyle. This led to the assumption that intrinsic motivation outweighed external obstacles, resulting in a higher intrinsic motivation. According to Participant A *"there are some parts that are more expensive and take more time."* Also, Participant B mentioned that *"[she] [prepares] a lot which takes time and [cooks] in bulks. You do need to plan it"*.

However, some unpacked fruits and nuts were found to be more expensive and therefore inaccessible for Participant A and C. Participants made compromises towards zero-waste products that were sometimes not as satisfying as the non-zero-waste option, as demonstrated by the experiences of Participant K:

*“We just bought some toothpaste called “truth-paste” and it’s in a metal jar. [...] but it tastes horrible.”*

Additionally, some products like medicine, cosmetics and toilet paper were found to not be available without plastic packaging. Furthermore, some participants faced a shortage of suitable suppliers of unpacked products which required Participant H and J to invest one hour of commuting to do their package-free shopping. Interviewees mentioned the obstacle of taking these efforts in a society and culture that is set up to promote consumption and producing waste. Participant H stated that it felt like *“[...] going against the grain and they might treat you like you are crazy to be doing something like that”*.

Through an open encounter with people that were not familiar with the zero-waste lifestyle, the participants tried to prevent obstacles and challenges that were presented in their environment, belonging to the behavior construct of **social liberation**. Through social liberation, participants made a change to enhance the awareness, availability, and acceptance of the zero-waste lifestyle in society. By changing their behavior, participants empowered the development of zero-waste businesses and, moreover, supported job prospects in that segment. This development of demand was found to be in line with the findings of the Young Entrepreneurs’ study (2016), which reflected the rise of zero-waste shops and the shift of consumption patterns. The rising demand of the participants resulted in the increasing demand of zero-waste products which consequently opened new market segments and facilitated higher awareness, availability and acceptance in society.

Opposing previous behavior change constructs, **reinforcement management** was found to not be applicable in this stage as no visible self-reward was observed. Also, the reward by others was often perceived as a negative force that affected intrinsic and extrinsic motivation. Consequently, researchers proposed the adaptation of the category, to include reward factors to understand the influence of this factor on motivation. Furthermore, the researchers concluded that negative reward by others was the result of their encounter with the first stage of the Transtheoretical Model (DiClemente et al., 1991). Individuals in the social environment of participants, faced the topic through the visible actions of the participants, but showed no interest in changing their own behavior and reacted evasively due to little engagement in their own Precontemplation phase.

Overall, participants in that stage were characterized by a high level of **intrinsic motivation**. Through profound environmental consciousness, participants were motivated to perform actions in order to make a difference in the bigger picture. This intrinsic motivation arose due to individual gratification and satisfaction through personal values, as also addressed in the previous study on ethical consumer motivation by Karsaklian and Fee (2015). Additionally, in line with previous findings, participants were motivated by **extrinsic motivators**, namely money and recognition of others. However, participants were additionally significantly motivated by the prospects of enhancing the development of a zero-waste friendlier environment through the support of zero-waste stores and creating awareness.

#### 4.5 MAINTENANCE

In the fifth and last stage of the Transtheoretical Model, participants sustained their progress and lived the zero-waste lifestyle for more than six months. In that stage, participants fully adapted the lifestyle and developed internalized routines to prevent relapses and maintain the zero-waste behavior (DiClemente et al., 1991). Main themes in that stage were identified as *routines and preparation, business prospects, ongoing improvement, role models, empowerment, health, money and sacrifices*. Additionally, behavior change constructs, identified in that stage were: *Stimulus control, self-efficacy, environmental reevaluation, helping relationships, reinforcement management and social liberation*. Lastly, *intrinsic and extrinsic motivation* was outlined.

All of the interviewees arrived at the last stage of behavior stage and sustained that lifestyle for a time ranging between eight months and six years. Participants changed their mindset and found a routine that resulted in internalized processes. Within that routine, participants found zero-waste products that they liked and sustained purchasing them from their suppliers on a regular basis. Particularly Participant E and F developed a new preference towards weekly grocery shopping at local farmers. According to Participant E, she gained “[...] *that feeling of connectedness, that so many of us have lost*” by directly meeting the people that grow her food every week.

Through **routines and preparation**, individuals established a system that was set up to incorporate the full waste hierarchy (DEFRA, 2011) in their lives. In this stage, participants felt comfortable and happy in their routines and adapted this lifestyle as their own: “*once you get used to it, it just becomes your lifestyle*” (Participant H). The positive outcomes of these routines were demonstrated by Participant E, who felt confident that the zero-waste lifestyle “[...] *has enriched [her] life*”. Within their routines, participants prepared food and took reusable containers, cutlery and water bottles with

them when they left the house. The preparation aspect was highlighted as a central theme of maintaining the zero-waste lifestyle. Next to the preparation, Participant E stated that when going out, she was “[...] *keeping an eye on everything*”, as plastic was easily found everywhere.

Consistent with previous research of the Transtheoretical Model (DiClemente et al., 1991), participants in this stage put intensive efforts in thorough preparation to receive control over situations to minimize cues that would trigger relapses, which belonged to the behavior change construct **stimulus control**. Due to their values, consumers evaluated the need satisfaction of products and services (Bhalerao & Pandey, 2017), and therefore decided on those cues that encouraged their progress.

Participant A, B and K established confidence in their own zero-waste efforts and saw opportunities to further make a difference in the bigger picture by looking at **business prospects** and eventually starting their own business around the zero-waste topic:

*Participant B: “Now I am having much more of an influence on people and that makes me feel really good about myself. I feel like I am making my mark. I was making my mark in my small environment with the children before but now it is a much wider community that I am able to influence hopefully for the good.”*

Next to the rise of new businesses among some participants in that stage, other participants were actively starting petitions to ban straws, plastic receipts or plastic bags. An example of this engagement was given by Participant J, who started a petition against receipts at the supermarket chain ‘Target’ to make receipts optional for consumers and stop the production of unnecessary waste.

A central theme in the maintenance phase was found in the process of **ongoing improvement**. All participants stated that they were still finding areas to improve in, whether that was setting up a business to have an effect on society or to find ways to reduce the decreased amount of waste they produced at that time. According to Participant K, he found “[...] *new things all the time*” to improve upon. Additionally, he “[*decided*] this year [...] *to open a zero-waste shop. The more [he] [looked] into it and the more research [he] [did], the more [he] [saw] what can be done*”.

Participants in that stage were again motivated by the urge of being a **role model** in terms of having a positive impact on the environment and stop the effects that mass consumption of plastic has on the planet. Furthermore, individuals wanted to set a positive example for people in their social environment, particularly their children, aiming to leave behind a better world for them. Therefore,

participants were externally triggered by their social environment to perform the behavior. This theme was shown by Participant K who said that “[...] especially with kids, it is important to lead so they can see it is important, why it is important, and this is what we need to do as a family”.

Participants used the behavior change construct of **self-efficacy** to establish a high threshold to sustain their behavior despite temptations that arose in their social environment. This indicated that, with proceeding stages, participants received more confidence which led to the surpass of their own values and mindsets. As addressed in previous research by Harpine (2015), individuals were still more influenced by their own beliefs rather than external feedback at the time. Additionally, the behavior change construct **environmental reevaluation** increased due to the intrinsic urge to set a good example for their social environment. Within this more extrovert phase participants were highly conscious about their position as potential zero-waste role models in society. This can be transferred to previous studies of Bandura (1997), who stated that participants were driven by their self-confidence and strong consciousness to perform according to their values. Furthermore, with growing confidence in this lifestyle and help of the behavior change construct **helping relationships**, participants were able to transfer their zero-waste efforts from the private environment within their own household to a bigger, and more public sphere, which was found to match the previous results of a study by Karsaklian and Fee (2015). Through visible efforts of the participants, the awareness of their social environment towards the topic increased and they tended to perceive the individual’s behavior as more positive than in the previous phase.

These results functioned as a strong motivator to maintain zero-waste actions and also in this stage, participants felt the joy of **empowerment**. Furthermore, Participant E, H and I mentioned the empowerment within their actions and living according to their values as motivators to maintain the behavior.

*Participant E: “The easiest part is living in alignment with your values and knowing that you are living a life that is not impacting the planet. It is also that feeling of connectedness, that so many of us have lost. I know the names of the people that grow my food, I meet them every week. It is hard to explain. It is not just that connection with the planet but also the community.”*

Furthermore, by maintaining this behavior change, participants increased their **health** and self-consciousness. Generally, participants were found to have a strong consciousness and were able to sustain that lifestyle despite obstacles within that way of living. Participant K indicated that the “[...]”

*zero-waste lifestyle is a bit of a challenge [...]. It is not convenient but at the moment it is conscience over convenience”.*

Participant G mentioned her positive experiences that resulted from behavior change through the avoidance of products that had “[...] *really aggressive, harsh chemicals*” in them, she saw positive effects on her wellbeing, stating that her “[...] *skin got better*”.

The increasingly positive feedback, as well as the positive effect of saving **money** with that lifestyle, was further mentioned in this stage. This theme was particularly visible in the example of Participant C, who stated that this lifestyle helped her “[...] *to save money because it lasts longer*”, especially during the time when she “[...] *was a student and on a tight budget*”.

After they gained confidence in sustaining that lifestyle, participants faced the prospects of opening businesses within the zero-waste environment. With these business ideas, Participant A, B and K supported others in their environment in living this lifestyle.

*Participant K: “I have always wanted to do something worthwhile [...] now I have got that zero-waste shop idea in my head. That is going to be such a massive change for me and for us as a family [...] [it] is really making me excited to work with a lot of different and like-minded people.”*

After receiving negative feedback from others in the previous stage, rewards from others increased within this stage, which could be linked to the behavior change construct of **reinforcement management**. Participants particularly showed activity on a societal level which was determined by the founding of businesses concepts in the areas of zero-waste, triggering the behavior change construct of **social liberation**. Individuals decided on creating their own opportunities instead of only relying on the government and society to provide zero-waste options for them. Sobh and Martin (2011) stated that motivation was connected with the goals that consumers pursue in life, which supported the aforementioned finding. It can be argued that, due to the visible efforts of the participants, new behavior change processes were initiated in their social environment. As stated by DiClemente et al. (1991), individuals showed higher engagement with the problem behavior and were more approachable to the topic.

On the other hand, participants also perceived their role as a pioneer in the lifestyle as a **sacrifice** within the maintenance stage. As shown by the example of Participant A and F, individuals were most often the only ones in their social environment living that lifestyle. Participants evaluated this central

theme as an obstacle in maintenance as it required them to make compromises and sacrifices in their lifestyle. Participant F felt that she “[...] kind of alienate [herself] because [she] [makes] things more difficult for [others]”. Also, Participant A shared the opinion that maintaining this lifestyle “[...] is hard if you go out to restaurants where they usually have packaging” which came with the avoidance of “[...] places where you know that they have a lot [of plastic] and it is difficult to get food without”.

The motivators of this stage can be determined as enhanced **intrinsic** and **extrinsic motivators** of stage four. Participants in the maintenance stage further developed intrinsic motivation due to the internalization of processes and the increased level of confidence with their new lifestyle. Consistent with previous research, participants sustained the behavior change due to personal interest, enjoyment and pleasure (Lai, 2011). Additionally, extrinsic motivators, namely recognition of others and the prospect of opening their own businesses, which connected intrinsic motivation of self-realization within the business with the extrinsic motivator of earning money. By interacting with like-minded people, participants received extrinsic motivation through the recognition of others, which was supported by previous studies on extrinsic motivation by Oakley, Chen and Nisi (2012). Overall, participants in this stage were intrinsically and extrinsically motivated to maintain their behavior, but also engaged to pursue positive influence on their social environment to induce the start of new behavior change processes in their environment towards the zero-waste lifestyle.

## 5. CONCLUSIONS

### 5.1 RESEARCH QUESTIONS

With valuable insights into the behavior change process of zero-waste consumers, generated by this study, the researchers were able to answer the given research questions. The behavior change of participants, incorporated in the first research question: *'How is the consumer journey towards adapting a zero-waste lifestyle encountered?'* was analyzed according to the Transtheoretical Model (DiClemente et al., 1991). Therefore, behavior change towards the zero-waste lifestyle could be categorized into the following five stages: Precontemplation, Contemplation, Preparation, Action and Maintenance. Within these stages, certain behavior change constructs occurred to varying extents. Dramatic relief and consciousness raising were evaluated as crucial behavior change constructs in earlier stages, self-efficacy, helping relationships and stimulus control played a reoccurring and significant role in advanced stages.

In the first stage, Precontemplation, consumers encountered the waste problem in society through a particular situation that was characterized by a varying interplay of emotional and rational motives, which was determined by the behavior change construct of dramatic relief. Overall, participants of this study were determined as environmentally conscious, prior to adapting a zero-waste lifestyle. Even though this mentality showed previous awareness of sustainable consumption, the zero-waste lifestyle was evaluated as a tremendous intensification of these efforts. In the Contemplation stage, consumers showed higher involvement through consciousness raising as well as self-reevaluation and analyzed possible advantages and disadvantages of the zero-waste lifestyle. Within that stage, mainly two-sided communication channels were used as a reliable source of information which was perceived as superior due to higher interaction with like-minded people online. While consumers engaged in in-depth research of zero-waste information, disadvantages of that lifestyle were found in the lack of supply of zero-waste alternatives, which could be attributed to the novelty of the zero-waste movement and the lack of facilitation of companies. The impact of external circumstances was not considered to a great extent to the context of the Transtheoretical Model. This gives new insights into the influence of businesses and governments on the behavior change of individuals, especially in relation to sustainable consumerism. After conducting time-intensive research in the stage of Contemplation, participants proceeded to the phase of Preparation. Dependent on the level of familiarity in expertise as well as educational and social motives, participants showed more confidence in prioritizing the implementation of changes in familiar areas. Categories of the waste hierarchy, namely prevention, reuse, recycle, recover and disposal were taken as a practical framework for the fourth stage of behavior change. With help of the waste hierarchy as a practical

framework in the Action stage, consumers substituted previously consumed products with zero-waste alternatives and invested an intensive amount of time into grocery shopping, the preparation of food and personal care products, the reuse and upcycling as well as the preparation of zero-waste utensils. After sustaining this behavior for more than six months, consumers internalized the routines and adapted the zero-waste lifestyle as their own. Throughout this stage, consumers gained confidence in their actions and increasingly applied their zero-waste efforts on a societal level, which was shown in the behavior change constructs: self-efficacy, reinforcement management, environmental reevaluation and social liberation. Overall, the zero-waste lifestyle was determined as a journey and constant improvement process, in which individuals maintained their behavior change through internalized routines while undergoing a constant process of improvement in their actions. With progressive confidence in the lifestyle, individuals transferred zero-waste efforts to more areas of their life and increasingly impacted their environment. This study has shown that the behavior change towards the zero-waste lifestyle was an ongoing process that can not be determined as an abrupt and sudden change, but rather as a successive transition of all areas of the consumer's life.

Within these stages, reoccurring themes were found. These themes had a tremendous impact on the intrinsic and extrinsic motivation of the individuals during the behavior change towards the zero-waste lifestyle, incorporated in the second research question: '*What are motives that are critical for consumers to adapt a zero-waste lifestyle?*'.

Several intrinsic, as well as extrinsic motivators, which were driving the behavior of participants within different stages of the Transtheoretical Model could be determined. Within the first stage, motivation was solely intrinsic related to participants environmental consciousness, their value for nature, concern about their health, being a role model for others and finding inspiration by external role models, such as zero-waste bloggers. This could be related to the interviewees own beliefs regarding sustainable consumption and a high curiosity to deal with the topic, connected to achieve particular end-goals in life, such as improving their own sustainable consumption behavior. Within the second stage, participants were also driven by a number of intrinsic motivators, namely high interest in the topic, self-fulfillment, happiness, own health and again, external role models. Within this stage, it was especially noticeable that motivation originated through a higher investment in change. This can be attributed to the participants' goal of reaching a personal level of achievement, through broadening their knowledge regarding zero-waste. Next to that, extrinsic motivators, such as their families, people in their close environment who shared the same path and interaction with like-minded people through Facebook groups, played a role within this stage. Overall, participants at that stage claimed that starting off with zero-waste was perceived as quite resource intense since the

familiarity of the topic was missing. Hereby, it became clear that participants were not ready to make the effort of actually changing behavior but needed time to deal with occurring issues in their current lifestyle, which signifies that motivation alone is not sufficient enough to change behavior. In the third stage, intrinsic motivation was indicated by consumers as: making a change and being inspired by zero-waste bloggers, while extrinsic motivation came from participants social environment and supporting the local community. Thereby, extrinsic motivation could be connected to the aim of interviewees to behave according to external demands and to receive external rewards. They felt more enabled to apply changes due to their increased knowledge and higher involvement in the field, which revealed that participants needed to feel secure in terms of gathering relevant information before implementing first changes. Within the fourth stage, a high level of intrinsic motivation could be determined, in terms of nostalgia, own health and empowerment to make a difference in the bigger picture. Motivation arose due to participants upbringing in an environmentally-conscious environment, which influenced their character traits, values and belief that participants have nowadays. Extrinsic motivation was related to money and recognition by others, as well as to make a change in order to actuate change from sides of the government, namely to apply more zero-waste friendly actions. In this stage it became clear that participants gathered confidence in pursuing this new lifestyle and due to successfully implementing changes, they felt reinforced in positively impacting the environment. Thus, it could be said that motivation alone did not change behavior of participants but was a strong force, which drove behavior change. Within the last stage, intrinsic motivators, such as role models, health and empowerment and extrinsic motivation (money) was found to have influenced participants. They were driven by new confidence in their lifestyle and the fact that their implemented actions showed positive results. Invested time was determined as more intensive, however, invested monetary resources have proven to be less resource intensive than previous consumption habits. Although recognition from others was increasing as well, due to a lack of awareness and involvement from their social environment, participants received little positive feedback. Nevertheless, it was especially noticeable that the majority of participants was not as influenced by their external environment as expected. Participants pursued the zero-waste lifestyle despite negative reactions in their environment, which expressed their commitment to change their own behavior. Moreover, observing positive outcomes resulting from own behavior change seemed to be more relevant to adapt the zero-waste lifestyle than external motives.

## 5.2 RECOMMENDATIONS

Derived from the findings and suggestions of participants, the following section provides governmental and managerial recommendations to establish zero-waste strategies in order to create awareness and simplify the positioning of the zero-waste lifestyle in society.

### 5.2.1 GOVERNMENTAL IMPLICATIONS

After receiving in-depth insights into the opinions of zero-waste consumers, it is recommended for the government to create valid regulations that operate as holistic guidelines for both, businesses and consumers. Due to the rising problem of plastic waste, governments are advised to create regulations that are applicable for businesses that offer products in unsustainable materials and packaging to simplify the access for consumers who are looking for zero-waste products. Additionally, due to the novelty of the consumer movement, the availability of waste-free options was evaluated as sparse and alternatives as more expensive than regular packaged products. Therefore, governments are recommended to incentivize sustainable packaging alternatives and support zero-waste businesses to locate in a denser way. With these incentives, consumers purchase in a sustainable manner, leading to a discharge of disposal activities in communities and the creation of new jobs which then again benefits governments (Toronto Environmental Alliance, 2018).

Overall, a central outcome of this study was shown in the importance of consumer awareness. Governments need to educate consumers on this topic to create intrinsic motivation and trigger the Precontemplation phase of consumers, before implementing zero-waste strategies in their communities. In conjunction with consumer and business awareness, regulations that evoke extrinsic motivation, such as preferable monetary positioning, help counteracting the problem of plastic waste on an international and holistic level. With these measures, both businesses and consumers can be influenced to change their behavior.

### 5.2.2 MANAGERIAL IMPLICATIONS

For marketers who are aiming to increase their CSR, the researchers suggest putting emphasis on increasingly sustainable packaging across industries. Participants recognized a lack of waste-free products among various industries and therefore marketers should focus on offering a sufficient amount of either waste-free or alternative and sustainable packaging in stores. This creates new business opportunities as well. New concepts regarding zero-waste make-up or medicine portray

possibilities for marketers to develop innovative products and packaging, compatible with a waste-free lifestyle. Beyond, the market for repair businesses and upcycling models could further expand and meet the demands of the growing target group of consumers who aim to adapt the waste hierarchy in their daily actions.

Results have further shown that participants did not only perceive plastic packaging as critical but also the lack of alternative products. Especially when dealing with zero-waste in the first stages of behavior change, finding alternative products was seen as a main obstacle. Marketers could meet the demand of conscious consumers and make this lifestyle more accessible by placing waste-free products next to regular ones, such as bamboo toothbrushes. Not only does this strategy target consumers who aim to adapt a waste-free lifestyle but further creates awareness among consumers who are currently unaware of alternative products.

Moreover, it was found that issues often emerged in terms of consumers' lack of education regarding negative effects of plastic consumption. Therefore, it is recommended to marketers to increase publicity against waste and plastic usage and develop content marketing strategies, including visual print-outs in stores to educate consumers about plastic usage. Thereby, it is crucial that marketers communicate their actions towards consumers truthfully, instead of using green-washing strategies in order to be perceived as a sustainable company. Ultimately, this deceptive strategy can lead to consumers, developing trust issues against companies. Honest communication and the ambition to change towards more sustainable actions should be promoted rather than dishonest communication strategies.

Outcomes of this study suggest that while participants often had good intentions in changing behavior towards zero-waste, the external environment was often not as cooperative. Accepting that consumers bring their own non-disposable cups or containers should be implemented into the business policies accordingly. It is suggested for businesses to train their employees by incorporating the acceptance of consumers non-disposable containers and cups or optionally offering waste products.

Lastly, in the food sectors especially, findings suggest that the choice should not be made among organic products which are wrapped in plastic versus non-organic plastic-free food. Consumers perceived this as an ethical struggle and businesses should consider offering organic plastic-free food to empower the organic and waste-free market simultaneously.

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### 5.2.3 FUTURE RESEARCH

While a substantial amount of research was previously conducted on sustainability, as well as businesses CSR (e.g. Agarwal, 2013; Connet, 2010; Glavas, 2016; Hendarwan, 2002; Harrison et al., 2005; Strong, 1996; Shaw and Clarke, 1998; Shaw and Clarke, 1999), little research in the field of zero-waste and consumers who fully adapted a zero-waste lifestyle was done. Results of this research serve as a starting point to address the different sectors, onto which consumers apply zero-waste within their daily lives. The Transtheoretical Model used within this research should be further applied to different areas of sustainability or focus on one of the applied sectors, such as food, personal care products or fashion in greater detail.

Moreover, further research could be done in terms of the behavior change constructs, influencing the model and its impact on participants. Exemplary, the construct *reinforcement management* included participants rewarding themselves or being rewarded by others. However, outcomes of this study have shown that participants often did not receive positive assurance but rather experienced negative reinforcement, which was not mentioned in previous theory. Generally, addressing social and environmental obstacles in such a drastic lifestyle change should be investigated in further research studies to understand consumer behavior change in greater depth.

Lastly, considering the topic zero-waste in the 21st century, further research could investigate the impact of the digital environment on zero-waste. With new business concepts such as the Amazon self-service supermarket, often equipped with convenience foods and barcodes on every product (Johnston, 2018), it remains questionable how a waste-free lifestyle would look like in the future.

## 5.3 LIMITATIONS

After conducting the research studies, a number of limitations could be detected. Due to the qualitative nature of the research, outcomes were not representative for all zero-waste consumers and results would possibly differ with a quantitative or mixed method approach. Moreover, due to the limited timeframe and resources, available to the researchers, only a limited number of eleven participants could be approached for in-depth interviews. Due to the international sample, direct personal interaction was only possible in one case, and the remaining interviews were conducted via Skype. When it came to the social environment of participants, it was not possible to assess the degree of influence, participants had on their social environment and whether they initiated the behavior change process of others. Additionally, based on the outcomes of this study, each stage was analyzed

with the means of the most relevant behavior change constructs, which were attributed according to the subjective interpretations of the researchers. Consequently, behavior change constructs which occurred to a smaller degree were not included in the analysis of each stage.

Besides limitations of the method, thematic limitations occurred as well. Due to the novelty of the topic, this study took into consideration various themes and therefore, in depth results regarding a specific sector were lacking. Instead of focusing on concrete industries, such as food, cosmetics or the personal care industry, all sectors were addressed limitedly. Lastly, no detailed information on specific usage of zero-waste products or cycles of purchases was retrieved.

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**A) Interview Guide**

1. How long do you live the zero-waste lifestyle and why did you start?  
(PC), (C), (M), (IM), (EM)
2. Why is zero-waste such an important topic for you?  
(IM), (EM)
3. Does anyone from your family or friends live a zero-waste lifestyle?  
(EM)
4. Who is your biggest inspiration? Did you do a lot of research before you adopted the lifestyle?  
(C), (P), (IM)
5. Could you describe a normal day with your routines?  
(A), (M)
6. Can you elaborate on your grocery shopping routine?  
(A), (M)
7. What is the easiest and most difficult aspect of living a zero-waste lifestyle?  
(A), (M), (IM), (EM)
8. Do you reuse and upcycle a lot of things?  
(A), (M)
9. Can you elaborate a bit on the time and money aspect? Do you need to invest more now than you did before?  
(EM)
10. What were the reactions of your family and friends when you went zero-waste?  
(EM) influences (IM)
11. How do you handle zero-waste in special situations like going to restaurants or travelling?  
(M), (IM), (EM)
12. What annoys you the most when you look at your environment of shops etc.?  
(M), (IM), (EM)
13. How would you compare your current lifestyle with your behavior before zero-waste? What changed the most for you?  
(M), (IM), (EM)
14. What are your most memorable memories that you had just because of zero-waste?  
(IM), (EM)
15. Is there anything you would want the government or businesses to change to make that lifestyle easier for consumers?  
(EM)
16. Do you have any tips for people that want to change to a zero-waste lifestyle?  
(C), (P), (A), (IM), (EM)

**Interview Structure According to the Theoretical Framework:**

This interview guide was structured and analyzed with the help of the Conceptual Framework which include the theories of:

## The Transtheoretical Model:

- Precontemplation (PC)
- Contemplation (C)
- Preparation (P)
- Action (A)
- Maintenance (M)

## Motivation:

- Intrinsic Motivation (IM)
- Extrinsic Motivation (EM)

## B) Overview Structure Analysis

Stages	Characteristics of that Stage According to DiClemente et al. (1991)	Key Themes Derived from Interviews	Motivation: <i>Intrinsic</i> <i>Extrinsic</i>	Main Behavioral Constructs
<b>Precontemplation</b>	Encounter of topic/first contact; Realization of problems; Arousing of interest but no intention to change behavior	Environmental consciousness; Type of encounter; Role models	Intrinsic	Dramatic relief
<b>Contemplation</b>	Higher engagement; In depth research; Comparison of lifestyle change with current situation; Listing of advantages and disadvantages	Role models; Source of information; Health	Intrinsic; Extrinsic	Consciousness raising; Self-reevaluation
<b>Preparation</b>	Establishment of a plan of action; Potential solutions to adapt aspired behavior; Obstacles to change behavior are minimized/eliminated; Planning how behavior change can be achieved	Role models; Types of lifestyle; Categories of change	Intrinsic; Extrinsic	Counterconditioning; Self-liberation; Social liberation
<b>Action</b>	Active behavior change to adapt aspired behavior; High invested resources; Recognition of others due to visible effort	Adaptation of daily actions; Social engagement; Nostalgia; Social recognition; Health; Empowerment; Money; Sacrifices	Intrinsic; Extrinsic	Self-efficacy; Counterconditioning; Environmental reevaluation; Helping relationships; Reinforcement management; Social liberation
<b>Maintenance</b>	Maintenance of aspired behavior for more than 6 months; Prevention of relapses through internalized routines	Routines and preparation; Business prospects; Ongoing improvement; Role models; Health; Empowerment; Money; Sacrifices	Intrinsic; Extrinsic	Self-efficacy; Helping relationships; Reinforcement management; Stimulus control; Environmental reevaluation; Social liberation