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How Visual Framing and Specificity Framing Influence Buying Decisions in Fashion E-commerce

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Certificate of Completion

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Attestation of Authorship

We hereby declare that this submission is our work, best upon research that we have conducted. To the best of our knowledge and belief, it contains no material published or written by another person – except where explicitly defined in the Acknowledgements or listed in the References and properly cited. Nor does it contain any material of ours that, to a substantial extent, has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

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Abstract

Companies face several challenges when it comes to promoting green consumption and designing effective communication strategies for sustainable products. The framing effect, which refers to the presentation of messages, can significantly influence customer perceptions and purchasing intentions. This research explores the impact of information framing through visuals and terms specificity on consumers' purchasing decisions for sustainable fashion products in the online context. The method of data collection was a survey (online experiment) and interviews were also conducted for supporting the data. The findings reveal a significant relationship between sustainable choices and visual framing, indicating that the visual presentation of information positively influences sustainability decisions. However, no significant relationship was found between the specificity of terms and sustainability. Future research is needed to examine the correlation between the importance of sustainability and the desirability of visual framing in products, as well as the relationship between the specificity of terms and sustainability since our study could only answer the relationship between visual framing and sustainability.

Keywords— Visual Framing, Framing of Specificity of Terms, E-commerce, Sustainability, Fashion

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1   Introduction

Companies across industries are increasingly interested in producing and selling environmentally sustainable products. There are more green (or sustainable, eco-friendly) products available to consumers today than traditional or conventional products (Lin & Chang, 2012). Governments and citizen groups are becoming increasingly concerned about changing how people consume fashion as a result of growing concerns about climate change and environmental issues (Iran et al., 2019).

The concept of environmentally friendly marketing, often referred to as green marketing, has become a topic of considerable discussion. Companies are consistently striving to discover the most effective methods to communicate their green message to customers. Customers are exhibiting an increased level of expectations and are displaying a heightened awareness of environmental concerns. The crucial aspect for brands lies in the way customers perceive them (Shahlaee, 2014). Marketers and researchers need to focus on eco-friendly design clothing and consumer behavior considering the growing environmental concern (Yoon et al., 2019).

1.1   Problem Statement

Promoting green consumption is key to meeting ambitious sustainable fashion targets being set around the world (Chen et al., 2022). However, it is often difficult for companies to design communication strategies that increase consumers' willingness to choose these products (Kalamas et al., 2014). Encouraging environmentally conscious consumption is crucial in achieving the ambitious sustainable fashion goals that are being established worldwide (Chen et al., 2022). Social marketers have investigated several different ways to encourage consumers to engage in sustainable behavior (McKenzie-Mohr, 2000).

The "Framing Effect" refers to the fact that customer perceptions and purchasing intentions are significantly influenced by the way advertising messages are presented. Research suggests that using green message framing is effective in engaging people with sustainable consumption behavior and could lead to greater levels of sustainable consumption of behavior being adopted. This finding underscores the importance of taking

into account potential behavioral changes when designing or displaying sustainable framing (Chen et al., 2022). One of them is using the framing effect. There are many ways to use the framing effect. It is challenging for social marketers to comprehend when and how framing works and, as a result, how it can be used in social marketing due to the complexity surrounding the various ways items can be framed and the vastly different types of sustainable behaviors that are encouraged by these efforts (Florence et al., 2022).

The value of sustainable products must be communicated through e-commerce in a way that encourages customers to purchase the item. The price for "the privilege of buying green" is acceptable to consumers. Consumers are typically driven to adopt environmentally friendly consumption habits by the advantages of green products (Green & Peloza, 2014).

Recognition and product knowledge are impacted by both visual and textual product information. Users' attitudes and intentions to make purchases online are influenced by a site's design, which also increases users' trust and satisfaction, and users' capacity to process information. Consequently, their decision to purchase a product should be impacted by how that information is presented to them on a computer screen (Blanco et al., 2010). The presentation of products by online retailers is crucial in meeting the consumer's requirement for sufficient product information to make informed purchase decisions, particularly because the physical evaluation of products is not possible in internet shopping (Fiore et al., 2005). Creating user interfaces that are both user-friendly and effective for online shoppers is the primary obstacle. Past research on online shopping indicates that the crucial factor for system acceptance is having a well-designed user interface with an appropriate method of presenting the information (Hars et al., 2000). It is important to highlight that sustainable products can be identified through the clear and concise information presented on the product's packaging and in advertisements (Borgianni et al., 2022).

Infographics that combine pictures and text can increase the audience's interaction and comprehension of the message being presented. People tend to exhibit more issue-related thoughts when presented with infographics as compared to messages that only use text or illustration. Learning preferences and visual literacy act as facilitators in this scenario. Visual content plays a crucial role in the processing of framing messages and infographics provide a valuable platform for raising awareness about environmental issues (Lazard & Atkinson, 2015). Infographics, short for information graphics, refer to graphical illustrations that present information (Lankow et al., 2012). The widespread use of visual messages today makes it imperative to acknowledge the role that visual

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content plays in determining the processing of persuasive environmental messages with conscious thought (Lazard & Atkinson, 2015).

The visual display style of infographic messages holds significant potential for effectively communicating persuasive environmental messages (Lazard & Atkinson, 2015). Despite the growing importance of sustainability in the fashion industry, there is a paucity of research on the effect of visualization framing on users' buying decisions for sustainable products in the context of online clothing retail. Previous studies have primarily examined the influence of visual cues on consumers' product evaluations and purchase intentions without taking into account the sustainability aspect of clothing items. Therefore, there is a need for empirical investigations that explore how different visual frames depicting sustainable clothing items (e.g., eco-friendly labels, recycled materials, etc.) may affect consumers' purchase behavior in the online fashion retail environment. In addition, to encourage the adoption of sustainable products, it is important to have easily understandable and conspicuous eco-labels (Donato & Adıgüzel, 2022). The aim of eco-labels is to offer consumers significant information about the environmental impact of products (Ní Choisdealbha & Lunn, 2020). In further research, we will include labels and icons that represent sustainability as a part of visualization framing an online clothing shop and study if they have any impact on consumers' buying decisions as a visual effect. The prevalence of visual messages today no longer allows us to ignore the role that visual content plays in decisions to process persuasive pro-environmental messages with effortful thinking (Lazard & Atkinson, 2015). This research thoroughly examined the impact of visual aids and advertisement claims on online sustainable marketing advertisements (van Dalen, 2021). One of the gaps in studies based on this matter is that in an e-commerce setting, the way products are presented can play a crucial role in determining the success or failure of the interface (Jian-Hua et al., 2018).

An effective way to enhance the communication of environmental ideas is through a well-designed visualization for green messages. It is recommended for designers and companies to understand the use of infographics in conveying green messages (Tu et al., 2018).

Another factor is to explore various ways in which textual framing concepts can affect online sustainable marketing advertisements. Presenting information in text form enhances the perceived quality of the information (Blanco et al., 2010). Providing information in a well-defined and lucid manner can greatly influence how consumers evaluate products (Borin et al., 2011). Product information strategies play a vital role in promoting pro-environmental attitudes and encouraging the purchase of eco-friendly products. For

instance, previous studies have demonstrated the crucial role that the source of the message can have, particularly in terms of the message's credibility and persuasiveness (Cerri et al., 2018). Also, The US EPA (United States Environmental Protection Agency) has consistently warned consumers to be cautious of unclear phrases like "recyclable" and "eco-friendly" in advertisements and to seek out specific details when evaluating environmental claims in marketing. For instance, when the term "recycled" is used, the EPA suggests that consumers should determine whether it pertains to the product itself, the packaging, or both and whether it refers to pre-consumer recycling (USEPA, 1992). The frame of product information would change consumers' purchasing decisions significantly (Chenglei & Xiurong, 2012). Environmental knowledge, practices information can affect consumers' perceptions indirectly by enhancing their perceived value of being environmentally conscious and increasing their trust in environmentally friendly products (Wang et al., 2020). Under the impact of the risky framing effect, the consumer's intention to purchase a product is significantly influenced by whether the description of the product is either certain or uncertain (Jian-Hua et al., 2018). The results of this study affirm that using specific environmental claims is more effective than using vague claims when promoting a product with low environmental relevance. Utilizing specific, factual, and substantial environmental claims in marketing efforts can give a competitive edge in the market (Yilmaz & Alniacik, 2012).

Framing sustainability messages with specific environmental terms is essential for marketing managers who want to communicate their environmental sensitivity effectively. Consumers have the ability to distinguish between specific and vague environmental claims (Yilmaz & Alniacik, 2012). The specificity of terms can thus play a vital role in online marketing. Studies conducted earlier have demonstrated that the manner in which an environmentally friendly message is conveyed can substantially enhance people's inclination and effort to engage in eco-friendly behaviors. This indicates that the suitable framing of a message can increase its effectiveness in persuading people to adopt environmentally responsible actions (Hardeman et al., 2017).

1.2 Purpose and Research Questions

We draw the conclusion that more research is necessary on the topic based on the identified research gap. Sustainable fashion products are growing in popularity, but many online retailers fail to present them to clients in a way that would win them over. The goal of the study is to determine how much the use of visualizations and the specificity of terms affect consumers' decisions to purchase sustainable fashion products, as well as how

these factors affect user experience. It also describes how different social groups view sustainability and their requirements, expectations, and perceptions of it. The research questions seek to determine whether there is a relationship between terms' degree of specificity and the use of graphical components in influencing purchasing decisions. Additionally, they aim to figure out how much each of these characteristics individually affects buyers.

RQ1: To what extent does the usage of visual framing in a product's sustainability information affect the buying decision?

RQ2: To what extent does the framing of specificity of terms used in a product's sustainability information affect the buying decision?

Based on our analysis of the research gap, we hypothesize that the use of highly specific terms and visualizations in product information will have a positive impact on consumers' purchasing decisions and improve their overall user experience. Our research questions aim to determine the relationship between the specificity of terms and visualizations and their impact on consumers' purchasing decisions. Additionally, we aim to identify the unique requirements, expectations, and perceptions of sustainability. By answering these research questions, we hope to provide online retailers with valuable insights to help them market sustainable fashion products more effectively.

1.3   Scope and Delimitations

The scope of the study is focused on how the framing of terms in information about sustainable products and framing of visual aspects in presenting sustainable products impact users' experience and lead to buying decisions. We will explore this with a 2×3 factorial research design. The study will examine the effect of visualization with specific text information about sustainable products, visualization without specific text information, very short and vague specific text information without any visual aspects, and very detailed specific information and textual data without any visual features. Also, we have control groups presenting non-sustainable products.

This thesis does not provide participants who are living outside Europe. Also, the number of participants in each country may vary and not have been divided equally. So the demographical data might differ in various ways and we are not equalizing it. The research will also not consider the influence of other factors such as product delivery and customer service on the overall user experience. We have tested the sustainability framing in a

website platform and not in other digital platforms such as applications. The product we presented to the participant is a specific one and it can not be generalized to other product categories. In this study, the focus lies on perceived fairness from a user perspective. There are other variables that could be considered, however, in this thesis, only visual framing and specificity of terms are considered.

1.4   Outline

The abstract and introduction present the problem statement, purpose, research questions, scope, and delimitations. The theoretical framework explores the framing effect, visual use in sustainability, specificity of sustainable terms, and environmentally friendly fashion behavior. The research methodology covers research design, prototype development, interviews, and surveys. The research results include descriptive and chi-square analysis of the survey data. The discussion section provides an overview of findings, interpretation, implications, limitations, and recommendations for future research. The conclusion summarizes the key findings and contributions of the study.

2 Theoretical Framework

2.1 Framing Effect

One of the key theories we utilize in our research is called the "Framing Effect". This phenomenon occurs when a change in how an option is described or visualized leads to individuals changing their preferences, even though the outcomes are equivalent. This concept of framing is rooted in prospect theory (Tversky & Kahneman, 1981). It discusses situations where people routinely fail to make decisions that are consistent and coherent and links these failures to the psychological principles that control how decision difficulties are perceived and how options are evaluated. The theory proves the dependency of preferences on the framing of decision problems.

2.1.1 Visual Framing

Visual framing is a special type of framing. In the words of the work of Coleman (2010), it is "Visual framing characterizes the selection and visual accentuation of certain aspects of the perceived reality in a communicative context through the specific structuring and interpretation patterns and/or advice on appropriate action for a given situation". Another definition from the work of Brantner et al. (2013) describes it as: "A process or a strategy of visual communication which allows for an emphasis of certain interpretation patterns or frames, making them salient, and which promotes certain attributions, evaluations, or decisions for the issue or item described."

Because they are less obtrusive than words and as a result require less cognitive strain, visuals are effective framing tools. Audiences may therefore activate peripheral rather than core processing, and they may be more likely to accept the visual framing without a doubt (Rodriguez & Dimitrova, 2011). The unique characteristics of visual imagery serve as additional evidence that, in some circumstances, visual framing may be more important than verbal framing. For instance, anecdotal evidence about the impact of the September 11 visuals are well known. In this situation, the adage "images speak a thousand words" is more accurate than ever (Coleman, 2010). Visual cues should have a high potential to produce visual framing effects given this unique logic of visual

communication. Graphics rapidly establish a visual frame that is highly salient and barely questioned by recipients through their associative logic, powerfully influencing how they understand textual information by activating specific cognitive patterns (Brantner et al., 2013).

2.1.2 Framing Impact on Sustainable Products Purchase Decision

Framing effects are frequently used in social behavior, particularly green behavior. It has been proven that green communications have an effect on consumer environmental behavior and that the framing of green messaging has an impact on individual environmental behavior (Chen et al., 2022). Nevertheless, studies focus mostly on positive/negative frames and have a variety of results. According to certain studies like Z. S. Liu and Gu (2020), positive framing has been shown to have a bigger impact on environmentally conscious behavior, whilst negative messaging has been proven to have a stronger effect on social conduct, which includes environmental consciousness (Arthur & Quester, 2004).

However, there are many other elements besides positivity or negativity that affect how people view green products. The study of Florence et al. (2022) focuses on self–other and abstract–concrete besides positive–negative message framing. The findings show that single frames do not consistently lead to more sustainable consumer behavior. Instead, employing two message frames regularly results in greater effectiveness. It also demonstrates that individuals' attitudes toward environmentally friendly products are more favorable when information is interpreted abstractly (as opposed to concretely). The authors also admit that, in addition to valence framing, the visual elements of message frames have an impact on messaging efficacy and suggest further research in this area.

2.1.3 Framing Impact on Purchase Decision in E-Commerce

The increasing worry regarding the long-term viability of the natural world is causing a shift in the competitive landscape of modern markets and encouraging companies to consider more environmentally friendly approaches (Grinstein & Nisan, 2009). The framing effect plays a big role in online shopping and numerous elements play a role in purchasing decisions. Green advertising refers to marketing communications that can attract environmentally-conscious consumers by addressing their needs and preferences (Zinkhan & Carlson, 1995).

Our study suggests that by improving the alignment between their messaging strategy

and targeted messaging, companies can make their advertisements more persuasive (Chang et al., 2015). According to research from Fouskas et al. (2020), there are four key areas that affect an online store's performance. Design and presentation of the website (speed, structure, product presentation, ease of navigation), marketing strategies, services offered, including services before and after purchases, and elements that contribute to trusts, such as payment methods and the protection of personal information, are all important considerations. All the information must be presented in an appealing manner because, as was previously said, one of the critical factors determining the success of e-commerce is the website's presentation. Since there is no physical presence in an online store, the product presentation is the only point of contact between the customer and the product. A user-friendly interface and a thorough product description are crucial since they help the audience better visualize the provided product (Y. Liu et al., 2013; Walia et al., 2016). Fouskas et al. (2020) states that the consumers' psychological reactions to the product are better the higher the quality of the product description. In this scenario, consumers are more inclined to take part in a variety of product-related psychological actions, such as making a purchase. The studies demonstrate that the manner in which information is presented is essential for a buyer's decision, even though they do not utilize the term "Framing".

2.2 Use of Visuals in Sustainability

Infographics and other forms of data visualization are becoming increasingly popular ways of communicating information. Infographics are more than just aesthetic expression; they are visual displays designed to communicate information that can range from a simple arrangement of figures to stylized images to elaborate interactive data animations (Lester, 2011). The research by O'Neill and Nicholson-Cole (2009) explored the significance of iconic visual representations of climate change in public involvement. The findings indicate that there are several sorts of visual imagery, iconography, and message combinations that can be engaging and specifically help to make climate change a personally salient issue for individuals and one that they feel they can do something about.

Another proof of visualizations' importance for environmentally conscious behavior is the findings of the thesis (Ballantyne, 2018), which demonstrate that climate visualization can assist audiences in concretizing otherwise abstract aspects and help people feel more connected to climate change. The study of Lazard and Atkinson (2015) highlights the importance of graphics in evaluating pro-environmental messages. It demonstrates that

environmental communications that include visual components in the form of infographics are more engaging than ones that rely solely on text or illustration. The findings also indicate that using visual information to lead an audience through complicated information is a viable communication approach for increasing a viewer's willingness to critically consider pro-environmental information. Infographics are very important in online buying. The work by Tu et al. (2018) investigated the effects of attaching green messaging concerning environmental views to postal packaging in the form of infographics. Graphical information was deemed superior to text-only information by online buyers in the presentation of green messages and the visualization of green information. This finding suggests that infographics have emerged as a more effective visual method of communicating environmental concerns. However, to the best of the authors' knowledge, no study has yet investigated the usage of infographics on the product page of a sustainable fashion product.

2.2.1 Eco-labels and Visualization Framing

Eco-labels are graphic representations intended to distinguish and categorize items that have a favorable environmental and social impact as both studies Darnall et al. (2018) and Thøgersen et al. (2010) show and to minimize doubt regarding the authenticity of eco-friendly purchases made by consumers (Atkinson & Rosenthal, 2014). Furthermore, eco-labels serve as a means of policy implementation by conveying details about a product's sustainable features (Delmas et al., 2013); as a result, the visual aspects, written content (if applicable), and color scheme of eco-labels are designed to confirm the product's sustainability significance. The product label plays a significant role in communicating product details to consumers, and it shapes their initial perceptions of the product based on (D'Souza et al., 2006); so they help reduce consumer uncertainty about the validity of their green purchases (Testa et al., 2015). Overall, from the standpoint of consumers, eco-labels are instruments that aid in making informed decisions about environmentally important products and that is why we are going to include it as one of the visual factors of visualization framing (Thøgersen et al., 2010).

2.3 Specificity, Clarity, and Credibility of Sustainable Terms

Perceptions of the legitimacy of the green product display are a major factor in how people view the online store and the brand (Choi & Rifon, 2002). According to Kumar et al.

(2021), the influence of persuasiveness on the credibility of a green brand is moderated when the credibility of the eco-label is high (as opposed to low), which eventually results in a high rating for the green brand. The implication is that relatively easy adjustment of claim specificity may boost the credibility of green product presentations promises (Ganz & Grimes, 2018). According to Davis (1993), specific claims ("vegan", "produced in Europe", "GOTS certification", etc.) are ones that provide genuine benefits through particular, helpful information, as opposed to vague claims ("green", "eco-friendly", "conscious", "good for the environment", etc.) that imply benefits through a vague, general, or abstract language. The claim has, however, only been supported by a small number of studies in the field of sustainable products. As people are responsive to the way information is framed, the message framing can considerably impact their attitudes and behavioral intentions (Van de Velde et al., 2010). The effectiveness of green advertising is examined in relation to the specificity of the claim, the environmental significance of the product, and the respondents' pro-environmental inclination (Yilmaz & Alniacik, 2012). The study results show that explicit environmental claims in product advertisements with little environmental relevance promote more purchase intentions and improved sentiments toward the advertisement and the company. The results, however, do not offer sufficient proof to back up the previously established superiority of precise environmental statements over ambiguous claims in the advertisement for the product with high environmental importance.

The study Chan and Lau (2004) looked at how various environmental claims affect the communication efficacy of environmental advertising and how country disposition and ecocentric orientation, two significant person difference variables, alter the claim type-effectiveness relationship. According to this study's findings, substantive environmental statements (claims that present concrete information about environmentally responsible efforts) provide more effective communication than association environmental claims (claims to build an environmentally friendly mindset by associating it with positive environmental knowledge, but do not clearly specify how it adds to ecological well-being). As a result, there is room for future investigation.

2.4   Motivations and Barriers in Consumer Adoption of Sustainable Fashion

' Sustainable Fashion ' is one of the most commonly used terms in today's fashion business. Consumers have changed over time and have become more aware of materials

and production processes, which has resulted in a greater desire to make socially responsible decisions (Khandual & Pradhan, 2019). If consumers opt for more eco-friendly choices, the environmental consequences could be substantial and beneficial (Upham et al., 2011). The adoption of environmentally conscious purchasing habits can aid in the promotion of a sustainable environment. This study analyzed four aspects that could potentially impact such behavior, namely: how individuals perceive the severity of environmental issues, their sense of responsibility towards the environment, their belief in the effectiveness of eco-friendly practices, and their concern for the personal image in relation to environmental conservation (Dagher & Itani, 2014).

According to Morgan and Birtwistle (2009), insufficient education among consumers is the primary reason for the lack of awareness regarding sustainable fashion. In addition, previous research has indicated that fashion customers are keen on buying eco-friendly fashion; however, they are unwilling to compromise personally, such as by paying a premium price (Carrigan & Attalla, 2001; Joergens, 2006). Even though consumers may express a positive attitude towards eco-friendly products and claim a willingness to buy them, the number of actual purchases made is often minimal (Yang et al., 2015). Moreover, eco-friendly products are frequently more expensive than their conventional counterparts, causing consumers to be hesitant about adopting them (Chattaraman et al., 2009). Previous research has focused on investigating consumers' drive to purchase eco-friendly products, primarily from an individual consumer's perspective. For example, Stern (2000) discovered that factors such as age and educational background may impact consumers' eco-friendly consumption habits. Similarly, Sheehan and Atkinson (2012) found that consumers' engagement with environmental matters was crucial in their decision to purchase green products. Additionally, several studies have concentrated on the role of egoism in shaping consumers' eco-friendly purchasing behavior, suggesting that individuals are more inclined to buy green products that serve their self-interest (Bickart & Ruth, 2012). Based on the theories above, there are many factors besides what was mentioned that can make consumers' choices biased in buying sustainable products in an online shop so we need to keep that in mind during the study.

2.4.1 Trade-off between Sustainability and Costs

Consumers tend to respond less positively to retailers' sustainability efforts when the prices are high. However, a combination of high sustainability and low prices can increase consumers' commitment, satisfaction, and loyalty, without any significant effect on purchase intention. This highlights the importance for managers to cater to consumers' growing demand for sustainability while also considering their price sensitivity. To do this,

companies should focus on offering sustainable products at affordable prices and take into account the cultural context of the market they are operating in (Tascioglu et al., 2019).

2.4.2 Investigating Consumer Adoption of Sustainable Fashion: Research Setup

This section presents the research setup for examining the effectiveness of different framing types within the context of the trade-off between sustainability and costs. To this end, we conducted a research study to determine the cost of a basic white T-shirt prototype in both sustainable and non-sustainable versions across various clothing websites in Europe like Zalando and Freshlabels. Our findings reveal that non-sustainable white T-shirts were priced between 18 to 25 euros on different websites. Conversely, sustainable (like fair production, organic cotton) white T-shirts were found to be priced between 22 to 39.50 euros on different websites. Based on our analysis of these current online market prices, we have determined that a fair price for a sustainable white T-shirt is 27.20 euros, while a non-sustainable white T-shirt should be priced at 20.90 euros. We made this determination in light of the limited observed price differentiation between sustainable and non-sustainable options in the marketplace. We decided to maintain a 30 percent price difference between the sustainable and non-sustainable versions to ensure consistency with real online shops and to maintain a persistent price difference for our experiment. The links to the websites where we obtained our data have been included in the appendix.

3   Research Methodology

In order to investigate our research questions regarding the influence of visuals and message specificity on buying decisions, we designed and implemented an experiment using a prototype of a clothing website. To gather relevant data, we employed a combination of a survey and semi-structured interviews. During the experiment, participants were presented with a selection of six white t-shirts and were asked to choose their favorite from the options provided. This choice, along with any additional comments or feedback provided by the participants, served as valuable insights for addressing our research questions. By analyzing the participants' preferences and considering their comments, we aimed to gain a deeper understanding of how visuals and message specificity impact the decision-making process when it comes to purchasing clothing items.

The first involved technique was qualitative semi-structured interviews, which was a deliberate choice due to its numerous advantages. Semi-structured interviews provide both structured and unstructured components, thereby enabling us to obtain comparable and reliable data while still allowing flexibility in asking follow-up questions. By adopting a semi-structured interview format, we were able to take a fresh perspective on the subject at hand and gain deeper insights into customers' thoughts and feelings. Secondly, a quantitative survey was conducted to obtain statistically significant data. This approach was preferred due to its cost-effectiveness, online accessibility, and ability to gather data from a large number of respondents across Europe within a short time. Additionally, the anonymity of the survey allowed for the collection of honest and unbiased insights from the participants. Thus, by combining both qualitative and quantitative research techniques, the study was able to obtain a comprehensive and well-rounded view of the subject.

The primary focus of our research is to quantify the impact of framing techniques, specifically the use of visualizations and the specificity of terms, on individuals' purchasing decisions in relation to sustainable products. In this study, the dependent variable of interest is the participants' choice of sustainable fashion products. Meanwhile, the independent variables, namely the visual framing and the specificity of terms, serve as the manipulations that we use in order to measure purchase decision-making processes of people regarding sustainable fashion products.

3.1 Research Design

To comprehensively examine the influence of framing message specificity and the use of framing visuals on consumer buying decisions, we conducted a within-subject study (the same person tests all the conditions) utilizing a 3x2 factorial design. This experimental design involved the combination of two independent variables: the specificity of the sustainable message (vague vs. specific) and the presence of visualization (yes vs. no). By integrating these variables, we created four distinct product options representing four scenarios displayed in Figure 3.1, which were implemented into prototypes and carefully observed. These product options encompassed a vague sustainable message without visuals, a specific sustainable message without visuals, a vague sustainable message with visuals, and a specific sustainable message with visuals. In addition to these scenarios, we developed two control designs: one featuring visuals but a vague non-sustainable message, and the other displaying a specific non-sustainable message but no visuals. The implementation of a factorial design was deliberate, as it offers multiple levels of analysis, enabling us to explore the relationships between variables and analyze the effects of manipulating individual factors. This approach is crucial for obtaining a comprehensive and nuanced understanding of how the combination of message specificity and visualization influences consumer behavior.

		SUSTAINABILITY MESSAGE FRAMING		
		VAGUE SUSTAINABLE	SPECIFIC SUSTAINABLE	NON-SUSTAINABLE
VISUALISATION	YES	Visualised vague sustainable information	Visualised specific sustainable information	Visualised non-sustainable information
	NO	Not visualised vague sustainable information	Not visualised specific sustainable information	Not visualised non-sustainable information

Figure 3.1: Table with 3x2 research design scenarios.

3.2 Prototype

The high-fidelity prototype of a clothing website, developed using Figma (a design and prototyping software), played a key role in our study, serving as a versatile tool for data collection. To improve the usability and functionality of the prototype, we collaborated with a senior UX designer from UI42, a respected Slovakia-based company specializing in UI/UX projects. Furthermore, pilot interviews were conducted (details provided in the Validity and Credibility section of the Interviews description) to identify any issues with the prototype. The invaluable input and insights shared by the UX designer and pilot testers were crucial in our iterative process of observation and refinement, resulting in an enhanced prototype.

All the participants in interviews and survey were presented with the same prototype to ensure consistency and minimize bias. We drew inspiration from Freshlabels and Zalando, incorporating their sustainability commitment and symbol-based information into the design to create an authentic and engaging online shopping experience. To fit our six different scenarios, we had to tweak the use of sustainability-related elements to make them applicable to a simple e-shop consisting of a category page and product pages.

On the category page, consumers can see six similar products that represent the scenarios. All of the products have the same style, but they differ in the level of specificity of their names and the framing use of visuals. To create a more realistic shopping experience, 2 of the products represent control group products that do not have sustainability features and are priced differently from sustainable products, which cost more. Each product has a unique code that is used to identify the specific item being purchased, and to make the prototype even more realistic, we used two versions of the prototype, one for male and one for female.

To eliminate any confounding factors in the study and ensure that the results are solely based on the sustainability framing and not influenced by other product features, a simple white T-shirt design was selected as the product for the survey. This decision was based on the fact that a white T-shirt is a neutral and widely accepted product that is commonly worn by both male and female. The use of a neutral product helped to prevent any bias in product choice based on design or style. Additionally, by using the same product style throughout the survey, we were able to create a consistent and controlled experimental environment that allowed us to draw accurate conclusions about the effect of sustainability framing on user decision-making.

The selection of colors and fonts in the prototype was carefully considered to ensure

adherence to accessibility standards. By following these guidelines, the design strives to make the interface accessible to a wide range of users, including those with visual impairments or other accessibility needs. The combination of thoughtful aesthetics, usability, and accessibility features aims to provide a seamless and inclusive online shopping experience for all users.

The prototype can be found through this link.

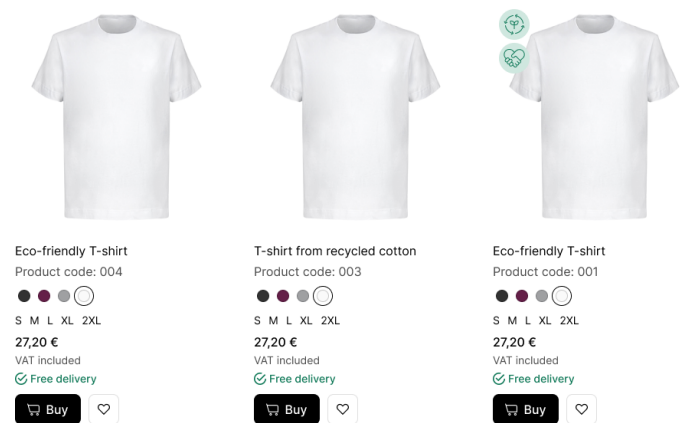Figures for products number 001 to 006 present product cards with all defined scenarios.

Figure 3.2: A product without visualization and vague terms, a product without visualization and specific terms, a product with visualization and vague terms.
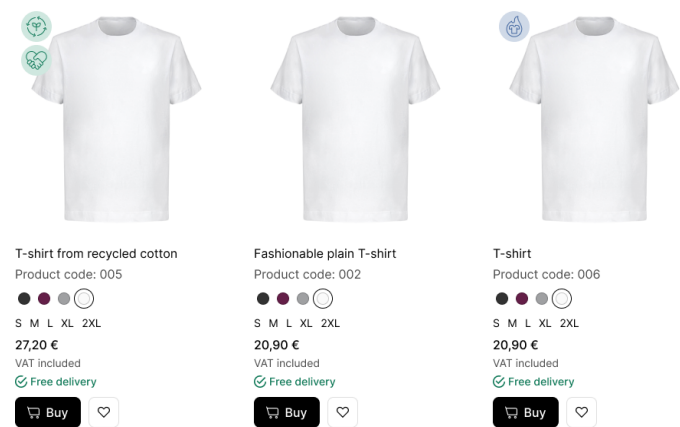

Figure 3.3: A product with visualization and specific terms, a control group product with specific terms, a control group product with visualization

3.3 Interviews

To gain a more comprehensive understanding of the decision-making process involved in product selection, we conducted semi-structured interviews to gather supporting data for our quantitative research. The primary objective of these interviews was to delve deeper into the needs, feelings, and perspectives of the participants, who were representative of the target audience, regarding various sustainability presentations. This insight was crucial in identifying non-responses, spontaneous reactions, and biased responses, which may not have been evident through a survey. Furthermore, these interviews allowed us to uncover and address issues that may have gone unnoticed during the survey process, which is essential in building an interface that effectively assists clients in making informed purchasing decisions. Based on the insights gained from the interviews, minor refinements were made to the prototype, including the adjustment of a few design elements and the correction of spelling errors identified during the review process. These adjustments aimed to enhance the overall usability and clarity of the prototype.

3.3.1 Interview Design

To address our research questions regarding the influence of visual framing and specificity framing on buying decisions in promoting sustainable fashion products, we employed a semi-structured interview approach. The interviews were conducted until we reached data saturation, ensuring comprehensive coverage of relevant insights.

We chose a semi-structured interview format to provide participants with specific tasks related to prototypes and accompanying questions, while also granting them the freedom to express their thoughts openly. This approach aimed to generate rich and nuanced data to support our research findings effectively. Convenience sampling was utilized to select participants, focusing on individuals within our inner circle, friends, and family in Europe. Before conducting the interviews, we administered a pre-interview questionnaire to identify suitable participants who aligned with our research objectives and criteria. This questionnaire facilitated the selection process and ensured that the interview participants were relevant to our study.

By employing this interview design, we aimed to gather valuable insights into the influence of visual framing and specificity framing on consumers' buying decisions in the context of sustainable fashion products.

3.3.2 Interview Procedure

The interview consisted of three parts. The initial part involved gathering socio-demographic information and subsequently focused on participants' shopping behavior and motivations. Detailed responses were encouraged to understand the key factors influencing purchase decisions. Participants were prompted with questions, such as "What factors hold the greatest significance to you when shopping for clothes online?" and "Do you take into account different factors when shopping in-store compared to shopping online?".

In the second phase of the interview, participants were given a task involving a prototype. They were asked to imagine themselves attending a social gathering with a dress code that required a simple white T-shirt. Participants explored the clothing website, sharing their thoughts and feedback while focusing on the icons, names, and descriptions of the T-shirts. Targeted questions were asked to gather initial observations and impressions, such as "What caught your attention upon visiting the website?" and "Did you notice any distinctions among the displayed T-shirts?". These inquiries aimed to gain valuable insights into participants' ability to identify unique characteristics of the T-shirt options.

During the second task, participants provided feedback on the visuals presented in the T-shirt options. They shared their preferences and criticisms regarding the visuals and assessed their impact on decision-making. Additionally, participants were tasked with selecting the T-shirt they considered most sustainable and explaining the significance of the website icons. Their perception of the icons' usefulness and potential confusion was probed with questions such as "Do the icons assist you in making more informed decisions?" and "Can you provide an explanation for the meaning of the icons?" These questions aimed to gain insights into participants' viewpoints on the efficacy of icons in decision-making and their understanding of the symbolic representations on the website.

During the third task, participants described the textual information they found important when purchasing a sustainable white T-shirt online. They shared their thoughts on the provided product information and its alignment with their needs. Questions such as "Do you read the descriptions of the T-shirts?", "Did you notice the names of the T-shirts?", and "Did the names help you in selecting the product?" were asked to gain insights into participants' behaviors and attitudes towards product descriptions, their awareness of T-shirt names, and the impact of these factors on their decision-making process.

During the fourth task, participants shared their views on T-shirt options without visual representations. They were asked about the impact of the absence of visuals on their decision-making process. Questions like "Did you also consider products without visual-

izations?" and "What are your thoughts on those options?" aimed to understand partic-ipants' perceptions and attitudes towards T-shirt choices relying solely on textual infor-mation. These inquiries provided insights into whether the lack of visuals affected their evaluation and selection process.

During the fifth task, participants explained their decision-making process for selecting a specific T-shirt option, considering all the factors discussed in previous tasks. They were asked questions like "Which T-shirt would you ultimately purchase?" and "What led you to choose that particular T-shirt?". These inquiries aimed to gain deeper insights into participants' rationale and thought processes that influenced their final decision, providing a better understanding of the significant factors in their T-shirt selection.

Lastly, in the sixth task, participants who selected a sustainable option shared their impressions of the two control group options and reflected on their influence on the decision-making process. They were asked questions like "Did you also consider the non-sustainable T-shirts?" and "Did the price difference impact your decision?". This phase aimed to gather insights into participants' consideration of non-sustainable T-shirt options and their perception of the price discrepancy, examining the extent to which these factors influenced their final decision.

In the conclusion phase, participants were asked a series of questions to gauge their environmental consciousness and actions toward the environment. They summarized their overall experience with the prototype and expressed if they required any additional information before making a purchasing decision. Additionally, participants shared their favorite e-shops and explained their choice.

To make the interview efficient some questions were omitted or answered in a different order based on the respondents' responses.

3.3.3   Interview Data Recording

The study used Zoom for remote interviews, enabling effective communication and over-coming geographical barriers. Sessions were recorded for future reference. One inter-viewer led the interview while the other took notes using Miro. This approach ensured the comprehensive capture of information. The primary objective of the study was to reach data saturation, where no new information emerges during analysis, indicating that data collection can conclude (Faulkner & Trotter, 2017).

3.3.4 Analyzed Data and Method

To analyze the interview data, the AI-powered transcription tool, Whisper, swiftly and accurately converted spoken content into written text. The transcriptions were then manually checked in order to avoid mistranscription. This formed the basis for subsequent analysis, where a search-based approach was employed. Specific sentences directly addressing the research questions were extracted, efficiently identifying and retrieving relevant information. This method expedited and enhanced the accuracy of the data analysis process, contributing to a comprehensive understanding of participants' perspectives and the study's overall findings.

3.3.5 Participants

To comprehensively understand the experiences and perceptions of European consumers who shop online, participants were invited through convenience sampling, which involves selecting individuals based on their accessibility and willingness to participate. The age range of participants spanned from 18 to 75 years old to achieve a diverse representation. We checked the data from (Eurostat, 2023) to determine age groups for our research. We condensed the original five age groups into four, as some age differences were not significant and we also included an additional age group (above 75) to ensure comprehensive coverage of participants. This consolidation allowed us to validate our choice of age groups and ensure their suitability for studying online shops (18-34, 35-54, and 55-75 and above 75). This approach allowed us to have fewer age groups while still capturing a wide range of ages among our participants. Thus, participants were selected based on their differences rather than specific criteria, ensuring a broad range of perspectives and experiences.

Saturation was reached with 9 participants, which are summarized in figure 3.1. They represent a diverse group of individuals with varied characteristics. They include males and females across different age ranges, allowing for a broad demographic representation. The participants in the study represent diverse cultural backgrounds, residing in multiple countries in Europe. They have achieved various levels of education, from Bachelor's degrees to graduate degrees (master's, doctoral, or professional). Their monthly incomes also vary significantly, reflecting a wide range of socioeconomic backgrounds. Additionally, participants in the study demonstrate diverse online shopping behaviors, ranging from daily to less frequent shopping. Their levels of importance placed on sustainability vary too, spanning a scale from 1 to 10. This diverse participant group contributes to a comprehensive understanding of the decision-making process regarding sustainability in

online shopping.

Age	Gender	Country of Residence	Education level	Average monthly income	Online shopping frequency	Importance of sustainability
18-34	Male	Germany	Bachelor's degree	More than 3,000 EUR	Daily	1/10
18-34	Male	Sweden	Bachelor's degree	More than 3,000 EUR	2-3 times a month	5/10
18-34	Male	Czech Republic	Graduate degree	2,000-3,000 EUR	Less than once a month	9/10
18-34	Female	Germany	Graduate degree	1,500-2,000 EUR	Less than once a month	8/10
18-34	Female	Austria	Bachelor's degree	500-1,000 EUR	Once a month	8/10
18-34	Female	United Kingdom	Bachelor's degree	Less than 500 EUR	Once a month	8/10
35-54	Male	Germany	Graduate degree	1,000-1,500 EUR	Once a month	5/10
55-75	Male	Slovakia	Graduate degree	More than 3,000 EUR	Less than once a month	10/10
55-75	Female	Sweden	Graduate degree	More than 3,000 EUR	2-3 times a month	5/10

Table 3.1: Demographic characteristics of participants in the interviews

3.3.6 Pre-interview Questionnaire

To ensure diverse participant selection and gather valuable insights, a concise recruitment questionnaire consisting of six questions was administered. The questionnaire assessed participants' age, country, income, education level, online shopping experience, and eco-consciousness. This approach enabled the selection of individuals with varied backgrounds and demographics, while also gauging their availability and willingness to participate. In the study, we also excluded people under 18 because they are not a part of our research.

3.3.7 Validity and Credibility

Privacy and confidentiality were prioritized in the study's recorded Zoom interviews, adhering to the principles of ethical research. Participants were fully informed about the study's purpose, procedures, and their rights, including consent for recording sessions. They had the opportunity to ask questions and address any concerns. Personal information was handled confidentially, with participants assured of internal use only. These measures upheld ethical standards, respecting participants' privacy and rights.

3.3.8   Pilot Interviews

Before the actual interviews, pilot interviews were carried out with a sample of three participants to evaluate the ease of use and comprehensibility of the prototype. The primary goal was to gather insights into users' interaction with the product and identify areas that were intuitive or confusing. The information gathered was analyzed and used to refine the product to enhance its overall usability. As a result of the pilot testing, the tasks were modified, icons were resized and their number was adjusted, and various design changes were implemented to optimize the user experience. In this phase of the study, participants were selected using convenience sampling. Three individuals, aged 23-24 and fellow classmates, were invited to participate. The primary objective was to evaluate the functionality of the prototype and interview questions, as well as to identify any potential errors or areas of confusion that required refinement. This approach allowed for a preliminary assessment of the research procedure and facilitated necessary revisions as needed.

3.4   Survey

In order to gain insights into how the framing of sustainability factors influences decision-making, this study employed a survey as a crucial next step in the experiment. The survey was conducted online using the "Typeform" tool, which allows for customized designs, a variety of question types, and real-time report generation based on received responses. This feature facilitates easy data analysis and interpretation.

The primary aim of the survey is to determine which products are most commonly chosen by users, and how the framing of visualization and message framing influence users. These insights are particularly beneficial for the e-commerce sector, as knowing users' preferences for sustainability factor framing can lead to an improved user experience and, ultimately, higher sales when promoting sustainable items.

In the survey, a comprehensive set of questions was administered to gather data and address the research questions at hand. The questionnaire began with demographic inquiries, including age, monthly income, gender, country of residence (given the focus on European online shops), and educational attainment (e.g., bachelor's degree, master's degree, completed high school).

Subsequently, participants were asked about their frequency of online clothes shopping to gauge their level of activity and habits in this domain. The survey then progressed to

assess the importance of sustainability to participants on a scale of 0 (not important) to 10 (extremely important). This measure allowed for a comparison of their sustainability values with their subsequent product preferences.

Participants were presented with a scenario involving the purchase of a plain white t-shirt from a recommended website called "Yoho." They were offered six different options from which to choose. The subsequent section focused on their selection from a designed prototype, providing insights into their preferences and the distribution of choices.

Following this, participants were asked whether they accessed the product page, aiming to determine if they reviewed detailed information, such as specific details and visuals, or if their decision was based solely on the initial page.

To understand the influence of different factors on their buying decisions, participants were presented with agree/disagree statements. The statements were: the visuals(icon, scale, bar) helped them choose the product, the product descriptions helped them to decide, the price was helpful, and if the sustainability was useful when they were opting for the options. .these statements addressed the impact of price and visuals, bars, and icons, as well as sustainability and product descriptions. By gauging their agreement level, the relative importance of these factors in decision-making could be discerned.

Lastly, participants were given the opportunity to offer any additional suggestions or feedback at the end of the survey.

3.4.1 Survey Design

The survey in this study investigates the impact of sustainability framing on online shopping decisions. It consists of three sections, each focusing on different aspects. To ensure comprehensive data collection, we maintained consistency by incorporating the same sociodemographic questions and ranges in both the survey and pre-interview questionnaires. This approach allowed us to capture a wide range of sociodemographic characteristics and obtain a holistic understanding of the participants' profiles.

The first section collects demographic information, including age, gender, income level, online shopping frequency, education level, and environmental consciousness.

The second section presents a scenario and prototype link, asking participants to choose their preferred product. It measures product preferences and responsiveness to sustainability framing in online shopping.

The final section evaluates participants' perceptions of sustainability, price, specificity of terms, visualizations, and their importance in decision-making. It examines the significance of sustainability factors and the effects of specific terms and visualizations on perceptions.

3.4.2 Survey Procedure

The survey link was distributed to diverse groups of respondents to ensure a wide range of perspectives. Data collection took place over a period of 13 days until saturation was reached and we had enough data. Following data collection, a meticulous data-cleaning process was conducted to eliminate irrelevant responses. As part of this process, two participants were excluded due to their age being under 18. We used descriptive statistics to summarize and describe the main features of our data. It helped us in understanding the central tendencies, variability, and distribution of the data. It provided a concise and meaningful summary, allowing us to gain insights, make comparisons, and draw initial conclusions about the data The chi-square test was chosen as the statistical method to investigate and analyze the relationship between visualization and sustainability, as well as the relationship between the specificity of terms and sustainability. The utilization of chi-square analysis enabled us to examine whether there was a significant association or dependence between these variables in our research study. This analysis provided valuable insights into the factors influencing sustainable product choices.

3.4.3 Analyzed Data and Method

3.4.3.1 Descriptive Analysis

In our research investigating the framing effect of visualization and specificity of terms on consumers' buying decisions in sustainable products, we utilized statistical analysis as a valuable tool to condense the data collected from participants into a concise summary. This approach enabled us to derive meaningful insights from the results. During the design phase of our research project, we were mindful of the specific data needed to effectively address our research question and recognized the levels of measurement associated with our variables. Understanding the levels of measurement was crucial as they dictated the appropriate statistical procedures to be employed and influenced the required sample size. It is important to be aware of the levels of measurement employed in studies and the statistical procedures utilized, as errors in statistical procedures can occasionally occur (Fisher & Marshall, 2009).

In the descriptive analysis, we examined data on participants' product choices, ratings of the importance of various factors influencing buying decisions (such as visualizations, descriptions, price, and sustainability), and their individual perspectives on the importance of sustainability. The purpose was to investigate how these factors influenced participants' decision-making processes and identify the most popular products among them. These data were later used in the chi-square test.

3.4.3.2 Chi-square Test of Independence

The Chi-square (X^2) Test of Independence is a non-parametric statistical test commonly used to determine if there is a significant association between two categorical variables in a sample. The test compares the observed frequencies in each category of a contingency table with the frequencies expected under the assumption of independence (Sharpe, 2015).

In our study, the Chi-square test plays an integral role in evaluating the relationship between Visualization and Sustainability and the relationship between the Specificity of terms and Sustainability in participant's choice, all of which are categorical variables. By using the Chi-square test, we can ascertain whether any observed difference in the frequencies of these variables occurs by chance or signifies a significant association.

In the context of our study, Visualization represents whether an option had visual elements or not, and Sustainability signifies whether an option was sustainable or not. We are interested in determining whether changes in Visualization are associated with changes in Sustainability and whether changes in the Specificity of Terms are related to changes in Sustainability. This understanding will provide valuable insights into the significance of Visualization and Specificity of Terms in regards to Sustainability which directly guides us towards answering our research questions.

In the chi-square test, we analyzed the correlation between independent categories (visual framing and specificity of terms) and participants' choices regarding sustainability. We used the data from the question in the survey regarding products they selected at last to measure this correlation. After implementing the chi-square test, we obtained the results in the following sections.

The Chi-square test begins with the computation of a contingency table that presents the observed frequencies of the categories of two variables. In our case, since we are doing this test twice for two different research questions, the variables are Visualization and Sustainability for one test and Specificity of terms and Sustainability for the other

test. Following this, expected frequencies are calculated assuming that Visualization and Sustainability for the first test and Specificity and Sustainability for the second test are independent. The Chi-square statistic is then calculated using the formula:

$$X^2 = \sum \left[\frac{(O_{ij} - E_{ij})^2}{E_{ij}} \right]$$

Where Oij represents the observed frequency and Eij denotes the expected frequency for each cell in the contingency table.

Then the degree of freedom is calculated. The degree of freedom for a two dimensional case is calculated by the following formula:

Degrees of freedom = $(m - 1) \times (n - 1)$

Where m and n are rows and columns of the categories.

Then we calculate the critical value and compare the Chi-square result with it. To find the critical value, we need to assess our degree of freedom and significance level and then look up the critical value in the Chi-square table.

In our case, the degree of freedom is 1 in both cases.

We have chosen the significance level of 0.05 or 5% which is commonly used in many fields of research. By selecting a commonly used significance level, we align our research with established practices and facilitate comparability with previous and future studies.

The critical value for the degree of freedom of 1 and significance level of .05 is 3.841.

If the calculated X^2 value is significantly larger than the critical value from the Chi-square distribution, we reject the null hypothesis, signifying that the variables are not independent and thus, have a significant association. On the other hand, if the calculated X^2 value is not significantly larger, we fail to reject the null hypothesis, indicating that the variables are independent of each other.

The result of this test will be shown with the following short formats: where X^2 is smaller than critical value and thus there is no significant association between variables:

$$X^2(dof, N = n) = k, p > .05, p = m$$

where X^2 is bigger than critical value and thus there is a significant association between variables:

$$X^2(dof, N = n) = k, p < .05, p = m$$

dof is degree of freedom, n is total number of samples, k is the value of X^2, and m is the p-value.

In the following "Results" section, we will provide a detailed report of our Chi-square analyses for Visualization and Sustainability and Specificity and Sustainability in our study.

3.4.4   Participants

Convenience sampling was employed to recruit participants for the survey conducted on an online shop catering to the European market. Given the diverse nature of online shoppers, we deliberately avoided selecting a specific demographic group. The decision to use convenience sampling was motivated by its ease of implementation, as it facilitated quicker and more efficient participant recruitment.

Excluding two participants who indicated they were below 18 years of age, the survey gathered an extensive dataset comprising responses from a diverse group of 84 participants representing various dimensions of society. Among the respondents, the majority belonged to the 18-34 age range, comprising 62 individuals or 73.81% of the total. The next age group, 35-54, consisted of 12 participants, accounting for 14.29% of the total. Participants aged 55-75 accounted for 8 individuals, representing 9.52% of the sample. Lastly, the age group of 75 and above had 2 participants, making up 2.38% of the total. These findings indicate that the study primarily involved a younger demographic, with the majority falling within the 18-34 age range, while older age groups were less represented.

Regarding gender, the survey included a diverse representation. Among the respondents, 35 participants identified as male, constituting 41.67% of the total, while 47 participants identified as female, representing 55.95% of the sample. Additionally, 2 participants identified as "other," making up 2.38% of the total. These gender demographics showcase a balanced participation of both male and female participants, ensuring a diverse perspective in the study.

The survey encompassed a wide range of geographical locations, reflecting the participation of European respondents and ensuring a diverse perspective. The majority of participants, accounting for 51.19% of the total, were from Slovakia, which can be attributed to the recruitment process primarily involving individuals within the researchers' social circle in Slovakia. The remaining respondents were distributed across various countries, including Austria with 9 participants (10.71%), Czech Republic with 5 participants (5.95%), France with 5 participants (5.95%), and Sweden with 8 participants (9.52%).

Other countries represented in the study included Switzerland, Denmark, Belgium, Germany, United Kingdom, Italy, Netherlands, Serbia, and Spain, each contributing 1 to 3 participants, forming a diverse international sample.

Participants in the study had diverse educational backgrounds. 5 participants (5.95%) had less than a high school education, 23 participants (27.38%) had a high school diploma or equivalent, 5 participants (5.95%) had some college or an associate's degree, 29 participants (34.52%) had a bachelor's degree, and 22 participants (26.19%) had a graduate degree. This educational diversity provides valuable insights into online shopping behavior.

Additionally, the income levels of participants represented a wide spectrum. Respondents reported earning various monthly incomes, with 24 participants (28.57%) earning less than 500 EUR, 23 participants (27.38%) earning between 500-1,000 EUR, 12 participants (14.29%) earning between 1,000-1,500 EUR, 6 participants (7.14%) earning between 1,500-2,000 EUR, 10 participants (11.9%) earning between 2,000-3,000 EUR, 2 participants (2.38%) earning more than 3,000 EUR, and 7 participants (8.33%) preferring not to disclose their income.

Furthermore, participants shared insights into their frequency of online clothes shopping. The survey revealed that 5 participants (5.95%) never shop for clothes online, 46 participants (54.76%) shop less than once a month, 14 participants (16.67%) shop 2-3 times a month, 17 participants (20.24%) shop once a month, 2 participants (2.38%) shop several times a week, and no participants indicated shopping for clothes online on a daily basis.

Despite the diverse range of online shopping experiences, including individuals who had not shopped online or did so infrequently, their opinions and choices remain valuable in the study. Their perspectives provide insights into how the framing of online shopping influences those who are new to the experience or engage with it infrequently. By including participants from various backgrounds and levels of online shopping experience, the study ensures a comprehensive and meaningful understanding of online shopping behavior.

An important aspect explored in the survey was the participants' perspectives on sustainability and its significance in their decision-making processes. This exploration unveiled a wide range of viewpoints, with participants assigning varying degrees of importance to sustainability, ranging from as low as 0/10 to as high as 10/10. Among the respondents, 4.76% indicated a minimum level of importance (0), while 11.9% expressed the highest level of importance (10). The majority of participants fell within the mid-range,

with 20.24% assigning a score of 7, followed by 17.86% with a score of 8. By incorporating such diverse participant profiles, the survey aimed to provide a nuanced and holistic understanding of the complex relationship between clothing shopping, sustainability, and buying decisions.

3.4.5   Validity and Credibility

Before the survey data collection, a thorough quality check was conducted by several researchers. This helped in ensuring that the survey questions were clear, concise, and easy to understand for the participants. This step of quality checking not only helped in improving the overall quality of the survey but also helped in minimizing the chances of bias and errors in the collected data. We discussed the survey questions to a group of industry professionals who possess expertise in the field of research. However, for confidentiality reasons and to maintain the privacy of the participants, we refrain from disclosing their names in this thesis. Rest assured, the selection process followed rigorous criteria to ensure the inclusion of highly knowledgeable individuals in our research. In addition to engaging our supervisor, we sought and obtained his approval before proceeding with testing the survey questions.

To encourage participation and ensure transparency, participants were informed about the purpose of the study and their rights before beginning the survey. They were informed about the use of their data and were assured of its confidentiality. Additionally, participants were given the option to withdraw from the survey at any point if they wished to do so. These measures ensured that the study was conducted ethically and responsibly, and participants felt comfortable and informed throughout the process.

To ensure the accuracy and validity of the survey results, a randomized T-shirt order was implemented three times during the survey. This randomization technique was chosen to ensure that the participant's decision was solely based on their perception of sustainability factors and not influenced by the order of the products presented.

For our survey, participants under the age of 18 were not included. This decision was made in compliance with academic research regulations, which require participants in this age group to be under the supervision of their respective supervisors. Including participants under 18 would have introduced complexities and logistical challenges to our research process, making it less feasible for the purposes of our thesis.

3.5   Timeline

The research process began by developing a prototype, followed by the creation of an interview scenario that underwent testing in pilot interviews. The findings from these pilot interviews were used to refine both the prototype and the interview scenario, preparing them for the main data collection phase. As the initial four interviews did not uncover any significant issues with the prototype, the survey was introduced concurrently with the interviews starting from the fifth participant onward. This approach enabled independent evaluation and objective analysis of the collected data.

4 Results

4.1 Survey Results

4.1.1 Descriptive Analysis

In the descriptive analysis conducted for our thesis, it was crucial to assess the participants' perception of sustainability and its potential impact on their choices. By examining their responses, we aimed to determine whether the importance they placed on sustainability could influence our research outcomes. According to the descriptive analysis, the overall sample demonstrated a notable concern for sustainability ($M = 6.71, SD = 2.6$), with values ranging from 0 to 10. Notably, 64.29% of participants indicated a high level of importance for sustainability, rating it between 7 and 10 on the scale. This suggests that a significant portion of participants may be susceptible to the influence of sustainability on their buying decisions.

T-shirt chosen by participants	Count	Percentage
Visuals + sustainable vague terms (001)	13	15,48%
No visuals + non-sustainable specific terms (002)	15	17,86%
No visuals + sustainable vague terms (003)	5	5,95%
No visuals + sustainable specific terms (004)	6	7,14%
Visuals + sustainable vague terms (005)	27	33,33%
Visuals + non-sustainable vague terms (006)	17	20,24%
Total	84	

Table 4.1: Participant product choice

Furthermore, as presented in Table 4.1, out of the 84 participants, 28 individuals (33.33%) opted for the sustainable white T-shirt that incorporated visuals and specificity of terms relating to sustainability. This choice indicates a potential correlation between participants' emphasis on sustainability and their selection of a product that integrates both visual cues and specific sustainability-related terminology. In contrast, 17 participants (20.24%)

chose an item devoid of any sustainability connection, serving as one of the control groups with visuals unrelated to sustainability. Additionally, 15 participants (17.86%) selected the other control group, which lacked visuals but included specificity of terms unrelated to sustainability. Overall, the results reveal that 38.1% of participants opted for non-sustainable items, while 61.9% selected sustainable options framed differently in terms of visuals and specificity.

Please indicate whether you agree or disagree with the statements below.	Yes	No	Unsure
The visualizations (icons, scale bar) helped me to choose a product	62 73,81%	10 11,9%	12 14,29%
The product descriptions helped me to understand the product characteristics	59 70,24%	14 16,67%	11 13,1%
The price influenced my choice	56 66,67%	14 16,67%	14 16,67%
The sustainability of the product influenced my choice	51 60,71%	19 22,62%	14 16,67%

Table 4.2: Effect of different factors on participants' choice

However, when comparing the control groups to other sustainable items with varying framing (excluding the one featuring both visuals and terms), it becomes evident that more participants favored the control groups. These findings indicate that, despite the considerable importance assigned to sustainability by the majority of participants, non-sustainable alternatives still remain significant choices when purchasing plain white T-shirts.

During the survey, participants were asked about the factors that influenced their decision-making process. They were provided with four options and had to respond with "yes," "no," or "unsure." Based on the descriptive analysis, among the factors that influence participants' choice, sustainability was relatively of the least significance for the customers, 22.62% of participants indicated that sustainability did not play a role in their decision. On the other hand, participants responded positively to the influence of visuals (73.81%), product descriptions (70.24%), and price (66.67%)—in that order—more so than sustainability (60.71%). This suggests that factors such as visualization and specificity of terms have a greater impact on people's decisions compared to the concept of sustainability itself. Additionally, there was a significant proportion of participants who responded with "no" or "unsure" regarding the influence of sustainability as a decision factor.

4.1.2 Chi-Square Analysis

4.1.2.1 Visualization and Sustainability

In this section, we reported the results of the Chi-square analysis conducted to test the association between Visualization and Sustainability, which answered one of our research

questions concerning the extent to which the usage of visual framing in a product's sustainability information could affect the buying decision. The null hypothesis (H0) stated that there was no significant association between Visualization and Sustainability, while the alternative hypothesis (H1) proposed a significant association between the two variables.

Observed and Expected Frequencies

The observed frequencies for each category in Visualization and Sustainability were recorded and used to compute the expected frequencies under the assumption of independence. Table 4.3 presents the observed and expected frequencies.

Observed / Expected Frequencies	Visual	Non-Visual	Total
Sustainable	41 (33.9)	11 (16.09)	52
Non-Sustainable	17 (22.09)	15 (9.9)	32
Total	58	26	84

Table 4.3: Observed and Expected frequencies of product choice by participants based on Visualization and Sustainability. Values in parentheses indicate the expected value while the value outside indicates the observed value.

Chi-square Test Statistics

Using the observed and expected frequencies, the Chi-square test statistic (X^2) was calculated and successfully rejected the null hypothesis and confirmed the alternative hypothesis which indicated a connection between visualization and sustainability. The connection between visualization and sustainability and what it meant for this study was further explored in the discussion section.

$X^2(1, 84) = 6.13, p = 0.01$

4.1.2.2 Specificity of Term and Sustainability

Similar to the previous section, this section presents the results of the Chi-square analysis performed to test the association between the Specificity of Terms and Sustainability which answers our second research question which is to investigate to what extent the specificity of terms in a product's sustainability information can affect the buying decision.

The null hypothesis (H0) states that there is no significant association between the Specificity of Terms and Sustainability, while the alternative hypothesis (H1) assumes that there is a significant association between the two variables.

Observed and Expected Frequencies

The recorded frequencies for each category in the Specificity of Terms and Sustainability were noted, and utilized to calculate the expected frequencies assuming independence. The table 4.4 displays the observed and expected frequencies.

Observed / Expected Frequencies	Specific	Vague	Total
Sustainable	33 (30.95)	19 (21.04)	52
Non-Sustainable	17 (19.04)	15 (12.95)	32
Total	50	34	84

Table 4.4: Observed and Expected frequencies of product choice by participants based on Specificity of Terms and Sustainability. Values in parentheses indicate the expected value while the value outside indicates the observed value.

Chi-square Test Statistics

Using the observed and expected frequencies, the Chi-square test statistic (X^2) was calculated and failed to reject the null hypothesis which indicated no connection between specificity of terms and sustainability. This lack of association between the specificity of terms and sustainability and what it entails for this study was further explored in the discussion section.

$X^2(1, 84) = 0.87, p = 0.34$

4.2 Interview Results

The following analysis presents the feedback and perspectives gathered from a diverse group of participants regarding their impressions and preferences related to the visuals and specificity of terms associated with sustainable T-shirts. The participants' insights provide valuable insights into their decision-making processes, indicating the factors that

influence their perception of sustainability and their engagement with online product information.

4.2.1   Visualization and Sustainability

Since a search-based approach was utilized in the analysis of the interviews, we present relevant quotes that directly address our research questions. The subsequent analysis section will provide a detailed examination of these quotes and their implications.

Participant 1, who chose product 001 characterized by vague sustainable terms and visuals, demonstrates a sustainability consciousness rating of 8/10. Regarding the icons displayed on the t-shirts, she expresses her liking for them, stating, "I really like them." Participant 1 appreciates the functionality of icons, as they enable her to gather product information without the need to click and open a separate window, as she explains, "Icons allow me to learn about the product without having to click and open a separate window." Drawing from her past experiences, she highlights the engaging nature of websites that incorporate icons, stating, "I've come across similar websites with icons before, and they're engaging."

Participant 2., who chose product 006 characterized by vague non-sustainable terms + visuals, demonstrates a sustainability consciousness rating of 8/10. Even though she chose non-sustainable products (because of the price) she emphasizes the importance of sustainability tags, stating, "Sustainable products usually have tags indicating their sustainability, while those without tags like these are not considered sustainable." She considers icons as a sign of sustainability, implying their role in influencing her perception of the products.

Participant 3., who opted for product 005 characterized by specific sustainable terms + visuals, demonstrates a high sustainability consciousness rating of 10/10. She highlights the significance of the small icons on the website, stating, "The small icons on the website catch my attention and make me want to learn more." Furthermore, she reveals that despite the higher price, the presence of icons influences her preference for the option that includes them, indicating the impact of visuals in her decision-making process.

Participant 4, who has a sustainability consciousness rating of 9 out of 10, finds it intriguing to see "those green and blue things next to the T-shirts." As someone who values sustainability, his product choice (005) aligns with specific sustainable terms and visuals. He emphasizes the significance of icons, stating, "I like those icons. They're pretty

important." According to him, while everything else appears to be uniform and white, the icons stand out and provide valuable information, making them a helpful feature in his decision-making process.

Participant 5, who chose product 002 characterized by specific non-sustainable terms + no visuals, demonstrated a sustainability consciousness rating of 5/10. Participant 5 mentioned that both logos caught her attention, but she emphasized that they did not hold much significance for her, stating, "What grabs my attention are both of these logos, but that doesn't matter to me." When asked about the icons on the T-shirt, she responded, "Not really, no." Participant 5 further expressed that labels relating to the style or practical features, such as being washed and worn or not requiring ironing, would be more interesting to her. These findings highlight the nuanced nature of consumer preferences and the role of specific terms in shaping their perception of sustainability.

Participant 6's selected product is 006, characterized by vague non-sustainable terms + visuals, and he demonstrates a sustainability consciousness rating of 1/10. Participant 6 mentions that visuals like icons do not influence his own choice significantly, but he acknowledges that they may resonate with individuals who have a strong concern for sustainability. He further states, "If I had to choose the most sustainable option, I would choose the recycled cotton T-shirt without opening the product page based solely on the symbol."

Participant 7's chosen product is 006, characterized by vague non-sustainable terms + visuals, and he exhibits a sustainability consciousness rating of 5/10. Participant 7 finds that the icons provide him with information but do not necessarily assist him in his decision-making process, stating, "This icon gives me information, but it does not help me." He thinks that the top icons of the first and third T-shirts resemble sustainability, but he is not convinced that the icons underneath them necessarily represent sustainability in his mind. However, he acknowledges that certain icons can contribute to his understanding of sustainability, noting, "This icon also helps me understand sustainability."

Participant 8, who selected product 002 characterized by specific non-sustainable terms + no visuals, exhibits a sustainability consciousness rating of 5/10. Despite the presence of a trending label, participant 8 leans towards a fashionable plain T-shirt, emphasizing, "Even though this one has the trending label, I would probably prefer a fashionable plain T-shirt." Participant 8 considers visuals and icons less important, stating, "It's easier and less complicated for me. I don't care about things like buttons (icons)." However, participant 8 acknowledges that icons can capture attention and stimulate curiosity, remarking, "The buttons (icons) are interesting enough for me to look at or at least hover over. When

I entered this page, the seven bars here caught my attention. They are visually appealing. If I were looking for something sustainable, this would be nice to have." Participant 8's primary focus is on finding a T-shirt without tags or icons, stating, "Honestly, I didn't consider the fashionable aspect of a plain T-shirt. I just wanted something without these tags (icons). I'm here to buy a shirt."

The interview analysis highlights the significance of visuals in influencing consumer decision-making processes, particularly in the context of sustainability-conscious choices. Participants' responses varied, with some expressing a strong preference for engaging icons and visuals, while others considered them less important. However, for individuals with higher sustainability consciousness, visuals played a more prominent role in their decision-making. The presence of icons and visually appealing elements on product websites captured participants' attention, elicited curiosity, and influenced their preferences.

Individuals who placed a high emphasis on sustainability expressed optimism regarding the role of visuals, affirming that they greatly aided them in making product choices. On the other hand, participants with a sustainability consciousness rating below 5 out of 10 displayed a higher level of skepticism towards visuals, indicating that visuals had limited influence on their decision-making.

In summary, the findings from the interviews align with the statistical analysis, suggesting a significant association between sustainability consciousness and the influence of visuals on decision-making processes. The results highlight the importance of visuals in shaping consumer preferences, with individuals who prioritize sustainability being more optimistic about the role of visuals in their product choices. Conversely, participants with lower sustainability consciousness ratings exhibited more skepticism towards visuals, indicating that they had a limited impact on their decision-making.

4.2.2   Specificity of Term and Sustainability

Since a search-based approach was utilized in the analysis of the interviews, we present relevant quotes that directly address our research questions. The subsequent analysis section will provide a detailed examination of these quotes and their implications.

Participant 1, who selected product choice 001 featuring vague sustainable terms and visuals, demonstrates a sustainability consciousness rating of 8/10. She emphasizes the importance of the product name resonating with her, stating, "I believe the product name should resonate with me, even the product itself." She also criticizes certain websites for

their lack of clarity and evidence regarding sustainability claims, noting, "Some websites can be confusing, lacking information on materials or failing to provide evidence of their sustainability claims." Participant 1 further contrasts this with her positive perception of the website under discussion, stating, "In the UK, large brands like Asos often make unsubstantiated claims of sustainability, unlike your website, which provides concrete evidence."

Participant 3, who opted for product choice 005 featuring specific sustainable terms and visuals, exhibits a high sustainability consciousness rating of 10/10. She expresses her observation that detailed descriptions of sustainability are rare when shopping online, stating, "When shopping online, I rarely encounter detailed descriptions of sustainability." Additionally, she shares her skepticism towards H&M's sustainable collection, attributing it to their production locations in China and India, by saying, "While H&M has a sustainable collection, I'm skeptical due to their production locations in China and India."

Participant 2, who selected product choice 006 characterized by vague non-sustainable terms and visuals, demonstrates a sustainability consciousness rating of 8/10. She emphasizes the significance of the production location in her purchasing decisions, stating, "The production location is a crucial factor for me when making a purchase, whether online or not." This highlights her concern for understanding the specific information about origins and ethical aspects of the products she chooses.

Participant 8, who opted for product choice 002 characterized by specific non-sustainable terms and no visuals, exhibits a sustainability consciousness rating of 5/10. He expresses confusion regarding the meaning and significance of terms like "certified recycled cotton," stating, "I don't understand what 'certified recycled cotton' means or why it should matter to me." Participant 8 prefers simpler choices that do not require extensive consideration. He admits to scrolling down to the end of the product details but not reading the information provided. He also expresses uncertainty about distinguishing between different sustainability attributes, such as the percentage of recycled cotton versus recycled fibers, and finds terms like good working conditions or fair trade certification confusing, as they may be perceived as synonymous.

Participant 9, who chose product 006 characterized by vague non-sustainable terms and visuals, demonstrates a high sustainability consciousness rating of 10/10. Participant 9 raises a valid concern about the lack of clarity regarding the composition of the product, stating, "If 30% is certified cotton, what is the rest? I don't like having questions as a customer." When asked about paying a higher price for a sustainable T-shirt, Participant 9 considers the seller's rating as a determining factor, emphasizing the importance

of genuine sustainability over potential greenwashing. Participant 9 acknowledges the habit of reading product descriptions and delving into details, recognizing the value of comprehensive yet concise information that can be easily absorbed within limited time constraints.

Participant 7, who opted for product 006 characterized by vague non-sustainable terms and visuals, demonstrates a sustainability consciousness rating of 5/10. Participant 7 expresses a lack of interest in the information provided in the product details, particularly for a T-shirt, stating, "However, the information in product detail is not important. Maybe if I want to buy something like a digital product. Yes, I will check it. But for a T-shirt, no." This suggests that participant 7 prioritizes other factors or attributes when making a purchasing decision for apparel items, indicating a lower emphasis on sustainability-related information in this context.

Participant 5, who selected product 002 featuring specific non-sustainable terms and no visuals, exhibits a sustainability consciousness rating of 5/10. Participant 5 expresses a lack of interest in the product details, stating, "Generally, I don't read the stuff at the bottom. It's too much. It's just a T-shirt. I'm not buying a car." Participant 5 finds the product description unappealing, considering it excessive for a simple item like a T-shirt. She suggests that the emphasis on sustainability-related information may not be a significant factor in her decision-making process, as she perceives the product description as uninteresting and irrelevant to her T-shirt purchase.

Participant 4, who opted for product 005 featuring specific sustainable terms and visuals, demonstrates a sustainability consciousness rating of 9/10. Participant 4 emphasizes the importance of specific terms and descriptions in determining the true sustainability of a product, stating, "Because it's made from recycled cotton, it's not just an eco-friendly T-shirt." Participant 4 expresses a preference for precise and detailed information that provides clarity about the sustainability attributes of the product, rather than relying solely on vague terms or branding. Participant 4 appreciates the efforts made by brands to provide comprehensive information, recognizing their commitment to caring for the product's sustainability. However, participant 4 also acknowledges that while sustainability information is important, the ultimate deciding factor is the appeal of the T-shirt itself. Finding the right balance between information and aesthetics is crucial.

The interview analysis revealed diverse perspectives on the importance of specific terms and descriptions in the context of sustainability and consumer decision-making. Participants exhibited varying degrees of interest in detailed and precise information regarding the sustainability attributes of the products. Some individuals emphasized the signifi-

cance of a product name that resonates with them and the provision of concrete evidence to support sustainability claims. While some participants expressed confusion or indifference towards specific sustainability terms, others valued transparency and clear information about the composition of the products. However, some individuals showed less interest in reading detailed product descriptions, focusing more on simplicity and aesthetics. These findings highlight the nuanced nature of consumer preferences and the varying significance of specific terms in shaping their perception of sustainability.

The qualitative analysis of the participants' perspectives does not demonstrate a strong connection between sustainable product choices and the specificity of terms used to describe them. The diverse perspectives observed in the qualitative analysis provide further support for the quantitative findings, indicating that the relationship between sustainable choices and the specificity of terms used is complex and influenced by various individual preferences and priorities.

4.3 Findings and Analysis

4.3.1 Visual Framing Results

Regarding the importance of visualization, the visual options were chosen by 58 (69%) people compared to 26 (31%) for non-visual options. When participants were asked about their decision-making motivations, 62 (73.8%) participants believed that visualizations helped motivate their choice. Our interview participants showed similar patterns, out of 9 interviewees, 6 (66.6%) opted for options with visualization.

This general preference for visualization was a consistent trend among those who chose sustainable products in our survey, where 41 (78.8%) people chose the sustainable product with visualization and 11 (21.2%) people chose the sustainable product without visualization. Interestingly, among participants that chose non-sustainable products, the gap is much smaller and 17 (53.1%) people have chosen the non-sustainable product with visualization and 15 (46.9%) people have chosen the non-sustainable product without visualization (Table 4.5).

Participants who chose visual products had a higher average sustainability importance factor (7.07) compared to those who chose non-visual products (5.92), indicating a correlation between sustainability importance and preference for visual presentation. Additionally, participants selecting sustainable products showed a strong preference for visualized options (78.84%), while participants choosing non-sustainable products chose

Product Type	Number of Participants	Average Importance of Sustainability for Participants
Visual	58	7.07
Non-Visual	26	5.92
Sustainable + Visual	41	7.54
Sustainable - Visual	11	6.45
Non-Sustainable + Visual	17	5.94
Non-Sustainable - Visual	15	5.53

Table 4.5: Importance of sustainability for participants grouped by product choice.

visual products 53.12% of the time.

The results of our interviews further support this assumption and provide insight that for the interviewees with the lowest interest in sustainability, while the visuals caught their attention, it was not an important decision-making factor as one interviewee mentioned "What grabs my attention are both of these logos (visualization), but that doesn't matter to me." and in the case of an interviewee that chose the non-sustainable product with no visualization and vague terms, the visualization made the product less desirable, "Honestly, I didn't consider the fashionable aspect of a plain T-shirt (the interviewee's choice). I just wanted something without these tags (visualization). I'm here to buy a shirt." Other interviewees with low interest in sustainability had similar sentiments, noting that visualization would significantly influence their decision if they were more interested in sustainability. For example, one interviewee said, "If I had to choose the most sustainable option, I would choose the recycled cotton T-shirt without opening the product page based solely on the symbol (visualization)." Another interviewee mentioned, "The buttons (visualization) are interesting enough for me to look at or at least hover over. When I entered this page, the seven bars here caught my attention. They are visually appealing. If I were looking for something sustainable, this would be nice to have."

4.3.2 Specificity Framing Results

Regarding the importance of the specificity of terms, the options with specific terms were chosen by 50 (59.5%) people compared to 34 (40.5%) for options with vague terms. When participants were asked about their decision-making motivations, 59 (70.2%) participants believed that descriptions helped them with their choice. This was the case for those who chose sustainable products, with 33 (63.5%) people who chose products with specific terms and 19 (36.5%) people choosing products with vague terms. On the other hand, among those who chose non-sustainable products, 17 (53.1%) people chose a

product with vague terms, while 15 (46.9%) people chose a product with specific terms (figure 4.6). The average importance of sustainability for those who chose products with specific terms (50 people) is 6.70 and for those who chose products with vague terms (34 people) is 6.74, so there is no significant difference between those two groups in terms of average importance of sustainability. In addition, participants who chose a sustainable product chose the product with specific terms 63.46% of the time, while participants who chose a non-sustainable product chose a product with specific terms 46.87% of the time. The data suggests that it is challenging to establish a clear relationship between specificity and sustainability. This is supported by the outcome of the Chi-square test which revealed no significant association between specificity of terms and sustainability, aligning precisely with our second research question. Our research fails to provide any evidence that employing framing of specificity of terms has any significant impact on the purchasing decision of sustainable products. It is important to note that the specificity of terms seems to positively impact the appeal of a sustainable product with visualization. As presented in figure 4.5 and 4.6, a sustainable product with visual framing and specificity of terms is deemed 2.15 times more attractive compared to a sustainable product using vague terms and is 5.6 times more appealing than a sustainable product using specificity of terms and lacking visualization.

Product Type	Number of Participants	Average Importance of Sustainability for Participants
Specific	50	6.7
Non-Specific	34	6.74
Sustainable + Specific	33	7.09
Sustainable - Specific	19	7.68
Non-Sustainable + Specific	15	5.53
Non-Sustainable - Specific	17	5.94

Table 4.6: Importance of sustainability for participants grouped by product choice.

In the interviews, the majority of participants (5 out of 9) chose options with specificity. However, it is worth mentioning some key points that were raised during the interviews regarding the specificity of terms. The participants mentioned "Finding the right balance is important when providing complete information that I can absorb in the limited time available.", and "I have a habit of scrolling down to the end, but I don't read these things."

In some cases, it is evident that participants with different choices had a wide range of opinions regarding the specificity of terms. This indicates that individuals' preferences and perspectives on specificity may vary significantly.

Based on our test results, among these 50 individuals, most of the participants (56%)

preferred a T-shirt that had both visuals and sustainability features. However, only 5 (10%) people who chose specificity did not opt for visuals; they chose a product that was sustainable and specific in terms. Interestingly, these participants had an average sustainability importance factor of 5.8, which was the lowest among those who chose specificity. On the other hand, those who selected the option with visuals, sustainability, and specificity had an average sustainability importance factor of 7.32, indicating a higher level of importance placed on sustainability.

In the interviews, similar to the previous findings, the majority (5 out of 9) of participants chose options with specificity. Among these 5 individuals, 3 preferred products that were both sustainable and had visuals, demonstrating higher importance placed on sustainability compared to others in this group. Thus, even with the presence of specificity, the visualization of a sustainable product played a significant role in influencing the choices made. When visuals were present alongside specificity, in both sustainable and non-sustainable versions, the presence of visuals increased the likelihood of selecting the product.

5 Discussion

5.1 Overview of Findings

This study aims to investigate the impact of visual framing and the specificity of terms on consumers' purchasing decisions regarding sustainable fashion products. Two research questions guide our inquiry:

RQ1: To what extent does the usage of visual framing in a product's sustainability information affect the buying decision?

RQ2: To what extent does the framing of specificity of terms used in a product's sustainability information affect the buying decision?

By addressing these research questions, our study has aimed to ascertain the potential of visual framing to encourage consumers to select sustainable options when purchasing fashion products. Furthermore, we seek to examine the role of term specificity and investigate if it has any effect on people's choices regarding sustainability in fashion online purchases.

The strong preference for visual options, as indicated by the majority of participants choosing visualizations over non-visual options, highlights the significant impact of visual cues on decision-making. Visualizations not only caught participants' attention but also played a motivating role in their choices. This finding emphasizes the importance of incorporating visual elements in sustainable product presentations to attract and engage consumers.

Moreover, the correlation between sustainability importance and the preference for visual presentation indicates that individuals who prioritize sustainability are more likely to choose visual options. This suggests that visualizations serve as a powerful tool in communicating sustainability attributes and fostering a connection between consumers and sustainable products.

Interestingly, the analysis reveals that the preference for visualization remains significant even among participants who chose non-sustainable products. This suggests that visual cues have the potential to influence decision-making across various product categories, indicating a broader application of visualization strategies beyond sustainability.

When examining the specificity of terms, the results show a more nuanced relationship. While a majority of participants chose options with specific terms, there was no significant difference in the average importance of sustainability between those who preferred specific terms and those who favored vague terms. This finding suggests that the impact of specificity on sustainability choices is not as pronounced as the influence of visualization.

However, it is worth noting that the presence of specificity of terms positively impacted the appeal of sustainable products when combined with visualization. The combination of visual framing and specific terms made sustainable products significantly more attractive compared to those with vague terms or lacking visualization. This highlights the importance of providing clear and concise information alongside visual elements to enhance the appeal and understanding of sustainable products.

The interviews provided additional depth to the discussion, revealing participants' diverse perspectives on the importance of specificity. Some participants emphasized the need for balanced information that can be absorbed within a limited time, while others admitted to not extensively reading product descriptions. This variation in preferences highlights the importance of considering individual differences when implementing specificity framing strategies.

Overall, the findings suggest that visualizations play a crucial role in influencing decision-making and promoting sustainable choices. The combination of visual elements and specific terms can significantly enhance the attractiveness and understanding of sustainable products. However, the impact of specificity alone on sustainability choices appears to be less significant, indicating that visual cues have a more pronounced effect.

These findings have implications for marketers and designers in the sustainable product industry. They emphasize the need for effective visualization strategies that align with consumers' sustainability priorities. Integrating visual elements and clear product descriptions can enhance the appeal, understanding, and motivation behind sustainable choices.

However, it is essential to consider individual differences and preferences when implementing specificity framing techniques. Striking a balance between providing necessary information and avoiding information overload is crucial to effectively engage consumers.

5.2 Results Discussion

According to our research goal which is the impact of visual and specificity framing on buying decisions based on green fashion products, our study found that many participants preferred sustainable items, with a notable percentage choosing a sustainable white T-shirt featuring visuals and specific sustainability-related terms. Visual cues had a significant impact on consumers' choices, while the specificity of terms did not. Overall, participants showed a high level of concern for sustainability, although the percentage of interview participants choosing sustainable products was lower.

Overall, our findings highlight the significance of visualization in influencing consumers' choices regarding sustainability. The consideration of the specificity of terms, although not as influential, should still be taken into account when providing sustainability information to consumers.

Based on two factors of our study, namely the relation with previous studies and our results, we present the following findings:

5.2.1 Visual Framing

The outcome of the Chi-square test revealed a significant association between visualization and sustainability, directly corresponding to our first research question. While the Chi-square analysis merely suggests a correlation and does not establish a cause-and-effect relationship, it is evident that employing visual framing significantly enhances the appeal and has a positive impact on the purchasing decision of sustainable products. In our scenario, a sustainable product with visual framing is deemed 3.5 times more attractive compared to a sustainable product lacking any visual framing.

Participants who selected products with visualization exhibited a higher average sustainability importance factor, while those who chose non-visual products had a comparatively lower average factor. This suggests a potential correlation between the importance of sustainability and the desirability of visual products. Additionally, there was a notable difference in the choices made by participants based on their interest in sustainable products. Those selecting sustainable products showed a strong preference for visualization, while participants choosing non-sustainable products had a lower inclination towards visual products. These findings highlight the relationship between sustainability importance and the preference for visual presentation.

Our findings also align with previous research that emphasizes the importance of using

visuals to enhance information processing. Blanco et al. (2010) demonstrated that combining product images with schematic information improves perceptions of information quality in product presentations. It is important to note that their study focused on online product presentations and did not specifically investigate sustainability presentations. Another study by Lazard and Atkinson (2015) revealed that individuals exposed to infographics showed higher levels of elaboration compared to those exposed to text-based messages. However, their study examined the role of visual information in pro-environmental behavior communication, rather than fashion products specifically. The study of (Tu et al., 2018)revealed a positive relationship between the environmental attitude of respondents and the effectiveness of "green messages" and "infographics." This correlation analysis suggests that well-designed infographics for conveying green messages can enhance the communication of environmental concepts. It is important for companies and designers to understand how to effectively utilize infographics in presenting green messages. Building on our results and the existing research, it becomes evident that visuals play a significant role in effectively conveying sustainability-related information about fashion products online. The use of visuals aids in presenting information in a manner that is easier to process and enhances engagement with the content.

While additional analysis could provide a more definitive answer, the correlation between the importance of sustainability and the desirability of visual products was beyond the scope of our research. However, we encourage future research in this domain to further investigate this relationship.

5.2.2 Specificity framing

Previous studies on message framing have predominantly examined positive/negative framing rather than specificity framing. Based on Chen et al. (2022), the effectiveness of green messages in influencing consumer environmental behavior has been validated, and it has been established that the way these messages are framed has an impact on individual environmental behavior. Research from Van de Velde et al. (2010) highlights the significant role of eco-labels and texts in enhancing consumers' perceived behavioral control.Also, Blanco et al. (2010) experimental results validate the significance of product presentation modes in online contexts. When users search for specific product information online, the mode of presenting the product information influences their perceptions and information processing. Another study by Yilmaz and Alniacik (2012)indicates that when it comes to low-environmentally relevant products, using specific environmental claims in advertisements leads to more positive attitudes towards the ad and the brand. Moreover, specific claims generate higher purchase intentions compared to vague claims.

However, a study by Florence et al. (2022) explored self-other and abstract-concrete framing in addition to positive-negative message framing. They found that individuals' attitudes toward environmentally friendly products were more favorable when information was interpreted abstractly rather than concretely, which differs from our findings, which did not show the significant importance of specificity framing.

One of the factors that may have affected our research is the influence of price. According to 56 participants (66.67%), price played a role in their decision-making process. The non-sustainable items, which served as the control group, had a lower price compared to the sustainable options. However, we did not extensively examine the impact of price in our study. It would be beneficial for future researchers to investigate if the price varies across different sustainability options when exploring the visual framing and framing specificity of terms in online fashion shops. Understanding the results and potentially tailoring them in a way that positively influences purchasing decisions could be valuable. In the literature, Cătoiu et al. (2010) explained that sustainable development should focus on establishing a fair price in price policies. Price is a key element of the marketing mix that can significantly contribute to sustainable development. Differential pricing is a strategy commonly used by commercial firms, but it has faced criticism from customers concerning its fairness.

5.3   Method Discussion

In the study, data was collected primarily through a survey conducted on an online platform. The survey aimed to understand user preferences and the influence of framing on decision-making, providing valuable insights for the e-commerce sector. However, the use of convenience sampling and the limited diversity of participants from Slovakia may introduce bias and limit the generalizability of the findings.

In addition to the survey, we conducted semi-structured interviews. These interviews provided valuable supporting data and helped enhance our understanding of the relationship between the survey data and participants' choices and buying decisions when influenced by visual and specificity framing in online shops. While we aimed to continue the interviews until data saturation was reached, conducting interviews with a larger and more diverse sample could have provided additional insights. By interviewing representative participants from the target audience, we gained insights directly from the individuals who are likely to encounter sustainability framing in online shops. This ensured that the data collected was relevant and reflected the perspectives of the intended users. The interviews helped uncover non-responses, spontaneous reactions, and potential biases

that may not have been apparent through a quantitative survey alone.

Privacy and confidentiality were maintained throughout the study, with participants fully informed about the study's purpose, procedures, and their rights. Personal information was handled confidentially, ensuring privacy and internal use only.

To enhance validity and credibility, quality checks were conducted on the survey questions, involving industry professionals and the supervisor's approval. This process improved the survey's overall quality and data validity. The survey employed a randomization technique for T-shirt presentation order, reducing potential biases and increasing credibility by ensuring participants' decisions were based solely on sustainability factors. Zoom interviews provided transparency and allowed participants to ask questions and address concerns directly, upholding ethical research principles and ensuring confidentiality. One potential weakness is that the study's findings rely on self-reported data, which may be subject to response biases and inaccuracies.

5.4 Implications

This study has both practical and scientific implications for the field of sustainable fashion and consumer behavior.

5.4.1 Societal Implications

On a practical level, the findings offer valuable insights for fashion retailers and marketers seeking to promote sustainable fashion products. Visuals, like icons, labels and infographics play a crucial role in shaping purchasing decisions, particularly when it comes to sustainable fashion. To encourage customers to choose sustainable options, retailers should prioritize the integration of high-quality visual elements on their online platforms. By effectively conveying sustainability-related information through visuals, retailers can not only boost the sales of sustainable products but also enhance overall customer engagement with the brand and its offerings. While product descriptions also impact purchase decisions, further research on specificity framing is necessary to gain deeper insights into its effectiveness across diverse contexts and customer segments.

5.4.2 Scientific Implications

This study has important scientific implications for understanding consumer behavior in the context of sustainable fashion consumption. By investigating the impact of visual

framing and the specificity of terms on consumers' purchasing decisions, the research expands our knowledge of the psychological processes underlying sustainable fashion choices. The findings highlight the influential role of visual elements in sustainability information, emphasizing the need for visually appealing and well-structured content to effectively communicate sustainability attributes and drive consumer choices. Additionally, the study sheds light on the importance of term specificity in sustainability messaging, providing insights into how language and message presentation can shape consumer perceptions and behaviors.

5.5 Limitations

One notable limitation of this study is the utilization of a fictional scenario and a partially functional prototype website that offered T-shirts with identical styles. The absence of a real-world context and the limited variety of product options may have influenced participants' decision-making process, potentially resulting in choices that deviate from what they would make in a marketplace with a diverse range of offerings. It is essential to acknowledge this limitation as it can impact the applicability of the findings to real-world shopping situations. However, it is crucial to note that this limitation does not render the study's findings invalid. Instead, it emphasizes the significance of interpreting the results cautiously and emphasizes the need for future research conducted in more realistic settings to validate and expand upon the current findings.

The study's sample predominantly consists of participants from Slovakia and is exclusively from Europe. This raises awareness of the potential limitations in generalizing the findings to broader populations and different continents due to variations in cultural, economic, and social contexts. Additionally, the majority of participants fall within the 18-34 age range, potentially introducing an age bias and limiting representation from other age groups. Moreover, considering the potential differences in salary levels and sustainability consciousness between Slovakia and other European countries, it is important to acknowledge the potential for bias in the study's results.

It is worth noting that we did not perform any formal analysis of the interview data and instead used it as supporting evidence. However, if we had continued interviewing more participants from diverse groups, we could have collected a larger dataset that would have allowed for mathematical analysis. This analysis could have provided more robust and comprehensive results

Another limitation of our study is the reliance on self-reported sustainability conscious-

ness. Participants' perceptions and awareness of their own sustainability practices may vary, which introduces subjectivity into the data. This subjectivity brings the possibility of social desirability bias, where participants may report their sustainability consciousness in a manner that aligns with societal expectations rather than their true beliefs and behaviors. As a result, the reported levels of sustainability consciousness may not accurately reflect participants' actual attitudes and behaviors. It is worth noting that some participants may prioritize trendiness over sustainability, indicating a potential discrepancy between stated preferences and actual purchasing decisions. Future research could consider employing additional measures to assess sustainability consciousness and explore the influence of social desirability bias on reported sustainability-related attitudes and behaviors.

Furthermore, the study could have benefited from employing a broader range of statistical methods to analyze the relationships between variables. By utilizing various statistical techniques, a more comprehensive and nuanced understanding of the factors influencing the outcomes could have been achieved. This would have allowed for a more robust analysis and potentially uncovered additional insights.

Additionally, another possible limitation of the study relates to the style of the visuals used. The colors and styles employed in this research were consistent with those commonly seen in other fashion e-commerce stores. However, it is important to acknowledge that different color schemes or visual styles may have varying influences on participants' choices. Introducing alternative color palettes or design styles could potentially impact participants' preferences and decision-making processes differently. Considering this limitation, it is worth exploring further research that incorporates different visual styles to gain a more comprehensive understanding of the impact of visuals on participants' choices. could provide a more comprehensive understanding of the impact of visuals on participants' choices.

5.6 Recommendations for Future Research

An alternative direction for future research could be the implementation of framing techniques in an established retail store that offers a variety of styles and price ranges for sustainable fashion products. This would allow researchers to manipulate the presentation of product information and messages within the store, enabling an examination of how different framing strategies impact customers' decision-making processes and purchasing behaviors in a real-world setting. This approach would provide valuable insights into the effectiveness of framing techniques across a diverse range of product options,

styles, and price points. Moreover, conducting research in an actual retail environment would provide a more realistic data foundation based on real purchases, enhancing the applicability and relevance of the findings.

Given the time constraints of this study, exploring the patterns and relationships between sociodemographic factors (such as age, gender, income, and occupation) and the influence of visual and specificity framing on purchase decisions for sustainable fashion products was not possible. However, it is important to acknowledge that future research in this area is warranted. Understanding these connections would provide valuable insights for personalizing websites and tailoring marketing strategies to specific customer segments, which in turn can contribute to increased sales. By examining how different sociodemographic factors interact with visual and specificity framing, researchers can gain a deeper understanding of the nuances and variations in consumer behavior within sustainable fashion contexts.

Furthermore, the interviews conducted in our study provided valuable insights into additional factors that influence customers' decision-making process when contemplating the purchase of sustainable products. Participants emphasized the importance of evidence of sustainability, comprehensibility, logical structure, and trust in the brand. For instance, one participant highlighted the significance of certificates, stating, "Certificates are important, definitely, much more than points on a scale." Another participant emphasized the importance of information structure and logic, stating, "From my point of view, a very important factor is the logic. Is the text logical? Is it structured?" Trust in the brand was also identified as a key consideration, with one interviewee expressing skepticism towards eco-friendly marks and stating, "If the brand doesn't have a good reputation, I don't trust it." These findings indicate the need to explore certifications, information structure, and brand values in future research to gain a comprehensive understanding of the factors influencing customers' decision-making processes. In addition to these insights from the interviews, as researchers, we recommend further investigation into different types of visuals and message framing. Exploring the impact of visuals with varied styles and colors, as well as examining the effects of different framing techniques, such as loss versus gain framing, would provide a more comprehensive understanding of how these factors influence customers' decision-making in the context of sustainable fashion. By expanding our research to include these aspects, we can gain deeper insights and practical implications for fashion retailers seeking to effectively communicate sustainability and promote sustainable products.

In addition, future research could consider replicating the study in a real, physical store

environment instead of an online setting. Conducting the study in a brick-and-mortar store would offer a different context where customers interact with products and make purchasing decisions in a tangible and immediate way. This shift in environment could elicit different responses and behaviors from participants compared to an online store, providing a more comprehensive understanding of the factors influencing sustainable fashion product choices.

6 Conclusion

This research aimed to analyze the impact of framing in visuals and the specificity of terms on consumers' buying decisions regarding product sustainability. Through quantitative analysis of participants' choices and qualitative as supporting data, it was found that there is a significant relationship between sustainability and the visual framing. However, no significant relationship was observed between the specificity of terms and sustainability in our study. The results suggest that the visual presentation has an influence on sustainability decisions, whereas the specificity of terms does not.

In our study, we specifically focused on the framing of terms' specificity and its impact on environmentally conscious fashion product choice. Contrary to our expectations, we did not find a correlation between the terms' specificity framing and the selection of sustainable fashion products. These results reinforce the need for further research into the specificity framing of sustainable fashion product information, as the existing literature primarily focuses on other aspects of message framing.

This research illustrates that the way information is visually presented to consumers can have a significant impact on their buying decisions concerning product sustainability. However, the lack of a significant relationship between the specificity of terms and sustainability raises the question of whether verbal communication alone is sufficient to motivate consumers towards sustainable choices, or if other factors are influential too.

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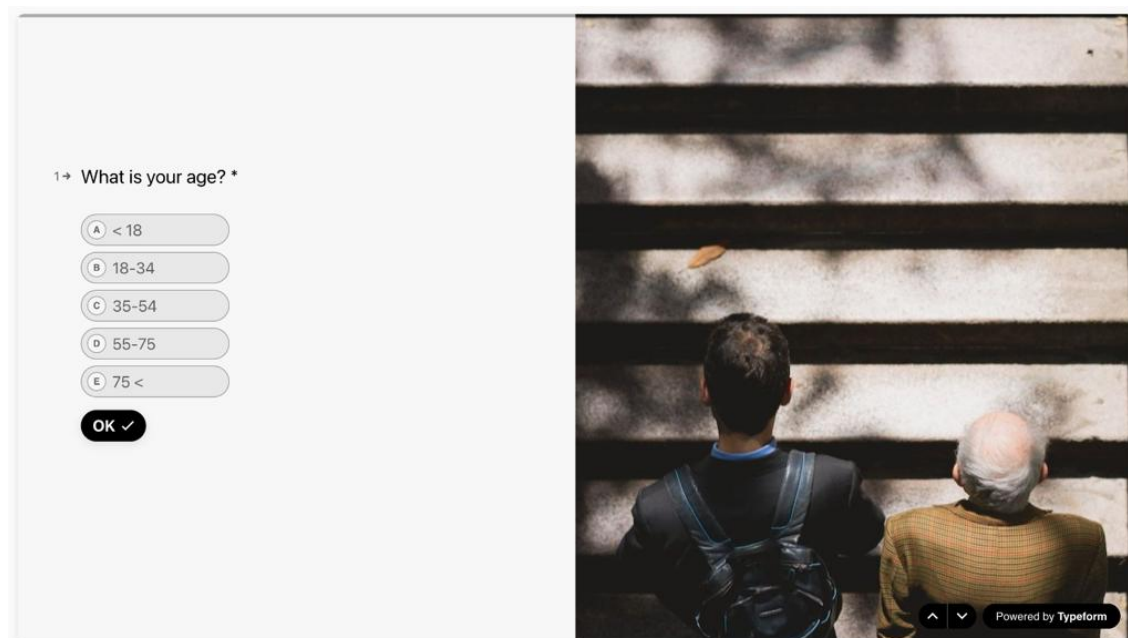
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8 Appendices

The interviews and their transcriptions are available at this Google drive folder.

8.1 Survey Questions
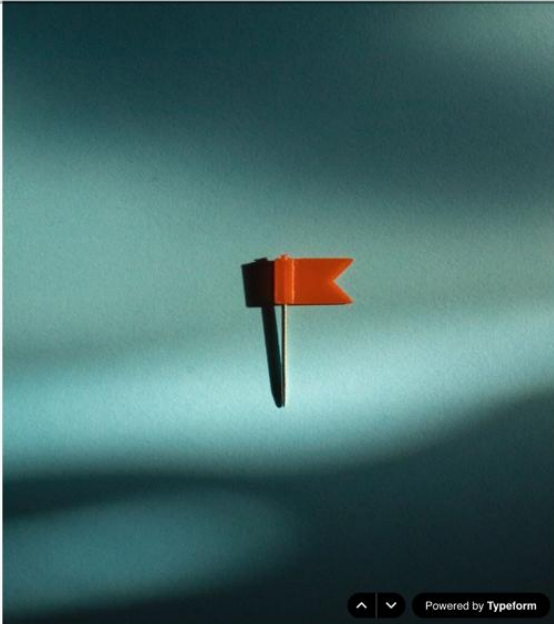
Figure 8.1: Survey Question 1: What is your age?

Figure 8.2: Survey Question 2: In which country do you live?

Figure 8.3: Survey Question 3: What is your highest level of education completed?

Figure 8.4: Survey Question 4: What is your average monthly income?

Figure 8.5: Survey Question 5: How often do you shop for clothes online on average?

Figure 8.6: Survey Question 6: How often do you shop online on average?

Figure 8.7: Survey Question 7: What is your gender?
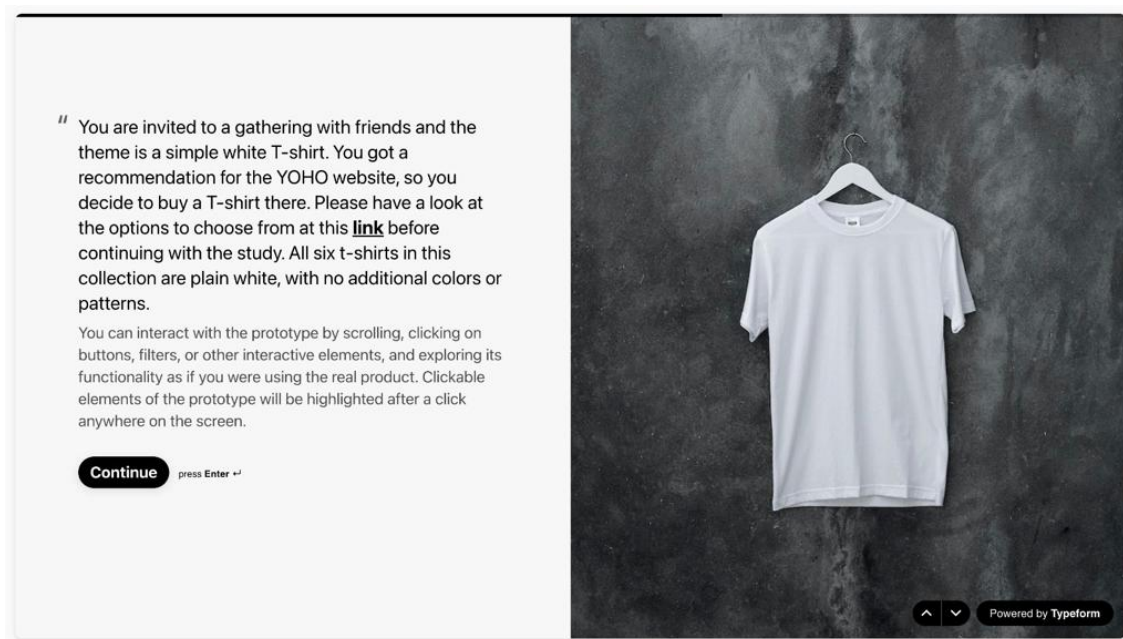
Figure 8.8: Pre-Interview Questionnaire, Explanation of the scenario in which the participant is invited to a white T-shirt themed gathering and the participant is supposed to choose a t-shirt from the YOHO website.
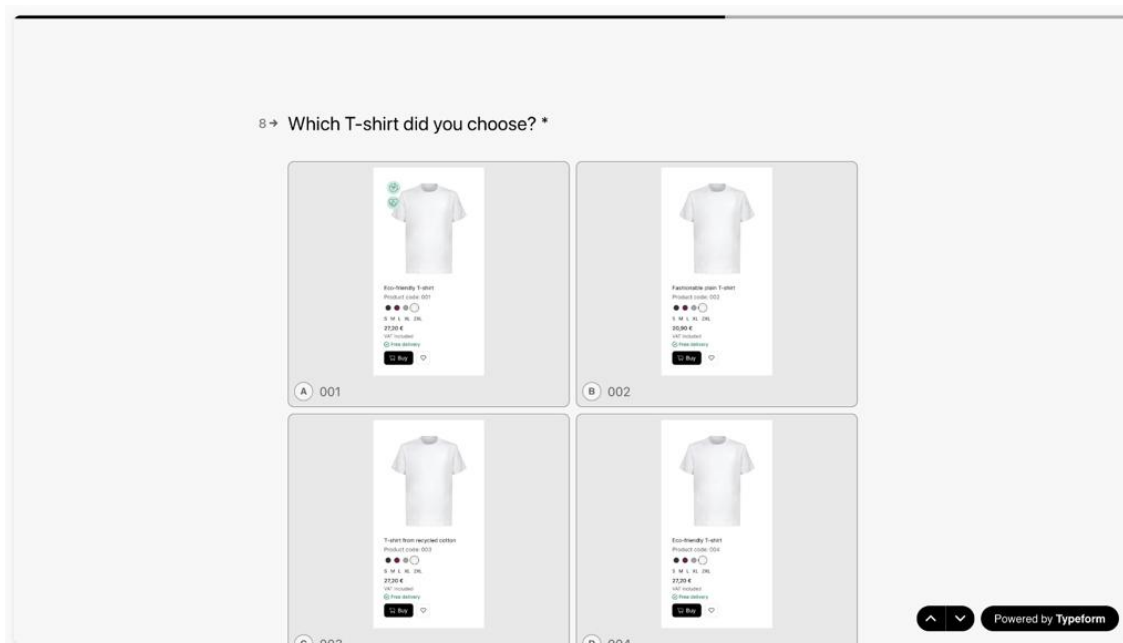
Figure 8.9: Survey Question 8: Which T-shirt did you choose?

Figure 8.10: Survey Question 9: Did you open the products' details?

Figure 8.11: Survey Question 10: Please indicate whether you agree or disagree with the statements below.

8.2　Interview Process

8.2.1　Pre-Interview Questionnaire

Figure 8.12: Pre-Interview Questionnaire, Question 1: What is your age?

Figure 8.13: Pre-Interview Questionnaire, Question 2: What is your gender?

Figure 8.14: Pre-Interview Questionnaire, Question 3: In which country do you live?

Figure 8.15: Pre-Interview Questionnaire, Question 4: What is your highest level of education completed?

Figure 8.16: Pre-Interview Questionnaire, Question 5: What is your average monthly income?

Figure 8.17: Pre-Interview Questionnaire, Question 6: How often do you shop online on average?

Figure 8.18: Pre-Interview Questionnaire, Question 7: How important is sustainability to you?

Figure 8.19: Pre-Interview Questionnaire, Question 8: We are conducting a usability testing session to gather feedback on our online product. The session will take approximately 30 minutes of your time. Would you like to take part?

8.2.2   Interview Scenario

Important notices before starting:
Do you agree to be recorded?

We are not testing you we are testing the prototype.

Warm-up/introduction:
Introduce yourself and explain the purpose of the interview.
Ask basic information about the respondent.
Ask the participant if they have any questions before starting the interview.
Ask the participant how often they shop for clothes online(more in detail) (what kind of items do you buy online? is it more clothes or..?)
Ask the participant what factors are important to them when deciding what clothes to buy online.

Scenario:
"You are invited to a gathering with friends and the theme is a simple white T-shirt. You have already landed on the website and are now exploring the options available to you. Please think aloud and provide feedback as you navigate the website."
Ask the participant to explain their thought process when choosing which t-shirt to buy.

Task 1:
Ask the participant to look at the six different white t-shirt options and choose which one they would purchase.
Ask the participant to explain their decision-making process.
Ask the participant to describe what factors they consider important when purchasing a white t-shirt online.

Task 2:
Ask the participant to describe what they like or dislike about the visual representation of one of the t-shirt options.
Ask the participant if they think the visual representation of the t-shirt helps them make a more informed decision.
Ask the participant to choose which t-shirt option they believe is the most sustainable based on the visualizations.
Ask if they know what the icons stand for.

Ask if the icons are helpful or confusing.

Task 3:
Ask the participant to describe what information they find important when purchasing a sustainable white t-shirt online.
Ask the participant to describe what they think of the description and the information given about the products and if they can find what they need.
Ask the participant to describe their thought about information about each T-shirt and if it is enough and clear.

Task 4:
Ask the participant to describe what they think of the t-shirt options without visualizations.
Ask the participant if they think the lack of a visual representation impacts their ability to make a decision.

Task 5:
Ask the participant to explain their reasoning for why they chose that t-shirt option what factors were involved when they chose it.

Task 6:
Ask the participant to describe their thoughts on the two control group options.
Ask the participant if they think the control group options have any impact on their decision-making process.

Conclusion:
Ask the participants how environmentally conscious they are and what they do for the environment.
Ask the participant to summarize their overall experience with the prototype.
Ask the participant if there is any additional information they would like to have before making a purchasing decision.
Ask the participant to show their favorite e-shops and let them explain their choice.
Thank the participant for their time and input.