



Understanding purchase intentions of eco-labeled sportswear using the Theory of Planned Behavior

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Abstract

Title: “Understanding purchase intentions of eco-labelled sportswear using the Theory of Planned Behavior”

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The use of eco-labels is considered as an extremely effective marketing tool in communication a product’s environmentally friendly and socially desirable characteristics. For consumers, it is a clear source of information.

This study aims to investigate the relationship between the presence of an eco-label and consumer green purchase intention. Specifically, the use of an eco-label on sportswear was investigated.

The Theory of Planned Behavior was applied in order to understand what drives purchase intention. Furthermore, it was assumed that environmental concern and price sensitivity could be the factor that effects the green purchase intention to buy eco-labeled sportswear.

A total of N = 144 individuals participated in a between-subject online experimental survey. The main findings were that an eco-label influences green purchase intention positively via attitude and subjective norm. In addition, price sensitivity directly impacted the purchase intention of consumers. There was no significant evidence of differences between the direct effect of eco-labeled sportswear and non-eco-labeled sportswear.

This study would be helpful for all managers of eco-label brands to gain insights in a way to increase consumers purchase intention and target the right consumers.

Keywords: Eco-Labels, Purchase Intention, Theory of Planned Behavior, Price Sensitivity, Environmental Concern

Sumário

Título: "Compreender as intenções de compra de vestuário desportivo com rótulo ecológico utilizando a Teoria do Comportamento Planeado".

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A utilização de rótulos ecológicos é considerada como um instrumento de marketing extremamente eficaz na comunicação das características ecológicas e socialmente desejáveis de um produto. Para os consumidores, é uma clara fonte de informação.

Este estudo visa investigar a relação entre a presença de um rótulo ecológico e a intenção de compra verde do consumidor. Especificamente, foi investigada a utilização de um rótulo ecológico em vestuário desportivo.

A Teoria do Comportamento Planeado foi aplicada a fim de compreender o que impulsiona a intenção de compra. Além disso, presumiu-se que a preocupação ambiental e a sensibilidade ao preço poderiam ser o factor que afecta a intenção de compra ecológica de vestuário de desporto com rótulo ecológico.

Um total de N = 144 indivíduos participou num inquérito experimental em linha entre sujeitos. As principais conclusões foram que um rótulo ecológico influencia positivamente a intenção de compra verde através da atitude e norma subjectiva. Além disso, a sensibilidade ao preço influenciou directamente a intenção de compra dos consumidores. Não houve provas significativas de diferenças entre o efeito directo do vestuário desportivo com rótulo ecológico e o vestuário desportivo sem rótulo ecológico.

Este estudo seria útil para todos os gestores de marcas com rótulo ecológico para obterem conhecimentos de forma a aumentar a intenção de compra dos consumidores e visar os consumidores certos.

Palavras-Chave: Rótulos ecológicos, Intenção de compra, Teoria de *Planned Behavior*, Sensibilidade dos preços, Preocupação ambiental

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Introduction

Background

The issue of climate change is both literally and figuratively a subject that generates a lot of heat. The evidence pointing towards human-induced climate change is now more conclusive than ever. A prominent indicator of this phenomenon is the notable increase in the Earth's average temperature during recent decades, with the World Meteorological Organization (WMO, 2020) reporting the past seven years (2014 – 2021) as the warmest on record. Along with this temperature rise, there have been observable effects such as rising sea levels, significant reduction in Arctic Sea ice, and other climate-related shifts.

Global warming, primarily caused by the increase in greenhouse gas emissions, is identified as the main driver of climate change. Among the greenhouse gases, carbon dioxide (CO₂) is the largest contributor to global emissions (Olivier & Peters, 2020), which mainly originates from the combustion of fossil fuels. CO₂ traps heat radiated from the Earth's surface, and an elevated concentration of greenhouse gases in the atmosphere results in a warmer Earth (Royal Society, 2020). To mitigate the severe impacts of climate change, it is crucial to limit global temperature rise 1.5 degrees Celsius (WMO et al., 2020). In November 2021, the United Nations Climate Change Conference (COP26) brought together representatives from nearly 200 countries who agreed on the urgency of cutting greenhouse gas emission, aiming to combat climate change and limit the temperature rise to 1.5 degrees Celsius while achieving net-zero emissions by 2050 (*COP26 The Glasgow Climate Pact*, 2021). Failure to take necessary actions may perpetuate this trend and result in disastrous consequences.

Over the last decades environmental concerns have rapidly increased (Lamperts et al., 2019). As a result, many people start to place greater importance on sustainability (Parzonko et al., 2021). As per Taufique et al. (2017), the contemporary consumer is demonstrating a growing interest in the impact of their purchases on future generations, thereby exerting an influence on their consumption patterns.

According to Hasbullah et al. (2022), the fashion industry is a significant and environmentally damaging sector, with pervasive and consequential negative impacts spanning its entire value chain, from manufacturing to consumption. The industry accounts for a substantial proportion of global greenhouse gas emissions, estimated to range from 2-8% (Sadowski et al., 2021), and is the second-largest consumer of water globally,

contributing to approximately 20% of the world's water (*Fashion and the SDGs: What Role for the UN?*, 2018).

The fashion industry acknowledges these environmental concerns, as evidenced by several initiatives, such as the Sustainable Apparel Coalition (SAC) or The Fashion Pact – A pact established after the 2019 G7 summit that includes more than 60 CEOs from leading global fashion industry companies who have committed to ambitious climate, biodiversity, and ocean targets aiming to achieve net zero by 2050 (*The Fashion Pact - First Steps to Transform Our Industry*, 2020). These globally shared concerns from consumers and manufacturers have led to the innovation of green products and driven purchase intentions (Zameer & Yasmeen, 2022). According to Chen & Chai (2010), the term “green products” denotes those products which incorporate ecologically sustainable materials and packaging. In recent times, an increasing number of companies have included green products in their product portfolio, or have even transitioned to offering solely environmentally-friendly products, in order to satisfy the demands of conscientious consumers. To promote these green products, green marketing strategies are used.

The use of eco-labels is considered as an extremely effective marketing tool in communication a product's environmentally friendly and socially desirable characteristics and guiding the consumers' choices (Sharma & Kushwaha, 2019; Testa et al., 2015). An eco-label serves the function of communicating important information about the environmental benefits associated with a given product or service, such as the capacity for its packaging to be recycled, or the absence of harmful ingredients (ISO, 2019). It is possible to retrieve information quickly and easily by using eco-labels. Eco-labels encourage environmentally friendly behavior without limiting consumer freedom of choice. The use of eco-labels can be seen to combat global warming. Purchasing behavior is ultimately the determining factor.

The primary objective of this research is to investigate the relationship between the existence of an eco-label and the propensity of consumers to make environmentally conscious purchases. Specifically, the study examines how eco-labeled sportswear affects green purchase intention, based on the Theory of Planned Behavior (TPB). Ajzen's (1991) Theory of Planned Behavior posits that an individual's intention to carry out a particular behavior can be foretold by their attitude towards the behavior, subjective norms, and perceived behavioral control.

In this study, sportswear is chosen as the product category. The sportswear industry is one of the most rapidly globalized marketplaces and has become increasingly interwoven into

the fashion industry, in particular the workout apparel (Bringé, 2021). In addition, sportswear has emerged as a driving factor of fashion trends over the 50 years (Bielefeldt Bruun & Langkjær, 2016). Finally, this category has a preference from the researcher.

Problem statement

The purpose of the research is to study the effect of an eco-label on sportswear on consumers' green purchase intention. The overall objective is to analyze whether there are differences in the factors influencing green purchase intention of sportswear. Additionally, environmental concern and price sensitivity will be studied to understand if these factors influence green purchase intention.

To answer the main research objective of this study, "*How does an eco-label on sportswear influence consumers' purchase intention?*", the following research questions are formulated:

Research Question 1: What is the effect of an eco-label on sportswear on consumers' green purchase intention?

Research Question 2: In this effect, what is the role of attitude, subjective norm, and perceived behavioral control?

Research Question 3: Does environmental concern and price sensitivity moderate the effect on consumers' green purchase intention?

Relevance

The Theory of Planned Behavior has been used as a framework in numerous studies to forecast and understand consumers' intentions to engage in environmentally friendly purchasing practices. (S. C. Chen & Hung, 2016; Hosta & Zabkar, 2021; Patel et al., 2020). In addition, many researchers investigated green purchase intentions regarding a specific product type such as organic food and beverage (Chang & Chang, 2017; Ricci et al., 2018; Singh & Verma, 2017), electric appliances (Hameed & Khan, 2020; Wang et al., 2019; Yue et al., 2020) or green cosmetic products (Hameed & Khan, 2020; Yue et al., 2020). Moreover, various researchers attempted to explore additional factors that impact individuals' intentions to make eco-friendly purchases. For instance, Keni et al. (2020) focused on green perceived value, green perceived risk, and green trust as motivating factors toward green purchase intention. In addition, Albert Lasuin & Yuen Ching (2014) investigated the role of environmental concern, social influence, and self-image on green purchase intention.

Furthermore, Debora Indriani et al. (2019) studied the relationship between environmental knowledge and the perceived eco-friendliness of body care and cosmetic products.

This study contributes to a better understanding of several unexplored areas. First, it is the first study in utilizing the Theory of Planned Behavior, in conjunction with eco-labels, to evaluate consumers' intentions towards making environmentally friendly purchases. Moreover, no study has ever investigated how eco-labels on sportswear affect consumers' green purchase intention. Just a few studies explored the effect of an eco-label in general on consumers' green purchase intention (Chekima et al., 2016; Kamalanon et al., 2022) and a single study has examined consumers' purchase intention for green sportswear (Nam et al., 2017). The research aims at filling in the gap in existing literature about the use of eco-labels in combination with sportswear regarding green purchase intention.

From a managerial perspective, this research desires to deliver meaningful insights to marketing managers and academics within the sportswear industry. This data will be crucial to better apply marketing strategies by considering eco-labels as a tool that could significantly influence customers' green purchase intention. Furthermore, the data will explain the relationship between eco-labels and purchase intention, so decision-makers can understand better how to allocate their resources optimally with respect to for example targeting.

Research methods

In order to answer the aforementioned research questions, primary and secondary data will be used. First, hypotheses are developed through extensive secondary data analysis. In addition, the analysis made it possible to define and understand the concepts of the Theory of Planned Behavior. Furthermore, this process helped to build a conceptual model and Secondly, to study the conceptual model, primary data will be gathered using an online distributed questionnaire.

Thesis structure

The structure of this research is as follows. The following chapter will go deeper into the theoretical framework: structuring prior research and defining relevant concepts in the context of research. Furthermore, the conceptual framework will be presented with the accompanying variables. Following that, the methodology of the research will be discussed. Then, in Chapter 4, the data analysis will be presented, and the results will be explained. The final chapter, Chapter 5, is devoted to conclusions, limitations, and recommendations for additional research.

Literature review

In this chapter, the existing literature of eco-labels, the Theory of Planned Behavior, price sensitivity and environmental concern is reviewed.

Eco-Labels

An eco-label serves the function of communicating important information about the environmental benefits associated with a given product or service, such as the capacity for its packaging to be recycled, or the absence of harmful ingredients (ISO, 2019). The issue of eco-labeling was first addressed by the United Nations in Agenda 21 during the 1992 United Nations Conference on Environment and Development (Earth Summit) held in Rio de Janeiro (Salman, 2016). Since then, environmental labels were officially recognized.

Eco-labels exist in diverse types and have a variety of characteristics, such as whether they are required or voluntary in a given industry, the breadth of issues they address, the extent and manner of information they provide, and the degree and style of validation they receive (Baker & Hart, 2008). The Organization for Economic Co-operation and Development (OECD) and The International Organization for Standardization (ISO) identify three voluntary types of environmental labels. These labels are called Type I environmental labelling, Type II self-declared environmental claims and Type III environmental declarations (ISO, 2019).

Type I labels pertain to a product's environmental performance compared to that of other products, evaluated based on its entire life cycle. Type I labels are issued by third-party organizations such as NGO's and are subject to independent certification.

Type II labels are environmental claims that provide one-sided information. These labels are self-certified by manufactures, importers or distributors and focus on specific features of products. The claims do not involve any independent third-party organization.

Type III labels quantify the environmental impact of products and services. These labels are extremely detailed and often used in the business-to-business context. Since the research focuses on consumers, the research will not provide any additional details on Type III labels.

Eco-labelling aims to accomplish three distinct objectives (Markandya et al., 1997). First, there is the desire to give more information to consumers about how their consumption affects the environment, resulted in a transition towards more eco-friendly consumption behaviors. Secondly, eco-labels persuade producers, governments, and other entities to raise environmental standards for their goods and services. Third, domestic markets can be protected using eco-labels.

Besides these distinctive objectives according to Markandya et al. (1997), there are two market incentives for introducing eco-labels (Yokessa et al., 2019). First, it is consumer's choice. The consumer drives the market with his or her choice, similarly for eco-labels. According to experiments on eco-labels conducted between 2007 and 2016, more and more consumers are demanding "clean and green" products and services (Lusk et al., 2007; van Loo et al., 2014; Xu et al., 2012). Eventually, they can significantly reduce the environmental damage produced by supply chains by selecting these products and services. Secondly, from firm's perspective, the use of an eco-label is a strategic decision to inform consumers about the environmental benefits of its goods. It seems to be a chance to distinguish a company's products, what could ensure more sales.

In marketing, therefore, the use of eco-labels is a significant tool. Within the marketing mix eco-labels are especially important as a promotional device. Eco-labels give consumers a clear, trustworthy indication of a product's social and environmental credentials (Ottman et al., 2006). The message you convert to the consumer is that your product has been found to fulfil a set of compelling criteria relating to its impact on the environment. In doing so, it also exposes the intangible product characteristics. All this contributes to inform customers about the social and environmental effects of their purchase choices. Moreover, using eco-labels improves a company's brand value. It increases the value of its products, gives it a competitive edge, enhances its reputation, gets new markets, and prepares it to handle stakeholder pressure on the environment (Moravcikova et al., 2017).

Label vs. No-Label

Eco-labels act as the point of sale towards consumers since it might be challenging for consumers to determine whether a product is environmentally friendly. Without visibility, no eco-label in this case, the intention to buy green products is lower. Previous studies have confirmed that the presence of an eco-label has a positive effect on their intention to purchase

green products (Chekima et al., 2016; Kamalanon et al., 2022; Tzilivakis et al., 2012). The following hypothesis is formulated as a result of the aforementioned considerations:

Hypothesis 1: Eco-labeled sportswear has a higher positive effect on green purchase intention than sportswear without an eco-label.

Theory of Planned Behavior

Various social psychology models have been utilized to comprehend the behavior of consumers when making purchases. The Theory of Planned Behavior (TPB) (Ajzen, 1991) is one of those models. The theory is an extension of the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980). According to the theory, planned behavior is primarily determined by the individual's intention. The TPB proposed that behavioral intention is determined by three factors. The first independent determinant is a personal factor termed attitude toward the behavior (Ajzen, 1991). A social factor known as subjective norm serves as the second predictor. (Ajzen, 1991). The third and last determinant of intention is the degree of perceived behavioral control (Ajzen, 1991).

In general, an individual's intention to engage in a particular behavior is likely to be stronger when their attitude and subjective norm towards the behavior are favorable, and their perceived behavioral control is high. However, this varies from situation to situation.

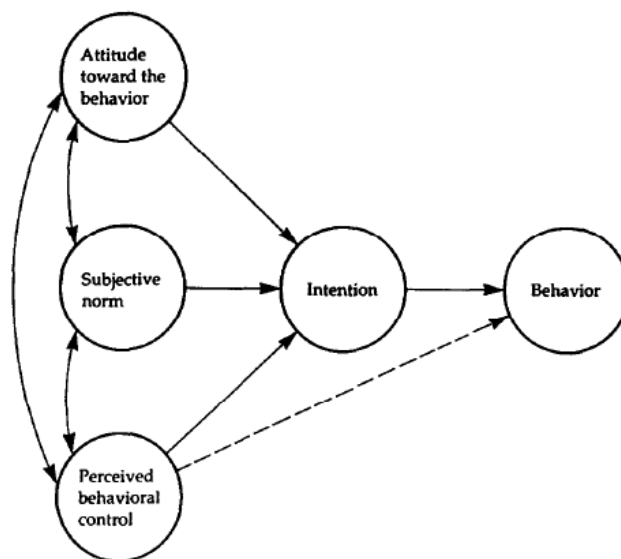


Figure 1: Schematic representation of the Theory of Planned Behavior (Ajzen, 1991)

Attitude toward the behavior

The term “attitude toward the behavior” refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior being considered (Ajzen, 1991). It represents the degree to which the act of buying eco-labeled sportswear is evaluated by an individual as either positive or negative in value.

Many studies cite evidence for a strong positive link between attitude and green purchasing intentions (Jan et al., 2019). Research by Thøgersen & Grunert-Beckmann (1996) show that attitudes concerning recycling and waste prevention are directly related to relevant behaviors. Next to this, Sun et al. (2021) discovered that consumers are more inclined to purchase green products when they perceive that such products have a positive impact on the environment. Therefore, based upon previous studies, it is expected that a positive attitude towards eco-labelled sportswear will positively influence the purchase intentions and the following hypothesis is formulated:

Hypothesis 2a: *The positive effect of eco-labeled sportswear on green purchase intention is mediated by attitude, such that eco-labeled sportswear increase attitude, which will in turn increase green purchase intention.*

Subjective norms

In the context of Ajzen’s theory (1991), subjective norm refers to an individual’s perception of the social pressure to either engage or not engage in a specific behavior. It is conceptualized as an individual’s perception of whether certain individuals or groups approve or disapprove of a particular behavior, or whether these social referents engage or do not engage in it. (Ajzen, 2005). Important social referents may include parents, close friends, colleagues or even experts. Ajzen (1991) defines the subjective norm as a function of (a) normative beliefs and (b) the person’s motivation to comply with each of the referents’ expectations. In general, if an individual perceives that a majority of the social referents they are inclined to conform to or follow the expectations of endorse the behavior, they will feel social pressure to perform the behavior. On the other hand, if they believe that a majority of their social referents would disapprove of the behavior, they are likely to experience a subjective norm that deters them from performing the behavior (Ajzen, 2005).

Previous research argues considering subjective norms while examining the behavior of buying eco-friendly food (Ham et al., 2015). According to Kumar et al. (2017), purchase intention for environmentally sustainable products is positively and directly related to subjective norm. Similarly, Sreen et al. (2018) claim a significant relationship between subjective norms and green purchase intention. The following hypothesis is formulated as a result of the aforementioned considerations:

Hypothesis 2b: *The positive effect of eco-labeled sportswear on green purchase intention is mediated by subjective norm, such that eco-labeled sportswear increase subjective norm, which will in turn increase green purchase intention.*

Perceived behavioral control

According to Ajzen (1991), the concept of perceived behavioral control pertains to an individual's perception of how easy or difficult it is to perform the behavior. Internal and external factors can influence an individual's control. A behavior is considered to be internally controllable if an individual has the perception of having control over personal resources such as skills, confidence and ability required to carry out the behavior (Armitage, 1999). On the other hand, a behavior may be externally controllable when it is relatively free of external or extrinsic influences that can act as a barrier toward behavioral performance (Kidwell & Jewell, 2003). It includes various factors such as prior experiences with the behavior, perceived convenience, perceived monetary and time barriers, and other relevant factors that can either increase or decrease the perceived level of feasibility associated with the behavior (Ham et al., 2015).

According to Yadav and Pathak (2017), the consumer's intention to purchase green products is significantly affected by the perceived behavioral control. Similarly, Kim & Chung (2011) show that perceived behavioral control is significantly correlated with the consumer's intention to purchase organic personal care products. The following hypothesis is formulated as a result of the aforementioned considerations:

Hypothesis 2c: *The positive effect of eco-labeled sportswear on green purchase intention is mediated by perceived behavioral control, such that eco-labeled sportswear increase perceived behavioral control, which will in turn increase green purchase intention.*

Environmental concern

Environmental concern is defined as an individual's perception that the natural environment is under threat as a result of societal activities, combined with a willingness to undertake measures to protect it (Franzen & Meyer, 2010). It represents people's environmental knowledge as well as their attitudes and behaviors toward the environment, which are linked to personality traits and attitudinal discourse (Roberts & Bacon, 1997).

Environmental concerns have evolved over the past few decades into a part of a company's responsible and sustainable strategy in doing business. In addition, environmental concerns have emerged as a competitive opportunity for social entrepreneurship and growth (Carroll, 1999). While it may not directly impact environmental purchase intentions, it could encourage customers to learn more about the environmental consequences of their purchasing decisions (Newton et al., 2015).

Although, it is often regarded as an immediate antecedent and one of the key drivers to the intention to buy environmentally friendly products (Dagher & Itani, 2014; Hartmann & Apaolaza-Ibañez, 2012; Hedlund, 2011; Koenig-Lewis et al., 2014). Research by Pagiaslis & Krontalis (2014) supports this as they claim that environmental concern has a direct and favorable influence on the consumer's intention to purchase eco-friendly products. Similarly, Huang (1996) claims a link between an increase in societal concern about environmental issues and an increase in the consumption of organic food, as buying organic food is considered as pro-environmental behavior. Furthermore, several studies have found that consumers who are more concerned about environmental issues are more likely to make purchases based on environmental claims compared to those who have a lower level of concern regarding environmental issues (Y. Kim & Choi, 2005; Mainieri et al., 1997). The following hypothesis is formulated as a result of the aforementioned considerations:

Hypothesis 3a: *The positive direct effect of eco-labeled sportswear on green purchase intention is moderated by environmental concern, such that the effect is stronger for increased environmental concerns.*

Price sensitivity

Anderson (1996) provides a definition of price sensitivity as the degree to which a customer is willing to tolerate an increase in the price of a particular product considering the economic and psychological benefits associated with it. Previous research by Zimmer et al.

(1994) found that consumers are very sensitive to the price of a product. Similarly, several research has demonstrated the significant impact of price sensitivity on consumers' assessment of product alternatives and their ultimate purchase choice (de Medeiros et al., 2016; Li et al., 2016; Moser, 2016).

Research within environmentally friendly products shows the same results. For instance, research by Hsu et al. (2017) discovered that the intention to purchase green skincare products was significantly impacted by the price sensitivity. Similarly, Ghali-Zinoubi & Toukabri, (2019) discovered that customers who are more responsive to product prices are less inclined to buy organic products that are relatively pricier than conventional alternatives. Furthermore, pricing has been identified as a significant barrier to food consumption (Al-Swidi et al., 2014) as well as to green product consumption (Barbarossa & Pastore, 2015). Incidentally, a single study shows that certain European consumers are willing to pay a premium for environmentally friendly products (Tranter et al., 2009). In other words, consumers are willing to pay more for a product with an eco-label compared to a similar product without an eco-label. However, this is the exception rather than the rule. The following hypothesis is formulated as a result of the aforementioned considerations:

Hypothesis 3b: *The positive direct effect of eco-labeled sportswear on green purchase intention is moderated by price sensitivity, such that the effect is stronger for decreased price sensitivity.*

Hypotheses

Hypothesis 1: Eco-labeled sportswear has a higher positive effect on green purchase intention than sportswear without an eco-label.

Hypothesis 2a: The positive effect of eco-labeled sportswear on green purchase intention is mediated by attitude, such that eco-labeled sportswear increase attitude, which will in turn increase green purchase intention.

Hypothesis 2b: The positive effect of eco-labeled sportswear on green purchase intention is mediated by subjective norm, such that eco-labeled sportswear increase subjective norm, which will in turn increase green purchase intention.

Hypothesis 2c: The positive effect of eco-labeled sportswear on green purchase intention is mediated by perceived behavioral control, such that eco-labeled sportswear increase perceived behavioral control, which will in turn increase green purchase intention.

Hypothesis 3a: The positive direct effect of eco-labeled sportswear on green purchase intention is moderated by environmental concern, such that the effect is stronger for increased environmental concerns.

Hypothesis 3b: The positive direct effect of eco-labeled sportswear on green purchase intention is moderated by price sensitivity, such that the effect is stronger for decreased price sensitivity.

Conceptual framework

The conceptual model was composed based on the theoretical framework and the formulated hypothesis. This model can be found in Figure 2. The conceptual model consists of one independent variable (IV), one dependent variable (DV), three mediating variables (MedV) and two moderating variables (ModV).

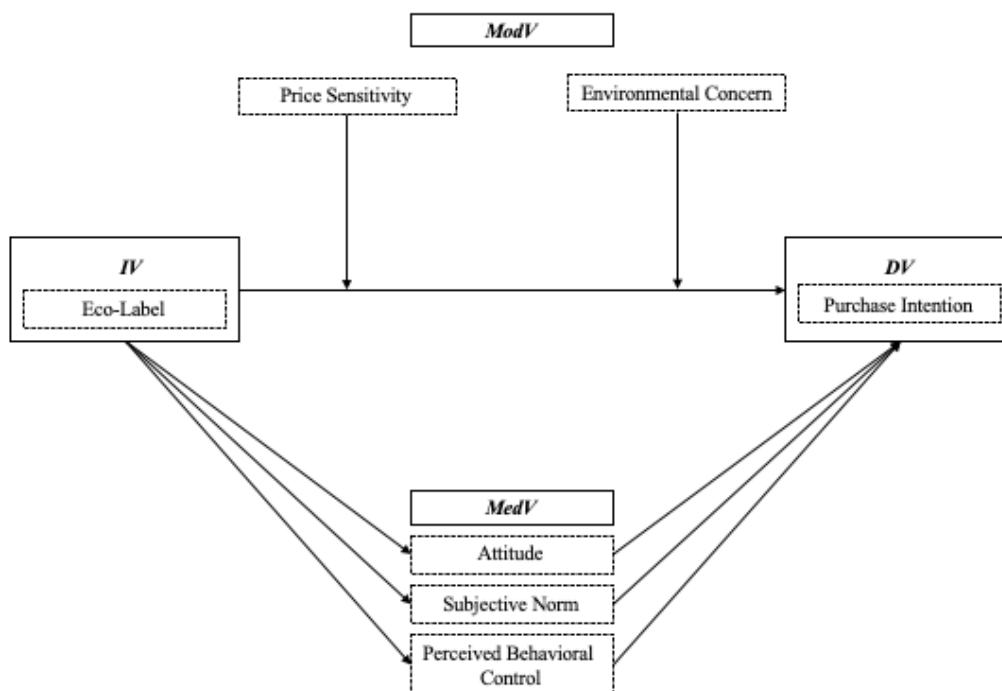


Figure 2: Conceptual Framework

Methodology

This chapter describes the process through which the study moved from a set of hypotheses to an actual experiment. The hypotheses were developed to build correlations between concepts that can be converted into quantifiable variables. These variables will be used to execute the study, which will be an online experiment to ascertain causality. This section will concentrate on the research approach, data collection, research design, sampling, and measurements of the variables.

Research approach

Since eco-labels are a popular marketing tool, there is need for more information to understand the behavior of consumers regarding these labels. As such, this research investigates the distinctive effect of eco-labels on purchase intention in sportswear. Based on the TPB and an extensive review of relevant literature, the conceptual framework was designed. Further empirical testing of this will be conducted.

According to Kothari (2004), there are two basic approaches to research: the qualitative and quantitative approach. Qualitative research, expressed in words, provides insights and understanding of the problem setting. Quantitative research, expressed in numerical data and graphical representations, is utilized to verify or validate theories and hypotheses.

To answer the research questions, quantitative research is performed. The method used, within this approach, is the conclusive research approach. This approach, as the name implies, is adopted to generate findings that are drawing conclusions. It is the most appropriate approach since the research seeks to identify the cause-and-effect relationships as assumed in Chapter 2. To explore this causality an experiment is set up. This method manipulates the independent variable (eco-label). By observing changes in the dependent variable (purchase intention) in the manipulated cases, the impact of the independent variable can be determined. In addition, the design measures variables to research the moderating and mediating effect on the dependent variable.

The data for this experiment will be collected through an online survey created using Qualtrics and further analyzed through SPSS.

Secondary resources

Secondary data are the data that is gathered through the review of several literatures that contained information related to the research study (Kothari, 2004). Data were gathered from reputable online databases, such as Google Scholar and Scopus, which provide access to scholarly articles from prestigious journals like the Journal of Marketing and Journal of Consumer Behavior, thereby ensuring the quality of the information collected. These data made it possible to acquire trustworthy information with respect to the theory being researched as well as the variables. Finally, this information formed the basis for the primary data collection process and hypotheses formulated in Chapter 2.

Primary data

Kothari (2004) defines primary data as original in nature, collected for the first time. These data were collected through a self-administrated online questionnaire created using Qualtrics. Questionnaires are highly suitable to obtain large number of observations. Moreover, questionnaires offer the benefit of swift and anonymous data collection, while being a cheap approach that can be administered to a large number of individuals (de Vaus, 2013).

Data collection

Sampling

In accordance with Kothari's (2004) definition, a sample refers to a limited number of participants selected from the larger population of interest to the researcher, in order to gather data and draw conclusions for the study. The targeted population for this research will be sporting men and women. This leisure activity category is chosen because the study covers the purchase intention in sportswear. Moreover, previous research shows that there is a direct link between physical exercise and customer's sustainable consumption behaviors (Sarkar et al., 2022). The target group of this study will mainly consist of European students, as they can easily be reached through a personally built network and the use of Prolific (online research platform). The required minimum sample size for this research is based on the number of experimental conditions. University guidelines require at least 50 respondents per experimental condition. Since this study consists of two experimental conditions, the minimum sample size is 100 respondents. These requirements were fulfilled since the final sample consisted of 144 respondents.

Manipulation

The stimuli that were used in the experiment are self-created and based on recognizability. First, the brand was selected. The chosen brand is Nike. For the eighth year in a row, Nike has been named the most valuable sports brand in the world with an extremely strong brand identity by Brand Finance in their Global 500 (2022) report. Nike is therefore considered to be known among the target group. The next step was to select a Type-1 Eco-Label. In this research the EU Ecolabel has been chosen. This is the official European eco-label recognized by all countries of the European Union, Norway, Lichtenstein, and Iceland. Thereby, the environmentally friendly nature is clearly stated on the label.

Research design

The study used a between-subject design. In a between-subjects design the participants are divided into two groups: a control group (no eco-label) and an experimental group (eco-label). Each participant is randomly assigned to either the control or experimental groups and distributed evenly using Qualtrics.

Independent of the participant's distribution group, the questionnaire included four sections: introduction, sport activity, condition, and demographics. The introduction section was designed to introduce the study. Moreover, each participant had to voluntarily agree to participate. The next section focused on the participant's sports activities. The third section was designed to introduce the condition and measure all the variables of the model. Within the condition section the participant was either divided into the control group or the experimental group. Finally, the questionnaire ends with demographic questions.

Measurements

To measure the constructs outlined in the conceptual model, a structured self-administered questionnaire was developed, measuring purchase intention, attitude, subjective norms, perceived behavioral control, environmental concern, and price sensitivity. The questionnaire was divided into two different parts: questions related to the research hypothesis and questions related to the demographic characteristics of the respondents. The scales used for the measurements in this study were all derived from previous research. All items were measured on a seven-point scale. The construct defined by Ajzen (2002) is used to measure all the variables of the TPB.

Purchase intention includes 3 items and is measured on a 7-point Likert scale.

To measure attitude toward the behavior, respondents were presented with the statement “For me, buying eco-labelled sportswear in the forthcoming month is:” followed by five adjective pairs which they were asked to evaluate on a seven-point semantic differential scale. For example: “worthless” – “valuable”, or “enjoyable” – “unenjoyable”.

The three items pertaining to subjective norm were measured on a 7-point Likert scale. The following items were defined: “Most people who are important to me think that I (“Definitely should” – “Definitely should not”) buy eco-labelled sportswear in the forthcoming month

Perceived behavioral control includes 4 items and is measured on a 7-point semantic differential scale and a 7-point (Likert) scale. Two of the items capture the respondent’s perceived capability of performing the behavior (Ajzen, 2002): “For me buying eco-labelled sportswear in the forthcoming month would be” (“impossible” – “possible”) and “If I wanted to I could buy eco-labelled sportswear in the forthcoming month” (“definitely true” – “definitely false”). The other two items address people’s beliefs that they have control over the behavior (Ajzen, 2002): “How much control do you believe you have over buying eco-labelled sportswear in the forthcoming month?” (“No control” – “Complete control”) and “It is mostly up to me whether or not I buy eco-labelled sportswear in the forthcoming month” (“Strongly agree” – “Strongly disagree”).

The construct defined by Kilbourne & Pickett (2008), with a Cronbach’s alpha of 0.81, is used to measure environmental concern. The following five items were presented using a 7-point Likert scale ranging from “Strongly disagree” to “Strongly agree”: “I am very concerned about the environment”, “I would be willing to reduce my consumption to help protect the environment”, “Major political change is necessary to protect the natural environment”, “Major social changes are necessary to protect the natural environment” and “Anti-pollution laws should be enforced more strongly”.

Price sensitivity was evaluated using two items adapted from research by Hsu et al. (2017) with a Cronbach’s alpha of 0.87. In this construct the items were measured with a 5-point Likert scale, this has been increased to a 7-point Likert scale ranging from “strongly disagree” to “strongly agree”. The items are: “It is acceptable to pay more for eco-labelled sportswear than for non-eco-labelled sportswear” and “I am willing to pay spend extra money in order to buy eco-labelled sportswear”.

Table 1: Measurement Model

<i>Measure</i>	<i>Items</i>	<i>Reference</i>
Purchase Intention	3	Ajzen (2002)
Attitude	5	Ajzen (2002)
Subjective Norm	3	Ajzen (2002)
Perceived Behavioral Control	4	Ajzen (2002)
Environmental Concern	5	Kilbourne & Pickett (2008)
Price Sensitivity	2	Hsu et al. (2017)

Results

Sample

To ensure the data was consistent and valuable, it was necessary to check and clean the data set. The first step was to remove incomplete responses from the dataset. A total of 179 respondents completed the questionnaire in its entirety. Second, the data was checked for duplicate IP addresses to rule out the possibility that someone had filled out the questionnaire more than once. Then, respondents who completed the survey within 100 seconds were removed. Finally, respondents who answered the manipulation question incorrectly were excluded from the data set. All this resulted in a sample size of 144 respondents.

Descriptive statistics

As mentioned before, a sample of 144 valid answers was registered. The table below shows the descriptive statistics subdivided by condition. Overall, male represent 53,47% of the sample, female participants account for 45,14% and third gender represent for the remaining 1,39% of the sample. The majority of participants fell within the age range of 20 to 29 years old (65,97%), with a substantial portion of the sample below the age of 39 (93,75%). Regarding the education level, 82,64% of the sample has a bachelor's degree or higher. Finally, the yearly income level is mainly (75,69%) under €50.000.

Table 2: Sample characteristics

		CONDITION			
		0 non-eco-label		1 eco label	
Gender	1 Male	33	53,2%	44	53,7%
	2 Female	29	46,8%	36	43,9%
	3 Non-binary / third gender	0	0,0%	2	2,4%
	4 Prefer not to say	0	0,0%	0	0,0%
Age (Group)	1 <20 years	2	3,3%	4	5,0%
	2 20-29	41	68,3%	54	67,5%
	3 30-39	12	20,0%	18	22,5%
	4 40-49	3	5,0%	2	2,5%
	5 50 and older	2	3,3%	2	2,5%

Education	1 Lower than High School Diploma	1	1,6%	0	0,0%
	2 High School Diploma	9	14,5%	15	18,3%
	3 Bachelor's degree	24	38,7%	30	36,6%
	4 Master's degree	27	43,5%	34	41,5%
	5 PhD	1	1,6%	3	3,7%
Income	1 Less than €20,000	22	35,5%	27	32,9%
	2 €20,000 - €50,000	24	38,7%	36	43,9%
	3 €50,000 - €100,000	14	22,6%	15	18,3%
	4 €100,000 - €200,000	2	3,2%	3	3,7%
	5 More than €200,000	0	0,0%	1	1,2%

Furthermore, the descriptive statistics in Table 3 show a few interesting findings which need to be discussed. First of all, the descriptives show that the mean scores of eco-label are higher on all variables compared to the mean scores of no eco-label. The biggest differences can be seen in *Purchase Intention* ($M = 3.03$ vs. $M = 3.51$), *Attitude* ($M = 4.69$ vs. $M = 5.31$) and *Subjective Norm* ($M = 3.95$ vs. $M = 4.55$). In addition, what stands out is that the sample scores very high on environmental concern ($M = 5.93$ and $M = 6.08$).

Table 3: Descriptive statistics

	CONDITION							
	<i>0 non eco-label</i>				<i>1 eco label</i>			
	Mean	Standard Deviation	Minimum	Maximum	Mean	Standard Deviation	Minimum	Maximum
PI	3.03	1.53	1.00	6.00	3.51	1.60	1.00	6.67
ATT	4.69	1.10	2.50	7.00	5.31	0.96	2.50	7.00
SN	3.95	1.07	1.00	6.00	4.55	1.00	1.00	6.33
PBC	5.44	1.07	1.75	7.00	5.46	1.05	2.25	7.00
EC	5.93	0.98	2.60	7.00	6.08	0.93	2.40	7.00

Randomization

To ensure the two groups (no eco-label and eco-label) do not significantly differ in terms of gender, age, education or income, a randomization check is carried out. A cross-tab analysis is executed to do this randomization check. Table 4 shows the Pearson Chi-Square Values of each demographic question. All these values are not significant; *gender* ($\chi^2 =$

1.58, $p = .454$), *age* ($\chi^2 = 1.01, p = .908$), *education* ($\chi^2 = 2.24, p = .693$) and *income* ($\chi^2 = 1.39, p = .845$). The results show that the two groups (no eco-label and eco-label) are not significantly different in terms of gender, age, education, or income.

Table 4: Pearson Chi-Square

	Pearson Chi-Square Value	Asymptotic Significance (2-sided)
Gender	1.58	.454
Age (Group)	1.01	.908
Education	2.24	.693
Income	1.39	.845

Correlation

The correlation matrix is examined to evaluate the strength and direction of the linear relationship between the two variables (Ahlgren et al., 2003). The correlation is measured according to Pearson's Correlation Coefficient (Pearson's r). The value ranges between -1 and +1 which respective means a strong negative correlation or a strong positive correlation. It is important to keep in mind that for *Condition*, 0 is no eco-label and 1 is with eco-label.

Table 5: Correlation matrix

	1	2	3	4	5	6
1. Condition						
2. Purchase Intention	0.15					
3. Attitude	.29**	.42**				
4. Subjective Norms	.28**	.51**	.50**			
5. Perceived Behavioral Control	0.01	0.10	.31**	.20*		
6. Environmental Concern	0.08	0.04	.20*	0.10	0.16	
7. Price Sensitivity	0.04	.17*	.24**	.32**	.26**	.44**

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

A close inspection of these correlations reveals that all the values are positive and most of them are consistent. For example, *Condition* is positively correlated with *Attitude* ($r = .29, p < .01$) and *Subjective Norms* ($r = .28, p < .01$), which indicates that the use of

an eco-label results in a stronger effect on respondents *Attitude* towards an eco-label and their *Subjective Norm*. Furthermore, it can be observed that *Purchase Intention* is positively strong correlated with *Attitude* ($r = .42, p < .01$) and *Subjective Norm* ($r = .51, < .01$). This implies that a higher score on *Purchase Intention* is associated with a higher score on *Attitude* and *Subjective Norm*.

Reliability

Reliability is a measure of the consistency of test scores. A distinction can be made between internal reliability (internal consistency) and external reliability. This study examines internal consistency which is a measure of how well the items measuring what they are expected to measure. The most widely used internal-consistency coefficient is Cronbach's alpha. It quantifies the level of agreement on a scale of 0 to 1, with higher values indicating stronger agreement. According to George & Mallery (2003) Cronbach's alpha values are used to assess the reliability of the measure, with values ranging from questionable between 0.60 and 0.69, acceptable between 0.70 and 0.79, good between 0.8 and 0.89 and excellent above 0.9.

The construct *Purchase Intention* shows an excellent reliability with the Cronbach's alpha equals to 0.9. Second, both the 5 items of *Environmental Concern* and the 2 items of *Price Sensitivity* indicate a good reliability with a respective Cronbach's alpha value of 0.89 and 0.81. *Perceived Behavioral Control* demonstrates an acceptable reliability with a Cronbach's alpha equals to 0.75. Analyzing the construct *Attitude* reveals an inappropriate Cronbach's alpha value of 0.54. This score led to the elimination of one item resulting in an increase in the Cronbach's alpha value to 0.77, which is acceptable. This eliminated item was excluded in further analysis. With regards to *Subjective Norm*, the Cronbach's alpha reflects a questionable reliability equals to 0.68. When evaluating the Cronbach's alpha if items were deleted, the Cronbach's alpha improves to 0.69 if one of the items was deleted. Since the coefficient did not improve significantly and the construct was measured based on 3 items, it was decided to continue analyzing with all items.

Table 6: Reliability statistics

Construct	PI	ATT	SN	PBC	EC	PS
Cronbach's alpha	0.96	0.77	0.68	0.75	0.89	0.81

Hypothesis testing

Hypothesis 1: *Eco-labeled sportswear has a higher positive effect on purchase intention than sportswear without an eco-label.*

To test hypothesis 1, an Independent Samples T-Test is executed. This test compares the mean scores of two groups with respect to a specific variable. In this case the two groups are defined by non-eco-label and eco-label and the dependent variable is *Purchase Intention*. The Null Hypothesis (H_0) and the Alternative Hypothesis (H_1) are shown below.

$$H_0: \mu_{Eco-Label} = \mu_{Non-Eco-Label}$$

$$H_1: \mu_{Eco-Label} > \mu_{Non-Eco-Label}$$

The group statistics indicates that the mean for ‘eco-label’ (3.5081) is higher than for ‘non-eco-label’ (3.0269). Respondents that saw the eco-labeled sportswear have, on average, higher purchase intention than the respondents that saw the non-eco-labeled sportswear.

According to Levene’s Test for Equality of Variances, the two variances are not significantly different ($p - value = .569$). We cannot reject the null of Levene’s test and conclude that the variance in *Purchase Intention* of eco-labeled sportswear is significantly not different than that of non-eco-labeled sportswear. We can assume that the variances are approximately equal.

The result is given by the t-test for Equality of Means. Since the outcome of the Levene’s Test guides us to the upper row of the table: ‘Equal Variances Assumed’, the associated $p - value = .071$. With the significance level is equal to .05, we cannot reject H_0 which means that the two means are equal. This is confirmed by Confidence Interval of the Difference. Since the Confidence Interval contains zero ($-1.00365 < 0 < .04115$), the result is not significant at the .05 significance level. To conclude, there is a difference in means, but not a statistically significant difference. Therefore, hypothesis 1 is not verified.

To test hypothesis 2a, 2b and 2c, Hayes PROCESS Macro Model 4 is used. Model 4 examines how the influence between two constructs X and Y may be influenced by a third variable M. In this Model X is the independent variable, Y is the dependent variable and M is the mediator. The Model examines if *Condition* (eco-label) has an indirect effect through

Attitude, Subjective Norm, and Perceived Behavioral Control on the construct of Purchase Intention. The results of the indirect and direct effect of X on Y are presented below.

Hypothesis 2a: *The positive effect of eco-labeled sportswear on green purchase intention is mediated by attitude, such that eco-labeled sportswear increase attitude, which will in turn increase green purchase intention.*

The Model has an R-square of .0837, which indicates that 8.37% of change in *Attitude* is explained by *Condition*. The Model shows that the a-path of mediator 1 (*Attitude*) is significant ($b = .618, t = 3.602, p < .001$), as well as the b-path ($b = .362, t = 2.825, p < .01$). This indicates that attitude mediates the effect of an eco-label on purchase intention. In addition, the bootstrap confidence interval is analyzed to confirm the mediation effect. The bootstrapping analysis indicates that there is a significant indirect effect, as the interval excludes zero (95% CI [.0355;.4744]). The c'-path is not significant ($b = -.106, t = -.442, p = .659$). Therefore, this can be considered as an indirect-only mediation (Zhao et al., 2010).

Hypothesis 2b: *The positive effect of eco-labeled sportswear on green purchase intention is mediated by subjective norm, such that eco-labeled sportswear increase subjective norm, which will in turn increase green purchase intention.*

The Model has an R-square of .0786, which indicates that 7.86% of change in *Subjective Norm* is explained by *Condition*. The Model shows that the a-path of mediator 2 (*Subjective Norm*) is significant ($b = .603, t = 3.479, p < .001$), as well as the b-path ($b = .607, t = 4.928, p < .001$). This indicates that attitude mediates the effect of an eco-label on purchase intention. In addition, the bootstrap confidence interval is analyzed to confirm the mediation effect. The bootstrapping analysis indicates that there is a significant indirect effect, as the interval excludes zero (95% CI [.1435;.6304]). The c'-path is not significant ($b = -.106, t = -.442, p = .659$). Therefore, this can be considered as an indirect-only mediation (Zhao et al., 2010).

Hypothesis 2c: *The positive effect of eco-labeled sportswear on green purchase intention is mediated by perceived behavioral control, such that eco-labeled sportswear increase perceived behavioral control, which will in turn increase green purchase intention.*

The Model has an R-square of .0001, which indicates that .01% of change in *Perceived Behavioral Control* is explained by *Condition*. The Model shows that the a-path of mediator 3 (*Perceived Behavioral Control*) is not significant ($b = .022$, $t = 0.122$, $p = .903$), as well as the b-path ($b = -.082$, $t = -.730$, $p = .467$). In addition, the bootstrap confidence interval is analyzed to confirm the non-mediation effect. The bootstrapping analysis indicates that there is not a significant effect, as the interval contains zero (95% CI [-.0556;.0490]). The c'-path, as well, is not significant ($b = -.106$, $t = -.442$, $p = .659$). Therefore, this can be considered as a no-effect non-mediation (Zhao et al., 2010).

Table 7: Process Model 4

	CONDITION → ATT → PI	CONDITION → SN → PI	CONDITION → PBC → PI
a-path coefficient	.618	.603	.022
b-path coefficient	.362	.607	-.082
c'-path coefficient	-.106	-.106	-.106
Indirect Effect	significant	significant	not significant
a*b	.224	.366	-.002
95% CI	[.0355;.4744]	[.1435;.6304]	[-.0556;.0490]
Direct Effect	not significant	not significant	not significant
c'	-.106	-.106	-.106
95% CI	[-.0556;.0490]	[-.0556;.0490]	[-.0556;.0490]
Mediation Effect	Indirect-only mediation	Indirect-only mediation	No-effect non-mediation

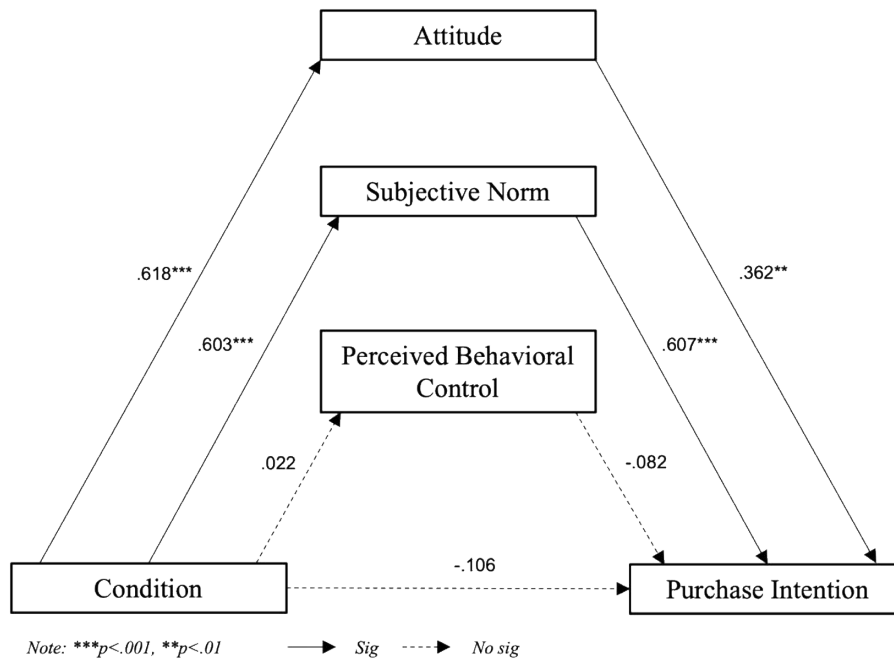


Figure 3: Schematic overview Process Model 4

To test hypothesis 3, Hayes PROCESS Macro Model 2 is used. Model 2 examines how the influence between two constructs X and Y may be influenced by two different moderators M and W. In this Model X is the independent variable, Y is the dependent variable and M and W are the moderators. The Model examines if *Condition* (eco-label) has a direct effect on *Purchase Intention* and the moderating effect of *Environmental Concern* and *Price Sensitivity*. The results are interpreted below.

Hypothesis 3a: *The positive direct effect of eco-labeled sportswear on green purchase intention is moderated by environmental concern, such that the effect is stronger for increased environmental concerns.*

Hypothesis 3b: *The positive direct effect of eco-labeled sportswear on green purchase intention is moderated by price sensitivity, such that the effect is stronger for decreased price sensitivity.*

The Model has an R-square of .0674, which indicates that 6,74% of change in *Purchase Intention* is explained by the exogenous variables (*Condition*, *Environmental Concern*, *Price Sensitivity*, *Interaction 1 (Condition x Environmental Concern)*, *Interaction 2 (Condition x Price Sensitivity)*). The Model shows a positive direct effect of *Condition* on

Purchase Intention at a significance level of 10% ($b = .473, p < .1$). In addition, the Model indicates that *Interaction 1* has a positive impact but is not significant ($b = .066, p = .833$). *Environmental Concern* does not moderate the relationship between *Condition* and *Purchase Intention*. In doing so, the negative direct effect of *Environmental Concern* on *Purchase Intention* is also not significant ($b = -.106, p = .490$). *Interaction 2* has a negative impact but is also not significant ($b = -.292, p = .177$). *Price Sensitivity* does not moderate the relationship between *Condition* and *Purchase Intention*. In contrast, *Price Sensitivity* does have a positive direct effect on *Purchase Intention* ($b = .213, p < .05$). The results are visualized in the figure below.

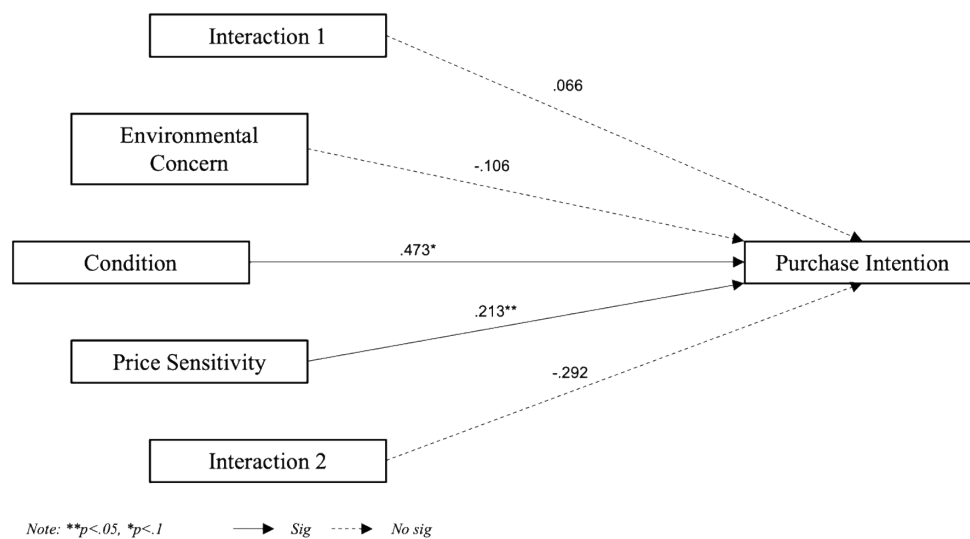


Figure 4: Schematic overview Process Model 2

The test of unconditional interaction shows the change in R-square due to the interactions. *Interaction 1* does not change the R-square significantly ($R2 - chng = .000, p = .833$). *Interaction 2*, as well, does not change the R-square significantly ($R2 - chng = .013, p = .177$). Taking both interactions in consideration, the change in R-square is also not significant ($R2 - chng = .014, p = .361$).

General Model

To conclude, Hayes PROCESS Model 10 is used to assess the overall model presented in the literature review. Model 10 examines how the influence between two constructs X and Y may be influenced by a third variable M and examines how the influence between two constructs X and Y may be influenced by two different moderators W and Z. It is therefore a representation of the conceptual model presented in Chapter 2. In this Model X

is the independent variable, Y is the dependent variable, M is the mediator, and W and Z are the moderators.

Appendix 5 shows the results of Hayes PROCESS Model 10 and figure 5 gives an overview. The Model has an R-square of .3397, which indicates that its variables account for 33,97% of the variation in green purchase intention. In this Model only 3 paths are significant. *Attitude* has a significant positive impact on *Purchase Intention*. ($b = .403, p = .002$). *Subjective Norm* has a significant positive impact on *Purchase Intention* ($b = .670, p = .000$). And finally, *Condition* has a significant positive impact on *Purchase Intention* ($b = 3.98, p = .008$). Both indirect effects, moderating effects of *Environmental Concern* and *Price Sensitivity* on the direct effect of *Condition* on *Purchase Intention* are not significant. There is no evidence for a moderated mediation effect on *Purchase Intention* with the given variables.

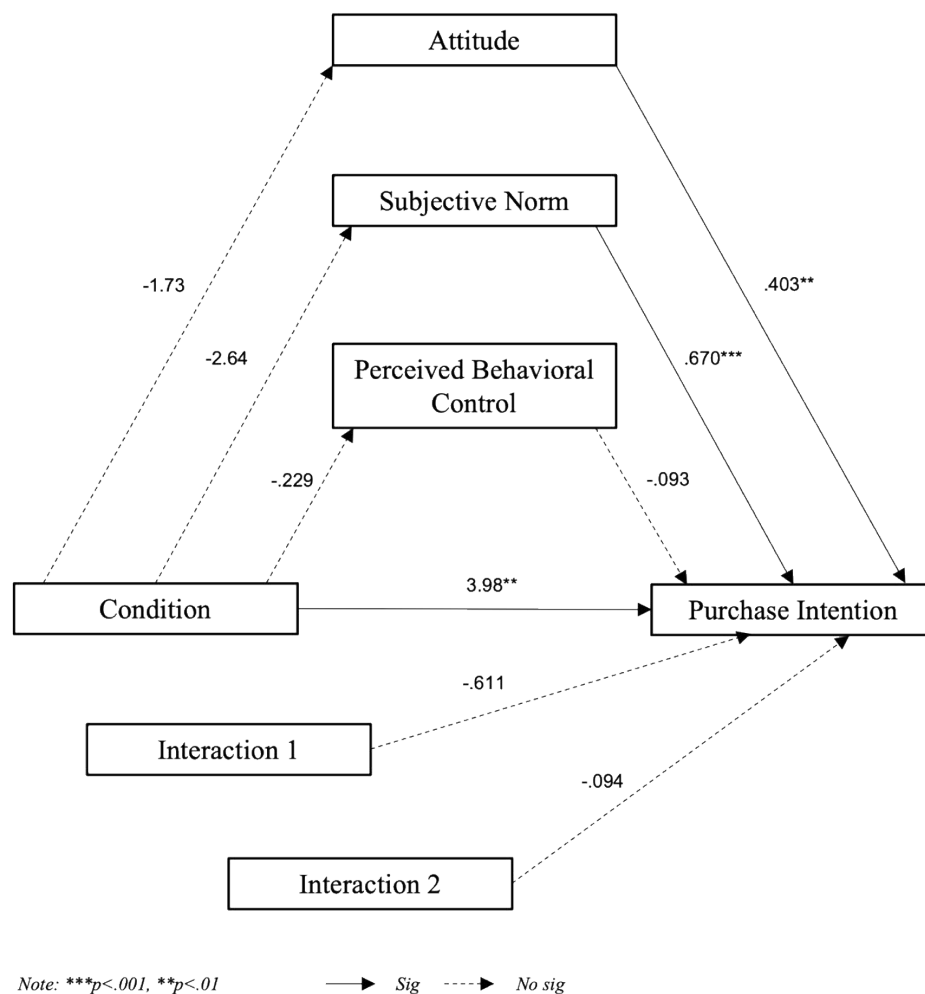


Figure 5: Schematic overview Process Model 10

Conclusion and discussion

The final section discusses the main findings, followed by the academic contributions and the managerial implications. Finally, the limitations of this study will be presented along with recommendations for future research.

Main findings

The present study seeks to examine the impact of eco-labeling on consumer green purchase intention in the context of sportswear. The Theory of Planned Behavior was utilized to explore the factors that influence green purchase intention, specifically through the antecedents of attitude, subjective norm, and perceived behavioral control as proposed by Ajzen (1991). Additionally, price sensitivity and environmental concern were integrated in the model as moderators. Insights into these various effects was obtained by conducting an online experiment. Based on the analysis performed in the preceding chapter, the following answers have been developed.

Research Question 1: What is the effect of an eco-label on sportswear on consumers' green purchase intention?

Previous studies in this area reported strong positive relationships between green products and green purchase intention (Chang & Chang, 2017; Ricci et al., 2018). The results of this study show that respondents that saw the eco-labeled sportswear had, on average, a higher purchase intention than the respondents that saw the non-eco-labeled sportswear. Although there is a difference, after being exposed to an eco-label on sportswear, consumers do not directly have a significantly higher intention to make green purchase. Contrary to previous research (Chekima et al., 2016; Kamalanon et al., 2022), it cannot be concluded that the increase purchase intention is caused by the presence of the eco-label. The direct effect is not present. This leads to the conclusion that there is no effect of an eco-label on sportswear on consumers' green purchase intention.

Research Question 2: In this effect, what is the role of attitude, subjective norm, and perceived behavioral control?

In this study the mediation effect of attitude, subjective norm, and perceived behavioral control is tested. Most of the findings of the study are consistent with previous research related to green purchase intention and the Theory of Planned Behavior, where

attitude, subjective norm and perceived behavioral control positively affects green purchase intention (S. C. Chen & Hung, 2016; Hosta & Zabkar, 2021). First of all, the results show that the construct attitude can be considered as an indirect-only mediation. This suggests that an eco-label has only a positive effect on purchase intention via attitude. In other words, consumers' green purchase intention is indirectly positively influenced by an eco-label via attitude. The presence of an eco-label influences the attitude towards green purchase intention of consumers. Second, the results show that the construct subjective norm can be considered as an indirect-only mediation as well. The presence of an eco-label influences customers subjective norm and therefore their green purchase intention. Lastly, the results show that the construct perceived behavioral control can be considered as a no-effect non-mediation. An eco-label has no indirect effect via perceived behavioral control on green purchase intention. Contrary to previous research related to this area and construct (H. Y. Kim & Chung, 2011; Yadav & Pathak, 2017). This means that easiness of getting the product has no impact on the purchase intention. This leads to the conclusion that attitude and subjective norm are mediators that explain the underlying mechanism of the relationship between the presence of an eco-label and green purchase intention.

Research Question 3: Does environmental concern and price sensitivity moderate the effect on consumers' green purchase intention?

In this study, it was theorized that environmental concern and price sensitivity could have been related to the purchase intention of green products. It was assumed that the positive effect of an eco-label on purchase intention would be moderated by environmental concern and price sensitivity, in such a way that the positive effect of an eco-label on purchase intention would be stronger if someone's environmental concern is stronger and weaker if someone's price sensitivity is stronger. However, results of this research showed that the moderating effects of environmental concern and price sensitivity on the relationship between an eco-label and green purchase intention were not significant. In other words, there is no evidence that the effect of an eco-label on green purchasing intention is stronger when someone is highly concerned about the environment or weaker when someone is highly price sensitive. Remarkably, price sensitivity does have a positive direct effect on green purchase intention. This leads to the conclusion that environmental concern and price sensitivity does not moderate the effect on consumers' green purchase intention.

Academic and managerial implications

From an academic perspective, this research findings bridge a fundamental gap in the body of knowledge about eco-labels and how they impact consumers' green purchasing intentions. Previous research has investigated green purchase intentions of different types of green goods (Chang & Chang, 2017; Hameed & Khan, 2020). Additionally, some research focused on the effect of an eco-label on consumers' green purchase intention in general. The effectiveness of eco-labels on sportswear has not been the subject of any quantitative investigation. Hence, by proving that eco-labels on sportswear are more effective at generating higher green purchase intention, this study fills a void in the academic literature. The difference observed between the two groups forms a basis for this void. In addition, this study adds to the current body of literature by examining the antecedents of the Theory of Planned Behavior in conjunction with eco-labels.

On the other hand, this research provides valuable insights for companies, managers, and policymakers interested in utilizing eco-labels as a tool for promoting environmentally friendly purchases. Specifically, campaigns can be developed to strengthen the attitude and subjective norm of consumers towards eco-labels to increase the likelihood of purchasing eco-label products. This could be done through targeted marketing efforts. Companies could create advertisements that highlight the environmental benefits of their eco-labeled sportswear and emphasize the positive attitudes and subjective norms of individuals who have already made environmentally friendly purchases. Additionally, companies could leverage social media or other online platforms to showcase the environmental responsibility of their products and engage with consumers who are interested in making environmentally friendly purchasing decisions. Another approach that could be effective is to incorporate eco-labeled products into corporate social responsibility (CSR) initiatives to strengthen the attitude and subjective norm of consumers towards eco-labels.

Limitations and future research

This study has certain limitations that must be considered when interpreting the findings. Firstly, the sample size is relatively small, consisting of only 144 individuals, which may not be representative of the entire population. Furthermore, a non-probability sampling method was utilized for data collection. Thus, the results are only applicable to this specific sample, and cannot be generalized to the larger population.

The second limitation relates to the stimuli design, more specifically, the creation of them. The brand that was selected was Nike, this could cause bias among respondents. In addition, the chosen eco-label was the EU Eco-label. This could cause bias as well or, on the contrary, ambiguities.

This study is also susceptible to the social desirability bias. Respondents may be biased because people seek to present a positive social image, which is difficult given that pro-environmental behavior is morally relevant.

Another limitation is that the majority of respondents having advanced degrees, which might have led to unexpectedly positive replies regarding green buying behavior. Previous research demonstrated that there is a positive correlation between higher education levels and increased levels of eco-friendly purchases (Lockie et al., 2004).

There are several directions for future research that could build upon the findings of this study. First, a consideration of the limitations of this study should be taken into account in future research. Additionally, research could investigate the impact of various types of eco-labels on consumer behavior since this study focused on voluntary Type 1 eco-labels.

Another direction for future research could be to investigate the effect of eco-labels on consumer behavior in different product categories. Previous research has focused on eco-labels in the context of food and consumer packaged goods, but there is a need to understand how eco-labels influence consumer behavior in other industries such as electronics and transportation.

Next to this, which is especially interesting for managerial implications, research could examine the effectiveness of different strategies for promoting eco-labeled products. For example, it would be interesting to explore the impact of education campaigns or financial incentives on the adoption of eco-labeled products.

Reference

- Ahlgren, P., Jarneving, B., & Rousseau, R. (2003). Requirements for a cocitation similarity measure, with special reference to Pearson's correlation coefficient. *Journal of the American Society for Information Science and Technology*, 54(6), 550–560.
<https://doi.org/10.1002/asi.10242>
- Ajzen, I. (1991). *The Theory of Planned Behavior*.
- Ajzen, I. (2002). *Constructing a TpB Questionnaire: Conceptual and Methodological Considerations*.
- Ajzen, I. (2005). *Attitudes, Personality and Behavior* (2nd edition). Open University Press.
- Albert Lasuin, C., & Yuen Ching, N. (2014). Factors Influencing Green Purchase Intention among University Students. In *Malaysian Journal of Business and Economics* (Vol. 1, Issue 2). Online.
- Al-Swidi, A., Huque, S. M. R., Hafeez, M. H., & Shariff, M. N. M. (2014). The role of subjective norms in theory of planned behavior in the context of organic food consumption. *British Food Journal*, 116(10), 1561–1580. <https://doi.org/10.1108/BFJ-05-2013-0105>
- Anderson, E. W. (1996). Customer Satisfaction and Price Tolerance. In *Marketing Letters* (Vol. 7, Issue 3).
- Armitage, G. C. (1999). Development of a Classification System for Periodontal Diseases and Conditions. *Annals of Periodontology*, 4(1), 1–6.
<https://doi.org/10.1902/annals.1999.4.1.1>
- Baker, M., & Hart, S. (2008). *The Marketing Book, Sixth Edition*.
- Barbarossa, C., & Pastore, A. (2015). Why environmentally conscious consumers do not purchase green products: A cognitive mapping approach. *Qualitative Market Research*, 18(2), 188–209. <https://doi.org/10.1108/QMR-06-2012-0030>
- Bielefeldt Bruun, M., & Langkjær, M. A. (2016). Sportswear: Between Fashion, Innovation and Sustainability. In *Fashion Practice* (Vol. 8, Issue 2, pp. 181–188). Routledge.
<https://doi.org/10.1080/17569370.2016.1221931>
- Bringé, A. (2021, May 3). *The Rise Of Athleisure In The Fashion Industry And What It Means For Brands*. Forbes.
<https://www.forbes.com/sites/forbescommunicationscouncil/2021/05/03/the-rise-of-athleisure-in-the-fashion-industry-and-what-it-means-for-brands/?sh=747a07d93ae0>
- Carroll, A. B. (1999). *Corporate Social Responsibility Evolution of a Definitional Construct*.

- Chang, S. H., & Chang, C. W. (2017). Tie strength, green expertise, and interpersonal influences on the purchase of organic food in an emerging market. *British Food Journal*, *119*(2), 284–300. <https://doi.org/10.1108/BFJ-04-2016-0156>
- Chekima, B. C., Syed Khalid Wafa, S. A. W., Igau, O. A., Chekima, S., & Sondoh, S. L. (2016). Examining green consumerism motivational drivers: Does premium price and demographics matter to green purchasing? *Journal of Cleaner Production*, *112*, 3436–3450. <https://doi.org/10.1016/j.jclepro.2015.09.102>
- Chen, S. C., & Hung, C. W. (2016). Elucidating the factors influencing the acceptance of green products: An extension of theory of planned behavior. *Technological Forecasting and Social Change*, *112*, 155–163. <https://doi.org/10.1016/j.techfore.2016.08.022>
- Chen, T. B., & Chai, L. T. (2010). Attitude towards the Environment and Green Products: Consumers' Perspective. *Management Science and Engineering*, *4*(2), 27–39. www.cscanada.org
- COP26 The Glasgow Climate Pact. (2021).
- C.R. Kothari. (2004). *Research Methodology*.
- de Medeiros, J. F., Ribeiro, J. L. D., & Cortimiglia, M. N. (2016). Influence of perceived value on purchasing decisions of green products in Brazil. *Journal of Cleaner Production*, *110*, 158–169. <https://doi.org/10.1016/j.jclepro.2015.07.100>
- de Vaus, D. (2013). *Surveys In Social Research*. Routledge. <https://doi.org/10.4324/9780203501054>
- Debora Indriani, I. A., Rahayu, M., & Hadiwidjojo, D. (2019). The Influence of Environmental Knowledge on Green Purchase Intention the Role of Attitude as Mediating Variable. *International Journal of Multicultural and Multireligious Understanding*, *6*(2), 627. <https://doi.org/10.18415/ijmmu.v6i2.706>
- Fashion and the SDGs: what role for the UN?* (2018).
- Franzen, A., & Meyer, R. (2010). Environmental attitudes in cross-national perspective: A multilevel analysis of the ISSP 1993 and 2000. *European Sociological Review*, *26*(2), 219–234. <https://doi.org/10.1093/esr/jcp018>
- George, D., & Mallery, P. (2003). *SPSS for Windows Step by Step: A Simple Guide and Reference, 11.0 Update (4th Edition)* (4th ed.). Allyn & Bacon.
- Ghali-Zinoubi, Z., & Toukabri, M. (2019). The antecedents of the consumer purchase intention: Sensitivity to price and involvement in organic product: Moderating role of product regional identity. In *Trends in Food Science and Technology* (Vol. 90, pp. 175–179). Elsevier Ltd. <https://doi.org/10.1016/j.tifs.2019.02.028>

- Global 500 2022*. (2022). www.brandfinance.com
- Ham, M., Jeger, M., & Ivković, A. F. (2015). The role of subjective norms in forming the intention to purchase green food. *Economic Research-Ekonomska Istrazivanja*, 28(1), 738–748. <https://doi.org/10.1080/1331677X.2015.1083875>
- Hameed, I., & Khan, K. (2020). An extension of the goal-framing theory to predict consumer's sustainable behavior for home appliances. *Energy Efficiency*, 13(7), 1441–1455. <https://doi.org/10.1007/s12053-020-09890-4>
- Hartmann, P., & Apaolaza-Ibañez, V. (2012). Consumer attitude and purchase intention toward green energy brands: The roles of psychological benefits and environmental concern. *Journal of Business Research*, 65(9), 1254–1263. <https://doi.org/10.1016/j.jbusres.2011.11.001>
- Hasbullah, N. N., Sulaiman, Z., Mas'od, A., & Ahmad Sugiran, H. S. (2022). Drivers of Sustainable Apparel Purchase Intention: An Empirical Study of Malaysian Millennial Consumers. *Sustainability (Switzerland)*, 14(4). <https://doi.org/10.3390/su14041945>
- Hedlund, T. (2011). The impact of values, environmental concern, and willingness to accept economic sacrifices to protect the environment on tourists' intentions to buy ecologically sustainable tourism alternatives. *Tourism and Hospitality Research*, 11(4), 278–288. <https://doi.org/10.1177/1467358411423330>
- Hosta, M., & Zabkar, V. (2021). Antecedents of Environmentally and Socially Responsible Sustainable Consumer Behavior. *Journal of Business Ethics*, 171(2), 273–293. <https://doi.org/10.1007/s10551-019-04416-0>
- Hsu, C. L., Chang, C. Y., & Yansritakul, C. (2017). Exploring purchase intention of green skincare products using the theory of planned behavior: Testing the moderating effects of country of origin and price sensitivity. *Journal of Retailing and Consumer Services*, 34, 145–152. <https://doi.org/10.1016/j.jretconser.2016.10.006>
- Huang, C. L. (1996). Consumer preferences and attitudes towards organically grown produce. *European Review of Agricultural Economics*, 23(3), 331–342.
- Iso. (2019). *Environmental labels*.
- Jan, I. U., Ji, S., & Yeo, C. (2019). Values and green product purchase behavior: The moderating effects of the role of government and media exposure. *Sustainability (Switzerland)*, 11(23). <https://doi.org/10.3390/su11236642>
- Kamalanon, P., Chen, J. S., & Le, T. T. Y. (2022). “Why do We Buy Green Products?” An Extended Theory of the Planned Behavior Model for Green Product Purchase Behavior. *Sustainability (Switzerland)*, 14(2). <https://doi.org/10.3390/su14020689>

- Keni, K., Asali, A., Teoh, A. P., & Muthuveloo, R. (2020). *Factors Influencing Green Purchase Intention*.
- Kidwell, B., & Jewell, R. D. (2003). An Examination of Perceived Behavioral Control: Internal and External Influences on Intention. *Psychology and Marketing*, 20(7), 625–642. <https://doi.org/10.1002/mar.10089>
- Kilbourne, W., & Pickett, G. (2008). How materialism affects environmental beliefs, concern, and environmentally responsible behavior. *Journal of Business Research*, 61(9), 885–893. <https://doi.org/10.1016/j.jbusres.2007.09.016>
- Kim, H. Y., & Chung, J. E. (2011). Consumer purchase intention for organic personal care products. *Journal of Consumer Marketing*, 28(1), 40–47. <https://doi.org/10.1108/07363761111101930>
- Kim, Y., & Choi, S. M. (2005). ASSOCIATION FOR CONSUMER RESEARCH Antecedents of Green Purchase Behavior: an Examination of Collectivism, Environmental Concern, and Pce Antecedents of Green Purchase Behavior: An Examination of Collectivism, Environmental Concern, and PCE. In 592 *Advances in Consumer Research* (Vol. 32). <http://www.acrwebsite.org/volumes/9156/volumes/v32/NA-32><http://www.copyright.com/>.
- Koenig-Lewis, N., Palmer, A., Dermody, J., & Urbye, A. (2014). Consumers' evaluations of ecological packaging - Rational and emotional approaches. *Journal of Environmental Psychology*, 37, 94–105. <https://doi.org/10.1016/j.jenvp.2013.11.009>
- Kumar, B., Manrai, A. K., & Manrai, L. A. (2017). Purchasing behaviour for environmentally sustainable products: A conceptual framework and empirical study. *Journal of Retailing and Consumer Services*, 34, 1–9. <https://doi.org/10.1016/j.jretconser.2016.09.004>
- Lamperts, M., Metaal, S., Liu, S., & Gambarin, L. (2019). *Global Rise In Environmental Concern*.
- Li, Y., Lu, Y., Zhang, X., Liu, L., Wang, M., & Jiang, X. (2016). Propensity of green consumption behaviors in representative cities in China. *Journal of Cleaner Production*, 133, 1328–1336. <https://doi.org/10.1016/j.jclepro.2016.06.012>
- Lockie, S., Lyons, K., Lawrence, G., & Grice, J. (2004). Choosing organics: A path analysis of factors underlying the selection of organic food among Australian consumers. *Appetite*, 43(2), 135–146. <https://doi.org/10.1016/j.appet.2004.02.004>

- Lusk, J. L., Nilsson, T., & Foster, K. (2007). Public preferences and private choices: Effect of altruism and free riding on demand for environmentally certified pork. *Environmental and Resource Economics*, 36(4), 499–521. <https://doi.org/10.1007/s10640-006-9039-6>
- Mainieri, T., Barnett, E. G., Valdero, T. R., Unipan, J. B., & Oskamp, S. (1997). Green buying: The influence of environmental concern on consumer behavior. *Journal of Social Psychology*, 137(2), 189–204. <https://doi.org/10.1080/00224549709595430>
- Markandya, A., Zarrilli, S., Jha, V., & Vossenaar, R. (1997). Eco-Labeling and International Trade. In *Eco-Labeling and International Trade*. Palgrave Macmillan UK. <https://doi.org/10.1007/978-1-349-25492-7>
- Moravcikova, D., Krizanova, A., Kliestikova, J., & Rypakova, M. (2017). Green marketing as the source of the competitive advantage of the business. *Sustainability (Switzerland)*, 9(12). <https://doi.org/10.3390/su9122218>
- Moser, A. K. (2016). Consumers' purchasing decisions regarding environmentally friendly products: An empirical analysis of German consumers. *Journal of Retailing and Consumer Services*, 31, 389–397. <https://doi.org/10.1016/j.jretconser.2016.05.006>
- Nam, C., Dong, H., & Lee, Y. A. (2017). Factors influencing consumers' purchase intention of green sportswear. *Fashion and Textiles*, 4(1). <https://doi.org/10.1186/s40691-017-0091-3>
- Newton, J. D., Tsarenko, Y., Ferraro, C., & Sands, S. (2015). Environmental concern and environmental purchase intentions: The mediating role of learning strategy. *Journal of Business Research*, 68(9), 1974–1981. <https://doi.org/10.1016/j.jbusres.2015.01.007>
- Olivier, J. G. J., & Peters, J. A. H. W. (2020). *TRENDS IN GLOBAL CO 2 AND TOTAL GREENHOUSE GAS EMISSIONS 2019 Report*. <https://www.pbl.nl/sites/default/files/downloads/pbl-2020-trends-in-global->
- Ottman, J. A., Stafford, E. R., & Hartman, C. L. (2006). Avoiding green marketing myopia: Ways to improve consumer appeal for environmentally preferable products. *Environment*, 48(5), 22–36. <https://doi.org/10.3200/ENVT.48.5.22-36>
- Pagiaslis, A., & Krontalis, A. K. (2014). Green Consumption Behavior Antecedents: Environmental Concern, Knowledge, and Beliefs. *Psychology & Marketing*, 31(5), 335–348.
- Parzonko, A. J., Balińska, A., & Siczko, A. (2021). Pro-environmental behaviors of generation z in the context of the concept of homo socio-oeconomicus. *Energies*, 14(6). <https://doi.org/10.3390/en14061597>

- Patel, J. D., Trivedi, R. H., & Yagnik, A. (2020). Self-identity and internal environmental locus of control: Comparing their influences on green purchase intentions in high-context versus low-context cultures. *Journal of Retailing and Consumer Services*, 53. <https://doi.org/10.1016/j.jretconser.2019.102003>
- Ricci, E. C., Banterle, A., & Stranieri, S. (2018). Trust to Go Green: An Exploration of Consumer Intentions for Eco-friendly Convenience Food. *Ecological Economics*, 148, 54–65. <https://doi.org/10.1016/j.ecolecon.2018.02.010>
- Roberts, J. A., & Bacon, D. R. (1997). *Exploring the Subtle Relationships between Environmental Concern and Ecologically Conscious Consumer Behavior*. Royal Society, T. (2020). *Climate Change: Evidence & Causes 2020*. <https://www.nap.edu/catalog/18373>
- Sadowski, M., Perkins, L., & McGarvey, E. (2021). Roadmap to Net Zero: Delivering Science-Based Targets in the Apparel Sector. *World Resources Institute*. <https://doi.org/10.46830/wriwp.20.00004>
- Salman, M. M. (2016). Eco Labels: Tools of Green Marketing. In *Print*) *International Research Journal of Management Sociology & Humanity (IRJMSSH)*. www.irjmsh.com
- Sarkar, J. G., Sarkar, A., Dwivedi, Y. K., & Balaji, M. S. (2022). Sweat it for sustainability: Impact of physical activity/exercise on sustainable consumption. *Psychology and Marketing*, 39(11), 2184–2199. <https://doi.org/10.1002/mar.21722>
- Sharma, N. K., & Kushwaha, G. S. (2019). Eco-labels: A tool for green marketing or just a blind mirror for consumers. *Electronic Green Journal*, 1(42). <https://doi.org/10.5070/g314233710>
- Singh, A., & Verma, P. (2017). Factors influencing Indian consumers' actual buying behaviour towards organic food products. *Journal of Cleaner Production*, 167, 473–483. <https://doi.org/10.1016/j.jclepro.2017.08.106>
- Sreen, N., Purbey, S., & Sadarangani, P. (2018). Impact of culture, behavior and gender on green purchase intention. *Journal of Retailing and Consumer Services*, 41, 177–189. <https://doi.org/10.1016/j.jretconser.2017.12.002>
- Sun, Y., Luo, B., Wang, S., & Fang, W. (2021). What you see is meaningful: Does green advertising change the intentions of consumers to purchase eco-labeled products? *Business Strategy and the Environment*, 30(1), 694–704. <https://doi.org/10.1002/bse.2648>
- Taufique, K. M. R., Vocino, A., & Polonsky, M. J. (2017). The influence of eco-label knowledge and trust on pro-environmental consumer behaviour in an emerging market.

- Journal of Strategic Marketing*, 25(7), 511–529.
<https://doi.org/10.1080/0965254X.2016.1240219>
- Testa, F., Iraldo, F., Vaccari, A., & Ferrari, E. (2015). Why eco-labels can be effective marketing tools: Evidence from a study on Italian consumers. *Business Strategy and the Environment*, 24(4), 252–265. <https://doi.org/10.1002/bse.1821>
- The Fashion Pact - First Steps to Transform Our Industry*. (2020).
- Thøgersen, J., & Grunert-Beckmann, S. C. (1996). *Values and attitude formation towards emerging attitude objects: From recycling to general waste minimizing behavior* (Vol. 66). <https://www.researchgate.net/publication/313152024>
- Tranter, R. B., Bennett, R. M., Costa, L., Cowan, C., Holt, G. C., Jones, P. J., Miele, M., Sottomayor, M., & Vestergaard, J. (2009). Consumers' willingness-to-pay for organic conversion-grade food: Evidence from five EU countries. *Food Policy*, 34(3), 287–294. <https://doi.org/10.1016/j.foodpol.2009.03.001>
- Tzilivakis, J., Green, A., Warner, D., McGeevor, K., & Lewis, K. (2012). A framework for practical and effective eco-labelling of food products. *Sustainability Accounting, Management and Policy Journal*, 3(1), 50–73. <https://doi.org/10.1108/20408021211223552>
- van Loo, E. J., Caputo, V., Nayga, R. M., & Verbeke, W. (2014). Consumers' valuation of sustainability labels on meat. *Food Policy*, 49(P1), 137–150. <https://doi.org/10.1016/j.foodpol.2014.07.002>
- Wang, Z., Sun, Q., Wang, B., & Zhang, B. (2019). Purchasing intentions of Chinese consumers on energy-efficient appliances: Is the energy efficiency label effective? *Journal of Cleaner Production*, 238. <https://doi.org/10.1016/j.jclepro.2019.117896>
- WMO, Taalas, P., & Guterres, A. 1949-. (2020). *State of the global climate 2020*.
- Xu, P., Zeng, Y., Fong, Q., Lone, T., & Liu, Y. (2012). Chinese consumers' willingness to pay for green- and eco-labeled seafood. *Food Control*, 28(1), 74–82. <https://doi.org/10.1016/j.foodcont.2012.04.008>
- Yadav, R., & Pathak, G. S. (2017). Determinants of Consumers' Green Purchase Behavior in a Developing Nation: Applying and Extending the Theory of Planned Behavior. *Ecological Economics*, 134, 114–122. <https://doi.org/10.1016/j.ecolecon.2016.12.019>
- Yokessa, M., Marette, S. S., Marette, S. S. A., & Marette, S. (2019). A Review of Eco-labels and their Economic Impact. *International Review of Environmental and Resource Economics*, 13(2), 119–163. <https://doi.org/10.1561/101.00000107i>

- Yue, T., Liu, J., Long, R., Chen, H., Li, Q., Liu, H., & Gu, Y. (2020). *Effects of perceived value on green consumption intention based on double-entry mental accounting: taking energy-efficient appliance purchase as an example*. <https://doi.org/10.1007/s11356-020-11027-0>/Published
- Zameer, H., & Yasmeen, H. (2022). Green innovation and environmental awareness driven green purchase intentions. *Marketing Intelligence and Planning*, 40(5), 624–638. <https://doi.org/10.1108/MIP-12-2021-0457>
- Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197–206. <https://doi.org/10.1086/651257>
- Zimmer, M. R., Stafford, T. F., & Stafford, M. R. (1994). *Green Issues: Dimensions of Environmental Concern*.

Appendices

Appendix 1: Questionnaire

Purchase Intention Eco-Label

Start of Block: Introduction Survey

agree_participation Dear respondents,

Thank you for participating in this study! This research is part of my thesis of the Master in Management with specialisation in Strategic Marketing at Católica Lisbon School of Business & Economics. The survey will take **3-5 minutes** of your time and it is completely voluntary and anonymous. Your information and data will be used for academic reasons only. I really appreciate your time and effort in participating in this study.

For further questions you can contact me by email: s-terwee@ucp.pt

Thank you for your time!

Tijn Terwee

I voluntarily accept to participate in this research:

- I agree (1)
- I do not agree (2)

Skip To: End of Survey If Dear respondents, Thank you for participating in this study! This research is part of my thesis o... = I do not agree

End of Block: Introduction Survey

Start of Block: Sport Activity

Sport_Exercise How regularly do you exercise?

- Less than once a week (1)
- 1-2 times a week (2)
- 3-4 times a week (3)
- 5-6 times a week (4)
- More than 6 times a week (5)
-

Type_Sports What sport and exercise activity(ies) do you participate in?

Multiple answers possible

Running (1)

Swimming (2)

Cycling (4)

Tennis / Padel (5)

Soccer (6)

Field Hockey (7)

Other (3) _____

End of Block: Sport Activity

Start of Block: Intro Conditions

intro_conditions On the next page, you will be exposed to a particular running short.

Imagine you are looking on the internet for a new running short and you come across the one presented on the next page.

Please take your time to carefully observe the details in the picture.

End of Block: Intro Conditions

Start of Block: Eco Label

Stimuli_Eco_Label Nike is an American concern and manufacturer of athletic shoes, sportswear, sports equipment and accessories.

This coming month, they are launching the running shorts below.

The running shorts are made of **100% recycled polyester** and contain the **EU Ecolabel**.

An eco-label is a label awarded to products or services that are less environmentally damaging than qualitatively

similar products or services, based on a number of predetermined criteria. The EU Ecolabel is the official European eco-label for non-food products and services.



Page Break

Eco_Label_PI To what extent do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I intend to buy this sportswear in the forthcoming month. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will try to buy this sportswear in the forthcoming month. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I plan to buy this sportswear in the forthcoming month. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Eco_Label_ATT On each of the adjectives below, place the O according to your attitude.

For me, buying **eco-labelled sportswear** in the forthcoming month is:

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Harmful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beneficial
Pleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unpleasant
Good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Right
Worthless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Valuable
Enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unenjoyable

Page Break

Eco_Label_SN_1 Most people who are important to me think that I _____ buy **eco-labelled sportswear** in the forthcoming month.

- Definitely should not (1)
- Very probably should not (2)
- Probably should not (3)
- Neither should nor should not (4)
- Probably should (5)
- Very probably should (6)
- Definitely should (7)

Eco_Label_SN_2 It is expected of me that I buy **eco-labelled sportswear** in the forthcoming month.

- Extremely unlikely (1)
 - Moderately unlikely (2)
 - Slightly unlikely (3)
 - Neither likely nor unlikely (4)
 - Slightly likely (5)
 - Moderately likely (6)
 - Extremely likely (7)
-

Eco_Label_SN_3 The people in my life whose opinions I value would _____ my purchase of **eco-labelled sportswear** in the forthcoming month.

- Definitely disapprove (1)
 - Very probably disapprove (2)
 - Probably disapprove (3)
 - Neither approve nor disapprove (4)
 - Probably approve (5)
 - Very probably approve (6)
 - Definitely approve (7)
-

Page Break

Eco_Label_PBC_1 For me buying **eco-labelled sportswear** in the forthcoming month would be _____

- Definitely would not be possible (1)
 - Very probably would not be possible (2)
 - Probably would not be possible (3)
 - Neither would be possible nor would not be possible (4)
 - Probably would be possible (5)
 - Very probably would be possible (6)
 - Definitely would be possible (7)
-

Eco_Label_PBC_2 If I wanted to, I could buy **eco-labelled sportswear** in the forthcoming month.

- Strongly disagree (1)
 - Disagree (2)
 - Somewhat disagree (3)
 - Neither agree nor disagree (4)
 - Somewhat agree (5)
 - Agree (6)
 - Strongly agree (7)
-

Eco_Label_PBC_3 How much *control* do you believe you have over buying **eco-labelled sportswear** in the forthcoming month?

"Control" means how the buying decision depends or not only on you. External factors such as financial capacity, store availability, dependence on others can reduce or increase control.

- Complete no control (1)
- Moderate no control (2)
- Slightly no control (3)
- Neutral (4)
- Slightly control (5)
- Moderate control (6)
- Complete control (7)

Eco_Label_PBC_4 It is mostly up to me whether or not I buy **eco-labelled sportswear** in the forthcoming month.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Eco_Label_EC To what extent do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I am very concerned about the environment (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be willing to reduce my consumption to help protect the environment (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Major political change is necessary to protect the natural environment (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Major social changes are necessary to protect the natural environment (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anti-pollution laws should be enforced more strongly (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Eco_Label_PS To what extent do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
It is acceptable to pay more for eco-labelled sportswear than for non-eco-labelled sportswear (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to spend extra money in order to buy eco-labelled sportswear (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Eco_Label_Manu_Intro Please recall the sportswear you saw earlier, consider it in your memory and answer the question on the next page.

Page Break

Eco_Label_Manu_Q Can you indicate whether the sportswear you have just been exposed to had an eco-label?

- Yes (1)
- No (2)

End of Block: Eco Label

Start of Block: No Label

Stimuli_No_Label Nike is an American concern and manufacturer of athletic shoes, sportswear, sports equipment and accessories.

This coming month, they are launching the running shorts below.

The running shorts are made of **100% recycled polyester**.

MEN SPORTSWEAR



WOMAN SPORTSWEAR



Page Break

No_Label_PI To what extent do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I intend to buy this sportswear in the forthcoming month. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will try to buy this sportswear in the forthcoming month. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I plan to buy this sportswear in the forthcoming month. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

No_Label_ATT On each of the adjectives below, place the O according to your attitude.

For me, buying **sportswear** in the forthcoming month is:

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Harmful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beneficial
Pleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unpleasant
Good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Right
Worthless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Valuable
Enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unenjoyable

Page Break

No_Label_SN_1 Most people who are important to me think that I _____ buy **sportswear** in the forthcoming month.

- Definitely should not (1)
- Very probably should not (2)
- Probably should not (3)
- Neither should nor should not (4)
- Probably should (5)
- Very probably should (6)
- Definitely should (7)

No_Label_SN_2 It is expected of me that I buy **sportswear** in the forthcoming month.

- Extremely unlikely (1)
 - Moderately unlikely (2)
 - Slightly unlikely (3)
 - Neither likely nor unlikely (4)
 - Slightly likely (5)
 - Moderately likely (6)
 - Extremely likely (7)
-

No_Label_SN_3 The people in my life whose opinions I value would _____ my purchase of **sportswear** in the forthcoming month.

- Definitely disapprove (1)
 - Very probably disapprove (2)
 - Probably disapprove (3)
 - Neither approve nor disapprove (4)
 - Probably approve (5)
 - Very probably approve (6)
 - Definitely approve (7)
-

Page Break

No_Label_PBC_1 For me buying **sportswear** in the forthcoming month would be _____

- Definitely would not be possible (1)
 - Very probably would not be possible (2)
 - Probably would not be possible (3)
 - Neither would be possible nor would not be possible (4)
 - Probably would be possible (5)
 - Very probably would be possible (6)
 - Definitely would be possible (7)
-

No_Label_PBC_2 If I wanted to, I could buy **sportswear** in the forthcoming month.

- Strongly disagree (1)
 - Disagree (2)
 - Somewhat disagree (3)
 - Neither agree nor disagree (4)
 - Somewhat agree (5)
 - Agree (6)
 - Strongly agree (7)
-

No_Label_PBC_3 How much *control* do you believe you have over buying **sportswear** in the forthcoming month?

"Control" means how the buying decision depends or not only on you. External factors such as financial capacity, store availability, dependence on others can reduce or increase control.

- Complete no control (1)
- Moderate no control (2)
- Slightly no control (3)
- Neutral (4)
- Slightly control (5)
- Moderate control (6)
- Complete control (7)

No_Label_PBC_4 It is mostly up to me whether or not I buy **sportswear** in the forthcoming month.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Page Break

No_Label_EC To what extent do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I am very concerned about the environment (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be willing to reduce my consumption to help protect the environment (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Major political change is necessary to protect the natural environment (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Major social changes are necessary to protect the natural environment (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anti-pollution laws should be enforced more strongly (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

No_Label_PS To what extent do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
It is acceptable to pay more for eco-labelled sportswear than for non-eco-labelled sportswear (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to spend extra money in order to buy eco-labelled sportswear (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

No_Label_Manu_Intro Please recall the sportswear you saw earlier, consider it in your memory and answer the question on the next page.

Page Break

No_Label_Manu_Q Can you indicate whether the sportswear you have just been exposed to had an eco-label?

- Yes (1)
- No (2)

End of Block: No Label

Start of Block: Demographic

demographic_prolific What is your Prolific ID?
If you are not recruited from Prolific you can skip this question

gender Gender

- Male (1)
 - Female (2)
 - Non-binary / third gender (3)
 - Prefer not to say (4)
-

age What is your age?

education What is the highest degree or level of school you have completed?

- Lower than High School Diploma (1)
 - High School Diploma (2)
 - Bachelor's degree (3)
 - Master's degree (4)
 - PhD (5)
-

income What is your annual household income?

- Less than €20,000 (1)
- €20,000 - €50,000 (2)
- €50,000 - €100,000 (3)
- €100,000 - €200,000 (4)
- More than €200,000 (5)

End of Block: Demographic

Appendix 2: Independent T-Test

Group Statistics

	CONDITION	N	Mean	Std. Deviation	Std. Error Mean
PI	non eco-label	62	3.0269	1.52848	.19412
	eco label	82	3.5081	1.60095	.17680

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
PI	Equal variances assumed	.325	.569	-1.821	142	.035	.071	-.48125	.26427	-1.00365	.04115
	Equal variances not assumed			-1.833	134.484	.035	.069	-.48125	.26256	-1.00053	.03803

Appendix 3: Process Model 4

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.1 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

Model : 4
Y : PI
X : CONDITIO
M1 : ATT
M2 : SN
M3 : PBC

Sample
Size: 144

OUTCOME VARIABLE:
ATT

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2894	.0837	1.0405	12.9767	1.0000	142.0000	.0004

Model

	coeff	se	t	p	LLCI	ULCI
constant	4.6895	.1295	36.1999	.0000	4.4334	4.9456
CONDITIO	.6184	.1717	3.6023	.0004	.2791	.9578

Standardized coefficients

	coeff
CONDITIO	.5824

OUTCOME VARIABLE:
SN

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2803	.0786	1.0588	12.1063	1.0000	142.0000	.0007

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.9462	.1307	30.1977	.0000	3.6879	4.2046
CONDITIO	.6025	.1732	3.4794	.0007	.2602	.9449

Standardized coefficients

coeff
CONDITIO .5641

OUTCOME VARIABLE:
PBC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0103	.0001	1.1265	.0149	1.0000	142.0000	.9029

Model

	coeff	se	t	p	LLCI	ULCI
constant	5.4355	.1348	40.3239	.0000	5.1690	5.7019
CONDITIO	.0218	.1786	.1222	.9029	-.3313	.3749

Standardized coefficients

coeff
CONDITIO .0206

OUTCOME VARIABLE:
PI

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5477	.3000	1.8043	14.8939	4.0000	139.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.6197	.7235	-.8565	.3932	-2.0503	.8109
CONDITIO	-.1064	.2406	-.4424	.6589	-.5821	.3692
ATT	.3619	.1282	2.8235	.0054	.1085	.6154
SN	.6068	.1231	4.9279	.0000	.3633	.8503
PBC	-.0819	.1123	-.7297	.4668	-.3040	.1401

Standardized coefficients

coeff
CONDITIO -.0672
ATT .2428
SN .4095
PBC -.0548

***** DIRECT AND INDIRECT EFFECTS OF X ON Y

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI	c'_ps
-.1064	.2406	-.4424	.6589	-.5821	.3692	-.0672

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	.5877	.1708	.2565	.9425
ATT	.2238	.1112	.0355	.4744
SN	.3656	.1220	.1435	.6304
PBC	-.0018	.0245	-.0556	.0490

Partially standardized indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	.3713	.1060	.1655	.5889
ATT	.1414	.0699	.0228	.2952
SN	.2310	.0761	.0923	.3934
PBC	-.0011	.0156	-.0358	.0310

***** ANALYSIS NOTES AND ERRORS

Level of confidence for all confidence intervals in output:
95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
5000

NOTE: Standardized coefficients for dichotomous or multicategorical X are in
partially standardized form.

WARNING: Variables names longer than eight characters can produce incorrect output
when some variables in the data file have the same first eight characters. Shorter
variable names are recommended. By using this output, you are accepting all risk
and consequences of interpreting or reporting results that may be incorrect.

----- END MATRIX -----

Appendix 4: Process Model 2

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.1 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

Model : 2
Y : PI
X : CONDITIO
W : EC
Z : PS

Sample
Size: 144

OUTCOME VARIABLE:
PI

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2597	.0674	2.4213	1.9953	5.0000	138.0000	.0831

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.3056	.1301	25.4172	.0000	3.0485	3.5628
CONDITIO	.4731	.2627	1.8007	.0739	-.0464	.9925
EC	-.1063	.1535	-.6925	.4898	-.4099	.1973
Int_1	.0661	.3124	.2114	.8329	-.5517	.6838
PS	.2129	.1066	1.9971	.0478	.0021	.4237
Int_2	-.2916	.2147	-1.3578	.1767	-.7162	.1330

Product terms key:

Int_1 : CONDITIO x EC
Int_2 : CONDITIO x PS

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0003	.0447	1.0000	138.0000	.8329
X*Z	.0125	1.8437	1.0000	138.0000	.1767
BOTH	.0139	1.0265	2.0000	138.0000	.3610

Focal predict: CONDITIO (X)

Mod var: EC (W)

Mod var: PS (Z)

Data for visualizing the conditional effect of the focal predictor:

Paste text below into a SPSS syntax window and execute to produce plot.

```
DATA LIST FREE/
  CONDITIO EC      PS      PI      .
BEGIN DATA.
  -.5694  -.9494  -1.3677  2.6546
  .4306  -.9494  -1.3677  3.4638
  -.5694  -.9494  .0000  3.1729
  .4306  -.9494  .0000  3.5833
  -.5694  -.9494  1.3677  3.6912
  .4306  -.9494  1.3677  3.7028
  -.5694  .0000  -1.3677  2.5180
  .4306  .0000  -1.3677  3.3898
  -.5694  .0000  .0000  3.0363
  .4306  .0000  .0000  3.5093
  -.5694  .0000  1.3677  3.5546
  .4306  .0000  1.3677  3.6288
  -.5694  .9494  -1.3677  2.3813
  .4306  .9494  -1.3677  3.3158
  -.5694  .9494  .0000  2.8996
  .4306  .9494  .0000  3.4354
  -.5694  .9494  1.3677  3.4179
  .4306  .9494  1.3677  3.5549
END DATA.
GRAPH/SCATTERPLOT=
  EC WITH PI BY CONDITIO /PANEL ROWVAR= PS .
```

```
***** ANALYSIS NOTES AND ERRORS
*****
```

Level of confidence for all confidence intervals in output:
95.0000

NOTE: The following variables were mean centered prior to analysis:
EC PS CONDITIO

WARNING: Variables names longer than eight characters can produce incorrect output when some variables in the data file have the same first eight characters. Shorter variable names are recommended. By using this output, you are accepting all risk and consequences of interpreting or reporting results that may be incorrect.

----- END MATRIX -----

Appendix 5: Process Model 10

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.0 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

Model : 10
Y : PI
X : CONDITIO
M1 : ATT
M2 : SN
M3 : PBC
W : EC
Z : PS

Sample
Size: 144

OUTCOME VARIABLE:
ATT

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4317	.1864	.9507	6.3234	5.0000	138.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	4.6054	.7667	6.0068	.0000	3.0894	6.1214
CONDITIO	-1.7256	1.0667	-1.6176	.1080	-3.8348	.3837
EC	-.1978	.1511	-1.3095	.1925	-.4966	.1009
Int_1	.5141	.1958	2.6259	.0096	.1270	.9011
PS	.2543	.1007	2.5260	.0127	.0552	.4533
Int_2	-.1538	.1346	-1.1429	.2551	-.4198	.1123

Product terms key:

Int_1 : CONDITIO x EC
Int_2 : CONDITIO x PS

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0407	6.8952	1.0000	138.0000	.0096
X*Z	.0077	1.3061	1.0000	138.0000	.2551
BOTH(X)	.0407	3.4494	2.0000	138.0000	.0345

Focal predict: CONDITIO (X)
Mod var: EC (W)
Mod var: PS (Z)

Conditional effects of the focal predictor at values of the moderator(s):

EC	PS	Effect	se	t	p	LLCI	ULCI
5.0000	3.5000	.3065	.2646	1.1585	.2487	-.2166	.8296
5.0000	5.2500	.0374	.2687	.1392	.8895	-.4939	.5687
5.0000	6.0000	-.0779	.3273	-.2381	.8121	-.7250	.5692
6.4000	3.5000	1.0262	.2977	3.4467	.0008	.4375	1.6149
6.4000	5.2500	.7571	.1790	4.2292	.0000	.4031	1.1110
6.4000	6.0000	.6417	.2043	3.1413	.0021	.2378	1.0457
6.8000	3.5000	1.2318	.3487	3.5330	.0006	.5424	1.9212
6.8000	5.2500	.9627	.2195	4.3867	.0000	.5288	1.3966
6.8000	6.0000	.8474	.2251	3.7651	.0002	.4024	1.2924

OUTCOME VARIABLE:

SN

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5102	.2603	.8746	9.7116	5.0000	138.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	4.8769	.7354	6.6318	.0000	3.4228	6.3310
CONDITIO	-2.6394	1.0232	-2.5796	.0109	-4.6625	-.6163
EC	-.5075	.1449	-3.5022	.0006	-.7940	-.2210
Int_1	.7253	.1878	3.8629	.0002	.3540	1.0966
PS	.4204	.0966	4.3541	.0000	.2295	.6113
Int_2	-.2245	.1291	-1.7397	.0841	-.4797	.0307

Product terms key:

Int_1 : CONDITIO x EC
Int_2 : CONDITIO x PS

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0800	14.9216	1.0000	138.0000	.0002
X*Z	.0162	3.0264	1.0000	138.0000	.0841
BOTH(X)	.0800	7.4611	2.0000	138.0000	.0008

Focal predict: CONDITIO (X)
Mod var: EC (W)

Mod var: PS (Z)

Conditional effects of the focal predictor at values of the moderator(s):

EC	PS	Effect	se	t	p	LLCI	ULCI
5.0000	3.5000	.2014	.2538	.7938	.4287	-.3003	.7032
5.0000	5.2500	-.1915	.2577	-.7428	.4589	-.7011	.3182
5.0000	6.0000	-.3598	.3139	-1.1464	.2536	-.9805	.2608
6.4000	3.5000	1.2169	.2856	4.2613	.0000	.6522	1.7816
6.4000	5.2500	.8240	.1717	4.7990	.0000	.4845	1.1635
6.4000	6.0000	.6556	.1959	3.3459	.0011	.2682	1.0431
6.8000	3.5000	1.5070	.3344	4.5064	.0000	.8458	2.1683
6.8000	5.2500	1.1141	.2105	5.2929	.0000	.6979	1.5303
6.8000	6.0000	.9457	.2159	4.3812	.0000	.5189	1.3726

OUTCOME VARIABLE:

PBC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2830	.0801	1.0665	2.4029	5.0000	138.0000	.0400

Model

	coeff	se	t	p	LLCI	ULCI
constant		4.3594	.8120	5.3684	.0000	2.7537 5.9650
CONDITIO	-.2287	1.1298	-.2024	.8399	-2.4627	2.0053
EC	-.0497	.1600	-.3109	.7564	-.3661	.2667
Int_1	.1714	.2073	.8268	.4098	-.2386	.5814
PS	.2773	.1066	2.6011	.0103	.0665	.4882
Int_2	-.1609	.1425	-1.1288	.2609	-.4426	.1209

Product terms key:

Int_1 : CONDITIO x EC
Int_2 : CONDITIO x PS

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0046	.6836	1.0000	138.0000	.4098
X*Z	.0085	1.2742	1.0000	138.0000	.2609
BOTH(X)	.0093	.6987	2.0000	138.0000	.4990

OUTCOME VARIABLE:

PI

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5829	.3397	1.7524	8.6822	8.0000	135.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-2.7127	1.2872	-2.1074	.0369	-5.2585	-.1670
CONDITIO	3.9772	1.4857	2.6769	.0084	1.0389	6.9156
ATT	.4034	.1282	3.1471	.0020	.1499	.6569
SN	.6701	.1300	5.1554	.0000	.4130	.9272
PBC	-.0932	.1131	-.8242	.4113	-.3168	.1304
EC	.2713	.2141	1.2675	.2072	-.1520	.6946
Int_1	-.6114	.2813	-2.1737	.0315	-1.1677	-.0551
PS	.0205	.1479	.1386	.8900	-.2720	.3130
Int_2	-.0941	.1853	-.5077	.6125	-.4605	.2724

Product terms key:

Int_1 : CONDITIO x EC
 Int_2 : CONDITIO x PS

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0231	4.7248	1.0000	135.0000	.0315
X*Z	.0013	.2578	1.0000	135.0000	.6125
BOTH(X)	.0381	3.8928	2.0000	135.0000	.0227

Focal predict: CONDITIO (X)
 Mod var: EC (W)
 Mod var: PS (Z)

Conditional effects of the focal predictor at values of the moderator(s):

EC	PS	Effect	se	t	p	LLCI	ULCI
5.0000	3.5000	.5910	.3612	1.6364	.1041	-.1232	1.3052
5.0000	5.2500	.4264	.3667	1.1627	.2470	-.2988	1.1515
5.0000	6.0000	.3558	.4478	.7945	.4283	-.5299	1.2415
6.4000	3.5000	-.2649	.4355	-.6084	.5439	-1.1261	.5962
6.4000	5.2500	-.4296	.2691	-1.5966	.1127	-.9617	.1025
6.4000	6.0000	-.5001	.2942	-1.7002	.0914	-1.0819	.0816
6.8000	3.5000	-.5095	.5133	-.9926	.3227	-1.5247	.5057
6.8000	5.2500	-.6741	.3341	-2.0178	.0456	-1.3349	-.0134
6.8000	6.0000	-.7447	.3330	-2.2361	.0270	-1.4033	-.0861

***** DIRECT AND INDIRECT EFFECTS OF X ON Y *****

Conditional direct effect(s) of X on Y:

EC	PS	Effect	se	t	p	LLCI	ULCI
5.0000	3.5000	.5910	.3612	1.6364	.1041	-.1232	1.3052

5.0000	5.2500	.4264	.3667	1.1627	.2470	-.2988	1.1515
5.0000	6.0000	.3558	.4478	.7945	.4283	-.5299	1.2415
6.4000	3.5000	-.2649	.4355	-.6084	.5439	-1.1261	.5962
6.4000	5.2500	-.4296	.2691	-1.5966	.1127	-.9617	.1025
6.4000	6.0000	-.5001	.2942	-1.7002	.0914	-1.0819	.0816
6.8000	3.5000	-.5095	.5133	-.9926	.3227	-1.5247	.5057
6.8000	5.2500	-.6741	.3341	-2.0178	.0456	-1.3349	-.0134
6.8000	6.0000	-.7447	.3330	-2.2361	.0270	-1.4033	-.0861

Conditional indirect effects of X on Y:

INDIRECT EFFECT:

CONDITIO -> ATT -> PI

EC	PS	Effect	BootSE	BootLLCI	BootULCI
5.0000	3.5000	.1236	.1440	-.1168	.4574
5.0000	5.2500	.0151	.1380	-.2124	.3440
5.0000	6.0000	-.0314	.1595	-.3089	.3426
6.4000	3.5000	.4140	.1851	.0845	.8047
6.4000	5.2500	.3054	.1256	.0851	.5810
6.4000	6.0000	.2589	.1225	.0608	.5434
6.8000	3.5000	.4969	.2182	.1058	.9428
6.8000	5.2500	.3884	.1559	.1068	.7140
6.8000	6.0000	.3418	.1465	.0892	.6659

Indices of partial moderated mediation:

Index	BootSE	BootLLCI	BootULCI	
EC	.2074	.1146	-.0079	.4373
PS	-.0620	.0617	-.1902	.0549

INDIRECT EFFECT:

CONDITIO -> SN -> PI

EC	PS	Effect	BootSE	BootLLCI	BootULCI
5.0000	3.5000	.1350	.1535	-.1882	.4188
5.0000	5.2500	-.1283	.1609	-.4727	.1588
5.0000	6.0000	-.2411	.2033	-.6607	.1277
6.4000	3.5000	.8155	.2383	.3580	1.3004
6.4000	5.2500	.5522	.1520	.2784	.8735
6.4000	6.0000	.4393	.1518	.1695	.7644
6.8000	3.5000	1.0099	.2839	.4773	1.5924
6.8000	5.2500	.7466	.1913	.4026	1.1600
6.8000	6.0000	.6337	.1793	.3231	1.0224

Indices of partial moderated mediation:

Index	BootSE	BootLLCI	BootULCI
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```

EC .4860 .1410 .2421 .7979
PS -.1504 .0877 -.3203 .0271
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```

INDIRECT EFFECT:

CONDITIO -> PBC -> PI

EC	PS	Effect	BootSE	BootLLCI	BootULCI
5.0000	3.5000	-.0061	.0566	-.1334	.1165
5.0000	5.2500	.0201	.0509	-.0875	.1273
5.0000	6.0000	.0314	.0646	-.1054	.1634
6.4000	3.5000	-.0285	.0687	-.1683	.1246
6.4000	5.2500	-.0022	.0272	-.0575	.0622
6.4000	6.0000	.0090	.0298	-.0495	.0788
6.8000	3.5000	-.0348	.0791	-.1946	.1408
6.8000	5.2500	-.0086	.0364	-.0836	.0759
6.8000	6.0000	.0026	.0325	-.0601	.0795

Indices of partial moderated mediation:

	Index	BootSE	BootLLCI	BootULCI
EC	-.0160	.0393	-.0944	.0727
PS	.0150	.0314	-.0519	.0796

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:

95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:

5000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

Z values in conditional tables are the 16th, 50th, and 84th percentiles.

WARNING: Variables names longer than eight characters can produce incorrect output when some variables in the data file have the same first eight characters. Shorter variable names are recommended. By using this output, you are accepting all risk and consequences of interpreting or reporting results that may be incorrect.

----- END MATRIX -----

Appendix 6: Chi-Square Test

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1,578 ^a	2	,454
Likelihood Ratio	2,318	2	,314
Linear-by-Linear Association	,051	1	,822
N of Valid Cases	144		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .86.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1,009 ^a	4	,908
Likelihood Ratio	1,007	4	,909
Linear-by-Linear Association	,275	1	,600
N of Valid Cases	140		

a. 6 cells (60.0%) have expected count less than 5. The minimum expected count is 1.71.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2,235 ^a	4	,693
Likelihood Ratio	2,635	4	,621
Linear-by-Linear Association	,012	1	,914
N of Valid Cases	144		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .43.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1,394 ^a	4	,845
Likelihood Ratio	1,763	4	,779
Linear-by-Linear Association	,037	1	,848
N of Valid Cases	144		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .43.