

# Master Thesis

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## Addressing the gap between millennials' attitude and behavior towards sustainable packaging in the Dutch FMCG industry

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**Title:**

Addressing the gap between millennials' attitude and behavior towards sustainable packaging in the Dutch FMCG industry

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**Abstract**

This dissertation investigated why Dutch millennials have a positive attitude towards sustainable packaging and whether this resulted into the purchase of sustainably packaged products in the FMCG industry. Data was collected by the use of a survey among 115 Dutch millennials. With the use of moderation variables (price, packaging quality, availability, recognition and perceived consumer effectiveness), certain interaction effects could be measured that influence purchasing decisions. Results showed that a positive attitude towards sustainable packaging results in a higher probability of purchasing sustainably packaged products. Furthermore, it was found that millennials are willing to pay extra for sustainable packaging. Also, more knowledge on how to recognize sustainably packaged products increases the likelihood of purchasing them.

**Keywords**

Sustainable packaging \* Green purchasing \* Consumer behavior \* Generation Y \* FMCG industry \* The Netherlands \* Intention-behavior gap

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# Table of contents

<b>1. Introduction &amp; problematization .....</b>	<b>7</b>
1.1 Background .....	7
1.2 Research context .....	7
1.3 Problem discussion.....	9
1.4 The research goal & purpose.....	12
1.4.1 Research purpose.....	12
1.5 Research question.....	12
1.6 Research outline .....	13
<b>2. Theoretical Framework .....</b>	<b>14</b>
2.1 Millennials as consumers .....	15
2.2 Role of packaging in the buying decision process .....	15
2.2.1 Sustainable packaging .....	16
2.3 The MAO model .....	18
2.3.1 Motivation .....	19
2.3.2 Ability.....	19
2.3.3 Opportunity .....	20
2.3.4 Discussion MAO model.....	21
2.4 Factors influencing the green attitude - behavior gap .....	23
2.4.1 The individual factors.....	23
2.4.2 The situational factors .....	24
2.5 Development hypotheses & conceptual research model.....	25
2.5.1 Motivation .....	26
2.5.2 Ability.....	26
2.5.3 Opportunity .....	28
2.6 Conceptual research model .....	31
<b>3. Scientific &amp; Empirical Method .....</b>	<b>33</b>
3.1 Research approach.....	33
3.2 Choice of methodology .....	33
3.3 Choice and critique of theory .....	34
3.4 Critique of sources .....	35
3.5 Time horizon .....	37
3.6 Research strategy.....	37
3.7 Data collection.....	38
3.7.1 Sampling technique .....	38
3.7.2 Critique sampling technique.....	39
3.7.3 Sample selection.....	40
3.8 Operationalization .....	41

3.8.1 Control variables .....	41
3.8.2 Independent variable .....	42
3.8.3 Dependent variable.....	43
3.8.4 Moderator variables.....	44
3.9 Data analysis .....	48
3.10 Validity & Reliability .....	49
3.11 Ethical Considerations.....	51
<b>4. Results &amp; Analysis.....</b>	<b>52</b>
4.1 Univariate analysis .....	52
4.1.1 Sample information .....	52
4.1.2 Independent variable .....	54
4.1.3 Dependent variable.....	55
4.1.4 Moderator variables.....	55
4.1.5 Kolmogorov-Smirnov .....	56
4.2 Bivariate Analysis .....	57
4.2.1 Spearman correlation matrix .....	58
4.3 Multivariate Analysis .....	58
4.4 Hypotheses .....	61
<b>5. Discussion.....</b>	<b>63</b>
5.1 Motivation .....	63
5.1.1 Intention to buy sustainable packaging .....	63
5.2 Ability.....	63
5.2.1 Perceived consumer effectiveness (PCE).....	63
5.2.2 Recognition .....	64
5.3 Opportunity .....	65
5.3.1 Price.....	65
5.3.2 Availability.....	65
5.3.3 Packaging quality .....	66
6.1 Theoretical and practical contributions .....	68
6.2 Limitations .....	68
6.3 Further research.....	69
<b>Reference List .....</b>	<b>70</b>
<b>Appendix .....</b>	<b>78</b>
1. Intro questionnaire.....	78
2. Survey questions .....	79
3. Variance variable components .....	82
3. Moderation effect .....	83

## **List of Figures**

<b>Figure 1.</b> MAO model (Olander & Thøgersen, 1995) .....	P. 21
<b>Figure 2.</b> Conceptual research model .....	P. 31
<b>Figure 3.</b> Moderation effect (Recognition).....	P. 83

## **List of Tables**

<b>Table 1.</b> Definitions of sustainable packaging .....	P. 17
<b>Table 2.</b> Individual factors that influence purchasing behavior .....	P. 23-24
<b>Table 3.</b> Situational factors that influence green purchasing behavior .....	P. 24-25
<b>Table 4.</b> Definitions of the journal ratings according to the ABS ranking system (Academic Journal Guide, 2018) .....	P. 35
<b>Table 5.</b> Rating this dissertation journals through the ABS ranking system (ABS, 2018) .....	P. 36
<b>Table 6.</b> Frequency table sample group .....	P. 52
<b>Table 7.</b> Frequency table birth year .....	P. 53
<b>Table 8.</b> Descriptive statistics of variables .....	P. 54
<b>Table 9.</b> Kolmogorov Smirnov Test for variables .....	P. 56
<b>Table 10.</b> Spearman correlation matrix .....	P. 57
<b>Table 11.</b> Multiple regression analysis .....	P. 58-59
<b>Table 12.</b> Survey questions per variable .....	P. 76-78
<b>Table 13.</b> Factor Component Analysis (IV & DV) .....	P. 79

# **1. Introduction & problematization**

*This chapter starts with general information about the topic, followed by the research context and problematization. Thereafter, the goal and purpose are presented and followed by the main research question. Lastly, the outline of this dissertation is shown.*

## **1.1 Background**

It has been announced that the majority of climate scientists (97%) agree that if humans do not change their production and consumption, that in the future, due to climate changes (also known as environmental changes), the environment and the economy will be harmed (Klein, 2014; Blowfield, 2013). Since the impact of consumers' ecological footprint mostly stems from their fast-moving consumer goods (FMCG) (i.e. goods that are sold quickly with high demands and an affordable price) consumption, environmentally friendly packaging will be a good step forward to achieve more sustainable lifestyles (Ketelsen, Janssen, & Hamm, 2020). Especially with a fast-growing population, predicted to reach nine billion by 2050, the demands for FMCG products will increase rapidly (Blowfield, 2013). As a result, there will be more packaging waste in the future. Therefore, a transition from unsustainable to sustainable packaging is needed, which raises new challenges for government authorities and food manufacturers. However, consumers' awareness and responses to sustainable packaging are not yet well understood. There are a broad range of heterogeneous factors (e.g. logo, packaging, product quality) that are influencing the purchasing behavior of consumers and it is unclear how these factors are interrelated (Popovic, Bossink, van der Sijde & Fong, 2020; Ketelsen et al., 2020).

## **1.2 Research context**

In the Netherlands, developments around sustainability issues are placed on top of the agenda. As a result, the country was one of the first that introduced a circular economy programme in 2014. In 2016, this incentive was followed by another programme called: 'A circular economy in the Netherlands by 2050', with an outlined vision to have a future-proof sustainable and circular economy for the population and forthcoming generations (Government of the Netherlands, 2016). However, after the establishment of this programme, the majority of its inhabitants (81%) are still worried about the negative impact of plastic products on the environment (European Commission, 2019). In 2019, the Dutch minister of environment, Stientje van Velthoven, made a deal with 70 companies and environmental organizations called the 'plastic pact' (Government of the Netherlands, 2019). With the introduction of the plastic

pact, the entire food chain is taking steps to collaborate against the waste flow of plastics from packaging. In this pact, parties have committed to significantly reduce their plastics in the production process and improve their recyclability. For the entire FMCG chain, this means a prominent transition from unsustainable towards more sustainable packaging, for the next five years. This shows that in the Netherlands, major pro-sustainable steps are under development. For example, the regulations regarding the usage of other raw materials in packaging than plastic can lead to an emission reduction of 28 percent and a reduction of street litter by 70 to 90 percent (Government of the Netherlands, 2018).

The Dutch government motivates manufacturers to produce better recyclable packaging, by giving them a financial reward and by surcharging manufactures that produce poorly recyclable packaging (Government of the Netherlands, 2018). As a consequence, there is arguably a greater willingness among manufacturers to comply with sustainable packaging solutions in the near future. However, despite this transition, it is still the consumer that has to choose for environmentally friendly packaging and not for products that are packed in material that can be considered as harmful for the environment. As a consequence, consumers can have a serious impact on ‘green growth’ by purchasing sustainable products (OECD, 2016).

Another forceful measure that is taken into account in the FMCG industry in order to reduce packaging waste, is removing packaging from products. An example is removing packaging from products that come in large quantities (i.e. bulk goods), such as nuts. However, in some cases removing packaging is detrimental to the environment (Wageningen University & Research, n.d.). An example of this is the shrink-wrapped cucumber, which due to its packaging, has a much longer shelf life. Therefore, entirely removing packaging from the food supply chain can have a negative impact, because the impact of food waste is much higher than the usage of packaging.

It should be noted that in the research context of this dissertation, when products or goods are mentioned, that these are products or goods with packaging. It is always explained whether this packaging is sustainable or unsustainable. Products without packaging are not used in the research context of this dissertation.



### **1.3 Problem discussion**

Popovic et al. (2020) have acknowledged that consumers gained greater social attention and a favorable attitude regarding sustainable packaging compared to three decades ago. For instance, at the beginning of the sustainability era, which mostly stems from the early 1990s, research estimated consumers' willingness to purchase sustainable packaging at around 13 percent (Popovic et al., 2020). Moreover, A study conducted in Germany showed that between 2001 and 2010 there had been a significant increase in sustainable awareness among people below 30 years old and people between 60 and 69 years old. This development is mainly due to the increased attention towards climate change in mass media. For example, between 2001 and 2010, newspapers have more than tripled their articles about climate change, followed by an increase of governmental instructions towards the people on how to act environmentally friendly (Otto & Kaiser, 2014). Also, another study executed in the United Kingdom by Diamantopoulos, Schlegelmilch, Sinkovics and Bohlen (2003), presents similar outcomes, which brings forward that because of the increasing attention in the media and politics, climate concern has become a socially accepted norm. As a result, people have become more educated about green issues over the years and overall have developed a green attitude.

With the rise of global green awareness, the majority of consumers seem to act differently in their purchasing intentions towards sustainable packaging. For instance, Popovic et al. (2020) recently conducted a study with respondents from eleven different countries (i.e. USA, UK, Germany, Brazil, China, France, South Africa, Russia, Japan, Turkey and India) and showed that 73 percent of the FMCG consumers respondents highlighted that they would be willing to pay more for products that are sustainably packaged. Van Birgelen, Semeijn and Keicher (2009) and Lindh, Olsson and Williams (2015) found comparable results. Research exploited in Germany showed that 67 percent of the respondents, which were FMCG consumers, were willing to pay price premiums for environmentally friendly packaging (van Birgelen, Semeijn & Keicher, 2009), and 86 percent in Sweden (Lindh et al., 2015).

Popovic et al. (2020) stated that consumers are becoming more aware of the benefits of sustainable packaging and that environmentally friendly packed products are not just something for the more educated, higher class of society. As a consequence, there is a significant increase in willingness among FMCG consumers to purchase pro-environmental packaged products compared to products that are packed in standard material. In contradiction, Young, (2010) and Ketelsen et al. (2020) describe in their study that consumers are prioritizing other product

features such as functionality, quality and price over sustainable packaging. Interestingly, Ketelsen et al. (2020) and Popovic, Bossink and Sijde (2019), who both executed a literature review, found that almost all the studies solely measure the willingness to pay for environmentally friendly packaged products. This means that relationships between different product attributes (e.g. convenience, taste, price) were not measured, while these are also influential factors in purchasing decisions. Building on these findings and on the fact that, as stated before, consumers can have a serious impact on ‘green growth’ by purchasing sustainable products, we want to investigate whether there is a relationship between consumers’ pro-environmental attitude and the different product attributes among which environmental-friendly packaging. This could help explain why consumers behave in the way they do in their purchasing decisions towards packaged FMCG products that are less harmful to the environment.

Since 2000, only two studies were published in the Netherlands with regards to sustainable packaging and consumers’ purchasing decisions in the FMCG sector (Steenis, Herpen, Lans, Ligthart & Trijp, 2017; Magnier & Schoorman, 2017). Steenis et al. (2017), made a comparison between consumer judgements and life cycle assessments and found that consumers are relying on inaccurate and misleading beliefs for the judgement of sustainable packaging and therefore are not always able to make environmentally friendly choices. Moreover, the findings of his paper show that altering sustainable materials in packaging not solely affects the sustainable perception of consumers but also has an influence on other factors such as quality and taste. The study of Magnier and Schoorman (2017), tested how style elements (i.e. materials and colour) affects the perception of sustainable packaging, and also evaluated how green claims on the packaging was perceived. They found that displaying green claims on the packaging has a positive effect on the credibility towards sustainable perceptions, which was even higher in combination with fibre-based packaging material. It is noteworthy that this topic has not received much attention in the Netherlands, while in the Dutch FMCG industry there is, as explained before, a transition going on towards sustainable packaging. Another aspect that grasped our attention is that none of the studies about sustainable packaging and consumers’ purchasing behavior in the Netherlands used millennials (also known as Generation Y) as a sample group, although this generation can be seen as the ‘green generation’ with, in general, a greater green purchasing intention (Naderi & Steenburg, 2018; Nielsen, 2015).

Millennials, born between 1982 and 2000, are the largest demographic group that has grown up in a world with increasing attention for climate change and sustainability (US Census Bureau, 2015; Nielsen, 2015; Price, 2018). As a consequence, this generation is arguably the most concerned when it comes to social issues and environmental sustainability (Naderi & Steenburg, 2018). A global study from Nielsen (2015) revealed that nearly 75 percent of the millennials were willing to pay a higher price for brands that are associated with a positive social and environmentally friendly positioning, compared to baby boomers (age, 50-64) with only 51 percent. Another study from Nielsen (2019), which was conducted with Dutch FMCG consumers, has revealed that the majority of the Dutch millennial generation expect pro-environmental actions from companies. More specifically, Nielsen (2019) explained that 85% of the Dutch millennials find it of the greatest importance that companies implement pro-environmental programs. Based on this, it seems that millennials are very conscious about the importance of treating the environment well. Therefore, one can wonder whether social consciousness affects millennials' buying behavior towards sustainable packaging.

According to Naderi and Steenburg (2018) and Nielsen (2015; 2019), overall millennials have a green attitude, but not necessarily green behavior. As explained by Naderi and Steenbrug (2018), due to social consciousness, millennials are extensively developed in their worldview when it comes to sustainability, with a significant pro-sustainable attitude. However, in practice, this sustainable attitude does not translate itself into sustainable choices. Coskun and Özbük (2019) pointed out in their research that millennials are less likely to act in green behavior, even though they are sensitive to environmental problems. The popularity in green purchasing research has increased in the past decade, with different theoretical approaches to explain green behavior (Joshi & Rahman, 2017). Especially the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) are most commonly applied to predict consumers' green buying behavior of environmentally friendly packaging. Despite the popularity of these theories it can be argued that those two models serve some limitations by explaining the attitude-behavior relationship of consumers (Joshi & Rahman, 2015; Popovic et al., 2020). As a result, scholars in the research field of environmentally friendly packaging have called for further research to clarify the discrepancy between green attitude and actual green purchasing behavior by going beyond Ajzen's TPB (Popovic et al., 2019; Popovic et al., 2020).

## **1.4 The research goal & purpose**

We have found that there is a limited amount of recent studies in the Netherlands (two in total) with regards to sustainable packaging and consumers' purchasing decisions in the FMCG sector. Those two studies were written by Steenis, Herpen, Lans, Ligthart and Trijp (2017) and Magnier and Schoorman (2017). Moreover, when looking at research by Steenis et al. (2017) and Magnier and Schoorman (2017), none of them include millennials as a sample group, while this group is described as the 'green generation' with a significant pro-sustainable attitude. Due to the transition in the Dutch FMCG industry towards sustainable packaging (e.g. the plastic pact of 2019), it can be argued that it seems relevant to conduct further research on consumers' purchasing decisions related to sustainable packaging in the Dutch market. Based on the problematization of this dissertation, we assume that exploring millennials' purchasing behavior towards sustainable packaging in this market can be valuable. We argue that research shows a gap between thinking positively about sustainability and putting this into practice in day to day life decisions. This gap is coherent with the studies of Ketelsen et al., (2020), Popovic et al., (2019) and Popovic et al., (2020), in which they explain that further research towards clarifying the inconsistencies between consumers' green attitude and behavior is needed. Therefore, the goal of this study is to address the gap between millennials' pro-sustainable attitude and green purchasing behavior, which led us to the purpose described in the next section.

### **1.4.1 Research purpose**

The purpose of this dissertation is to examine why millennials do or do not purchase FMCG products with sustainable packaging.

## **1.5 Research question**

Based on the above-mentioned purpose and goal of this study, we propose the following main research question:

***“Why do millennials have a positive attitude towards sustainable packaging, but do not show this in their purchasing behavior?”***

## **1.6 Research outline**

### Chapter 1. Introduction & Problematization

In this chapter, the topic of the research paper is discussed, followed by a presentation of the problem, purpose and research question.

### Chapter 2. Theoretical Framework

In this chapter, a discussion of theoretical approaches is shown. Mainly the MOA-model was prominent for the foundation of this research.

### Chapter 3. Methodology

In this chapter, the scientific and empirical methods are shown, including choice of method, choice and critique of theory, the critique of sources, time horizon, research strategy, data collection, sample selection, operationalization, data analysis, reliability and validity and ethical considerations.

### Chapter 4. Results & Analysis

In this chapter, the results from the univariate, bivariate and multivariate analysis are shown in order to draw a conclusion. Here a description is provided of the statistical tests performed with SPSS, including descriptive statistics, correlations and a multiple regression conducted through PROCESS v 3.5 macro plug-in. To conclude the chapter, support or non-support is allocated to the developed hypotheses of this dissertation.

### Chapter 5. Discussion and Conclusion

In this chapter, an overarching discussion is provided of the analyzed data in comparison with previous literature. Based on the highlighted discussion, conclusions are reported.

### Chapter 6. Limitations and Future Research

In this chapter, the limitations of this research will be presented, followed by future research topics.

## 2. Theoretical Framework

*In this chapter, main theories in relation to our purpose and main research question are presented. The chapter is structured as follows: first we describe millennials as consumers by comparing them to previous generations (baby boomers generation and generation X). Thereafter, we explain the role of packaging in the buying decision process, followed by a description of the term 'sustainable packaging'.*

*Further on, we describe the Motivation-Ability-Opportunity (MAO) model, by dividing and explaining the models' three components, followed by a discussion and how the model is intended to be used.*

*Next, we start with describing all the individual and situational factors that can influence the green attitude - behavior gap. Thereafter, we make a selection of factors that we use to formulate our hypotheses. These factors are: (1) perceived consumer effectiveness; (2) recognition of environmentally friendly packaging; (3) price; (4) availability; (5) packaging quality. Lastly, we present a modified MOA-model that is in accordance with our research purpose and question.*

*It needs to be mentioned that throughout the chapter we will use the concepts consumers and millennials interchangeably. When consumers are referred to, then this means consumers in general. On the contrary, when millennials are mentioned it refers only to millennials as a consumer group.*

## **2.1 Millennials as consumers**

In chapter one, millennials' attitude and behavior towards sustainability has been explained. In this section, millennials as consumers are further described by comparing them with previous generations. This content adds up to the information that was already provided in the problematization, in order to give a clear understanding of the millennial generation as consumers.

A resemblance of millennials and previous generations about sustainable purchasing, is that they value accessibility, affordable prices and quality of green products in general. However, green products are often perceived as costly and inconvenient. Among millennials this phenomenon creates a negative perception towards green products even though millennials in general possess a pro-environmental attitude (Naderi & Steenburg, 2018).

A difference between millennials and previous generations is that in terms of income and possession of assets, millennials are less wealthy than previous generations, such as the baby boomers generation (1946-1964) and Generation X (1965-1980), when they were in the same age category. In terms of debt, millennials are similar to Generation X and have bigger debts than the baby boomers. This is due to the fact that many millennials are stuck with high student debts when they leave their educational institute and also got financially damaged during the financial crisis of 2007-2008. As a result, the average millennial has less buying power than previous generations (Hoolachan & Mckee, 2018; Kurz, Li & Vine, 2019). Because of this, many millennials overthink the balance between price and value before making a purchase (Naderi & Steenburg, 2018). Since sustainable packaging is often more expensive than traditional packaging, millennials' buying power and bad memories of the financial crisis ought to be taken into consideration (Popovic et al., 2019).

## **2.2 Role of packaging in the buying decision process**

Packaging is the most influential marketing tool that can be used for influencing the purchasing behavior of consumers at a point of sale. Among many different options that consumers have to choose from, can packaging with its various functions be the driver to cut through the communication noise of other products (Agariya, Johari, Sharma, Chandraul, & Singh, 2012)? According to Kapoor and Kumar (2019), packaging can be divided into three main functions, which are: (1) commercial functions (i.e. identification, positioning, communication and

differentiation); (2) physical functions (i.e. container convenience, protection, ease of transportation and the availability to store the content) and (3) social functions (i.e. minimizing pollution and encouraging recycling). Together, the package design represents functional as well as emotional elements, which expresses the quality and brand value of a particular product (Binninger, 2015).

The commercial function inhabits many communication functions, among which communicating a brand's identity, its logo, images and an explanation of the product it entails. For example, packages that possess many green colors are seen as environmentally friendly and can therefore attract green consumers, due to its ability to provoke an emotional reaction (e.g. sympathize with the environment). The appearance of a product helps the customer in categorizing a product. Images, colors, package material and logo help a customer in evaluating a product (i.e. qualifying a product) (Binninger, 2015). Physical functions are the more practical components of a product (Binninger, 2015). The shape, the size, the material and also the design, such as colors, are conceived as important functionalities and are influential in the consumer's buying decision process (Hao et al., 2019; Lindh et al., 2020; Binninger, 2015). The social functions of packaging are perceived to be important. Social functions can consist of texts or images that indicate the health benefits of a product, or that it is biological or eco-friendly. The social functions are important because they reassure the consumer that the product has certain social benefits. The social functions are related to the commercial function, because when a products' social components are displayed through text or images on the packaging (visualized), then it can increase favorable attitudes towards the brand (Binninger, 2015).

Describing the three functions seem to be valuable for this dissertation because they give a better understanding of the goal and usability of packaging. This dissertation intends to describe the gap between green attitude and behavior towards sustainable packaging in the FMCG industry, and therefore it is important to understand that packaging can influence attitude and perhaps also behavior.

### **2.2.1 Sustainable packaging**

Due to the increasing green trend that is being portrayed in the FMCG industry, manufactures are complying more often with sustainable packaging solutions (Atkinson, 2014). The term 'sustainable packaging' has evolved over time and entails only two definitions, because of its



complexity and multitude of criteria (Kozik, 2020). Most scholars that are trying to explain ‘sustainable packaging’ refer to one of those two definitions developed by non-profit organizations. In 2002, a first definition of sustainable packaging was developed by the Sustainable Packaging Alliance (SPA) in Australia, with four different packaging principles (i.e. effective, efficient, cyclic and clean). This was followed by a second definition that was introduced in 2005 by the Sustainable Packaging Coalition (SPC) in the USA and extended the definition of SPA with a connection to renewable energy. Both definitions are displayed in Table 1.

Table 1. *Definitions of sustainable packaging*

Origin definition	Definition of Sustainable Packaging
First def. Australia (SPA) in 2002	<ol style="list-style-type: none"> <li>1. <i>Effective</i>: economic and social benefits;</li> <li>2. <i>Efficient</i>: efficient use of product materials, energy and water;</li> <li>3. <i>Cyclic</i>: being reusable, recyclable, returnable and biodegradable;</li> <li>4. <i>Clean</i>: less or non- polluting and overall not toxic.</li> </ol>
Second def. USA (SPC) in 2005	<ol style="list-style-type: none"> <li>1. It is beneficial, safe and healthy for individuals and communities throughout its life cycle;</li> <li>2. Meets market criteria for performance and cost;</li> <li>3. Is sourced, manufactured, transported, and recycled using renewable energy;</li> <li>4. Optimizes the use of renewable or recycled source materials;</li> <li>5. Is manufactured using clean production technologies and best practices;</li> <li>6. Is made from materials healthy throughout the life cycle;</li> <li>7. Is physically designed to optimize materials and energy;</li> <li>8. Is effectively recovered and utilized in biological and/or industrial closed loop cycles.</li> </ol>

Both definitions show that the entire life cycle of packaging should be considered as environmentally friendly in order to function as sustainable packaging. Compared to conventional packaging, it seems that sustainable packaging meets higher standards on the environmental, social and economic aspect, and entails better quality and performance

characteristics (Kozik, 2020). In this dissertation, the focus will not be on the entire life cycle from production to the usage of sustainable packaging by consumers. However, in order to obtain valuable insights into consumers' perceptions towards sustainable packaging, those definitions with its functions, as displayed in the tables above, should be clear for consumers. If consumers are not aware of the potential benefits of sustainable packaging, this may affect their buying decision process. Therefore, the principles from both definitions can be useful to test consumers' perception regarding sustainable packaging and for the development of survey questions. This will be further described in the Methodology chapter.

### **2.3 The MAO model**

Most research with regards to pro-environmental behavior and sustainable packaging (e.g. Steenis et al. (2017) and Orzan, Cruceru, Balaceanu and Chivu, (2018) have applied the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980) and the Theory of Planned Behavior (TPB) (Ajzen, 1991; Ajzen & Fishbein, 1980) for explaining consumers behaviors (Popovic et al., 2019). According to Buchan, Ollis, Thomas and Baker (2012), these theories were often used as single theories to describe pro-environmental attitude and behavior and were, due to complexity of this topic, insufficient (Buchan et al., 2012). As described in the problematization, Popovic et al. (2019) and Popovic et al. (2020), who have conducted research about environmentally friendly packaging in the FMCG industry, have stated that more research, that goes beyond Ajzen's TRA and TPB, is needed to further analyze the gap between green attitude and green purchasing behavior. Also, Ketelsen et al. (2020) explain that the TPB model and the TRA model are often used in studies that focus on factors that influence consumer behaviour. However, both models do not specifically analyze the process from sustainable attitude to sustainable purchasing. Popovic et al. (2020) argued that the explanatory function of the TPB may be limited because purchasing involves a large variety of factors and therefore different attitudes. Therefore, Popovic et al. (2020) have called for a broader conceptual model that explains the purchasing behavior towards sustainable packaging.

Building on the need for further research that goes beyond the TRA and TPB, Olander and Thøgersen's (1995) Motivation-Ability-Opportunity (MAO) model was found as a potentially suitable model. The MAO model is an extended version of Ajzen's TPB (1991) and has three fundamental components, namely: motivation, ability and opportunity. In the next following

three sub-sections, these components with its elements will be descriptively described, followed by a discussion on how the components will contribute to this dissertation.

### **2.3.1 Motivation**

The first component of the MAO model is ‘motivation’. Motivation means feeling triggered to undertake action (Vallerand, 2000). According to Olander and Thøgersen’s (1995), motivation is required for a person to perform a specific behavior. In the context of this dissertation, motivation can be described as how interested, ready, willing or desired millennials are to buy sustainable packaged products. The motivation component in Olander and Thøgersen’s (1995) model consists of three elements, which are beliefs, attitude towards behavior and social norms. Belief is the most salient factor that is prerequisite to execute pro-environmental behaviors and involves the feeling that someone’s action can lead to a desired result (Bandura, 1977; Ogunbode & Arnold, 2014). Attitude towards behavior can be explained as a way of thinking or feeling about something (e.g. an object or behavior) and can either be a positive or negative evaluation (Ajzen & Fishbein, 1980). As a consequence, thoughts or feelings can function as a trigger or interfere with a certain behavior. The last element of the motivation component is social norms, that can be defined as the standards for appropriate behavior influenced by a person’s social circle (Tweneboah-Koduah, Mann & Adams, 2020). For example, social pressure from friends or family probably will affect a person’s worldview and therefore its behavior. The three motivational antecedents discussed above (i.e. beliefs, attitude towards behavior and social norms), will together determine an individual's' intention to behave in a certain manner (Olander & Thøgersen, 1995).

### **2.3.2 Ability**

The second component of the MAO model is ‘ability’ and includes both a task knowledge and a habit element. Task knowledge is seen as an essential moderator for the ability to comply in a specific behavior and draws upon the skills and capabilities of an individual (Verhallen & Pieters, 1984). For instance, Ajzen (1991) argued that if a person does not possess the knowledge about sustainably packaged goods, then the motivation will be lower compared to a contradictory situation. Hence, task-oriented knowledge will help a person to achieve its goal, whether this is related to the understanding of information or other cognitive capabilities (e.g. the recognition of sustainable packaging). The second element that plays an essential role to a person’s ability in the performance towards a behavior are habits (Triandis, 1977). For example,

buying the cheapest products to save money. Even though an individual is motivated to engage in environmentally friendly behavior, this will not directly change its cognitive intention to buy higher priced products. Both elements (i.e. task knowledge and habits) include resource constraints, such as time pressure, income status and a limited cognitive capability, that moderates the relationship between intention and actual behavior (Thøgersen, 2005). As a result, motivation will only translate into behavior when an individual has the required abilities to carry out a specific action (Olander & Thøgersen, 1995).

### **2.3.3 Opportunity**

The third component of the MAO model is ‘opportunity’ and can be referred to the extent in which situational factors moderates or disrupts the performance of a person’s behavior (Olander & Thøgersen, 1995). Opportunity appears when an individual is not limited in the desire to perform by external constraints. These constraints can express themselves in the lack of information (e.g. no green labels), financial resources, time and availability (Binney, Hall & Oppenheim, 2006). For instance, sustainable packaging is in general higher in price than non-sustainable packaged goods, which can lead to a financial constraint in the buying decision-making process (Popovic et al., 2019). The consumer makes trade-offs between marketing incentives (e.g. price, colour and green claims) simultaneously, but also the availability of sustainable products can facilitate environmentally friendly behavior (Noorman Uiterkamp, 1998). In the context of availability, this is when a consumer has the opportunity to buy sustainable packaging at the retailer. If the retailer has a limited assortment with regards to sustainable packaging, this can be seen as a constraint towards the motivation to purchase these kinds of products. Therefore, opportunity as a moderator can have a prominent effect on consumers’ actual behavior (Tweneboah-Koduah et al., 2020; Thøgersen, 2005). To give an overview of the aforementioned components and elements of the MOA model, the framework is portrayed in Figure 1.

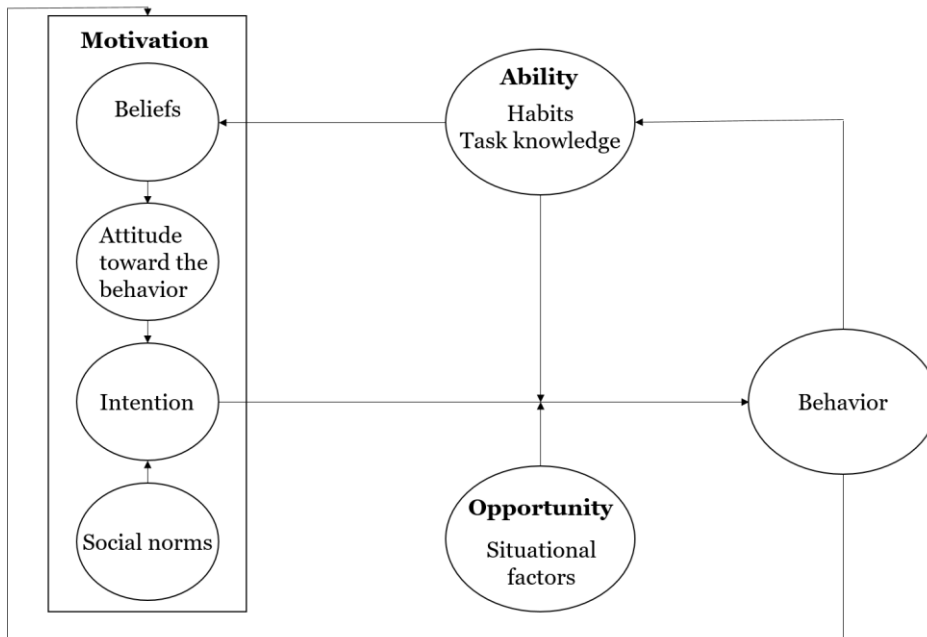


Figure 1. MAO model (Olander & Thøgersen, 1995)

The arrows displayed in Figure 1, show that experiences can change beliefs or evaluations about an object (e.g. packaging) or behavior.

### 2.3.4 Discussion MAO model

Olander and Thøgersen's (1995) model has been successfully applied in different research areas, such as the study from Bingné, Hernández, Ruiz and Andreu (2010) for explaining the online purchasing of airline tickets, and research conducted by Jepson, Clarke and Ragsdell (2014), to investigate the participation level of community festival visitors. From origin, the MAO model was not developed to explain sustainable consumption. Nevertheless, the applicability has been tested and accepted in the context of sustainable behavior (Ukenna & Nkamnebe, 2017). To motivate this argument, a recent study from Tweneboah-Koduah, Mann and Adams (2020) was able to predict galamsey (i.e. illegal mining) behavior by using the predictors of this model. As a result, we believe that using this theory can help us discover why millennials do or do not want to purchase FMCG products with sustainable packaging.

For addressing the attitude-behavior gap towards sustainable packaging, not all the three components of the MAO model are going to be used equally. In this dissertation, the focus will not be on the first component (i.e. motivation), since, as explained in the problematization, there is evidence that the majority of millennials as consumers group, have a pro-sustainable attitude

and are more concerned and sensitive when it comes to environmental issues and how organizations comply with sustainability (Nielsen, 2015; Nielsen 2019 ; Naderi and Steenburg, 2018; Coskun and Özbük, 2019). Hence, a similar outcome is expected and therefore no hypotheses in relation to the elements of the motivation component (i.e. beliefs, attitude towards a behavior and social norms) will be developed. However, it should be noted that a control mechanism will be integrated, to test millennials' motivation towards green purchasing behavior, in order to see what effect the moderators have on the relationship between green intention and actual behavior. This is important because it is not possible to address the attitude-behavior gap towards sustainable packaging without a significant sign of pro-environmental motivation. A further and detailed explanation of this control mechanism will be provided in chapter three of this dissertation.

As explained by Olander and Thøgersen's (1995), intention or motivation can only be converted into behavior when the moderator components 'opportunity' and 'ability' are perceived as positive. Even though a person may have the intention, or motivation to engage in purchasing sustainable packaging, a specific behavior may not be executed if their ability is insufficient or opportunity is low for the required task (Tweneboah-Koduah et al., 2020). Therefore, in this dissertation, the moderating roles of both components (i.e. opportunity and ability) will be examined. The ability component can be used to measure whether millennials have sufficient skills and knowledge to perform a specific behavior, which is in this case the actual purchase of sustainable packaged products (Olander & Thøgersen, 1995). Whereas the opportunity component can be used to measure the circumstances around the purchase of sustainable packaging, which are related to external or situational factors. Here, the focus does not lay on the inner capabilities of an individual (i.e. skills and knowledge) to perform, but on the external factors which cannot be controlled by the individual himself (e.g. provided information on the packaging or the height of price) (Olander & Thøgersen, 1995).

After analyzing and describing the MAO model's three components, we find that the MAO model is relevant for this dissertation. The motivation component of this model shall be used to control if a person has a pro-environmental attitude and the intention to purchase products that are wrapped in sustainable packaging. The ability and opportunity moderators will be used to measure why millennials do or do not purchase FMCG products with sustainable packaging.

In the next sub-chapter, the individual and situational factors that can possibly influence the green attitude-behavior gap are described. By doing so, we intend to give a better understanding of the numerous factors. Also, this allows us to choose the most applicable factors that can be integrated into the ability and opportunity components of the MAO model.

## **2.4 Factors influencing the green attitude - behavior gap**

There are multiple factors (e.g. attitudes, beliefs, perceived consumer effectiveness, availability etc.) that can influence the attitude-behavior gap. To give a better understanding of these factors we described them briefly in the tables below. In the section thereafter, we made a selection of factors from the tables that we will use to formulate hypotheses to examine millennials' purchasing behavior towards sustainable packaging in the Dutch FMCG industry.

### **2.4.1 The individual factors**

Individual factors (also known for personal factors) arise from personal experiences (attitudes, values, beliefs, characteristics, etc.), and have an influence on the consumer's purchasing behavior (Joshi & Rahman, 2015). The following individual factors were found in the literature:

Table 2. *Individual factors that influence purchasing behavior*

<b>Individual factors</b>	<b>Examples &amp; +/- relationship</b>
Emotional	When there is a deeper environmental concern this will have a positive influence on green buying behavior (Bang, Ellinger, Hadjimarcou, & Traichal, 2000).
Habits & past behavior	Supportive behaviours for environmental organizations have a positive influence on green buying behavior (Joshi & Rahman, 2017).
Perceived consumer effectiveness	When consumers believe that their effort can reduce environmental issues, this has a positive influence on green buying behavior (Mostafa, 2006).
Perceived behavioral control	The perceived behavioral control over a person's actions can have a positive influence on purchase intention and behavior (Wang, Liu, & Qi, 2014).
Values and personal norms	Environmental, social and ethical values together with individual values, have a positive effect on green purchase behavior (Joshi & Rahman, 2015). Also, an altruistic characteristic has a positive influence (Mostafa, 2006).

Trust	A lack of consumers' trust in environmental performances of green products can be seen as a barrier to the purchasing decision process of green products (Bang et al., 2000).
Knowledge	Environmental knowledge is one of the most studied variables in green intention and purchasing studies and has contradicting outcomes. The majority found a positive relationship between consumer intention and green purchasing behavior, but there is also evidence that there was no relation found (Joshi & Rahman, 2015).

### 2.4.2 The situational factors

Situational factors are forces that have an influence on whether consumers choose to buy green products or not (Yoshi & Rahman, 2015). The following situational factors were found in the literature:

Table 3. *Situational factors that influence green purchasing behavior*

<b>Situational factors</b>	<b>Examples &amp; +/- relationship</b>
Price	Higher prices have a negative influence on consumers' willingness to buy green products (Connell, 2010).
Availability	Sufficient stock and easy availability of green products has a positive effect on consumers' green purchasing behavior (Vermeir & Verbeke, 2006).
Subjective norm/ social norm and reference groups	Individuals close to the consumer have a strong influence on the green product purchasing process (Lee, 2010).
Product attributes and quality	Functionality and quality are prioritized over contributing to the environment by purchasing green products (Smith & Paladino, 2010). For consumers that already buy green products, taste, quality and healthiness are valuable factors (Cerjak, Mesić, Kopic, Kovačić & Markovina, 2010).
Store related attributes	Favorable store conditions and attributes have a positive effect on green buying behavior (Tanner & Kast 2013).
Brand image	Overall, consumers have a number of brands that are their personal favorites. They prioritize these brands over green brands (Young, Hwang, McDonald & Oates, 2010). Also, when a consumer trusts a green brand then this has a positive influence on their green purchasing behavior (Rahbar & Wahid, 2011).



<p>Labelling</p>	<p>Eco labels function as an information source about the green details of a product (Young et al., 2010). However, many consumers do not trust these labels (Nittala, 2014). In order to gain trust towards green labelling, simplicity and user-friendliness are important factors to motivate consumers towards green product purchases (Rahbar and Wahid, 2011).</p>
<p>Convenience</p>	<p>Lindh et al. (2015) state that convenience is highly important in customers' purchasing behavior. When green products are easily accessible in terms of nearby stores, transportation (online purchases) and are resealable in order to extend the shelf life, then this has a positive influence on consumers' willingness to purchase green products.</p>

## 2.5 Development hypotheses & conceptual research model

We have thoroughly described the MAO model and how it is intended to be used, followed by a description of the individual and situational factors that can influence the green purchasing behavior of a person. Because there are many factors that can have an influence on someone's green purchasing behavior, a selection of moderators is made based on the perceived level of importance granted by previous scholars and its responsive characteristic with the purpose of this dissertation.

For addressing the intention-behavior gap, one hypothesis is developed for the motivation component in order to test the relationship of millennials' purchasing intention on the actual buying behavior. This relationship will be influenced by the selected moderators complying with the ability and opportunity component, which are stated below.

The following moderators are selected from the tables: *perceived consumer effectiveness (PCE)*; *recognition (knowledge)*; *price*; *availability* and *packaging quality*. In relation to the MAO model, the first two moderators (perceived consumer effectiveness and knowledge) are part of the ability component, and the last three moderators (price, availability and packaging quality) are part of the opportunity component. In the next following sub-sections, the importance of these moderators will be highlighted, followed by the development of the hypotheses for this dissertation. After that, we present the conceptual research model by integrating the hypotheses into the MAO model framework.

### **2.5.1 Motivation**

In order to test the intention-behavior relationship with regards to millennials' purchasing process of environmentally friendly packaging, one hypothesis is developed and shown below.

#### ***Intention to buy sustainable packaging***

Several scholars in the field of green purchasing have argued that a person's intention to act a particular behavior has a high correlation with the actual execution of that behavior (Ajzen 1991; H. Nguyen, C. Nguyen & Hoang, 2019; 2018; Popovic et al., 2019). According to Ajzen (1991), positive evaluations towards a behavior, in combination with strong social perceptions, will have a positive influence on the performance of actual behavior. Hence, it seems that intention towards a particular behavior entails an important role in predicting the performance of the actual behavior. However, evidence has shown that a positive intention will not always translate in the execution of behavior, even though there might be a close relationship between these two variables (Peattie, 2010). Also, Ajzen and Fishbein (2005) argued that there might be a literal inconsistency (i.e. when people are saying to do something, but eventually will act differently) between green purchasing intention and green behavior, but they are strongly correlated. More specifically, according to Ajzen and Fishbein (2005), intention and actual behavior are on average between 0.46 and 0.62 correlated with each other, which means there is empirical evidence that both measures meet the norm of compatibility. Therefore, one can suspect that when there is a positive intention to buy sustainably packaged products, it is likely that this will have a positive influence on someone's engagement to purchase these items. Thus, based on the stated arguments above, can be formulated:

**H1:** *Intention to buy environmentally friendly packaged products positively influences millennials' purchasing behavior towards environmentally friendly packaged products.*

### **2.5.2 Ability**

The moderators in relation with the ability component of the MOA-model are presented and discussed on the next page.

#### ***Perceived consumer effectiveness (PCE)***

Perceived consumer effectiveness (PCE) relates to the consumers' belief that their effort or behavior can favorably help the environment (Mostafa, 2006; Gleim, Smith, Andrews &

Cronin, 2013). This concept is also in line with Bandura's (1997) self-efficacy theory, in which they explain that a person will be more motivated when they perceive the feeling that their action succeeds in a specific situation. Recent studies on green consumer behavior show evidence that this predictor can lead to a desirable green purchasing behavior (Nguyen et al., 2019; Joshi & Rahman, 2019). For example, Joshi and Rahman (2019) conducted research in India among 425 young consumers (15-30) with PCE as one of their predictors and found a strong positive correlation. Similar findings were found by Nguyen et al. (2019), which also stated that PCE is a credible physiological indicator that can have a positive influence on green consumerism.

In contrast, when consumers have the feeling that they get fooled by the green claims (e.g. untrustworthy and misleading information) on environmentally friendly products, this may have a negative effect on their purchasing behavior (Peattie, 2001). Moreover, it is clear that when a consumer lacks cognitive capabilities to control their green goals (e.g. reducing the environmental impact), then their green intentions would not translate into green behavior (Ajzen & Fishbein, 2005). Based on the mentioned arguments above, the following hypotheses describes that:

**H2:** *Perceived consumer effectiveness has a positive moderation effect on millennials' purchasing behavior towards environmentally friendly packaged products.*

***Recognition of environmentally friendly packaging (knowledge)***

According to Popovic et al. (2019), one of the most prominent factors that influence consumers' green purchasing behavior is the ability to recognize environmentally friendly packaging, due to limited knowledge of this type of product. For instance, the study of Scott and Vigar-Ellis (2014), with a sample of 323 South African consumers, revealed that limited knowledge of environmentally friendly packaging has a negative effect on consumers' purchasing decisions. In line with this finding, Lindh et al. (2015) found that consumers can perceive difficulties in distinguishing environmentally friendly food packaging with the unsustainable ones and that the majority of the consumers needed guidance for recognition. Furthermore, Boersen, Bey and Niero (2019) exploited research in Denmark among young consumers between the age of 25 and 35 and concluded that consumers' knowledge of environmental labels presented on the packaging is not sufficient. Based on the arguments mentioned above, it is hypothesized that:

**H3:** *Recognition of environmentally friendly packaging has a positive moderation effect on millennials' purchasing behavior towards environmentally friendly packaged products.*

### **2.5.3 Opportunity**

In this section the moderators, price, availability and packaging quality are described and used to formulate hypotheses.

#### ***Price***

Findings from previous literature show that there is a discrepancy between scholars about price influencing consumers' green buying behavior. Some scholars (Connell, 2010; Vermeir & Verbeke, 2006; Young et al., 2010) state that consumers' willingness to buy green products is negatively affected when they have to pay extra and some scholars (Grankvist & Biel, 2001) claim that consumers are not influenced by price when it comes to buying green products. Grankvist and Biel, who performed a study with 480 participants in Sweden, of which the average age was 48 years old, state that higher prices form no barriers for consumers to purchase eco-labeled food products instead of non-eco-labeled ones. They added that it should be kept in mind that an individual's economic situation can play an influential role. Someone with limited financial resources is expected to be more influenced by price. Therefore, this person is more eager to avoid higher priced products than someone with a better economic position, even though this person might be equally price sensitive but less eager to avoid higher priced products. Grankvist and Biel (2001) explain how price therefore might be a valuable factor for understanding consumers' purchasing behavior.

On the contrary, there are studies such as Hao et al. (2019) that show that consumers are willing to pay extra for sustainable packaging. When a product gets sustainable packaging instead of traditional packaging and therefore becomes more expensive, due to the higher price of sustainable packaging, then the consumer does not mind paying extra for this. Hao et al. (2019) explain that this is because the product packaging resembles a small amount of the total price of a product and therefore the price increase is relatively small.

Overall, consumers perceive green products as more expensive than non-green ones (Smith & Paladino, 2010). Moreover, when consumers with a green attitude shop for green products and along the buying process find out that the prices for green products are higher than they expected to be, then this leads to a decrease of their willingness to act green and widens the gap

between attitude and behavior (Connell, 2010; Vermeir & Verbeke, 2006; Young et al., 2010). Consumers prioritize product attributes such as product quality and price over buying a green product (Ketelsen et al., 2020). This is inconsistent with other scholars who explain that consumers are not unwilling to pay more for green products, because they understand and value the benefits that come along with the green products (Grankvist and Biel, 2001; Lindh et al., 2015). Naderi and Steenburg (2018) and Gleim, Smith, Andrews and Cronin (2013) explain that some consumers are willing to pay extra for green products. However, young consumers (i.e. the millennial generation) find price in the buying decision process a decisive factor and often do not want to pay extra. This is mainly due to financial constraints (Naderi and Steenburg, 2018). Hence, it can be proposed that:

**H4:** *Price has a negative moderation effect on millennials' purchasing behavior towards environmentally friendly packaged products.*

#### ***Availability***

Lindh et al. (2015) state that availability is highly important in customers' purchasing behavior. When green products are easily available in terms of nearby stores, transportation (online purchases) and are resealable in order to extend the shelf life, then this has a positive influence on consumers' buying behavior to purchase green products. Vermeir and Verbeke (2006), who conducted a study among 456 young Belgians in the age category of 19-22 years old, state that sufficient stock and easy availability of green products has a positive effect on consumers' green purchasing behavior. According to Young et al. (2010), insufficient availability or difficulty accessing green products are major demotivators for consumers to purchase green products. Proceeding from the arguments as pointed out above, the following hypothesis can be formed:

**H5:** *Availability has a positive moderation effect on millennials' purchasing behavior towards environmentally friendly packaged products.*

#### ***Packaging quality***

Hao et al. (2019), who conducted a study in China among 781 respondents, of which the majority (68.6%) was younger than 27 years, stated that consumers find green packaging quality and product quality important factors. According to Ketelsen et al. (2020), consumers find price and product quality more important than sustainable packaging. Hao et al. (2019) explain that consumers judge the quality of green packaging based on practical matters which

are the possibility to reuse it (use it more than once), the protectiveness of the material (whether the packaging is strong enough to prevent the goods from damages) and user-friendliness (lightweight, easy to open and close, compact and easy to put away) (Hao et al., 2019). It needs to be mentioned that user-friendliness does not have an influence on the environment. However, according to Hao et al. (2019), user-friendliness does play an important role in the consumers' evaluation of the packaging quality and therefore is decisive in the process between choosing for sustainable or unsustainable packaging. Lindh et al. (2015), who conducted research among 155 Swedish consumers, also discovered that packaging quality in terms of user-friendliness plays an important role in consumers purchasing decisions. Easy openable packaging was conceived by 25% of the respondents to be a decisive factor in making a purchase decision. The ability to store the products easily at home, based on their size, was also mentioned as a highly important factor in the buying decision process of consumers.

Based on the arguments of Hao et al. (2019) and Lindh et al. (2015), packaging quality implies the possibility of reusing it, the protection capability of the material and the user-friendliness of the packaging. When sustainable packaging is perceived by the consumer, based on the described factors, as superior quality, then this is expected to have a positive influence on the buying decision process towards environmental-friendly packaged goods. Based on this, the following hypothesis can be formulated:

**H6:** *Packaging quality has a positive moderation effect on millennials' purchasing behavior towards environmentally friendly packaged products.*

## 2.6 Conceptual research model

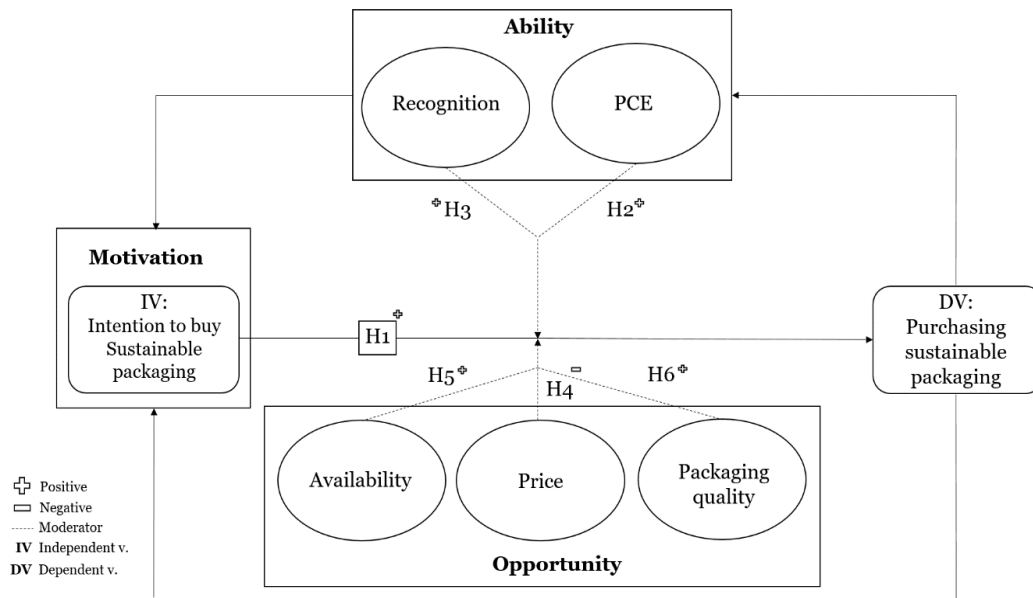


Figure 2. Conceptual research model

Figure 2 shows the conceptual research model for this research, formalized on existing literature. The conceptual research model is a modified version of the MAO model, which has the goal to examine the gap between millennials' intention to purchase sustainably packaged products and actually buying them. As can be seen, the research model consists of three components which are: *Motivation*; *Ability* and *Opportunity*.

As explained before, the motivation component functions as a control mechanism to test whether millennials have the intention to purchase sustainably packaged products. In Figure 2, the intention to buy sustainable packaging has a direct relationship towards purchasing sustainable packaging and is therefore the independent variable.

Furthermore, the ability and opportunity components consist of five hypotheses. All five hypotheses stand for moderators that affect the relationship between millennials' intention and their performance into a behavior. For example, price can have a negative moderation effect on the intention-behavior relationship, when the prices of products with sustainable packaging are higher than the prices of conventionally packaged products. After the data collection, it can be concluded which moderators have a positive or negative influence on a millennials' buying behavior, as well as no interaction. The last box displayed on the right side of the conceptual research model (i.e. purchasing sustainable packaging), might have an influence on future

purchasing behavior affected by positive or negative experiences. The arrows indicate that these experiences directly influence a millennials' cognitive capacity and their motivation towards future behavior. An example of recognizing environmentally friendly packaging is when a consumer purchases a product that is sustainably packaged and notices that the product contains a specific green claim (e.g. recycling label). This green claim stands for a product that is less harmful to the environment. Due to recognizing the green claim, this may affect the consumers purchasing behavior in the future. Lastly, in Figure 2, the hypotheses have a minus or a plus symbol. The minus ones are expected to have a negative moderation effect on millennials' purchasing behavior, the plus ones a positive effect.



### **3. Scientific & Empirical Method**

*This chapter provides an overview of the research strategy of this dissertation, along with a description of the data collection and operationalization of the variables. Furthermore, it is thoroughly explained how the sample was selected and how the data was analyzed, followed by presenting the reliability and validity of this research. To conclude this chapter, ethical considerations are described concerning the data collection procedure.*

#### **3.1 Research approach**

Based on the nature of the relationship between theory and research, there are three different research approaches that a researcher can take, namely: inductive, deductive and abductive (Bryman & Bell, 2011). Choosing an inductive approach means that the researcher will collect and analyze data, followed by the development of theory as an outcome (Bryman & Bell, 2011). In the case of a deductive approach, the researcher starts with existing theory in order to develop hypotheses. After the development of the hypotheses, data will be collected, tested and analyzed, to reject or approve each hypothesis (Saunders, Lewis & Thornhill, 2009; Bryman & Bell, 2011). Abductive reasoning (also known as abductive approach), on the other hand, starts with ‘surprising facts’ that cannot be fully explained by existing theory. In this approach, the researcher aims to build a new theory in the form of best prediction (Bryman & Bell, 2011). In this dissertation, we have drawn upon existing theories to create relationships between different factors that have a significant influence on the purchasing behavior of sustainable packaging. Therefore, we choose a deductive approach to back up our study with a positivist angle, which assumes that the only valid knowledge is derived from science. This approach allows us to examine existing theory with our formulated hypotheses in chapter 2. Different from the other approaches, is that the reasoning behind the testing is more ‘objective’ rather than ‘subjective’, which means that there only exists one ‘truth’ based on existing literature (Saunders et al., 2009; Bryman & Bell, 2011). Concerning our research question, we assume that this method helps us to find out the truth, what influences millennials in their purchasing decision towards sustainable packaging.

#### **3.2 Choice of methodology**

As explained in the section above, we aim to use a deductive approach that allows us to test relationships between existing knowledge and the collected data. Therefore, we decided to comply with a quantitative research method, which emphasizes quantification in the testing and

evaluation process of the collected data (Bryman & Bell, 2011). In this method, the focus is placed on testing theories with an objective ontological orientation. Qualitative research instead, emphasizes that new knowledge is created by the interpretation of individuals' worldview without specifically relying on the examination of existing theories. In this case, the outcome of the study will be more open and not solely based on one 'truth'. Since our dissertation has a more explanatory characteristic it can be argued that a mono method quantitative research is the most suitable approach (Saunders et al., 2009).

Quantitative research offers the opportunity to simultaneously collect data from a large sample group within a limited timeframe (Bryman & Bell, 2011). Also, a quantitative study is feasible, because findings can be collected that represent the Dutch millennials. Due to this, the research will have a holistic approach and the findings have the possibility of being generalized (Bryman & Bell, 2011).

It needs to be mentioned that quantitative research also has its disadvantages. The questions in a questionnaire can be perceived as uninteresting by the participants, which might lead to demotivation to fill them in with the required attention and concentration (i.e. neglect). Another downside of quantitative research is that there is no possibility to ask further questions or have in depth conversations, which could have possibly led to new insights and ideas (Bryman & Bell, 2011).

### **3.3 Choice and critique of theory**

The main theory used in this dissertation is Olander and Thøgersen's (1995) Motivation, Opportunity, Ability model (MAO model). As mentioned before, the MAO model is an extended version of Ajzen's TPB model (1991) which entails an integrative approach, with internalistic (i.e. understanding of audience motivation) and externalistic (i.e. the influence of external incentives on a behavior) principles for explaining green consumer behavior (Ukenna & Nkamnebe, 2017). Besides, the internal motivation of an individual towards a specific behavior, this model includes two components (i.e. ability and opportunity) that are functioning as moderators in the relationship from purchasing intention towards actual purchasing behavior. In this research, the MOA model underpins the relevance of facilitators on the change in behavior regarding the intention-behavior relationship towards the purchasing process of sustainable packaging. As explained by Olander and Thøgersen (1995), a positive attitude, or intention, can only translate into actual behavior when there is a positive involvement of opportunity and ability. Therefore, we argue that the use of the MAO framework will contribute

to an understanding of the attitude-behavior gap and will help find out why millennials do or do not want to purchase FMCG products with sustainable packaging. On the other hand, the MOA model also has its weakness because it strongly underpins that facilitators needs to be increased to let a person execute a specific behavior, without the intention to reduce the inhibitors (also known for barriers) (Ukenna & Nkamnebe, 2017; Tweneboah-Koduah et al., 2020). However, despite the lack of inhibitors, evidence is shown that the MOA-model can help explain behavioral change by measuring the role of ability and opportunity as moderators (Ukenna & Nkamnebe, 2017).

### **3.4 Critique of sources**

The articles in this dissertation are retrieved from Google Scholar and the (digital) library of the University of Kristianstad, which is called HKR Summon. All articles are scientific and peer-reviewed. In order to identify the quality of articles, the Academic Journal Guide (2018) is consulted. This guide is formed on peer review, editorial and expert judgements based upon the assessment of publications of business and management scholars. Also, when assessing the journals, statistical information is used relating to citation. Based upon their quality, the journals are ranked by a grade (4\*,4, 3, 2, 1) that goes from 4\*, which is the highest possible grade and represents journals of excellence to 1, which represents journals that meet normal scholar standards. The grades 3 and 2 are in between (ABS, 2018). The tables below are designed to give a clear overview of the grading system and the quality of the used articles.

Table 4. *Definitions of the journal ratings according to the ABS ranking system (Academic Journal Guide, 2018)*

Rating	Description of the meaning of the quality grading
4*	Journals of worldwide excellence with the highest impact factor, based upon their exquisite paper selection and reviewing and their undisputed relevance.
4	Excellent journals with high submission and low acceptance rates. Their papers have high impact within their field and are cited heavily.
3	High quality journals, with high submission grades. Their papers are original, well performed and have a medium citation impact within their field.

2	Journals with an acceptable quality that publish research that is peer reviewed by acceptable standards. Their citation impact is modest.
1	Moderate standard journals that have a low citation impact factor.

In this dissertation 68 articles have been used of which 34 were published in journals that are recognized by the Academic Journal Guide. Table five gives an overview of the used articles and their ranking.

Table 5. *Rating this dissertation journals through the ABS ranking system (ABS, 2018)*

ABS Rating	Number of articles	Percentage of total
4*	1	2%
4	5	7%
3	10	15%
2	11	16%
1	7	10%
Non recognized articles	34	50%
<b>Total articles</b>	<b>68</b>	<b>100%</b>

Out of the 68 articles that are used in this dissertation, 50% are published in journals that are recognized by the Academic Journal Guide (2018). That indicates that a large part of the articles used in this dissertation are of high quality. The articles that were not found, because they are not recognized by the Academic Journal Guide (2018) are associated with less quality. It is not certain that the data provided by the non-recognized articles lowers the quality of this dissertation. In addition, since the topic of this dissertation is relatively recent, it is possible that some journals have not yet gained much popularity among scholars, such as ‘Sustainable Development’ which is in the past three years increased greatly in citations (SJR, 2020). Also, as mentioned before, when journals are evaluated, statistical information is used relating to

citation. Many of the articles that are used in this study are not older than two years and are perhaps therefore not as often cited as articles that are ten years or older.

### **3.5 Time horizon**

The time horizon defines the time frame of the research. There are two forms of time horizons, which are cross-sectional and longitudinal. A cross-sectional study design is the most often used form in business and management studies. It examines relations between variables at a certain point in time. The data is often collected through a survey strategy in a more or less simultaneous period of time (Bryman & Bell, 2011). A longitudinal research design is different from a cross-sectional study, because it is associated with being more costly and also takes much longer time to execute. This design is used to examine change and development and compare data over a long period of time (Bryman & Bell, 2011).

In this dissertation, a cross-sectional study design is chosen, because the aim of this study is to measure relationships between multiple factors. Also, according to Bryman and Bell (2011), cross-sectional studies are used when there is a limited time frame and since this dissertation needs to be written in approximately ten weeks, this design seems suitable.

### **3.6 Research strategy**

There are multiple research strategies to choose from. According to Saunders et al. (2009), these are: experiment, survey, case study, action research, grounded theory, ethnography and archival research. All of them can be implemented for exploratory, descriptive and explanatory research (Saunders et al., 2009). There are multiple factors that are important in choosing a strategy, among which the available amount of time and to which extent previous research has already been conducted and thus how much information or data regarding the topic is available (Saunders et al., 2009; Bryman & Bell, 2011). The most decisive factor in choosing a strategy is determining whether it will provide guidance in answering the research question and achieve the goals of the study (Saunders et al., 2009). In this dissertation, the research question that needs to be answered is why millennials have a positive attitude towards sustainable packaging, but do not show this in their purchasing behavior. Therefore, the research strategy needs to fit with this question.

As explained before, this dissertation uses a deductive, cross sectional research approach in order to determine relationships between multiple variables that can hold or motivate purchasing behavior of sustainable packaging among millennials. Therefore, surveying is the most suitable research strategy. Surveying is an efficient strategy that has the ability to simultaneously collect data from a large number of respondents within a limited time frame (Saunders et al., 2009; Bryman & Bell, 2011).

### **3.7 Data collection**

In this dissertation, previous literature has been used in order to explain the different relationships that can have an influence on the purchasing intention-behavior gap. To examine these relationships, a mono-method was selected to collect quantitative data from the target audience, which were in this case millennials in the Dutch market. Other methods could have been used in order to answer the main question of this dissertation, such as a mixed-method or multi-method. Nevertheless, a mono-method was chosen since this approach allows us to address the research question, even though other methods can help to gain knowledge in a more in-depth way (Saunders et al., 2009).

As mentioned before, a survey strategy was selected to answer the main research question. This approach allowed us to obtain data in a short period of time by using an electronically administered questionnaire (also known as a survey). The tool that was used to create this questionnaire was Google Forms, which is a free platform from Google used to customize a form, which can be shared with the target audience. The questionnaire consisted of standardized content, which can therefore be interpreted as equal for each participant. Prior to the distribution of the questionnaire, a pilot test was conducted in order to see if all the formalized indicators were reliable and to avoid misinterpretations. This was important since it could have affected the results of the gathered data. In the next section, the sampling technique will be briefly described, including which method was used to recruit the participants and how the survey was distributed.

#### **3.7.1 Sampling technique**

A non-probability sampling technique was selected for this research, which means that some units from a whole population were more useful, and therefore only this part of the population was asked to participate. Probability sampling instead, implies that each unit from a population

has a chance to be selected, without making a distinction (Bryman & Bell, 2011). There are different types of non-probability sampling methods, such as quota, convenience, self-selection and snowball sampling (Saunders et al., 2009). For this study, a multi sampling was chosen consisting of a convenience, self-selection and snowball sampling method. A convenience sampling method allowed us to obtain samples in our direct environment, like a sample from the social circle. As a result, the accessibility of the samples were high by using this type of sampling method. This technique was mainly prominent for our pilot test in the first stage of our data collection. Another method used for this research was self-selection sampling, which promotes obtaining cases through the publication of the need on a platform, for example, social media. In this case, the data will be collected by the population that voluntarily wants to respond to the need request. Furthermore, a snowball sampling method was executed by asking the respondents to spread the survey in their network to trigger the number of responses in a relatively short period (Saunders et al., 2009; Bryman & Bell, 2011).

### **3.7.2 Critique sampling technique**

As argued in the section above, a multi-sampling method was used for this study, including *convenience*, *self-selection* and *snowball* method. All three approaches have their advantages and critiques to take into consideration when it comes to the generalization of the data. In this section, those techniques will be critically discussed.

According to Bryman and Bell (2011), using a convenience sampling technique is often problematic with the generalization of the findings, because it is hard to tell if the population is representative. In this research, convenience sampling was primarily used for the pilot test and consisted of friends and acquaintances, which were millennials with different backgrounds, such as study level and age. Since this method has the disadvantage that the conclusions drawn from the gathered data of a biased sample population are not generalizable, we decided to use more sampling methods to strive for higher quality over the collected data. On the other hand, this method is very useful when it comes to saving time and the ease to reach the sample population, which was in our situation crucial for the time we had to conduct this research (i.e. ten weeks).

Another method we used is self-selection sampling, which stimulates self-reporting among the targeted population and is therefore also convenient and less time-consuming. The downside of

this approach is that appealing to volunteers will eventually create a voluntary bias, in which people that do not care about the survey are undersampled. In this context, the undersampled population could have a different opinion compared to the sampled population, because their interest is lower towards the proposed topic, resulting in different findings (Fielding, Lee & Blank, 2008). Nevertheless, there is evidence by using self-reported data through online environments, such as Facebook, can obtain high-quality data. For example, Kosinski, Matz, Gosling, Popov and Stillwel (2015) stated that the reliability of the gathered self-reported data was similar to the standardized samples, which are usually carefully selected.

As mentioned before, snowball sampling was used to increase the number of responses. One pitfall of using this method is that the sample from the population cannot be controlled, and therefore can introduce biases (Fielding et al., 2008). On the other hand, this approach can be beneficial when the aim of the researcher is to focus or reflect upon relationships between human beings, such as mental processes (Bryman & Bell, 2011).

It is obvious that all three sampling methods serve some limitations when it comes to representativeness and generalization of the obtained data, and does not fulfill the gold standard of a randomized sampling method (i.e. that each sample from the population has equal chances to participate) (Bryman & Bell, 2011). However, in the context of our study, with the perceived time and resources we have, a randomized sampling method was difficult to achieve. Also, it should be noted that the COVID-19 pandemic in spring 2019 did not promote the data-collection phase, in which we were constrained because of social distancing. In the next following section, the sample selection for this dissertation will be discussed.

### **3.7.3 Sample selection**

In the problematization, it is briefly described why Millennials (people born between 1982 and 2000) are the focus group of this dissertation. As a result, this demographic population is used as the sample group.

In 2019 there were approximately four million millennials in the Netherlands. Considering that the total Dutch population was approximately 19 million in 2019, one can argue that the millennials represent a large part of this population (CBS, 2019). Since this research is limited in terms of time and resources, it was not possible to contact all of them. However, since we,



the researchers of this dissertation, are both millennials, our network mainly consists of millennials. Therefore, we used our Facebook accounts, which have a combined total of approximately 1700 Facebook friends to spread our questionnaire. In addition, we asked our Facebook friends to share the questionnaire to their friends and thus created a snowball effect. We also used WhatsApp messenger to share our questionnaire. Via WhatsApp messenger approximately 30 people were asked to fill in the survey and to share the survey within their network. Lastly, we shared the questionnaire on our Instagram pages. Due to the snowball technique we cannot estimate how many people were reached. The total number of people that filled out the questionnaire was 123. While sharing the survey we made it very clear that the survey should only be filled in by Dutch millennials, thus people who live in the Netherlands for more than five years and were born between 1982 and 2000. In our questionnaire we also included control questions on the first page, that ask how long someone is living in the Netherlands and how old he or she is.

### **3.8 Operationalization**

In order to measure the developed indicators related to each hypothesis, a seven-point Likert scale is used. With regards to the questionnaire, the participants were asked to give an answer to each statement (also known as item), except for the control variables, on a scale ranging from *1= strongly disagree* to *7= strongly agree*. With regard to the control variables, we have used different scales, such as a two-point and four-point Likert scale. These scales will be described in the next following section to each control variable.

#### **3.8.1 Control variables**

The control variables that were designed for the questionnaire were used to gather demographic information from the respondents. In the section below, the control variables with its scales are explained and motivated below.

##### *Gender*

The first question of the questionnaire is whether the respondent is male or female. This measure was used to determine gender diversity. According to Sudbury-Riley and Kohlbacher (2016), the difference in gender can have an effect on the outcome, in which females generally engage more in sustainable practices than males. For the question in the survey, a two-point Likert scale was used ranging from *0=Female* to *1= Male*.

### *Age*

The second question was used by asking the respondents what year they were born. This question is of great importance since this research is focused on a specific sample group, which are people born between 1982 and 2000. Thus, when a respondent is older than 38 or younger than 20, he or she will be excluded from the sample. Also, age was used to determine the average age of the respondents. With regards to the type of question that is used to determine the age of the respondent, a short response box was integrated to enable the respondents to fill in their birth year.

### *Educational level*

Education gives an insight on whether there are differences in sustainable behavior among people with different educational levels. According to Myer (2015), the number in study years can increase pro-environmental behavior among humans. For the question in the survey, a four-point Likert scale was used to determine respondents' educational level, with *1=Bachelor*, *2=Master*, *3=PhD* and *4=Other*.

### *Living more than five years in the Netherlands*

Since this research is focused on Dutch consumers, this control question was important in order to exclude non-Dutch consumers from the collected dataset. For this question, a two-point Likert scale was used to determine whether the respondent could be classified as a Dutch or foreign consumer, with *1=Yes* and *0=No*.

## **3.8.2 Independent variable**

### *Intention to buy sustainable packaging*

In order to measure the intention or motivation of millennials to buy sustainable packaging, four scale items were added to this construct. The scale items were mainly adapted from the Ecological Consciousness Consumer Behavior (ECCB) scale formulated by Straughan and Roberts (1999). The ECCB scale consists of 30 items to predict consumers' intention to behave in a certain way, with an alpha value of 0.96. However, in this research, the scale items for intention were modified in the settings like *I try to...*, *I plan to...* and *I intend to...* to assess behavioral intentions (BI) (Ajzen & Fishbein, 2005). This construct is developed only with BI measures in a way that millennials as consumers are asked to which extend plans (i.e. commitment) have been set to perform a behavior (Gibbons, Garrard, Blanton & Russell, 1998;

Ajzen & Fishbein, 2005). In this context, intention as a construct is designed as a single predictor of “intention to buy sustainable packaging”, with the following scale items:

- When I am at a grocery store, I try to make environmentally friendly choices (=IV1).
- When I am at a grocery store, I intend to buy products that are sustainably packaged because they are less harmful to the environment (=IV2).
- I will consider switching from brands for environmental reasons (=IV3).
- I plan to buy products that have sustainable packaging (=IV4).

### **3.8.3 Dependent variable**

#### *Purchasing sustainable packaging*

As stated by Warshaw and Davis (1985), behavioral intentions (BI) are not the same as behavioral expectations (BE), because humans regularly do not expect to do what they intend to do. Behavioral expectations (BE) are emphasized to be a better predictor of behavior than behavioral intentions (BI), since the latter construct of this behavioral determination also takes into account a number of other situational factors besides BI measures that could change a person's behavior. In this context, the person's likelihood to perform a behavior is depending on situational factors, such as financial constraints, opportunity and ability (Gibbons et al., 1998). Notwithstanding the differences between BI and BE measures are small, there is evidence that BE scale items are a better predictor for actual purchasing behavior (Warshaw and Davis, 1985). In order to measure actual purchasing behavior, four scale items are developed based on the Ethically Minded Consumer Behavior (EMCB) scale from Sudbury-Riley and Kohlbacher (2016), which are modified as BE scale measures related to the ECO-BUY dimension of the EMCB construct with a construct reliability of 0.9. This dimension refers to a person's intentional behavior when there is an option to choose for sustainable products over other alternatives. In this context, the statements are framed as “*When there is situation X, I will do Y*” to assess behavioral expectations (Ajzen & Fishbein, 2005). For predicting the actual buying behavior, the following modified scale items are developed grounded from the ECO-BUY dimension of the EMCB scale:

- When there is a choice, I always choose the product with packaging that is easily recyclable (=DV1).
- When there is a choice between two similar products, one with sustainable packaging and one with unsustainable packaging, I always will buy the product with sustainable packaging (=DV2).

- When there is a choice, I always choose the product with packaging that is less polluting (=DV3).
- When there is a choice, I always choose the product with a green claim or eco-label (=DV4).

As explained above, the independent and dependent variable could be interpreted as similar, with the threat that both constructs are measuring a similar outcome. In order to justify that both variables can be independently interpreted, a Kaiser-Meyer-Olkin adequacy test and a Rotated Component Matrix has been executed to confirm the variance between the two constructs. In table 13 (see appendix), the results of the conducted tests are shown with a favorable distinction between the two constructs. Two components with the eight factors from both the independent and the dependent variable are presented with the factor loadings market in grey (table 13) for each created component. As can be seen in the Rotated Component Matrix, both variables measure different outcomes. According to Peterson (2000), the factor loadings, as output from the Rotation Component Matrix, should for each factor be greater than 0.30 to be accepted in the measurement construct. If the number is higher than this minimum, this means that the factor or item is more meaningful in measuring the thing that is supposed to be measured. The factor loading can range from positive to negative and indicates the inter-item correlation to the measurement construct. It should be noted that there is no strong evidence of what is 'high' or 'low' by interpreting the factor loading of the items, but most scholars apply a "cutoff value" ranging between 0.30 and 0.40 (Peterson, 2000). Looking at table 13, it is visible that all included items have a high factor loading (between 0.70 and 0.80) for each component (i.e. IV and DV) except for item DV4 (0.388). Notwithstanding it seems that DV4 tends to be part of the IV measurement construct, the item is not dropped since it would decrease construct validity (Bryman & Bell, 2011).

### **3.8.4 Moderator variables**

#### *Perceived consumer effectiveness (PCE)*

In order to measure the moderating effect of perceived consumer effectiveness on the intention-behavior relationship, three statements have been developed based on the study from Roberts (1996), which had an alpha scale value of 0.72. The statements included in the survey are used to measure an individual's cognitive ability to affect environmental issues, such as the belief that its purchasing behavior can help reduce the impact on the environment. According to Roberts (1996), perceived consumer effectiveness has been recognized as the most promising

factor in explaining modification in ecological consciousness consumer behavior (ECCB). By integrating the scale items related to perceived consumer effectiveness, we might find an explanation why intention does or does not translate into actual behavior.

The following items were designed to measure the influence of perceived consumer effectiveness on consumers' purchasing behavior:

- Since one person's grocery choices cannot make a visible difference in helping the environment, it doesn't matter what I do (=PCE1).
- When a consumer purchases products from socially responsible companies, then this has a positive effect on society (=PCE2).
- I believe that it is worthless for each consumer to purchase products with sustainable packaging (=PCE3).

### *Recognition*

The scale items used to measure the moderating effect of recognition on the intention-behavior relationship are based on the study from Gleim et al. (2013). All the scale items Gleim et al. (2013) used in their research were reliable ranging between alpha score of 0.83 and 0.98. According to Scott and Vigar-Ellis (2014) and Orzan et al. (2018), the importance of the perceived knowledge in recognizing sustainably packaged products is a prerequisite in the purchasing decision-making process. Also, Gleim et al. (2013) addressed that the recognition of green products can change a person's purchasing behavior. Therefore, four items are integrated into the survey, which intends to measure the recognition of sustainably packaged products.

The following items were designed to measure the influence of recognition on consumers' purchasing behavior:

- When I do groceries, I can easily distinguish products with sustainable packaging from unsustainable packaging (=RECOGNITION1).
- It is easy for me to recognize sustainable packaging through its material (=RECOGNITION2).
- I easily recognize sustainable packaging by its green claims or eco-labels that are displayed on the products (=RECOGNITION3).
- When I do groceries, it is clear to me how to find sustainably packaged products (RECOGNITION4).

### *Price*

Previous literature has shown that the moderator price has a great impact on consumer behavior. Based on the study of Nguyen et al. (2019), three items were developed in order to measure the effect of price on consumers' willingness to purchase sustainable packaged products. Their price sensitivity scale scored an alpha value of 0.78, which can be perceived as a good number for the reliability. The items were used to measure whether price would determine if one would choose a sustainable or unsustainable packaged product, whether one's economic situation plays a decisive role and whether one is in general willing to pay extra money for sustainable packaging.

The following items were designed to measure the influence of price on consumers' purchasing behavior:

- I am willing to pay extra money for products that are wrapped in sustainable packaging (=PRICE1).
- When I have to choose between two similar products, one with sustainable and one with unsustainable packaging, then I choose the sustainable packaged one, even though it is more expensive (=PRICE2).
- I am only willing to pay extra money for products that are wrapped in sustainable packaging when my economic situation is good (=PRICE3).

### *Availability*

To measure the moderating effect of the availability of green consumer goods on the intention-behavior relationship, three items have been formulated and added to the survey. The study of Gleim et al. (2013) has been used to design the scale items of the availability construct, which as described before, consists of reliable measurement scales. The scale items are modified based on the context of this study. Vermeir and Verbeke (2006) have explained that availability plays a significant role in the willingness of consumers to purchase green goods. The developed items are related to the sufficiency of stock and the number of options that millennial consumers have while doing grocery shopping. In this context, we intended to measure how important consumers find the availability of sustainably packed products in stores.

The items below were used to measure the influence of availability on consumers' purchasing behavior:

- The availability of sustainably packaged products in grocery stores is always sufficient (AVAILABILITY1).
- If I am looking for a specific product in a grocery store, then there is always the option to choose for packaged products that are less harmful for the environment (AVAILABILITY2).
- In my opinion, I can always choose products with packaging that are easily recyclable (AVAILABILITY3).

### *Packaging quality*

According to Hao et al. (2019) packaging quality functions as an important element in consumers' purchase decision-making, due to the fact that consumers directly relate the quality of packaging to satisfaction. As a consequence, poor quality packaging has a negative effect on one's willingness to purchase a product. In the study from Dodds, Monroe and Grewal (1991), it is also mentioned that product evaluations such as price, quality and brand have an influence on a person's buying behavior. Therefore, we intended to use three own-developed items (i.e. reusability of packaging, protection capability and the convenience of the packaging) to measure whether millennial consumers prioritize packaging quality over sustainable packaging. In previous literature, we were not able to find a measurement scale that perfectly suited what we proposed to measure. Nevertheless, we have tried to develop our own scale based on inspired articles such as Hao et al. (2019) and Gleim et al. (2013) that stresses the importance of product quality in the buying-decision process.

The following items were used to measure the influence of packaging quality on consumers' purchasing behavior:

- The reusability of packaging (i.e. use it more than once) is more important to me than that the product is wrapped in sustainable packaging (PQ1).
- The protection capability of packaging is more important to me than that the product is wrapped in sustainable packaging (PQ2).
- The convenience of packaging (e.g. lightweight, easy to open and close, compact and easy to store) is more important to me than that the product is wrapped in sustainable packaging (PQ3).

It should be noted that a Cronbach Alpha pre-test was conducted among 20 respondents to test the reliability of the constructs, in order to improve the questionnaire with its scale items.

However, the reliability over the constructs could be changed when the sample size is larger and was therefore not prominent.

### **3.9 Data analysis**

In this part of the research, the data analysis method will be thoroughly described. After collecting 123 survey responses through Google Forms, the raw data has been converted to an Excel file and recoded into numerical values (strongly disagree =1 to strongly agree =7). Next, the file was exported to IBM SPSS statistics, an analytical software program, where several tests have been performed for the analysis. First, a reliability test was conducted by measuring the Cronbach alpha coefficients of each measurement construct, followed by a factor analysis (also known as a component factor analysis) for identifying correlational patterns between the items. The alpha coefficient can score between 1, which stands for perfect internal reliability, and 0, which stands for no internal reliability. According to George and Mallery (2003), the rule of thumb of Cronbach's alpha is stated as follows: *9. Excellent, .9 > .8. Good, .8 > .7. Acceptable, .7 > .6. Questionable, .6 > .5. Poor, .5 > Unacceptable.* As explained before, for each measurement construct, the Cronbach alpha is tested, which results are shown in table 12 (see appendix). The Cronbach's alpha is referred to as " $\alpha$ " in the table.

For the Factor Component Analysis (FCA) two tests are conducted to identify the validity of the measurement scales described in the operationalization (3.8), which are the Kaiser-Meyer-Olkin adequacy test (KMO) and the component matrix. The measure of sampling adequacy (KMO) lays between 0 and 1 and shows the proportion variance between the used variables. KMO values between 0.8 and 1 indicate that the sampling is excellent. According to Dziuban and Shirkey (1974), the rule of thumb for KMO values that are not adequate ranges between .50 and .60, however, they are still acceptable. When KMO values are close to zero, it shows that there are significant proportion variances between the variables, which indicates that the used items in a measurement construct are not valid (Dziuban & Shirkey, 1974). The component matrix was used to determine the factor loadings of each item in a construct and shows the patterns of the correlations between the interrelated questions (Peterson, 2000). Both results are also shown in table 12 (see appendix), and the discussion related to these results is presented in 3.10 of this study.



After checking the reliability and validity of the measurement constructs, one item was excluded (PCE2) that showed a factor loading below 0.4, followed by a computation of the single items of each scale to create variables. Once the variables were computed, a univariate, bivariate and multivariate analysis were performed in order to draw conclusions on the collected data. First, the descriptive statistics of the collected data were revealed, including frequencies, means and standard deviations from the created variables. Second, a Kolmogorov-Smirnov test was performed to see whether the majority of the variables were normal or non-normal distributed. From this test, it was evident that a Spearman correlation test needed to be executed for the correlation matrix, since most of the variables were significant ( $>0.05$ ). After developing the Spearman correlation table, relationships between the variables were analyzed to decide which variables should be included in the multivariate analyses. Lastly, a multivariate analysis was performed through Andrew F. Hayes (2018) PROCESS v3.5 macro plug-in, installed in IBM SPSS. This software was developed to analyze and interpret moderation effects, which was important for this dissertation. It allowed us to automatically center the variables, create interaction terms, run a multiple regression (with the interaction terms) and test simple slopes (by the effect of IV on DV at  $-1SD$ ,  $0SD$  and  $+1SD$  of the moderator) to see if there was a significant moderation effect (Hayes, 2018).

### **3.10 Validity & Reliability**

Reliability and validity are of great importance when it comes to the overall quality of research work (Saunders et al., 2009). Validity shows whether the used measurement of a concept actually measures that concept (Bryman & Bell, 2011). In this dissertation, validity was intended to be established by developing item scales based on pre-existing measurements from scholars, who determined the construct validity of those measurements. Reliability determines whether the collection technique and the analysis process show consistency in the findings. Thus, a test is reliable when it gives the same results under the same conditions (Saunders et al., 2009). For example, an IQ test that is used to measure intelligence, should not differ when taken twice from the same person, because then there is inconsistency in the results, which do not promote reliability. In this study, validity and reliability are tested through two different statistical tests, which are Cronbach's Alpha and Factor Component Analysis (FCA). In the following section, the results of the two tests will be discussed, based on table 12 in the appendix.

According to Straughan and Roberts (1999), the ECCB scale has a good internal consistency and reported a Cronbach alpha coefficient of .96. In this research, the selected and modified items from this scale indicated a coefficient of .87, which means that the items for the independent variable are reliable for the analysis. Also, the developed items for measuring the actual purchasing (i.e. DV) indicated together an alpha coefficient of .81, which can be seen as a favorable reliability outcome according to George and Mallery (2013). As mentioned before, the scale items for measuring the actual purchase were based on the EMCB scale from Sudbury-Riley and Kohlbacher (2016). They argued that the EMCB scale items consist of reliable statements with an alpha coefficient of .90. This study confirms their argument with great internal consistency over the modified items.

A contradictive outcome was obtained with the scale items of PCE. According to Roberts (1996), the PCE scale consists of a good alpha scale value with a coefficient of .72. However, our developed items related to this scale, do not have a high alpha value with an outcome of .56. Even one item was removed from the measurement construct due to a very low correlation compared to the other two. One reason for this could be that the sample population for this research misinterpreted the designed question(s), as a result of a larger variance of the responses for the intended measurement construct as a whole (Pallant, 2016). Also, Pallant (2016) stated that for a measurement construct with a small number (i.e. less than 10) of items, a lower alpha value is perceived as a threat, which is the case in the current study. A low alpha coefficient was the same issue for the developed PQ construct with a ratio of .56 that was partly designed by our own, inspired by Gleim et al. (2013) which alpha scores for their measurement instrument(s) ranged between .83 to .98. On the other hand, the two constructs 'Recognition' and 'Availability', that were also based on the study of Gleim et al. (2013), showed better results on internal consistency over the designed items. In the current study, the coefficients reported .83 (Recognition) and .73 (Availability). According to Nguyen et al. (2019), the price sensitivity scale has a decent internal consistency with an alpha value of 0.78. Almost a similar outcome, for the developed 'Price' measurement scale in this study, was obtained with an alpha coefficient of .72, which is good enough, according to George and Mallery (2013). Overall, it can be seen that the reliability coefficients are sufficient enough for conducting research, although 'PCE' and 'PQ' serve some limitations.

Furthermore, for each construct, the KMO was tested showing different results, in which one can argue that some of the developed constructs were missing out on good construct validity.

One reason for this could be that most of the constructs only consist of two or three items, which is low to ensure a good KMO validity score (Pallant, 2016). Nevertheless, most factor loading of these constructs can be interpreted as high, ranging between .07 to .09, and are therefore integrated into the analysis. This means that between most items used for each construct, the internal consistency is at an adequate level. Besides, since too many questions can also lead to less response and frustration among the respondents, we have tried to keep the survey limited in the number of questions to avoid less reliable answers (Saunders et al., 2009).

### **3.11 Ethical Considerations**

During the process of collecting data, ethical considerations were taken into account. Ethical considerations are there to protect and respect those who participate in the research (Saunders et al., 2009). The primary data of this research was collected through an online questionnaire. The respondents that participated in the questionnaire did this voluntarily. The questionnaire was shared through the online platforms WhatsApp and Facebook. The ones sent via WhatsApp were sent once, in order to avoid irritation among the recipients. Those that received the survey but did not want to fill it in were respected and left alone. In addition, all recipients were notified that participation was voluntary and that the results would be used for the dissertation. We explained that the participants would remain anonymous at all time, no answers would be possible to trace back to any individual. Lastly, we informed the respondents of the purpose of the questionnaire and why their opinions and thoughts could be of value to this dissertation.

## 4. Results & Analysis

*In this chapter, the results from the statistical data analysis in SPSS will be presented, including descriptive statistics, correlations and multiple regression. This chapter will end with a summary of the analysis, followed by rejection or non-rejection of the developed hypotheses for this dissertation.*

### 4.1 Univariate analysis

The descriptive statistics give an overview of the collected empirical findings. The empirical findings consist of sample information, a dependent variable, an independent variable, moderators and control variables. In order to give a clear overview of each of them, the findings, which are processed into tables, will be analyzed and explained.

#### 4.1.1 Sample information

In this subsection information regarding the sample will be presented. This information consists of the distribution of the samples' gender, educational level and birth year and is provided in order to create an image of the sample. In total, 123 respondents filled in the questionnaire. Eight of the respondents did not live for more than five years in the Netherlands and since this was a control variable, they were excluded. This means that a total of 115 respondents provided data that could be used to analyze. Of those 115 respondents, 114 filled in their educational background, one respondent did not. Since educational background was not a mandatory question, because it does not affect this research's purpose, this respondent was not excluded.

Table 6. *Frequency table sample group*

<b>FREQUENCY TABLE</b>	<b>Frequency</b>	<b>Valid Percent</b>
<b>Gender (control variable)</b>		
Female	62	53.9%
Male	53	46.1%
<b>Total</b>	<b>115</b>	<b>100%</b>
<b>Education (control variable)</b>		
Bachelor	66	57.9%
Master	16	14%
PhD	4	3.5%
Other	28	24.6%
<b>Total</b>	<b>114</b>	<b>100%</b>

***Gender and education***

As shown in the table above, all the 115 respondents answered the question related to their gender and the results show that 62 females and 53 males joined the questionnaire. The gender difference of the sample population is almost equally distributed. The females represented 53,9% of the respondents and the males the remaining 46,1%. The gender was measured through a dummy variable, in which 1 stood for female and 0 for male. The educational level was also measured through a dummy variable in which 1 was bachelor, 2 was master, 3 PHD and 4 others. It can be seen in table 6 that the majority, 57,9% of the respondents (66), were at that time either enrolled in a bachelor program or already graduated and in the possession of a bachelor diploma. 14% of the respondents (16) were master students or graduates. This indicates that the majority of the respondents that joined the questionnaire had a higher educational background. A small percentage (3,5%) were PHD (ex)students (4) and the remaining respondents (24,6%) had another form of educational background (28). As mentioned before, one person did not fill in his or her educational background.

Table 7. *Frequency table birth year*

<b>FREQUENCY TABLE</b>	<b>Frequency</b>	<b>Valid Percent</b>
<b>Birth Year</b>		
1984	1	0,9%
1987	2	1,7%
1989	2	1,7%
1990	1	0,9%
1991	3	2,6%
1992	8	7,0%
1993	9	7,8%
1994	17	14,8%
1995	24	20,9%
1996	12	10,4%
1997	18	15,7%
1998	11	9,6%
1999	6	5,2%
2000	1	0,9%
<b>Total</b>	115	100%

***Birth year millennials***

One important control variable of the questionnaire was the birth year of the respondents. The distribution of the birth year measurement can be viewed in the table presented above. Since this dissertation focused on millennials, there were 16 possible answers (2000-1982) in order

to be granted to join the sample. It is noteworthy that there was a wide variety in birth years, although the majority of the respondents were born between 1994 and 1998. Between those years, the cumulative percentage of respondents is 71,4%, which represents the vast majority of the group. This is explainable, since the researchers were both born in 1994 and the questionnaires were spread via social media (Facebook, Instagram and WhatsApp), and thus mostly filled in by peers.

Table 8. *Descriptive statistics of variables*

<b>DESCRIPTIVE STATISTICS</b>	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Independent variable</b>					
Intention to buy	115	1.75	7.00	4.8217	1.25515
<b>Dependent variable</b>					
Actual Purchase	115	1.50	7.00	4.8717	1.22625
<b>Moderator variables</b>					
Perceive Consumer Effectiveness	115	1.00	7.00	2.5348	1.31475
Recognition	115	1.00	7.00	4.0935	1.31475
Availability	115	1.00	7.00	3.5594	1.24530
Packaging Quality	115	2.00	7.00	4.2319	1.07167
Price	115	1.00	2.00	4.5913	1.37370

#### **4.1.2 Independent variable**

The variable “Intention” is the independent variable in the analysis. Just like with the dependent variable, the independent variable is also constructed by using four questions and taking the average of these four questions. These four questions are also answered based on a 1-7 Likert scale, where 1 is strongly disagree and 7 is strongly agree. First, the respondent is asked whether he/she tries to make environmentally friendly choices in a grocery store. Second, does the respondent intend to buy products that are sustainably packaged because they are less harmful to the environment. Third, the respondent is asked whether he/she would consider switching brands for environmental reasons. Fourth, does the respondent plan to buy products that have sustainable packaging. Using an equal weighted average of these four questions, the variable “intention” was created. From table 8, it can be seen that the variable intention has a mean of 4.8217. This shows that on average respondents intend to buy products with environmentally friendly packaging, since a score of 4 is neutral on the Likert scale.

### **4.1.3 Dependent variable**

The dependent variable in the analysis is “purchasing”. It indicates whether someone is willing to purchase on a Likert scale from 1 to 7, where 1 stands for strongly disagree and 7 for strongly agree. The purchasing variable is calculated by taking the average score of four questions on purchasing. First, whether the respondent always chooses a product with packaging that is easily recyclable when given that choice. Second, when given the choice, whether the respondent would always choose sustainable packaging over unsustainable packaging when the product is similar. Third, whether the respondent always chooses a product with packaging that is less polluting when given a choice. Fourth, when there is a choice, whether the respondent always chooses the product with a green claim or eco-label. By taking the equal weighted average of these four questions, the dependent variable “actual purchasing” was created. In table 8 (descriptive statistics), it is shown that the variable actual purchasing has a mean of 4.8717. This means that on average, respondents are expected to purchase products with sustainable packaging, since 4 would indicate a neutral answer.

### **4.1.4 Moderator variables**

The main objective of the analysis is to calculate the effect of the independent variable “intention” on the dependent variable “purchasing”. As mentioned before, five moderators were used to measure whether they influenced the dependent variable when they were added as an interaction with the independent variable. In this paragraph there will be a description of these five moderators. To start off with, the variable Perceived Consumer Effectiveness (PCE) was added to see to what extent the respondents believed that their actions had significant effects on the environment. The mean of PCE is 2.5348. The questions were formulated in such a way that this indicates that the respondent believes they can contribute to the environment with their actions. Furthermore, recognition was added as a variable to investigate the effect of whether respondents were able to recognize and find sustainably packaged products. Recognition has a mean of 4.0935. This is very close to the neutral value, which is 4. Also, price was added as a moderator. This indicated the effect of whether respondents were willing to pay higher prices for sustainable packaging. Price has a mean of 4.5913. The questions were asked in such a way that a value above 4 (neutral), indicates that the respondents are willing to pay extra for sustainable packaging. Availability was the fourth moderator. This variable points out the effect of whether a respondent has the possibility to choose sustainable packaging. With a mean of 3.5594, this suggests that the respondent slightly disagrees with the fact that there is enough

availability of sustainable packaged products. Lastly, the moderator packaging quality was added. This describes whether respondents prioritize packaging quality (reusability, protection capability and convenience) over sustainable packaging. The mean of 4.2319 indicates that respondents slightly prioritize packaging quality over sustainable packaging.

#### **4.1.5 Kolmogorov-Smirnov**

Before performing the bivariate analysis, in which a correlation matrix will be developed, the normality of the data needs to be tested. This is important since it is decisive which correlation coefficient test will be chosen (Pearson, Kendall's Tau-b or Spearman). In the table below, the Kolmogorov-Smirnov test is shown and indicates that the majority of the variables are significant (<0.05). This means that most of the data is non-normal distributed and therefore the Spearman correlation test is the best fit on the dataset. On the next page the Spearman correlation matrix will be given.

Table 9. *Kolmogorov Smirnov Test for variables*

<b>KOLMOGOROV-SMIRNOV TEST</b>	<b>Sig.</b>
Actual Purchase	.00
Intention	.04
Perceived Consumer Effectiveness	.00
Recognition	.95
Availability	.40
Packaging Quality	.46
Price	.00



## 4.2 Bivariate Analysis

Table 10. *Spearman correlation matrix*

<b>SPEARMAN CORRELATIONS MATRIX</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>1</b>	Intention to buy	1								
<b>2</b>	Actual purchase	<b>.645***</b>	1							
<b>3</b>	Perceived Consumer Effectiveness	<b>-.372***</b>	<b>-.240**</b>	1						
<b>4</b>	Recognition	<b>.242**</b>	<b>.254**</b>	<b>.209*</b>	1					
<b>5</b>	Availability	-.039	.013	<b>.353***</b>	<b>.260**</b>	1				
<b>6</b>	Packaging Quality	-.139	-.099	<b>.296***</b>	<b>.277**</b>	<b>.316**</b>	1			
<b>7</b>	Price	<b>.529***</b>	<b>.526***</b>	-.142	<b>.237*</b>	.098	.045	1		
<b>8</b>	Gender	<b>-.305**</b>	-.016	.142	.046	.176†	.111	.000	1	
<b>9</b>	Education level	-.019	.006	.075	-.093	.043	-.001	.051	-.032	1

\*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05; † p < 0.10

### 4.2.1 Spearman correlation matrix

On the page before, the Spearman correlation table is shown. The table shows which variables are correlated with each other and the significance level of this correlation. The analysis of this table is an important step to determine which variables are viable to include in the multivariate analysis (regression), which will be shown in the next paragraph. The stars next to the variables indicate the significance of correlation effect (\*\*\*)  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ ; †  $p < 0.10$ ). Purchasing and intention are correlated with a significance level of 1%. This indicates that there is a relationship between the intention to buy and actually purchasing environmentally friendly packaged goods. Furthermore, perceived consumer effectiveness (PCE) shows a significant relationship with intention to buy. This means that it would be a good option for a moderator variable, because the interaction effect will influence the dependent variable. The same can be said for price and recognition. Both of these variables show a good fit for the use as moderating variables, because they show a significant influence on the independent variable, which then influences the dependent variable. The variables availability (AVA) and packaging quality (PQ) show no significant correlation with the independent variable intention. Therefore, these are not viable moderators to include for the multivariate analysis (regression). As for the control variables, gender and education level, only gender has a significant correlation. Therefore, only gender will be included in the regression.

### 4.3 Multivariate Analysis

Table 11. *Multiple regression analysis*

MULTIPLE REGRESSION	Model 1	Model 2	Model 3
	Y	Y	Y
Intention to buy	<b>,510***</b> (,130)		
Recognition	,074 (,076)		
Intention * Recognition	<b>,125†</b> (,073)		
Gender	<b>,415*</b> (,175)		
Intention to buy		<b>,510***</b> (,130)	
Price		<b>,286**</b> (,088)	
Intention * Price		,076 (,060)	

Gender		<b>,306†</b>	
		(,163)	
Intention to buy		<b>,657***</b>	
		(,093)	
Perceived Consumer Effectiveness		-,021	
		(,080)	
Intention * Perceived Consumer Effectiveness		,059	
		(,078)	
Gender		<b>,451**</b>	
		(,165)	
<b>Constant</b>	<b>4,208***</b>	<b>4,345***</b>	<b>4,236***</b>
<b>F-value</b>	<b>21,5***</b>	<b>22,44***</b>	<b>22,98***</b>
<b>Adj. R<sup>2</sup></b>	0,45	4,68	0,42
*** p < 0.001; ** p < 0.01; * p < 0.05; † p < 0.10			
Without brackets => Std. B. (brackets) => Std. E.			
a. Dependent Variable: Actual purchase (Y)			

For the multivariate analysis, multiple regressions have been done with different moderators by using PROCESS v3.5 macro plug-in (Hayes, 2018). As mentioned before, moderators influence the effect the independent variable has on the dependent variable. It is interesting to see what happens if moderators are included that show significant effects with the independent variable in the correlation table shown above. For each moderator a separate regression was executed. Also, gender was the only control variable that was included, as this was the only one with a significant effect. In table 11, the results of the different regressions are shown. For each regression, the independent variable is intention to buy. Purchasing is the dependent variable. Also, gender is used as a control variable for every regression. As explained before in 3.9, PROCESS macro plug-in does center the variables automatically to reduce high collinearity between variables, followed by a creation of the interaction term and regression. The regression script performed by Andrew Hayes PROCESS (2018) does not report any VIF values, however, from the correlation matrix table (table 10) it is visible that there are no extreme high numbers (>0.8) that are signalling the danger of multicollinearity. Besides, Hayes (2018) argued that multicollinearity does not have any effect on the created interaction term through PROCESS macro which, therefore, is not reported in the multiple regression (table 11).

To start with, model 1 shows the regression of intention to buy with recognition as a moderator. Intention to buy shows a strong significant positive effect on purchasing. The interaction variable of recognition multiplied by intention to buy has a weak significant effect (p<0.10). The control variable gender also has a significant effect on purchasing. In order to better understand the interaction between the predictors, simple slopes are used. Here, -1SD (standard

deviation) below the mean (Recognition = -1.32) has the following effect:  $b = .51$ ,  $t(110) = 3.64$ ,  $p = .000$ . This means that for low recognition rates, intention to buy predicts the actual purchase of sustainable packaging positively with a conditional effect of .51. When looking at the average score (Recognition = 0 below mean) the effect can be interpreted as:  $b = .67$ ,  $t(110) = 7.55$ ,  $p = .000$ . So, for recognition at an average level, intention predicts the actual purchase slightly better than at a low level (-1SD below mean). Lastly, a high recognition rate (+1.32 above the mean) indicates that intention predicts the actual purchase even better, with a conditional effect of 0.83 ( $b = .83$ ,  $t(110) = 6.83$ ,  $p = .000$ ). Thus, at all levels (low, average and high) recognition does show a positive moderation effect. To make the interpretation visible a plot is created, which can be seen in the appendix (Figure 3). Since there is a weak significance (<10%), it is valuable to take the conditional effects into consideration to understand how strong the interaction effect will be. In contrast, when the interaction term is not perceived as significant, there is no need to look at these effects because there is no evident interaction (Hayes, 2018).

Model 2 shows the regression when price is included as a moderator. Now it can be seen that intention to buy and the moderator price both have strong significant ( $p < 0.01$ ) effects on purchasing. Price has a positive effect on purchasing, but the questions were asked in such a way that this means people care less about price when the product is sustainably packaged. Gender is weakly significant with a  $p$  value of 0.063. This indicates that intention to buy has a positive effect on purchasing sustainable packaged products. Also, it can be seen that the interaction variable of price multiplied by intention is not significant. This means there is no moderation effect between the predictors, and therefore it is not needed to report the conditional effects of the PROCESS macro script (Hayes, 2018).

Next, model 3 shows the effects when Perceived Consumer Effectiveness is used as a moderator. In this case, intention to buy also has a significant effect, and so does the control variable gender. Again, intention has a positive effect on purchasing. Since in all models intention has a strong significant ( $p < 0.01$ ) positive effect on purchasing, this indicates that when a consumer has the intention to buy environmentally friendly packaged goods, he/she is more likely to purchase these goods. This would mean that there is no clear indication of a gap between the intention to buy and actually purchasing environmentally friendly packaged goods. Also, the created interaction term (PCE \* intention to buy) is not significant, which again does not promote the reporting of the conditional effects between these predictors (Hayes, 2018).

#### **4.4 Hypotheses**

In the theoretical framework the hypotheses were described. Since all the analysis steps have been performed, it is now possible to evaluate the hypotheses. The following hypotheses were listed in the theoretical framework:

**H1:** *Intention to buy environmentally friendly packaged products positively influences millennials' purchasing behavior towards environmentally friendly packaged products.*

**H2:** *Perceived consumer effectiveness has a positive moderation effect on millennials' purchasing behavior towards environmentally friendly packaged products.*

**H3:** *Recognition of environmentally friendly packaging has a positive moderation effect on millennials' purchasing behavior towards environmentally friendly packaged products.*

**H4:** *Price has a negative moderation effect on millennials' purchasing behavior towards environmentally friendly packaged products.*

**H5:** *Availability has a positive moderation effect on millennials' purchasing behavior towards environmentally friendly packaged products.*

**H6:** *Packaging quality has a positive moderation effect on millennials' purchasing behavior towards environmentally friendly packaged products.*

Perhaps the most general hypothesis was the first hypothesis, which describes the possible effect intention to buy could have on purchasing. From the multivariate analysis, it was shown that intention has a strong positive effect on purchasing in all the three models that were used in a regression. Therefore, the first hypothesis cannot be rejected. The reason only three models were used for the regression was due to the results of the bivariate analysis (correlation table). The correlation table (table 10) showed that only recognition, price and perceived consumer effectiveness had a significant effect with intention and were therefore the only moderators that were useful for the regression. Since the other proposed moderators in hypotheses 5 and 6 did not show a significant relationship with intention, they were not included in the regression. Also, since there is no significant relationship, hypotheses 5 and 6 can be rejected based on a 5% significance level.

Hypothesis 2 was developed to see if perceived consumer effectiveness has a moderation effect on the relationship between intention and the actual purchase. As mentioned before, this moderator showed a significant effect in the Spearman correlation matrix (table 10) but did not indicate any significance with regards to the interaction term (PCE \* intention to buy). As a

result, this hypothesis can be rejected. Hypothesis 3 considered the moderation effect of recognition on purchasing. Recognition shows a significant positive relationship with intention in the correlation table (table 10). In the regression analysis (table 11), it is shown that there is a weak positive significant effect on purchasing through the interaction effect of recognition (recognition \* intention). Therefore, considering these two facts, hypothesis 3 cannot be rejected. Hypothesis 4 described the possible negative moderation effect of price on purchasing. This hypothesis indicates that consumers are less likely to purchase if the price was higher. The correlation table showed a positive relationship between price and intention to buy with a significance of 1%. The regression showed no significant interaction effect, but price has a strong positive significant effect on purchasing. As mentioned in the multivariate analysis section, the price questions were formulated in such a way that a positive effect would mean that consumers do not mind paying extra if the product is sustainably packaged. Since a positive effect is found in both the bivariate and multivariate analysis, hypothesis 4 can be rejected, because consumers do not experience a negative price effect, and there is no moderated interaction.

## **5. Discussion**

*This chapter will link the theory described in the theoretical framework to the results found in the analysis. Similarities and differences between this dissertation and research described in the theoretical framework will be discussed.*

### **5.1 Motivation**

#### **5.1.1 Intention to buy sustainable packaging**

We found that intention to buy sustainable packaging has a strong significant positive effect on purchasing. This means that when a millennial has a high intention to buy sustainably packaged products that the chance increases that this will lead to an actual purchase. This result of the analysis can be considered as a valuable outcome because it showed that intention is a good statistical indicator to predict the motivation of Dutch millennials' purchasing behavior towards sustainable packaging. Since we found evidence that millennials have a pro-environmental motivation and thus are willing to act in a sustainable manner, this will not stop them from buying environmentally friendly packaged products. However, as stated before in the theoretical chapter, in practice intention alone does not always predict the actual purchase, since a large variety of other factors have an influence on a persons' attitude (Popovic et al. 2020). Therefore, instead of using the TPB, that was often used by other scholars in the same research field, we used a modified version of the MAO model to analyze further why there is any inconsistency between being motivated to act in a particular way and the actual performance of that behavior. With the usage of the 'Motivation' component of the MOA model, we found that millennials have the motivation to engage in purchasing sustainably packaged products. This outcome shows that the MAO model is also applicable to predict a person's green intention instead of Ajzen's TRA and TPB, which are mostly used in research towards green purchasing behavior. Still, it has to be taken into account that the ability and opportunity constructs of the MAO model play a significant role in how millennials' attitude will change and affect their purchasing behavior.

### **5.2 Ability**

#### **5.2.1 Perceived consumer effectiveness (PCE)**

We found that perceived consumer effectiveness, which is whether consumers think their individual actions can positively affect the environment, has no significant moderation effect

on the intention-behavior relationship. This means that we did not find evidence that PCE will influence the relationship between intention and the actual purchase, which means that this variable does not strengthen or weaken millennial's willingness to purchase sustainably packaged products. This is noteworthy since multiple scholars (Nguyen et al., 2019; Joshi & Rahman, 2019) claim that PCE does play an important role in the buying decision process of green products. For example, Nguyen et al. (2019) argue that the belief a person has that he/she can be part of the solution of a problem is an important psychological factor to engage in green buying behavior. Also, Bandura's (1997) self-efficacy theory argues that people will be more motivated when they perceive the feeling that their action succeeds in specific situations. Compared to other scholars and the self-efficacy theory of Bandura (1997), it can be concluded that they do not support our findings. Nevertheless, there are mixed results with the role of PCE as a moderator, since its predictive characteristic of environmental behaviors was not always perceived as consistent due to its domain specificity (Kim, 2011). This means that many different factors could directly influence a person's cognitive view, such as ad-hoc experiences, knowledge or social influence, and could therefore be a reason for distinctive outcomes.

### **5.2.2 Recognition**

The recognition variable consisted of questions that indicated whether consumers were able to recognize environmentally friendly packaged products. The moderation effect focused on whether recognition influenced the intention-behavior relationship. We found weak support that millennials are more likely to purchase environmentally friendly packaged products when they have a higher sense of recognition in combination with a higher intention to buy these products, which is in line with the study from Scott and Vigar-Ellis (2014). We argue that the results from the analysis show that when there is a low 'intention' and low 'recognition', millennials are more likely to buy sustainably packaged products than if they are fully aware of how these products look like (figure 3). This could mean that they are unconsciously buying sustainable packaging, even though they do not intend to do so. When the intention to buy sustainable packaging is perceived as higher, this effect becomes vice versa, in which a higher recognition would increase the likelihood to buy sustainably packaged products. Hence, the ability to recognize these types of products could explain why millennials do or do not engage in green purchasing behavior, simply because they are lacking in knowledge or do not have the ability to distinguish packaging that is less harmful to the environment. This suggests that when one has the intention to purchase sustainably packaged products and also knows how to recognize them, that he or



she has to put less effort into finding them and therefore lowers the threshold to an actual purchase. This outcome could be of interest to grocery stores that want to contribute to the environment by increasing the sales of pro-environmental products, and by making millennials more aware of sustainably packaged products through educational incentives.

## **5.3 Opportunity**

### **5.3.1 Price**

We found that price has a positive relationship with intention to buy with a significance level of 1%. The regression indicated no significant moderation effect, but price did show a strong positive significant effect on purchasing. The price questions were formulated in such a way that a positive effect indicated that consumers are willing to pay extra for sustainably packaged products. We argue that consumers do not experience a negative price effect and actually are motivated to pay extra for a sustainably packaged product. The question remains how much extra money millennials are willing to pay. We included price as a possible predictor that could change the intention-behavior relationship because we suspected that it could be of value for the actors in the supply chain to know whether millennials are willing to pay extra. Connell (2010), Vermeir and Verbeke (2006) and Young et al. (2010) all argue that consumers' willingness to buy green products is negatively affected when they have to pay extra. Grankvist and Biel (2001) instead claim that consumers are not influenced by price when it comes to buying green products. Due to the discrepancy among these scholars, questions regarding price were included in the survey to see what effect it would have on the buying behavior of millennials. Based on the results in our study, we conclude that they correspond with the study of Grankvist and Biel (2001). As a result, this outcome sheds a new light for brand or marketing managers acting in the Dutch FMCG industry.

### **5.3.2 Availability**

We included availability as a possible moderation effect for this research because previous studies (Lindh et al., 2015; Vermeir and Verbeke, 2006) showed that consumers find the availability of sustainably packaged goods important for purchasing decisions. Our findings showed no significant relationship between availability and intention. This means that a lack of availability is not seen as a significant problem for the sample group of this research, because it has no effect on their intention to buy products. This is remarkable since it is not corresponding with what the previously mentioned scholars found with their studies. For

example, Vermeir and Verbeke (2006) found that having sufficient availability of green products has a positive effect on consumers' green purchasing behavior. Since we could not detect a significant relationship between availability and intention, Vermeir and Verbeke's study does not support ours. Our results show that the mean of availability is around 3.5, this means there is no strong opinion from millennials that states whether they find that there is sufficient availability of sustainably packaged products in grocery stores. We suspect that a lack of availability is not perceived as a problem by millennials, because they either find that there is always sufficient availability of sustainably packed products or because they are not able to recognize these products and are therefore not able to judge the availability. A last suggestible reason that can explain why they do not perceive a lack of availability as a constraint, is due to the overall young age of the sample group, some of them perhaps still live with their parents and therefore rarely do groceries by themselves. Therefore, we believe that availability is not perceived as a strong predictor of behavioral change among millennials as a target group.

### **5.3.3 Packaging quality**

The main reason that we measured packaging quality was that a study conducted by Hao et al. (2019) showed that consumers perceived packaging quality as a crucial factor in making buying decisions. It was therefore remarkable that our findings showed did not show a significant relationship between packaging quality and intention to buy sustainably packaged products. Therefore, we assume that millennials care more about sustainability than they care about the quality of packaging. However, this assumption is in contradiction to the study performed by Ketelsen et al. (2020), because their findings showed that consumers find the price and product quality more important than sustainable packaging. We suspect that there are two reasons why there is no moderation effect of packaging quality on the relationship between intention to buy and the actual purchase. First, as mentioned before, millennials are seen as the 'green generation' and therefore, perhaps care more about the environment than that they care about packaging quality. Secondly, they might assume that environmentally friendly packaging is usually made with high-quality packaging and therefore prioritize sustainable packaging over packaging quality. This corresponds with the study of Magnier et al. (2016), who argued that sustainably packaged products are perceived to have higher packaging quality than conventionally packaged products. Based on the arguments above, we believe that packaging quality does not change millennials' buying behavior towards sustainable packaging because they already think this type of packaging has the gold standard regarding quality.

## **6. Conclusion**

In this section the research paper will be summarized and explained concisely. Also, the findings will be explained, followed by further research suggestions and limitations of this research paper.

When we started this research paper, we collected findings from previous literature that showed us that there is a gap between thinking positively about sustainability and putting this into practice in day to day life decisions. We also discovered that millennials are seen as the ‘green generation’, which motivated us to use them as a sample group. The combination of the gap and the ‘green generation’, triggered us to make it our research goal to clarify the inconsistencies between consumers’ green attitude and behavior.

The purpose of this dissertation was to examine why millennials do or do not purchase FMCG products with sustainable packaging. Based on this, we formulated the research question: “Why do millennials have a positive attitude towards sustainable packaging, but do not show this in their purchasing behavior?” In order to answer our research question, we used a modified version of the MAO model to develop five moderators that we used as measurements to see in what way these variables affect the intention-behavior relationship.

We can conclude that Dutch millennials are motivated to buy sustainably packaged products in order to contribute to the environment and that the majority do not mind paying price premiums for these products. Out of the five moderators, only ‘recognition’ showed a weak significant interaction that could explain why millennials do or do not buy sustainably packaged products even though they have a green attitude and are motivated to do so. Our findings indicate that millennials on average neither agree nor disagree how to find and recognize sustainably packaged products, which means that a big part among the millennials is not fully aware how to distinguish conventional from sustainable packaging. Therefore, we can conclude that recognition strengthens the relationship between intention and the actual performance of the purchase. Regarding the other moderating variables (i.e. PCE, availability, price and packaging quality), we did not find evidence that they are strengthening or weakening the relationship between intention and actual behavior. Nevertheless, we can conclude that the majority of millennials do believe that they can contribute to the environment with their actions and that there is room for improvement to increase more awareness around sustainable packaging. Lastly, we found that closing the intention-behavior gap is challenging and can be perceived as

a complex area with many different individual and external factors that could change a person's behavior. As a result, there is still no definite answer to why there is a gap between a green attitude and the actual performance of the green purchase with regards to sustainable packaging.

### **6.1 Theoretical and practical contributions**

This research paper has a theoretical contribution to the need of further analyzing the intention-behavior gap by using a research approach that goes beyond Ajzen's TRA and TPB models in the research area of sustainable packaging. Our modified MOA model can be seen as an innovative approach and a new contribution for addressing the inconsistency between intention and the actual purchase of sustainably packaged products, since it has not yet been used for this purpose. So far, the model has been mostly used for studies in other research fields for predicting behavior, such as consumers' behavior towards online airline travel tickets (Bigné et al., 2010) and to investigate the participation level of community festival visitors (Jepson et al., 2014). The findings from our research indicate that the applicability of the model is sufficient to test different individual and situational factors on the relationship between intention and green purchasing behavior, which means that this approach is useful for further research on this topic.

The outcome of this study also entails practical contributions. For instance, brand managers can gain valuable information from this research for the implementation of new branding strategies, such as pricing or decisions related to packaging design(s). Moreover, our results could be valuable for the supply chain of grocery products. For example, store managers could use the information regarding the willingness among millennials to pay extra for sustainably packaged products while determining prices for these products in grocery shops. Also, this study found evidence that recognition can play a decisive role in whether millennials are buying conventional or sustainable packaging. Supermarket chains could develop awareness programs around sustainable packaging to increase consumers' pro-environmental knowledge and to contribute to stopping climate change.

### **6.2 Limitations**

The research was conducted with Dutch millennials as a sample group. It was interesting to investigate this niche group, but it can also be considered as a limitation to see the effects of a broader and more diverse sample group. Also, because time was limited, a certain amount of

moderation effects were investigated, but there could have been a wide scale of other moderating variables that could have been tested. Suggestions of other moderating variables are given in the tables provided in section 2.4. Another limitation that could have an effect on the outcome of this study is the underreporting of undesirable social behavior. This phenomenon occurs when the topic is perceived as sensitive and creates a tendency to favorable self-presentation (Milfont, 2009). Nevertheless, to avoid social desirable biases, in the introduction of the questionnaire it was explicitly argued that there are no wrong or right answers. Lastly, some of the developed measurement constructs did not meet the rule of thumb when it comes to reliability and validity, such as packaging quality and perceived consumer effectiveness.

### **6.3 Further research**

In this research, millennials were used as a sample group. The results could be very different when a different age group is used. Also, since this survey was focused on Dutch nationals, it would be of value to investigate whether differences in behavior of purchasing sustainably packaged products are found between different countries. Moreover, as mentioned in the limitations, it is of interest to see whether results change when other moderation variables are tested and used, but also developing a more reliable measurement construct for packaging quality would be of valuable interest. Next, this research's results showed that millennials are willing to pay extra for sustainably packaged products. However, in this research, it was not measured how much (%) they were willing to pay extra. Perhaps this can be seen as an interesting addition for further research. Lastly, further research can use the results of this dissertation further to analyze the inconsistency between intention and the actual purchase. Because certain effects are known to be significant from this research, more detailed questions can be asked to millennials regarding these effects. This can be done in collaboration with grocery stores, so that consumers are asked why they are or why they are not buying sustainably packaged goods in practice, to close the intention-behavior gap.

## Reference List

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# Appendix

## 1. Intro questionnaire

Dear Participant,

We (Taeke and Jofel) are two Master students at Kristianstad University in the south of Sweden, studying a program in Business Administration with the focus on International Business and Marketing. Currently, we have arrived at the final stage of our study program, in which we have to deliver a Master thesis to finalize our study. As you probably know, the last mile is the longest, and therefore we need your help!

The goal of our research is to explore millennials' purchasing behavior towards sustainable packaging in the fast-moving consumer goods industry. We hope to gain valuable insights to address an intention-behavior inconsistency.

We have prepared some questions in the form of a survey, which will take you approximately 4-6 minutes to complete and is totally anonymous. Further, we want to emphasize that there will be no 'good' or 'wrong' in the answers that you choose. So remember, it is your own opinion that counts and is valuable to us!

Lastly, we highly appreciate your contribution to our research, thank you for that! If you have any questions regarding our research, feel free to contact us!

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**2. Survey questions**

Table 12. *Survey questions per variable*

<b>Factor</b>	<b>Indicator: 1= strongly disagree 7= strongly agree</b>	<b>Factor loading</b>	<b><math>\alpha</math></b>	<b>KMO</b>
<i>Intention to buy environmentally friendly packaging (IV)</i>	When I am at a grocery store, I try to make environmentally friendly choices.	,878	,870	,825
	When I am at a grocery store, I intend to buy products that are sustainably packaged because they are less harmful to the environment.	,854		
	I will consider switching from brands for environmental reasons.	,848		
	I plan to buy products that have sustainable packaging.	,822		
<i>Purchasing environmentally friendly packaging (DV)</i>	When there is a choice, I always choose the product with packaging that is easily recyclable.	,804	,806	,712
	When there is a choice between two similar products, one with sustainable packaging and one with unsustainable packaging, I always will buy the product with sustainable packaging.	,796		
	When there is a choice, I always choose the product with packaging that is less polluting.	,904		
	When there is a choice, I always choose the product with a green claim or eco-label.	,677		

Moderators	<b>Indicator:</b> <b>1= strongly disagree 7= strongly agree</b>	Factor loading	$\alpha$	KM O
PCE	Since one person's grocery choices cannot make a visible difference in helping the environment, it doesn't matter what I do.	,842	,586	,500
	I believe that it is worthless for each consumer to purchase products with sustainable packaging.	,842		
<i>Recognition</i>	When I do groceries, I can easily distinguish products with sustainable packaging from unsustainable packaging.	,834	,830	,770
	It is easy for me to recognize sustainable packaging through its material.	,825		
	I easily recognize sustainable packaging by its green claims or eco-labels that are displayed on the products.	,777		
	When I do groceries, it is clear to me how to find sustainably packaged products.	,817		
<i>Price</i>	I am willing to pay extra money for products that are wrapped in sustainable packaging.	,940	,717	,528
	When I have to choose between two similar products, one with sustainable and one with unsustainable packaging, then I choose the sustainable packaged one even though it is more expensive.	,907		



	I am only willing to pay extra money for products that are wrapped in sustainable packaging when my economic situation is good.	,526		
<i>Availability</i>	The availability of sustainably packaged products in grocery stores is always sufficient.	,611	,728	,587
	If I am looking for a specific product in a grocery store, then there is always the option to choose for packaged products that are less harmful for the environment.	,886		
	In my opinion, I can always choose products with packaging that are easily recyclable.	,896		
<i>Packaging quality</i>	The reusability of packaging (i.e. use it more than once) is more important to me than that the product is wrapped in sustainable packaging.	,446	,558	,537
	The protection capability of packaging is more important to me than that the product is wrapped in sustainable packaging.	,854		
	The convenience of packaging (e.g. lightweight, easy to open and close, compact and easy to store) is more important to me than that the product is wrapped in sustainable packaging.	,836		

### 3. Variance variable components

Table 13. *Factor Component Analysis (IV & DV)*

<b>Factor Analyses</b>		
<b>(IV &amp; DV)</b>		
KMO Measure of Sampling Adequacy		,836
Bartlett's Test of Sphericity	Approx. Chi-Square	486,773
	df	28
	Sig.	,000
Total Variance Explained	Rotation Loadings Cumulative %	69,48

<b>Rotated Comp. Matrix</b>	1	2
IV1	0,874	0,201
IV3	0,832	0,152
IV4	0,762	0,196
IV2	0,742	0,409
DV4	0,582	0,388
DV3	0,230	0,878
DV2	0,151	0,854

DV1	0,377	0,701
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### 3. Moderation effect

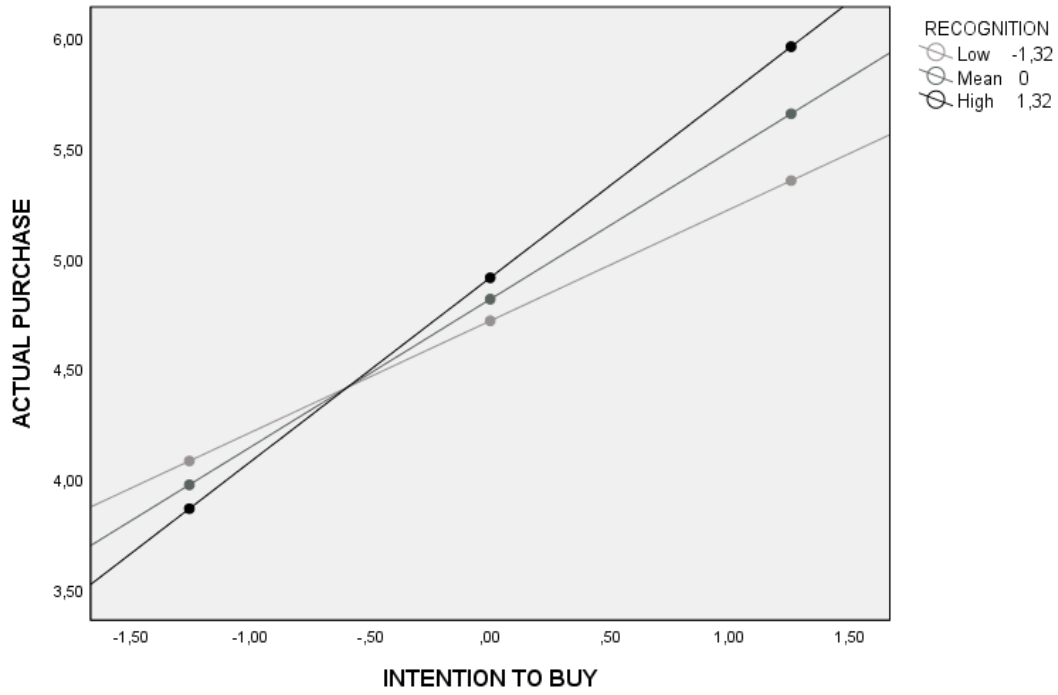


Figure 3. Moderation effect (Recognition)