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Sustainability Matters: Exploring the Influence of Unique Sustainability Attributes on Consumer Preferences for Veja and Nike Footwear.

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This thesis is worth 30 study points.

Summary

In an age of increasing environmental awareness and evolving consumer preferences towards sustainability, the footwear industry stands at a critical juncture, facing both challenges and opportunities. This thesis delves into the intricate relationship between sustainability attributes and consumer behavior in the context of sneakers, with a focus on Nike and Veja. Through two randomized controlled experimental studies, the research aims to understand how specific sustainability attributes, alongside secondary product attributes, influence consumer preferences and willingness to pay for eco-friendly footwear. The findings underscore a notable contrast between Veja and Nike sneakers, with Veja sneakers being perceived as more minimalist and sustainable compared to their counterpart. Particularly noteworthy is the association of a smooth sole with timeless appeal, repairability, and minimalist design. Interestingly, black sneakers emerged as symbolizing sustainability and minimalism in consumers' minds. Furthermore, consumers demonstrated a higher willingness to pay for sustainable sneakers, particularly those in black with a bumpy sole or featuring an earthy color with a flat sole. Overall, the research underscores the significant role of product features and attributes in shaping consumers' decision-making processes and perceptions of sustainable products. This research not only offers valuable insights into consumer behavior but also holds significant implications for businesses seeking to navigate the growing demand for sustainable products.

Contents

Foreword

As a former athlete, Nike was my go-to brand for performance on the track. I felt stronger and faster in my Nike shoes during competitions. It's remarkable how a logo and its story can shape one's mindset.

However, as I pursued my master's degree in Sport Management at both the University of Lyon 1 in France and the University of Jyväskylä in Finland, my perspective on fashion began to shift. Further studies in Sustainability Management in Norway deepened my understanding of this crucial topic.

Three years ago, I discovered Veja, a brand whose commitment to sustainability went beyond profit-making. Veja's unconventional practices coupled with an intriguing backstory, sparked my curiosity and prompted a deeper exploration of the French brand. As a consumer of both Veja and Nike shoes, I found the juxtaposition of these two brands compelling and believed it warranted further investigation.

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Marie Grandemange

1 Introduction

1.1 Background of the study

In the dynamic world of fashion, sneakers stand out as an enduring intergenerational phenomenon and cultural icon. From Converse to Stan Smith, sneakers have transcended time and continue to be a "must-have" in every wardrobe. With an impressive revenue of around US$400 billion worldwide in 2023, the global footwear market – encompassing shoes, sneakers, luxury footwear, athletic footwear, and sporting shoes – is expected to experience a robust growth of 14.46% from 2024 to 2028 (Statista, 2024). Every year, 24 billion pairs of shoes find new feet around the globe, showcasing the immense footprint and universal appeal of the footwear industry (Grant, 2020).

However, in the last few years, global climate change has impacted consumers purchase decisions. Consumers increasingly prioritize products that resonate with their environmental, ethical, and societal values (Huang *et al.*, 2022). Consequently, there is a burgeoning emphasis on sustainability, a trend particularly pronounced among younger generations (Salamzadeh *et al.,* 2024). In response, this trend has led companies to rethink their business model, recognizing that "business as usual" is no longer a viable strategy for long-term sustainability (Jørgensen & Tynes Pedersen, 2018). In order to remain competitive in the market and align with evolving consumer and societal needs, companies have embraced the production of environmentally friendly sneakers (Huang *et al.*, 2022). The French brand Veja appears to be one of the market leaders.

Surprisingly, the 'V' logo has achieved widespread recognition and visibility, comparable to the iconic logos of major footwear brands like Nike (Webster Ayuso, 2024). What's even more intriguing is how Veja achieved success without investing in traditional publicity methods. No paid partnerships, no flashy ads, and no celebrity endorsements (Veja, n.d.-a). In a world dominated by advertising, where "most sports shoe companies are 90% marketing" (Grant, 2020, p. 55), this accomplishment is truly remarkable (Bevan, 2023). While Nike spent $3.59 billion in the United States in 2020 on advertising and promotion (Tighe, 2022), Veja "build their reputation on word of mouth" (Miled-Cherif *et al.*, 2024, p. 303). Silverman (2011) defines word of mouth as "the exchange of information about a product or service among people who are independent of the producer" (ch. 3, para. 2). Unlike commercial messages, this information is

considered more impartial, relevant, trustworthy, and accurate because it is not controlled by the producer. This strategy conflicts with the knowledge and belief we currently hold and goes against many marketing principles.

As emphasized by Kotler & Armstrong (2016), successful companies focus on customers and invest significantly in marketing strategies. The marketing mix, also called the four Ps – Product, Price, Place, and Promotion – is a foundational principle used by companies to achieve success. And the last P, Promotion, plays a crucial role in making the company known among customers. Nowadays, most companies connect with customers via social media, web sites, mobile apps, e-mails, viral ads, and videos (Kotler & Armstrong, 2016). However, marketing has a mixed reputation. While it promotes brand awareness and engagement, it can also contribute to overconsumption, dissemination of fake news, high prices, high-pressure selling tactics, and cultural pollution[1] (Grant, 2020). As claimed by the founder of Veja, Sebastien Kopp, in an interview (Bevan, 2023): *"Maybe you become irrelevant when you do a lot of advertising. We don't create fake stories, and I try to teach the team that reality is a much better story than advertising… I think the key is to stick to your principles."* In another interview with Hardy (2023), Sebastien Kopp further emphasized his stance, stating that the reality is more significant than the advertising and the celebrities. But what is the reality of Veja?

The brand Veja emerged from the vision of two co-founders, Sebastien Kopp and Ghislain Maurillon, graduates from HEC business school and the University Paris-Dauphine in 2004. Their journey began with a quest to explore sustainable development initiatives within large international firms like Carrefour, Pinault-Printemps-Redoute, and others in 2002. Disappointed by the lack of meaningful initiatives, they sought inspiration at Alter Eco, a fair-trade brand founded by Tristan Lecomte. Here, they recognized the potential to bridge the gap between small producers in the Global South and consumers in the Global North, weaving together environmental, social, and economic responsibility into their project from its inception. The essence of Veja's creation lies in its mission to challenge the inequality inherent in the global sneaker industry – where products are made in the Global South but predominantly consume in the Global North (Miled-Cherif *et al.*, 2024). Veja means "look" in Portuguese, symbolizing their commitment to creating

[1] Cultural pollution refers to the negative impact of marketing and advertising on the collective consciousness, cultural values, and norms (Mandal, 2023).

a brand rooted in fair and ethical trade practices across its entire value chain, from sourcing raw materials to distribution. Brazil became their destination due to the availability of three key raw materials – cotton, natural rubber, and ecological leather – essential for crafting their sneakers. Organic cotton from Brazil and Peru is used for the canvas and laces, while Amazonian rubber harvested by local producers using traditional methods that ensure minimal harm to the trees and the surrounding ecosystem is used for the soles. Additionally, they incorporate innovative materials such as B-mesh, crafted from recycled plastic bottles collected from the streets of Rio and Sao Paulo, and C.W.L, a corn waste-derived material that serves as a sustainable alternative to leather (Veja, n.d.-b). The shoes are made in Brazil and also in Portugal since 2023. Moreover, all sneakers are transported by ship to France to reduce carbon emissions (Miled-Cherif *et al.*, 2024). Veja's economic approach prioritizes local workers and producers, who are paid almost 50% higher than the Brazilian market price for the organic cotton and rubber production (Veja, n.d.-b). Furthermore, transparency is maintained by making all producer contracts, organic certifications, social audits, and chemical test results available on their official website. Additionally, the company collaborates with Atelier Sans Frontière, an NGO specializing in social inclusion, to manage logistics in Paris, and with Log'ins, a company employing disabled individuals, to run the online shop (Grandemange, 2023). At the end, Veja makes shoes that cost 5 to 7 times more to produce than their competitors', but they sell them for the same price because "they do not spend money on advertisement" (Veja, n.d.-a). In contrast, for Nike, 70% of the expenses for a pair of sneakers are attributed to advertising and communication, while only 30% is allocated to raw materials and production (Veja, n.d.-b).

As mentioned earlier, Veja relies in word-of-mouth and according to Silverman (2011), "word of mouth is thousands of times more powerful than conventional marketing" (ch. 3), and "could double your sales" (ch. 2). According to Phillips *et al. (*2013), recommendations from close contacts such as family, friends, and acquaintances carry more weight in our purchasing decisions than any other form of marketing and influence up to 50 percent of all buying choices. Furthermore, Silverman (2011) asserts that by effectively utilizing word-of-mouth marketing, smaller companies can defeat larger and more established ones. This is what happened with Veja. The brand is becoming as recognizable and iconic as Nike's swoosh (Bevan, 2023). The surprising and

unusual story behind the brand naturally generates buzz and conversation, aligning perfectly with the principles of word-of-mouth marketing. Silverman (2011) highlights that “most people tell stories about what to them is extraordinary, surprising, astonishing, amazing, unusual, bizarre, remarkable, wonderful, and incredible” (ch. 5). This tendency to share remarkable stories contributes significantly to Veja's success. However, while word-of-mouth can initially increase brand recognition, sustained marketing efforts are crucial to maintain consumer engagement over time (Kumar & Reinartz, 2016). The success of Veja is not only based on word-of-mouth, but it requires a consistent marketing strategy. Indeed, brand recognition is valuable, but its longevity depends on meeting consumer expectations (Bennett, & Rundel-Thiele, 2005) and consistent reinforcement of brand attributes (Keller, 1999). As they claim on their website, Veja may not use traditional form of advertising like other brands, but it uses triggers on its website and other platforms such as LinkedIn and Instagram to capture consumer’s attention and drive engagement, which is another form of marketing.

1.2 Statement of the problem

Nike represents the antithesis of Veja's minimalist, word-of-mouth-driven approach to brand building. While both companies innovate and emphasize sustainability in their sneaker production, their paths diverge dramatically. Nike, established in 1971 by Phil Knight, initially prioritized profitability through inexpensive labour in Asian countries and high-profile athlete endorsements. However, numerous scandals tarnishing its brand image pushed Nike to shift towards a more sustainable business model over time (Gasmi & Grolleau, 2005). In contrast, Veja, founded in 2004, embraced “a native-sustainable brand identity” from its inception, pioneering sustainability in an era when it wasn't a mainstream concern for businesses (Miled-Cherif et al., 2024). This noticeable difference in approach makes the comparison between the two brands a study worth exploring.

While both Veja and Nike operate under similar sustainable business models, they do not seem to equally resonate with sustainable consumers or influence sustainable consumer choices to the same degree. One might expect that nearly identical sustainable models would yield similar behavioral effects. However, when this is not the case, it

becomes crucial to identify the specific situations, conditions, or attributes that diverge the effects.

Understanding the circumstances under which sustainable business models succeed or falter, and discerning the factors that hinder or facilitate their execution, is paramount in the journey toward sustainable transition. Without this understanding, companies may find it not only challenging but also discouraging to effectively implement sustainable business models.

The disparity in consumer responses between Veja and Nike suggests the presence of unique attributes within one of the models. This underscores the importance of conducting comprehensive exploration and gaining a deeper understanding of these differences.

In light of these considerations, the research aims to address the following questions:

RQ1: What specific sustainability attributes distinguish Veja from Nike, impacting consumer preferences for sustainable footwear?

RQ2: How do specific attributes influence consumer preferences and willingness to pay in the context of eco-responsible sneakers?

To investigate these research questions, the study employs a quantitative methodology, utilizing ANOVA and regression models to analyze data collected through two randomized controlled experimental online surveys.

1.3 Relevance of the study

On average, people buy 3 pairs of shoes a year (Chang, 2020). Therefore, to meet this demand, 24 billion pairs of shoes were produced in 2022, which is almost 66 million pairs every single day (Smith, 2024). In 2022, the global footwear market revenue reached 400 billion U.S. dollars, with the global sneakers market alone accounting for approximately 72.7 billion U.S. dollars (Smith, 2023-a). However, this immense

production volume is damaging both the environment and the workers who make the shoes. According to Da Costa Sanches Galvão *et al.* (2021), the footwear industry is ranked as the fifth most environmentally impactful sector. While the global aviation accounts for approximately 2.4% of CO2 emissions (Lee *et al.,* 2021), sneaker production alone is responsible for 1.4% of global greenhouse gas emissions (Da Costa Sanches Galvão *et al.,* 2021), which is equivalent to the annual emissions of 66 million cars (Chang, 2020). Unsurprisingly, sneakers are mostly produced in China, India, Vietnam, and Indonesia, where labour is inexpensive and often not protected by laws (Smith, 2023-b). Unfortunately, workers are frequently exposed to hazardous chemicals that negatively impact their health. Moreover, sneakers made of various materials are not easily recyclable and 80% of them end up in landfills (Chang, 2020).

Consequently, the need for sneakers made of eco-friendly materials with ethical manufacturing processes is crucial to align with the global focus on sustainability. Thus, the growing pressure on the footwear industry to make sneakers more sustainable have led many footwear companies to change their production practices, by incorporating innovative sustainable materials and implementing measures to reduce their carbon emissions, water and energy consumption. In 2022, the global sustainable footwear market accounted for 8 billion U.S. dollars, corresponding to only 2% of the global footwear market revenue. However, this market is going to experience a growth rate of 6.2% until 2030, showing the growing concern and demand from consumers (Grand View Research, n.d.). In fact, many scandals such as the Nike sweatshops in the 1990s involving slavery, human trafficking and child labour (Gasmi & Grolleau, 2005), or the Rana Plaza disaster in Bangladesh in 2013 where more than 1000 workers were killed and 3000 injured (Peleg Mizrachi & Tal, 2022), have significantly increased consumer awareness (Salamzadeh *et al.,* 2024). These scandals have led to a shift in consumer purchasing behaviour towards greener and more ethical products.

Consumers are looking for more transparency, higher quality, timeless designs, and more sustainable products (Salamzadeh *et al.,* 2024). Moreover, consumers are overloaded by marketing communication and therefore they look for brands that are sincere and do not spend billions of dollars on advertising to show how green they are. According to Silverman (2011), “the average person is exposed to approximately 200 to 1.000 non-word-of-mouth communications each day” (ch. 3) through television,

billboards, radio, internet, and in-store displays. Footwear leaders such as Nike, spend billions of dollars each year on advertising and promotion (Tighe, 2022), corresponding to 70% of the cost of a pair of shoes (Veja, n.d.-a). Knowing that celebrities get tremendous amount of money to talk about Nike's products, while workers who make those same products in Asian countries are paid under the minimum living wage is outside any sustainability principles. Additionally, communicating on a sustainable collection made with recycled fibers when 90% of the products are made of virgin synthetic materials is harming both the environment and consumers (Corrado, 2023). Many examples of greenwashing – the fact of using marketing tactics to portray a product or a company as sustainable, even when it is not true – have impacted consumers' trust toward green products (Szabo & Webster, 2019). Consequently, there is a need for authenticity, sincerity, transparency, and sustainability in every company's business model. However, consumers are also part of the problem. It is not uncommon to see entire collections of sneakers in many closets to match with trends and different outfits (Grant, 2020). The Americans are the biggest consumers of sneakers (Smith, 2024), and therefore the largest collection is owned by an American who has 2.388 pairs (Guinness World Records, 2012). The environmental impact of such a large collection is substantial. Therefore, it is important that consumers buy more consciously and that footwear companies help them by offering products with sustainable attributes such as sustainable materials, classic and quality shoes, easy-to-match colors, and a minimalist design to reduce the consumption per consumer and keep them over the years without being out of fashion (Grant, 2020).

Footwear companies need to know what are the essential sustainability attributes that make the difference for the consumers. Which are the ones that reflect sustainability and influence consumer's likelihood of purchasing the shoes? By understanding how customers react to sustainable attributes, companies will be able to shape strategies that align with consumer values. Businesses will be able to use the data of this study to inform strategic decisions related to product development, marketing, and overall brand positioning. This foresight will inspire and enable companies to proactively address concerns and build more resilient business models.

In today's society, sustainability has become a significant norm, implying that not only businesses are expected to act ethically and contribute positively to society and the

environment, but also retailers. Indeed, when retailers add sustainable products to their assortment, consumers tend to positively react. Retailers become more legitimate, get stronger shopping intentions and consumers identify themselves more easily with them because of shared values (Hofenk *et al.,* 2019). Overall, adding sustainable products into retail stores improve and participate in the building of consumer relationships, valuable for retailers to sustain over the years and remain competitive in the market. However, retailers need to understand consumers' preferences to effectively stock and market products. Therefore, findings from this study can help retailers adjust what they sell and how they promote it to meet the increasing interest in eco-friendly sneakers. Additionally, understanding sustainable business models like Veja can help retailers partner with truly sustainable brands that resonate with their customers' values.

Insights from this study can also influence and guide the development of new laws and policies that support sustainable businesses. As concerns about the fashion industry's environmental and social impact grow, leaders, policymakers and governments are encouraging sustainable business models with regulations and incentives. For instance, in February 2020, the French government passed the AGEC law (law 2020-105) on fighting waste and the circular economy (Légifrance, 2020). According to Refashion (2020), the law "marks an important milestone for the CLF (Clothing, Linen and Footwear industry)". Indeed, by 2024, all the textiles sold in France will have to display on their packaging the environmental and social impact score labels, such as the Nutri-Score for food. Another important point is that producers who incorporate a certain amount of recycled material and improve the life cycle of their products will receive a bonus. However, those who do not contribute to the environmental effort will be given a penalty (Refashion, 2020) as the carbon tax law. The carbon tax is a fee for businesses based on the amount of greenhouse gases they emit during production, participating in air pollution (Peleg Mizrachi & Tal, 2022). In the case of fashion companies (including footwear companies), the revenue generated from the carbon tax could be transformed into an economic incentive to reward companies based on a sustainable business model or simply, to encourage companies to adopt a more sustainable business model (Peleg Mizrachi & Tal, 2022). In order to help consumers becoming more sustainable, governments could develop a law limiting the number of collection launches per year with a limited number of products per collection. This law would reduce both the

environmental impact and consumers consumption because of limited options and less temptation to buy. Before, there were only 2 collections per year (Autumn/Winter and Spring/Summer) but today, fast fashion companies launch up to 52 collections per year which does not help consumers to be more conscious (Peleg Mizrachi & Tal, 2022). Therefore, policymakers have a major role to play in shaping regulations and incentives that encourage businesses to adopt sustainable practices. This study's findings could lead to the development of new taxes for unsustainable fashion companies and incentives for sustainable ones that meet consumers' preferences for eco-friendly footwear. Currently, sustainable companies often face challenges as they are taxed at the same rate as unsustainable ones, despite the higher costs of producing eco-friendly sneakers. Governments should support them by differentiating good companies from bad ones. Additionally, this study's findings could lead to the development of incentives for ventures among sustainable companies. Indeed, the development of ground-breaking ideas regarding product design and life-cycle innovation usually occurs with collaboration between several brands (Peleg Mizrachi & Tal, 2022). It is very difficult for a company alone to move the entire ecosystem. Indeed, sustainable companies need to be numerous and collaborate to be influential (Palluel, 2023).

In addition to contributing to sustainability research, helping businesses, consumers, retailers and authorities, this study significantly aligns with key sustainable development goals (SDGs). Indeed, sustainable business models involve ethical practices and considerations for workers in the supply chain, align with SDG 8 "Decent work and Economic Growth", SDG 1 "No Poverty" by ensuring fair wages, SDG 3 "Good Health and Well-Being", and SDG 10 "Reduced Inequalities" by promoting equality and fair treatment of workers throughout the supply chain (United Nations, n.d.). Moreover, consumers' preferences for sustainable business model attributes influence the direction of businesses, leading them toward more innovation with sustainable materials, ethical production and sustainable infrastructure, aligning SDG 9 ''Industry, Innovation and Infrastructure". Finally, the study contributes to SDG 12 "Responsible Consumption and Production" and SDG 13 "Climate Action" (United Nations, n.d.).

1.4 Organization of the study

The study is organized as follows. Chapter 2 delves into existing literature on sustainability attributes and consumer behavior, providing insights into the factors influencing consumer preferences for eco-friendly products. Chapter 3 outlines the conceptual framework and hypotheses development process. Chapter 4 provides an overview of the methodology employed for both studies. In Chapter 5, the design of Study 1 is presented, including details of its implementation on Qualtrics and data collection procedures using Prolific. These data are then analyzed using R and SPSS software. Chapter 6 presents the findings and results of Study 1. Following this, Chapter 7 presents the design of Study 2, its implementation on Qualtrics, and data collection procedures using MTurk. In Chapter 8, an in-depth analysis and interpretation of the results obtained using R and SPSS software is provided. Finally, the research concludes with discussion, conclusion, and limitations chapters.

2 Literature review

2.1 Sustainable product

A sustainable product is one that is consciously designed, manufactured, used, and disposed of with considerations for its environmental, social, and economic impacts throughout its entire lifecycle. It aims to minimize harm to the environment and society while maximizing benefits for present and future generations. Sustainable products adhere to principles such as reducing waste, recycling materials, reusing components, recovering resources, remanufacturing items, and redesigning processes to minimize environmental impact. These products offer positive contributions to social well-being and economic prosperity while prioritizing the health of individuals and the environment. They are characterized by their adherence to standards of economic, environmental, and social efficiency, ensuring that their overall impact is beneficial across generations. Sustainable products encompass a wide range of items that prioritize environmental and social responsibility in their design, production, and usage (Bangsa & Schlegelmilch, 2020; Sdrolia & Zarotiadis, 2019).

2.2 Sustainability attributes

According to Kumar & Reinartz (2016), “attributes are features or properties of an offering” (p. 37). It refers to the specific characteristics that help to identify and define a product or service (Keller, 1993). Keller classifies the attributes into two categories: product-related attributes and non-product-related attributes. Product-related attributes correspond to the composition of the product (e.g. material, design) or the key elements that enable the product to perform its intended purpose and meet the needs or expectations of the consumers. On the other hand, non-product-related attributes refer to external elements that are not about the composition of the product. It can be the price of the product, how it is packaged and its visual presentation, the image associated with people who use the product, and the usage context (Keller, 1993). Kalro & Joshipura (2023) claim that product attributes motivate consumers to form opinions and attitudes towards a product. These attributes exert substantial impacts on consumer behavior, shaping their preferences and purchasing decisions. This underscores their importance in driving changes in consumer behavior towards sustainable consumption. Marcon et al. (2022) emphasize that “product attributes play a key role in promoting green consumption” (p. 76). Therefore, a multitude of research investigations have delved into the effects of sustainable product attributes on consumer preferences and their decisions to make purchases (Bangsa & Schlegelmilch, 2020).

Following the classification of Keller (1993), Skard et al. (2021) categorize sustainable product attributes into two groups: product-related green attributes and non-product-related green attributes. Other authors in the literature classify sustainable product attributes based on the product life cycle, which are (1) Before use phase, (2) Use phase, and (3) After use phase (Garlet et al., 2024). The authors organize the attributes into selfish tangibles/intangibles and altruistic tangibles/intangibles attributes. Selfish tangibles/intangibles attributes refer to characteristics and qualities of products that primarily benefit the individual consumer. These attributes are focused on personal satisfaction, convenience, and economic advantages for the user. Examples of selfish tangible attributes include simplicity, functionality, ergonomics, and environmental friendliness. Whereas selfish intangible attributes refer to aesthetic appeal, cost-effectiveness, affordability, services, and convenience. On the other hand, altruistic tangibles/intangibles attributes relate to characteristics and qualities that benefit society,

the environment, or other individuals beyond the immediate consumer. These attributes focus on broader social and environmental concerns, ethical sourcing, and community well-being. Examples of altruistic tangible attributes include positive qualities (e.g. organic and recycled products), minimization of environmental problems, and traceability. Whereas altruistic intangible products involve actions that promote social justice, local empowerment, fair trade, and moral responsibility (Garlet et al., 2024). According to previous research, intangible attributes seem to have a greater impact on consumer purchase intentions (Auger et al., 2010).

Marcon et al. (2022) propose another classification of green product attributes based on life cycle phases that are (1) Production, (2) Use, and (3) End-of-life. They claim that when each phase of the life cycle contains green attributes, it tends to "(i) reduce perceived risks, (ii) generate customer satisfaction, (ii) improve perceived quality and, consequently, promote value, which reduces price sensitivity" (p. 86). Indeed, when a product is designed, produced, and disposed of with environmental considerations in mind, consumers perceive fewer risks associated with its use and environmental impact. This builds confidence in the product's safety and reliability. Moreover, product alignment with consumer's environmental and social values leads to consumer satisfaction. Furthermore, products designed and manufactured with green attributes tend to be perceived as higher in quality because of the attention to detail, durability, and environmental consciousness reflected in the product's design and materials. Finally, the presence of green attributes enhances the perceived value of the product. Indeed, based on the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB), which emphasize the influence of attitudes, subjective norms, and perceived control on consumer behavior (Chang, 1998), consumers are willing to pay more for sustainable products (Marcon et al., 2022). However, there is a disparity between consumers' attitudes (what they say or believe) and their actual behavior (what they do) (Skard et al., 2021). According to a study about perceptions, attitudes, and behaviors toward sustainable fashion (Song & Ko, 2017), the authors claim that despite the prevalent awareness of sustainability among consumers, the actual adoption of sustainable fashion remains limited. However, as highlighted by Petersen et al. (2021), "Increasing consumers' willingness to pay (WTP) for environmentally friendly products is

crucial to the achievement of the 12th sustainable development goal on sustainable production and consumption and also of sustainable development in general" (p. 1338).

In another study, Rausch et al. (2021) emphasize that durability, fair wages, favourable working conditions and eco-conscious production methods are the primary attributes desired in sustainable apparel. They further state that when consumers opt for bio-based footwear, they prioritize attributes such as material origin, pricing, durability, timeless design, and eco-friendliness during production.

Many studies have examined sustainability attributes. Therefore, the study organized these attributes into Table 1 to provide a clearer overview and facilitate understanding. The study classified them into two groups: company-related attributes and product-related attributes.

Table 1 *Classification of company and product-related sustainable attributes*

Category	Sustainable Attributes
Company-Related Attributes	Fair wages and treatment of workers
	Local empowerment
	Environmental conservation
	Waste and pollution reduction
	Eco-oriented R&D and green product design
	Sustainable manufacturing, lean & green operations
	Closed-loop supply chain
	Social responsibility
	Workplace safety
	Health and well-being
	Ethical standards
	Transparency (disclosure practices)
Product-Related Attributes	Product certification
	Authenticity
	Simplicity
	Sustainable materials
	Natural appearance
	Quality appearance (Durability, robustness)
	Physical appearance (design for sustainability-oriented behavior: color, timeless style)
	Recyclability
	Extended lifetime (repairability)
	Packaging sustainability

Note. Adapted from Bangsa & Schlegelmilch, 2020; Auger et al., 2010; Marcon et al., 2022; Diego-Mas et al., 2016; Rausch et al., 2021; Kleindorfer et al., 2005; Garlet et al., 2024.

2.3 Sustainability attributes and the relationship with consumer behavior

Sustainability attributes often rank high among consumers' priorities when making purchasing decisions. Research indicates these attributes influence consumers' "information-search behavior" (Bangsa & Schlegelmilch, 2020). Indeed, when sustainability attributes are present, consumers are more likely to actively seek out information about the products or services they are interested in. Moreover, according to Marcon et al. (2022), energy-related attributes (e.g. low energy consumption, use of renewable energy) and pollution reduction attributes increase consumer satisfaction, trust, and perceived value. However, consumers are not willing to pay for a product with these attributes if the price is higher. Marcon et al. (2022) further assert that the extended lifetime attribute (e.g. product reusability, design for repairability, remanufacturability, and upgradability) increases consumers' safety and their willingness to pay a premium price for sustainable products. Additionally, the sustainability of packaging attribute positively impacts consumer satisfaction (Marcon et al., 2022).

Shi et al. (2022) offer insights into consumer product use behavior. They state that the value consumers perceive in a product greatly influences how they use it. People use a product based on how useful, socially accepted, and emotionally satisfying it is to them. The authors further claim that consumers' personal traits shape the way they will use the product. The study utilizes the example of the environmental-conscious consumer to show that this type of consumer is more likely to take care of the product and prolong the product's lifespan to reduce its environmental impact and consumption.

Moreover, Shi et al. (2022) assert that the quality attribute of a product encourages consumers to use the product for an extended period and with greater care than a product without such attribute. Furthermore, the repairing and upcycling attributes foster emotional connections to the product. This attachment leads to more sustainable behavior because consumers are more likely to cherish and take care of products they feel emotionally connected to. As a result, they may use these products for longer periods, reducing the need for frequent replacements and minimizing waste. Additionally, repairing and upcycling contribute to the circular economy by extending the

lifespan of products and reducing the overall environmental impact associated with manufacturing new products (Shi et al., 2022).

Finally, before the disposal of the sustainable product, consumers tend to spread around themselves positive words about their experience with the product, influencing other's purchasing decisions (Garlet et al., 2024). This positive word-of-mouth promotion helps create awareness and interest in sustainable products, encouraging more people to make environmentally friendly choices in their purchases.

2.4 Indirect influence of product attributes on sustainable consumer choices

While sustainability attributes are directly associated with environmental, social, or economic benefits that align with sustainable development goals, other 'ordinary' product attributes – those that are not explicitly labeled as sustainable – have indirect effects on sustainability outcomes and influence consumer choices toward more sustainable options.

In their study, Diego-Mas et al. (2016) highlight the importance of product appearance and product aesthetic design in shaping consumer preferences for sustainable products. Although these two attributes are not directly related to sustainability, consumers unconsciously associate them with sustainability because they reflect sustainability. Attributes like natural material appearance, quality appearance, simplicity, and timeless design positively influence consumers' likelihood of purchasing sustainable products. Diego-Mas et al. (2016) further claim that white and green colors are commonly linked with environmentally conscious attributes. Indeed, these colors might make consumers see the products as more eco-friendly, even if they're not aware of it.

Veja exemplifies this concept, as most of the shoes are white, and all of them are simple, with a minimalist and timeless design, and a natural material appearance and quality. Therefore, their appearance communicates a message of environmental responsibility and ethical consumption, resonating with consumers seeking sustainable options. Furthermore, Marcon et al. (2022) state that when a product's color aligns with the brand's values and messaging, consumers tend to trust the brand more, enhancing

their confidence in purchase decisions. Additionally, Mugge et al. (2014) emphasize the importance of minimalist design in creating a premium product perception. Indeed, minimalist aesthetics with clean lines are often the attributes that define a luxury brand. Consequently, consumers may perceive products with minimalist design attributes as premium and sustainable, despite any direct sustainability labeling. However, despite environmentally friendly attitudes, many consumers may be hesitant to invest in sustainable products due to affordability concerns, as highlighted by Rausch et al. (2021).

Sustainability attributes, both direct and indirect, play a crucial role in shaping consumer behavior towards more environmentally friendly choices. Thus, for this study, sustainability attributes will refer to the attributes of Table 1 as well as indirect attributes related to sustainability.

2.5 The role of emotional triggers, nostalgia, affiliation, and priming effects on sustainable consumer choices

a) Emotional influence on sustainable behavior through sustainability attributes

Emotions play a major role in consumer decision-making processes, particularly in the context of sustainable products (Wang & Wu, 2016). Marketing experts emphasize the significant impact emotions have on consumers' choices, whether they are selecting luxury goods or making ethical purchases (Rowe et al., 2019). Yan et al. (2024) further highlight in their study, based on the appraisal-tendency framework (ATF) - a psychological theory used to examine "the effects of specific emotions on judgment and decision-making" (p. 78) – the strategic use of emotions by marketers to influence and shape consumers' buying behavior and actions. The literature predominantly focuses on examining the effects of both positive and negative emotions on sustainable consumption. Table 2 provides a comprehensive list of these emotions.

Table 2 *Consumer's emotional responses in sustainable consumption*

Positive Emotions	Negative Emotions
Pride	Guilt
Enjoyment	Anger
Satisfaction	Anxiety
Respect	Frustration
Sympathy	
Joy	
Peacefulness	
Serenity	
Enthusiasm	
Empathy	
Trust	
Feelings of altruism and concern	
Feeling of well-being	

Note. Adapted from Singhal, 2022; Thomé et al., 2020; Kowalski & Yoon, 2022; Yan et al., 2024; Antonetti & Maklan, 2014; Rowe et al., 2019; Wang & Wu, 2016.

This study will exclusively explore positive emotions, as they have been found to "have a stronger influence on sustainable consumption" (Wang & Wu, 2016, p. 334). Numerous researchers have investigated how sustainable product attributes evoke emotions favorable to engaging in sustainable behavior. According to the literature, attributes related to product design play a major role in eliciting positive emotions related to sustainability (Singhal, 2022; Dixit, 2020; Kowalski & Yoon, 2022).

When discussing design, the initial thoughts are often about the aesthetic and functional aspects of a product. However, design extends beyond these dimensions, possessing the capacity to evoke emotions in individuals (Dixit, 2020). Sustainable attributes such as eco-friendly materials, durability, quality appearance, and timeless design can evoke feelings of enjoyment, pride, and satisfaction (Kowalski & Yoon, 2022). Furthermore, these attributes may evoke altruistic sentiments, a sense of well-being, and environmental concerns as they contribute to the environment and future generations'

preservation (Singhal, 2022). In this case, Dixit (2020) refers to this phenomenon as "positive design" (p. 21). The author further highlights the profound impact of product color on consumer psychology and emotions, influencing the decision-making process. For instance, white and green colors are commonly associated with sustainability and eco-friendliness (Diego-Mas et al., 2016), evoking positive emotions and driving consumers towards eco-friendly choices. Additionally, attributes related to product design foster product attachment and sustainable behavior (Kowalski & Yoon, 2022). Chapman (2009) defines attachment as the phenomenon where "users feel a strong emotional connection to the product, due to the service it provides, the information it contains, and the meaning it conveys" (p. 33). Therefore, this attachment can influence consumers' sustainable behavior towards the product, such as taking care of it, repairing it, and forming positive associations with the brand or product experience. Moreover, the attachment phenomenon also translates into positive word-of-mouth and brand loyalty (Dixit, 2020).

All in all, sustainable design attributes serve as powerful triggers for positive emotions which, in turn, shape consumer experiences and behaviors towards sustainability.

b) Nostalgia and sustainability in consumer behavior

Nostalgia, a powerful emotional phenomenon, plays a significant role in shaping consumer preferences and behaviors, including their choices related to sustainability (Pichierri, 2024). Wang et al. (2020) define nostalgia as "a sentimental longing" (p. 571) or affectionate remembrance of past experiences, typically associated with positive emotions such as feeling warm and happy. The authors classify nostalgia into two groups: personal nostalgia (individual memories and experiences from one's own past) and collective nostalgia (shared memories and experiences representing a cultural or societal group). They found that consumers experiencing personal nostalgia are more likely to hold onto their possessions due to the sentimental value attached to their memories. Similarly, they are also more inclined to reuse products, as they see value in prolonging the life of products that hold sentimental significance to them. In contrast, when consumers feel collective nostalgia, they may be more inclined to donate products, driven by a shared sense of nostalgia for cultural or societal elements, leading them to

give back to the community by passing on their possessions. Additionally, they may also be more likely to recycle products because they feel a sense of responsibility to contribute to a better society. Overall, nostalgia results in meaningful behaviors that benefit both consumers (e.g. positive emotions) and the environment (Zhang, X. et al., 2021).

However, despite these positive aspects, Pichierri (2024) highlights that high levels of nostalgia can adversely affect consumer preferences for green products. Indeed, individuals with strong feelings of nostalgia often lean towards older or nostalgic products (from their childhood), which may not necessarily prioritize sustainability attributes. Consequently, this implies that nostalgia can influence consumer choices away from sustainability.

Nevertheless, other authors in the literature have found that sustainable product attributes evoke nostalgic feelings and foster affiliation with eco-friendly behaviors. Spaid (2013) underscores that authenticity and nostalgia are closely related concepts that can influence consumer perceptions and behaviors. Authenticity is a product-related attribute (Table 1) referring to the perceived genuineness of a product (Spaid, 2013). Authenticity can evoke nostalgia in consumers by providing a sense of connection to the past. Indeed, when consumers perceive a product as authentic, they may feel a stronger connection to it, especially if it aligns with their memories from the past. This connection to the past can trigger feelings of nostalgia and evoke positive emotions associated with those memories. Furthermore, authentic sustainable products made with care and integrity may transport consumers to their childhood, where products were made with natural materials and had longer lifespans.

In summary, certain sustainable product attributes have the power to evoke nostalgic feelings and promote eco-friendly behaviors among consumers.

c) *Unconscious influence of sustainability attributes on consumer behavior*

Sustainability attributes, whether direct or indirect, play a significant role in unconsciously influencing consumer's eco-friendly choices (Bimonte et al., 2020; Chwialkowska & Flicinska-Turkiewicz, 2021). According to the literature, this phenomenon is called 'the priming effect'. Tulving & Schacter (1990) define priming as a non-conscious psychological phenomenon that occurs when individuals are exposed to specific stimuli, influencing their thoughts, feelings, and behaviors based on the associations activated by these primes in the environment (Chwialkowska & Flicinska-Turkiewicz, 2021).

For instance, consumers tend to associate qualities like 'simplicity' and 'durability' with sustainable products (Jinjuan, 2014), while colors like green and white colors are often linked to eco-friendliness (Diego-Mas et al., 2016). Therefore, when seeing a white and simple product, consumers will tend to unconsciously associate the product as sustainable. Furthermore, Bimonte et al. (2020) assert that product labels play a crucial role in influencing consumer behavior. Indeed, labels contain information that activate certain associations or perceptions in consumers' minds. For instance, a label indicating that a product is organic, eco-friendly, or made from recycled materials, can prime consumers to perceive the product as environmentally responsible. Consequently, they may be more inclined to choose such products over others, even without conscious awareness of the label's influence. All in all, sustainable product attributes serve as primes that activate unconscious associations related to sustainability, thereby influencing consumer choices and environmental attitudes (Bimonte et al., 2020).

In summary, the investigation revealed how emotions, nostalgia, and priming effects significantly shape sustainable consumer choices. Positive emotions from sustainable design attributes drive eco-friendly behaviors, while nostalgia influences both preservation and donation tendencies. However, nostalgia may divert preferences from sustainability. Additionally, the priming effect highlights the unconscious influence of sustainability attributes on consumer choices.

2.6 Identification of the gap

The above findings suggest that the influence of sustainability attributes on consumer preferences is likely to apply in the context of the sneaker industry. While the literature review primarily focuses on general trends rather than specific attributes in the context of eco-responsible sneakers, it underscores a growing consumer concern for sustainable products across various industries (Huang *et al.*, 2022), including fashion (Pereira et al., 2021), which closely aligns with the footwear industry. Notably, sustainability attributes often rank high among consumers' priorities when making purchasing decisions (Bangsa & Schlegelmilch, 2020), indicating a broad trend that extends the sneaker industry. Moreover, the incorporation of sustainability attributes into products, as emphasized in the literature (Bangsa & Schlegelmilch, 2020; Auger et al., 2010; Marcon et al., 2022; Diego-Mas et al., 2016; Rausch et al., 2021; Kleindorfer et al., 2005; Garlet et al., 2024), aligns with consumer demand for sustainable products and suggests the relevance of sustainability attributes in the sneaker industry. Although the direct impact of sustainability attributes on consumer preferences in the context of eco-responsible sneakers was not explicitly analyzed, the overall trends and findings underscore the importance and relevance of investigating this relationship further. These insights affirm the necessity of exploring how sustainability attributes influence consumer preferences within the context of eco-responsible sneakers.

Furthermore, based on the literature review conducted, it is reasonable to anticipate that Veja may excel in certain sustainability attributes compared to Nike. These attributes could include aspects related to product design, such as minimalism, white color, timelessness, and the use of natural materials, as well as company-related sustainable attributes like fair-trade practices, ethical sourcing, and transparency (Veja, n.d.-b). While it is apparent that Veja likely possesses strengths in these areas, the specific sustainability attributes that distinguish Veja from Nike and impact consumer preferences for sustainable footwear remain unclear. Therefore, further research is necessary to identify and understand these distinctions.

Exploring the unique sustainability attributes of Veja compared to Nike is significant for several reasons. Firstly, it enables a profound comprehension of what makes one brand unique compared to others in the competitive sneaker market, which can be valuable for business strategies, product development, researchers, policymakers,

and consumers. Secondly, the study suspects that Veja's non-traditional marketing strategies play a major role in gaining consumers more effectively than other major sneaker brands. Anecdotal evidence suggests that this success may be linked to the distinctive sustainability attributes that Veja emphasizes. Therefore, this study aims to isolate and investigate this phenomenon empirically to determine its validity.

Accordingly, the research will address the following questions:

RQ1: What specific sustainability attributes distinguish Veja from Nike, impacting consumer preferences for sustainable footwear?

RQ2: How do specific attributes influence consumer preferences and willingness to pay in the context of eco-responsible sneakers?

3 Conceptual framework and hypothesis development

3.1 Identifying Veja's unique sustainability attributes over Nike

The study suggests that Veja may possess unique sustainability attributes compared to Nike. Indeed, the unusual story of Veja and its "native-sustainable brand identity" (Miled-Cherif et al., 2024), gives an edge over Nike. Good On You, the world's leading platform that provides ratings and information on the sustainability and ethical practices of fashion brands (Good On You, n.d.), rates Nike as "It's a start" acknowledging it uses recycle materials, Fair Labor Association certification (Good On You, 2023-a), and a moderate score of 41-50% on the 2023 Fashion Transparency Index (Fashion Revolution, n.d.). However, Nike's claims regarding the improvement of worker wages and environmental actions (i.e. protection of the biodiversity, reduction of direct and indirect greenhouse gas emissions) remain unverified (Good On You, 2023-a). Moreover, in May 2023, Nike faced accusations of "greenwashing" as it "illegally attempted to capitalize on consumers' preference for 'green' products" by promoting products as sustainable under its 'Move to Zero' initiative, despite being made from virgin and non-biodegradable materials (Robertson, 2023). According to Corrado (2023), out "of the

2,452 Nike ‘Sustainability’ Collection Products, only 239 Products are actually made with any recycled materials”. This ‘Sustainability’ Collection contains 165 shoes but only 20 shoes are made of recycled materials, accounting for just 12% of the sustainable shoes range. Furthermore, even though the percentage of recycled materials varies between 13% and 85%, most 'sustainable' shoes contain only 20% recycled materials, with only the laces being 100% recycled. Finally, the official Nike website does not provide any information on the type of recycled material used. It is only mentioned that “This product is made with at least 20% recycled content by weight” (Nike, n.d.-a). Consequently, the transparency and credibility of Nike's sustainability claims are called into question.

On the other hand, Veja has earned a rating of “Good” from Good On You due to its commitment to sustainable practices such as using eco-friendly and low-impact materials, maintaining transparency throughout the entire supply chain, ensuring fair wages and treatment of workers, and prioritizing product longevity (Good On You, 2023-b). Indeed, in June 2020, Veja started to repair, clean, and recycle old sneakers at Veja stores in Bordeaux, Paris, and New York (Veja, n.d.-d). Since its inception, this initiative has repaired over 4,400 pairs of shoes, including those from other brands (Veja, n.d.-e). Despite these strengths, Veja has not achieved the highest rating, as it still manufactures shoes using leather, indicating areas for further improvement. However, unlike the Nike shoe collection, all Veja shoes are crafted from sustainable materials. Detailed information on the composition of each Veja shoe, including the specific eco-friendly materials used, is accessible in the 'Product details' section on their website (Veja, n.d-c). Table 3 provides a detailed overview of the composition of Veja shoes; however, the percentage of materials listed may vary for each shoe model.

Table 3 *Overview of eco-friendly materials used in Veja shoe creation*

Component	Sustainable Material
Upper	Alveomesh (100% recycled polyester), C.W.L (vegan alternative to leather made of corn waste, organic cotton and ricinus oil), Organic traced leather from 100% organic certified farms in Uruguay, B-mesh (100% recycled plastic bottle collected from the streets of Rio and Sao Paulo), 100% organic and regenerative cotton
Logo V	26% Amazonian rubber, 22% silica mineral, 14% synthetic rubber, vegan suede
Insole	Bio-based E.V.A. (Ethylene Vinyl Acetate) (42% sugar cane), 11% recycled E.V.A., 16% of organic cotton and 11% of amazonian rubber
Outsole	40% Amazonian rubber, 22% rice waste, 12% recycled rubber, 11% synthetic rubber, 23% silica
Lining	Tech (100% recycled polyester)
Laces	100% organic cotton

Note. Adapted from information available on the official Veja website.

Examining the product design, Veja offers variations in styles, colors, and materials across its product line. However, the shoes exhibit a simpler, more minimalist, and timeless aesthetic compared to Nike's offerings. Indeed, Nike's 'sustainable' shoes often reflect the brand's signature athletic and performance-oriented design, resulting in footwear characterized by vibrant colors, varied textures, unconventional forms, and distinctive appearances (Nike, n.d.-b). This design approach contrasts with the minimalist and timeless aesthetic associated with Veja shoes. Furthermore, according to their official website, 33% of all Veja shoes are white (only with a colored logo), while only 23% of Nike's 'sustainable' shoes share this characteristic.

Based on the above findings, table 4 outlines the sustainability attributes where Veja demonstrates superiority over Nike.

Table 4 *Veja's unique sustainable attributes*

Category	Veja's Unique Sustainable Attributes
Company-Related Attributes	Fair wages and treatment of workers Local empowerment Eco-oriented R&D and green product design Environmental conservation Transparency (disclosure practices)
Product-Related Attributes	Simplicity of design Sustainable materials Physical appearance (design for sustainability-oriented behaviour: colour, timeless style) Extended lifetime (repairability)

Note: Own elaboration.

However, when viewed from a consumer perspective, these identified sustainability attributes may vary. Indeed, the research study targets average online consumers who may not invest significant time and effort into researching product details before purchasing. Therefore, while Veja's company-related attributes, such as transparency, fair wages, and eco-oriented practices, are notable, they may not stand out to consumers in this context. Instead, the study suggests that consumers' preferences for sustainable footwear are likely influenced by Veja's product-related attributes, particularly the 'simplicity of design' and 'physical appearance', which are more apparent and impactful in online shopping environments.

Given this assumption, the following hypothesis is proposed:

Hypothesis 1 (H1): It is more (versus less) likely that Veja (versus Nike sneakers) will be perceived as more sustainable among consumers shopping for sneakers online.

3.2 The role of Veja's secondary product attributes on consumer preferences

In an online setting, consumers' perception of sustainable sneakers may be influenced by secondary attributes or external cues (Kim et al., 2021). These secondary attributes encompass all the information available to consumers when they encounter an online page displaying different sneakers. This includes factors such as the color of the sneakers and the sole, the type of sole (e.g. flat/smooth or rough/bumpy), the name of the sneakers (e.g. names with nature-related terms can influence consumers' perception of sustainability), and price information, among others.

While it is true that secondary attributes like color, sneaker name with nature-related terms, and the smoothness of the sneaker sole do not directly impact the environment, they can have an indirect influence on participants' perceptions of eco-friendly sneakers. These attributes may subtly shape individuals' perceptions and biases, thereby influencing their attitudes and behaviors toward sustainable products.

Previous research underscores the significant influence of color on consumer perceptions and purchasing decisions. Indeed, "colors are associated with certain connotations, and that these associations often occur below conscious awareness" (Kareklas et al., 2019). People often associate colors with specific ideas, concepts, emotions, or qualities, without actively thinking about it. For instance, the color green is commonly associated with nature and environmental sustainability, while pastel blue is associated with baby boys, and red with danger and mistakes (Kareklas et al., 2019). Research shows that these associations can be both explicit – such as knowing that the red light means stop on the road – or subtle such as the association of the color blue with calmness and relaxation, or the association of green with organic or eco-friendly products. These subtle associations may not be explicitly taught or learned, but are reinforced over time through cultural cues, personal experiences, and marketing communications. They become deeply rooted in individuals' memories as such that repeated exposure to the color red in the context of emergency with red lights and signs leads individuals to instinctively associate red with danger or urgency (Kareklas et al., 2019).

Given that Veja's mainline collection predominantly features white sneakers, it is hypothesized that consumers will unconsciously associate white sneakers with sustainability more than other colors, such as black.

Sneaker names containing nature-related terms may influence consumers' perceptions and purchasing behavior toward sustainable sneakers. As claimed by Gupta et al. (2024), "languages have tremendous impact on consumer psychology and brand perception". Indeed, prior studies have demonstrated that when individuals are exposed to a particular stimulus, it activates associated concepts and influences their thoughts and behaviors. For instance, Laran et al. (2008) conducted research where participants were primed with the word 'fun' before making a dinner reservation. As a result, the priming influenced their decision-making process, and they were more inclined to select a restaurant that they perceived as fun. Similarly, Kim et al. (2021) emphasized the major impact of an "eco-certification" label on consumers' perceptions of a company's commitment to corporate social responsibility, and their purchase intentions.

In the same way, the type of sneaker sole may influence consumers' perceptions and purchasing behavior toward sustainable sneakers. Sousa et al. (2022) demonstrated that rough car boards were perceived as cheaper than slippery ones, which were associated with smoothness, modernism, elegance, and comfort. Furthermore, previous research has shown that smooth surfaces are often associated with luxury, pleasure, and positive experiences (Kim, 2021). As a result, it is hypothesized that consumers will perceive sneakers with smoother soles as more durable, minimalist, timeless, and of higher quality. Thus, increasing their preference and willingness to pay for sustainable products.

The hypothesized effects of the secondary attributes in this study are rooted in the concept of priming, defined as "an experimental framework in which the processing of an initially encountered stimulus is shown to influence a response to a subsequently encountered stimulus" (Janiszewski & Wyer, 2014). Priming impacts various mental processing such as "attention, comprehension, memory retrieval, inference, and response generation" (Janiszewski & Wyer, 2014). In this research, the prime stimulus –

consisting of white color, smooth sole, and nature-related terms in the sneaker name – is expected to subconsciously activate specific knowledge and concepts related to sustainability and the environment in consumers' minds, subsequently shaping their behavior, such as product preference and WTP for eco-friendly sneakers. The activation can take various forms, including the activation of self-concept (Wheeler et al., 2007), information (Wheeler and Berger, 2007), related traits (Srull and Wyer, 1979), categories of concepts (Bargh et al., 1996), habits (Sheeran et al., 2005), mimicry of other similar concepts (Chartrand and Bargh, 1999; Tanner et al., 2008), and goals/knowledge (Chartrand et al., 2008; Fitzsimons et al., 2008; Markman et al., 2007).

The spreading activation theory further emphasizes that "a prime activates nodes in memory that are associated with the prime", thereby increasing knowledge activation (Minton et al., 2017). Minton et al. (2017) distinguish three types of priming: affective, cognitive, and behavioral. For this research, cognitive priming, specifically indirect semantic priming (Janiszewski & Wyer, 2014) and associative priming (Minton et al., 2017) are employed. Previous research highlights the major role of these types of priming in shaping individuals' mental processes and decision-making (Minton et al., 2017).

"Indirect semantic priming occurs when a prime makes content that is associated with the primed content more accessible" (Janiszewski & Wyer, 2014). For instance, Mandel and Johnson (2002) demonstrated indirect semantic priming by changing the background color of a website to either red and orange with flames, or green with pennies. Participants exposed to the red background tended to associate the color with safety-related concepts, while those exposed to the green background thought more about frugality. Later, when participants were asked to choose products, their choices were influenced by these ideas without them even realizing it. Thus, the color of the website background primed certain concepts in participants' minds, affecting their decisions. Building on these findings, the research predicts that the prime stimulus, represented by the secondary product attributes, will lead participants to associate them with sustainability and eco-friendliness concepts, thereby influencing their preferences and WTP for sustainable sneakers.

All in all, the research anticipates that exposure to the three stimuli will activate a trait (the pro-environmental orientation trait), as well as related environmental concepts and knowledge.

Drawing from these insights, the study posits the following hypotheses:

1. *Causality of secondary attributes on perceived sustainability*

Hypothesis 2a (H2a): A sneaker with a smoother (versus a rough) sole is more likely to be perceived as sustainable.

Hypothesis 2b (H2b): Sneaker names containing nature-related (versus non-nature-related) terms are more likely to be perceived as sustainable.

Hypothesis 2c (H2c): A white sneaker (versus a black sneaker) is more likely to be perceived as sustainable.

2. Potential mechanisms (Priming)

2.1 Trait activation

Hypothesis 3a (H3a): A sneaker with a smoother (versus a rough) sole is more likely to prime a pro-environmental orientation.

Hypothesis 3b (H3b): Sneaker names containing nature-related (versus non-nature-related) terms are more likely to prime a pro-environmental orientation.

Hypothesis 3c (H3c): A white sneaker (versus a black sneaker) is more likely to prime a pro-environmental orientation.

2.2 Knowledge activation

Hypothesis 3d (H3d): A sneaker with a smoother (versus a rough) sole is more likely to prime environmental concepts.

Hypothesis 3e (H3e): Sneaker names containing nature-related (versus non-nature-related) terms are more likely to prime environmental concepts.

Hypothesis 3f (H3f): A white sneaker (versus a black sneaker) is more likely to prime environmental concepts.

3. Downstream consequences of the stimuli on consumer choices

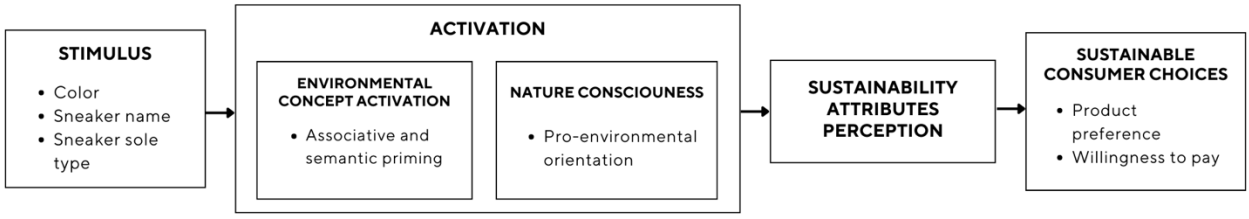
Hypothesis 4a (H4a): A sneaker with a smoother (versus a rough) sole is more likely to increase product preference and WTP.

Hypothesis 4b (H4b): Sneaker names containing nature-related (versus non-nature-related) terms are more likely to increase product preference and WTP.

Hypothesis 4c (H4c): A white sneaker (versus a black sneaker) is more likely to increase product preference and WTP.

The conceptual model depicting the basis of the research investigation is shown in Figure 1.

Figure 1 *Conceptual model*



Note: Own elaboration.

To test the hypotheses empirically, I conducted two studies. In Study 1, I examined H1 by presenting randomly selected sneakers from Veja and Nike to sneaker users. Using manual observation, linear regression, and machine learning techniques, I identified the secondary attributes in the online choice presentation of Veja that lead to differential perceptions. Building on the findings of Study 1, Study 2 provided empirical evidence for Hypotheses 2 to 4 (H2-H4). Firstly, I investigated whether the common secondary attributes in the most sustainable sneakers have any causal properties. Secondly, I explored the psychological processes triggered by exposure to these secondary attributes. Furthermore, I examined whether these secondary attributes influence consumer choices, measured in terms of willingness to pay (WTP) and product preferences.

4 Methods

This research adopted a quantitative methodology, consisting of two studies aimed at comprehensively exploring the influence of Veja's unique sustainability attributes on consumer preferences for eco-friendly sneakers. The first study focused on identifying Veja's distinctive sustainability attributes compared to Nike. The second study examined the role of identified secondary product attributes and their influence on consumer preferences and willingness to pay (WTP).

The research utilized the survey software Qualtrics to develop digital surveys for each study. Qualtrics is a user-friendly and open-source survey platform for designing online experiments (Mathur & Reichling, 2019). It is widely used by researchers and students (Ginn, 2018; Qualtrics, n.d.) for its efficiency in data collection and its innovative experience design, which enhances response rates (Cushman et al., 2021).

Moreover, the research employed both Prolific and Amazon Mechanical Turk (MTurk) for participant recruitment. Prolific is recognized for delivering high-quality data thanks to carefully recruited participants and fair treatment of respondents. Each participant is rewarded with fair monetary compensation, leading to higher engagement and more reliable responses. Similarly, MTurk has also been acknowledged for delivering "high-level of data quality" in academic research (Kareklas et al., 2019). Additionally, both Prolific and MTurk seamlessly integrate with tools like Qualtrics, simplifying the study design process and enhancing efficiency (Prolific, n.d.). All in all, this approach enhances the credibility and validity of the research findings while also facilitating a high percentage of diverse respondents.

Before data collection, the research was pre-registered on AsPredicted (Annex 1) to promote transparency, reliability and minimize bias. Indeed, by outlining the study's research design and analysis plan in advance, I ensure that the hypotheses are formulated prior to data collection (prediction), preventing any biases that may arise from post-hoc analysis (Reich, 2021).

Furthermore, the software G*Power was utilized to determine the required sample size. For Study 1, the analysis for an F test (ANOVA: fixed effects, special, main effects and interactions) indicated that the minimum sample size to produce a statistical power of at least .95, with an alpha of .05 and a medium effect size (d= 0.42) is 148. For study 2, the analysis for an F test (ANOVA: fixed effects, special, main effects and

interactions) indicated that a minimum sample size of 300 was required to attain a statistical power of at least .95, with an alpha of .05, a medium effect size (d= 0.29), and eight groups.

Finally, the data collected through Prolific and MTurk were analyzed using R statistical software and SPSS.

5 Methods of Study 1

The aim of Study 1 was to examine the differences in how consumers perceive the sustainability attributes of Veja compared to Nike in their sneakers through a randomized, controlled experimental study conducted on Prolific. This investigation was grounded in the assumption that, in an online setup environment, consumers' perceptions of sustainability attributes may be shaped by specific product features. It specifically targeted the perspective of the average consumer, defined as those who may not invest significant time and effort into researching product details before making online purchases. This consumer category corresponds to the 'high feeling/low thinking' quadrant of Vaughn's (1980) FCB model, where emotional impact and visual representation of the product take precedence over detailed information. This approach aligns with the 'Feel-Think-Choose' model (Huang & Lin, 2022). Additionally, the study considered company-based online purchase platforms, where sneakers are categorized and presented with both functional product information (e.g. 'Lifestyle shoes', 'Running shoes', etc.) and contextual details (e.g. 'price', 'currency').

a) Study design

To select the number of sample sneakers for Study 1, I followed the stratified random sampling technique. Initially, I compiled a comprehensive list of all Veja and Nike sustainable sneakers available on their respective main websites. Notably, I opted not to differentiate between genders in the data collection process, as the majority of these sneakers are designed to be unisex. Moreover, I narrowed the focus to the 'Lifestyle' category for both brands, excluding other categories such as running shoes, given the specific emphasis of the research on sneakers.

Subsequently, from these two lists of sneakers, I employed the R software to randomly select 15 Veja sneakers and 15 Nike sneakers (Annex 3). This selection process was conducted using the following function:

```
Random_sneakers <- Dataset[sample(nrow(Dataset), 15),]
```

This method ensured a fair and unbiased sampling approach, essential for the integrity and reliability of the study findings.

The total number of shoes has been strategically chosen to balance survey duration with providing participants a comprehensive overview of both brands' sneaker collection. This decision was made to optimize participant engagement throughout the entire survey in order to enhance the quality and reliability of the collected data.

I recruited a sample of 150 participants (age 18-85+) through Prolific. To be able to participate in the study, all participants were first asked to agree with the statement of consent presented on the first page of the survey (Annex 4). Then, they were required to have prior experience purchasing sneakers. I imposed this criterion to ensure that participants were familiar with the products in order to get qualitative feedback. Additionally, I included four 'attention check' questions throughout the survey to control the attention of participants (Ramirez et al., 2024). For example, 'This item is testing how attentive you are. Click on 'Extremely likely'. The first of these questions being decisive, as participants who do not answer it correctly are automatically disqualified from continuing the survey.

To test H1, participants were randomly presented with 30 sneakers and asked to rate them based on nine randomly ordered questions measuring sustainability attributes, as detailed in Table 4. In consideration of the concept of 'demand characteristics' introduced by Orne (1962), whereby voluntary participants may modify their responses to align with perceived study objectives (Nichols & Maner, 2008), Study 1 intentionally omitted any explicit mention of sustainability focus or study aims. Instead, the purpose was subtly disguised (Annex 5) to prevent potential bias and promote genuine participant perceptions. Additionally, participants were presented with only 30 images of sneakers, with no accompanying sustainability marketing claims from the two brands to prevent any influence on attribute perceptions.

Consumers' perceptions of the different sustainability attributes were assessed using a Likert-type scale ranging from (1) 'Extremely unlikely' to (7) 'Extremely likely'. Annex 6 provides an example. Additionally, Table 5 outlines the definitions and questions used to measure each sustainability attribute. The survey ends with 6 questions measuring the sociodemographic variables of participants (e.g. age, gender, and education level), as well as context-relevant variables (e.g. familiarity and experience with different sneaker brands, level of brand likeness, purchase likelihood).

Participants were at last debriefed about the true purpose of the study (Annex 7) as part of the research commitment to transparency and ethical research practices.

Table 5 *Sustainable attributes definition and measurement methods*

Category	Veja's Unique Sustainable Attributes	Variable to measure	Definition	Question
Company-Related Attributes	Fair wages and treatment of workers	Perceived fairness in wages and treatment of workers	Fair wages and treatment of workers ensure that workers receive just compensation for their work and are "protected from risks to their health, safety and well-being". This commitment extends to respecting workers' rights and promoting ethical business practices (Fair Labor, n.d.-a). By prioritizing fair wages and equitable treatment, companies demonstrate their dedication to social responsibility and sustainable business operations (Fair Labor n.d.-b).	According to the information presented, how likely do you think the company prioritizes fair wages and treats its workers ethically? (1= extremely unlikely, 7= extremely likely)
	Eco-oriented R&D and green product design	Perceived eco-orientation in R&D and design	Eco-orientation in R&D and design involves addressing environmental concerns at the early stages of product development in order to create more sustainable and eco-friendly products (Marconi & Favi, 2020). This approach involves strategies like minimizing material variety, opting for sustainable materials, prolonging product lifespan, and facilitating recyclability, disassembly, and reusability (Cerdán et al., 2009).	According to the information presented, how likely do you think the company, prioritizes environmental considerations in its research and design processes to develop products? (1= extremely unlikely, 7= extremely likely)

Table 5 *Continued*

Category	Veja's Unique Sustainable Attributes	Variable to measure	Definition	Question
Company-Related Attributes	Environmental conservation	Perceived engagement in protecting nature and biodiversity	Engagement in environmental conservation involves voluntary actions aimed at protecting nature, including biodiversity and ecosystems (Krause et al., 2021). For instance, companies in the apparel industry adopt innovative practices like using bio-based materials and waterless dyeing technology to reduce pollution and biodiversity loss. This proactive approach shows their dedication to sustainability and taking care of the environment (Panwar et al., 2023).	According to the information presented, how likely do you think the company is actively involved in protecting nature and biodiversity? (1= extremely unlikely, 7= extremely likely)
	Transparency (disclosure practices)	Perceived transparency	Transparency refers to the extent to which organizations openly share clear and accurate information, including both formal disclosures and informal communication, to ensure stakeholders are well-informed about the company, its products, actions, and decisions. It reflects an organization's commitment to honesty with stakeholders, fostering trust, accountability, and engagement (Parris et al., 2016).	According to the information presented, how likely do you think the company is open and honest about its actions? (1= extremely unlikely, 7= extremely likely) (Hustvedt & Kang, 2013).

Table 5 *Continued*

Category	Veja's Unique Sustainable Attributes	Variable to measure	Definition	Question
Company-Related Attributes	Local empower-ment	Perceived empower-ment of local communities	Local community empowerment can be defined based on four dimensions: (1) economic empowerment, (2) psychological empowerment, (3) social empowerment, and (4) political empowerment (Scheyvens, 1999). Economic empowerment ensures "fair distribution of economic gains" (p.356), while psychological empowerment recognizes local traditions, knowledge, and values, fostering identity and optimism. Social empowerment fosters cohesion and collective identity to preserve cultural traditions and natural resources. Finally, political empowerment promotes inclusivity, democracy, and accountability in governance by ensuring that all community members can give their opinions and influence the direction of initiatives and projects (Park & Kim, 2016). Overall, local empowerment enhances autonomy, self-sufficiency, well-being, and community quality of life (Scheyvens, 1999).	According to the information presented, how likely do you think the company is devoted in engaging on activities that empower local communities? (1= extremely unlikely, 7= extremely likely)
Product-Related Attributes	Simplicity of design	Perceived simplicity	Simplicity refers to the design and composition of a product characterized by minimalism, elegance, cleanness (with an uncluttered appearance), neutrality, and uniformity ("beautiful and white"). It prioritizes a restrained design and honest approach, free from unnecessary embellishments (Shelley, 2015).	According to the information presented, how likely do you think the product prioritizes a clean and minimalist appearance in its design? (1= extremely unlikely, 7= extremely likely)

Table 5 *Continued*

Category	Veja's Unique Sustainable Attributes	Variable to measure	Definition	Question
Product-Related Attributes	Sustainable materials	Perceived use of sustainable materials	Sustainable materials also known as 'eco-materials' or 'environmentally friendly materials' are those that are sourced and used in a manner that minimizes their negative impact on the environment throughout their entire life cycle. These materials are chosen with the aim of reducing pollution, conserving resources, promoting human health and well-being, and mitigating environmental degradation (Martínez et al., 2019). Derived from renewable resources, recycled materials, and bio-based sources, sustainable materials contribute significantly to achieving sustainable development goals (Bontempi et al., 2021).	According to the information presented, click on the picture that you perceive made of sustainable materials (Verain et al., 2016).
	Timeless style	Perceived timeless style	Timeless style refers to a design that remains relevant and attractive over the years, regardless of fashion trends. It emphasizes longevity and durability (Shelley, 2015). Moreover, a timeless style design is associated with sustainability and prioritizes simplicity and elegance (Flood Heaton & McDonagh, 2017).	According to the information presented, how likely do you think the product exhibits a timeless design? (1= extremely unlikely, 7= extremely likely)
	Extended lifetime (repairability)	Perceived product repairability	Repairability refers to a product's ability to be fixed or restored, allowing it to last longer and continue functioning effectively over time. It helps reduce waste and promotes sustainability by enabling repairs instead of disposal (Munten & Vanhamme, 2023).	According to the information presented, how likely do you think the product is repairable? (1= extremely unlikely, 7= extremely likely)

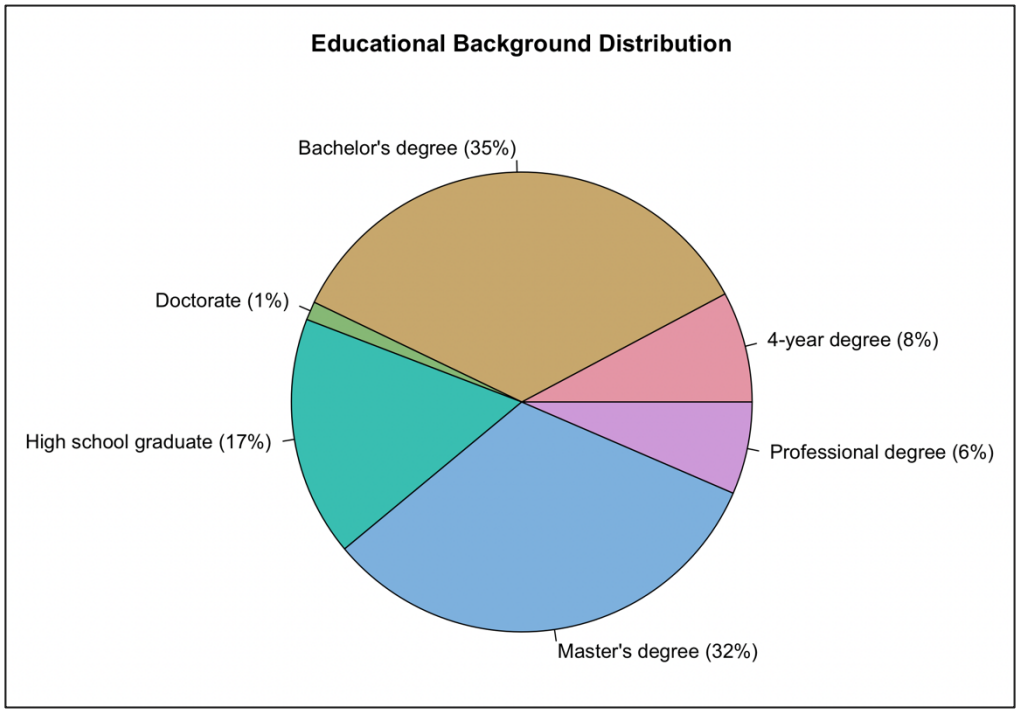
Note: Own elaboration.

b) Data collection

A total of 191 participants opened the Prolific online survey, with only two opting not to provide consent for participation. Following the pre-screening question "Have you purchased sneakers before?", nine participants were excluded from further participation. Of the remaining 180 participants, 63 successfully passed all four attention check questions designed to ensure survey engagement and attentiveness, while 39 participants were either automatically disqualified due to incorrect responses or chose to exit the survey voluntarily.

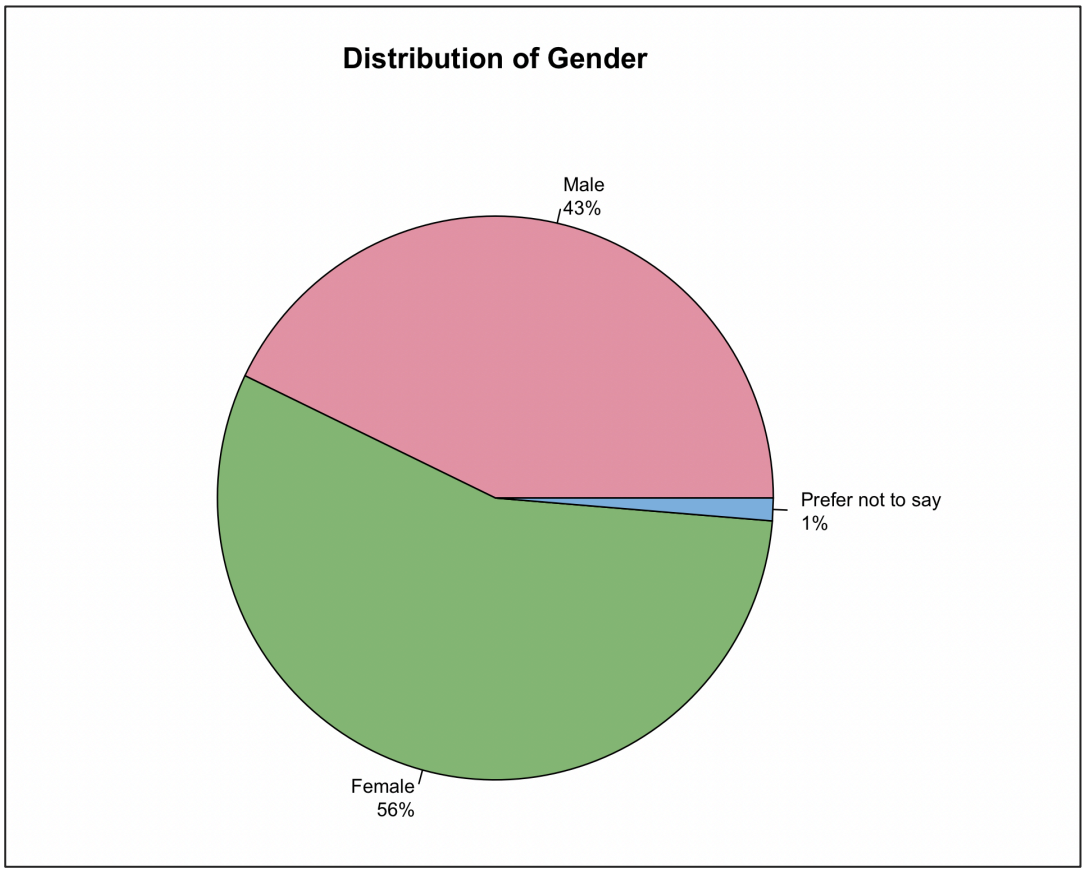
According to Figure 2, the majority of participants hold either a Bachelor's (35%) or Master's degree (32%), indicating a well-educated sample population. Furthermore, Figure 3 reveals an almost equal distribution between genders among the participants. Additionally, the sample comprises predominantly young individuals, with 45% falling between the ages of 25 and 34, and another 31% between 35 and 44 years old (Fig. 4). The age distribution closely aligns with that of typical sneaker consumers, as identified by Slaton & Pookulangara (2022), who predominantly belong to the Millennials and Gen Z groups.

Figure 2 *Pie chart of the distribution of educational background among participants of Study 1*



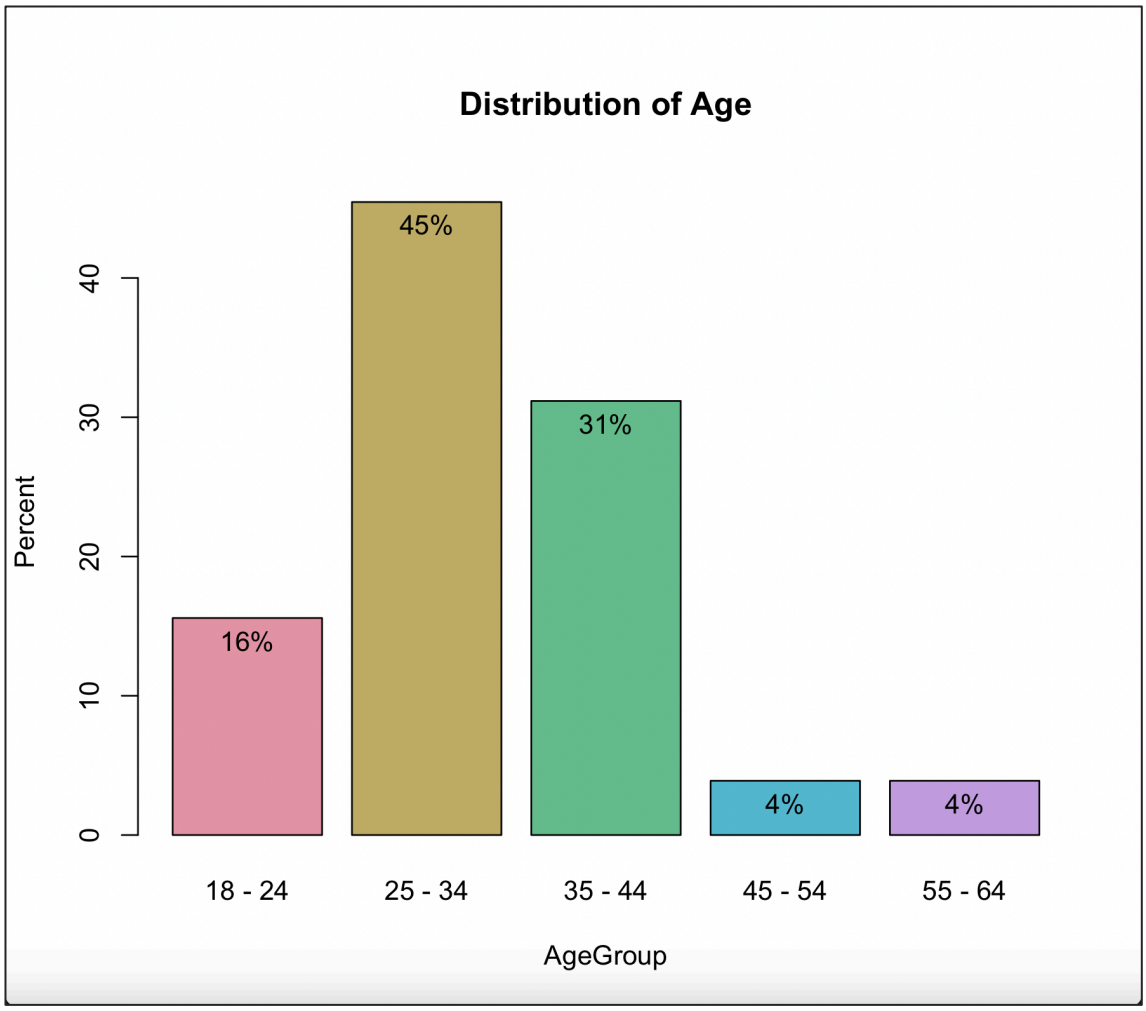
Source: Own Calculation.

Figure 3 *Pie chart of the distribution of gender among participants of Study 1*



Source: Own Calculation.

Figure 4 *Bar chart of the distribution of age among participants of Study 1*



Source: Own Calculation.

6 Results of Study 1

In this chapter, the research exposes the results of the experimental designs Study 1, and an interpretation of the findings is provided. The original data of the study have been uploaded to OSF for replication and verification purposes (Annex 2).

The aim of Study 1 was to examine the differences in how consumers perceive the sustainability attributes of Veja compared to Nike in their sneakers. Participants responded to nine questions, each corresponding to a specific sustainability attribute (Table 5). In the data analysis, these attributes were represented by keywords for ease of analysis (Table 6).

Table 6 *Key words for sustainability attributes variables*

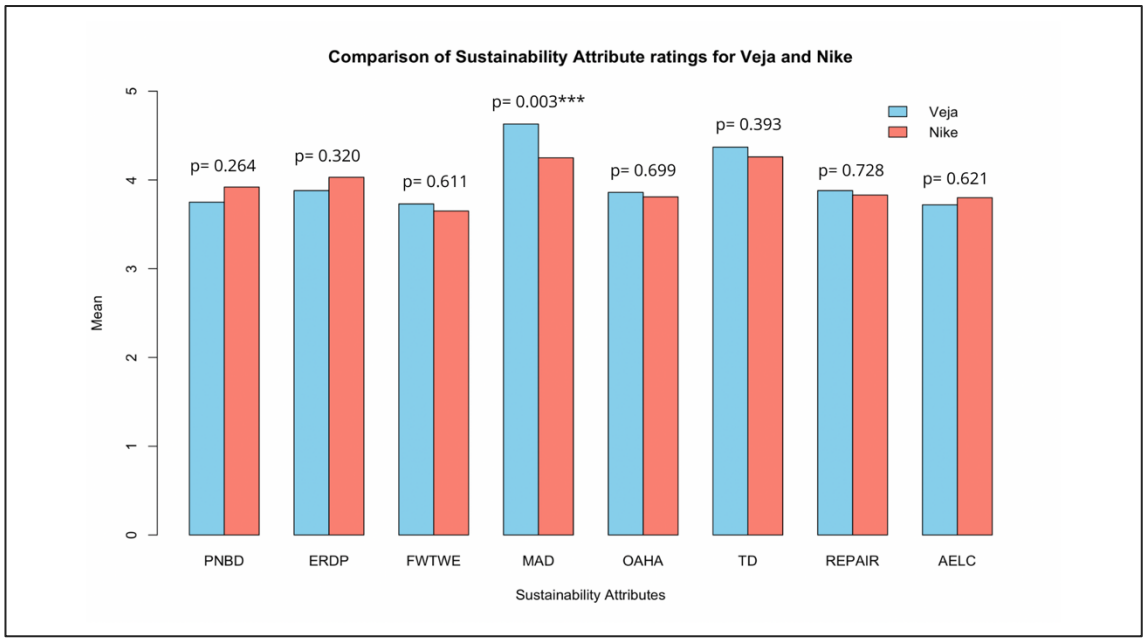
Variables	Key Word
Engaging on activities that empower local communities	AELC
Protecting nature and biodiversity	PNBD
Environmental considerations in its research and design processes to develop products	ERDP
Fair wages and treats its workers ethically	FWTWE
Clean and minimalist appearance in its design	MAD
Open and honest about its actions	OAHA
Timeless design	TD
Repairable	REPAIR
Perceived as made of sustainable materials	PSM

Note: Own elaboration.

a) Analysis and interpretation of the first 8 sustainability attributes

Upon analyzing the first 8 sustainability attributes, I found that participants perceived Veja sneakers as more minimalist in appearance and design (MAD) compared to Nike sneakers. This observation is supported by the bar chart (Fig. 5), illustrating the distribution of mean ratings for sustainability attributes across the brands. The ANOVA analysis revealed a statistically significance difference (p= 0.003) in mean rating between Veja and Nike sneakers.

Figure 5 *Distribution of sustainability attribute mean ratings for Veja and Nike sneakers*

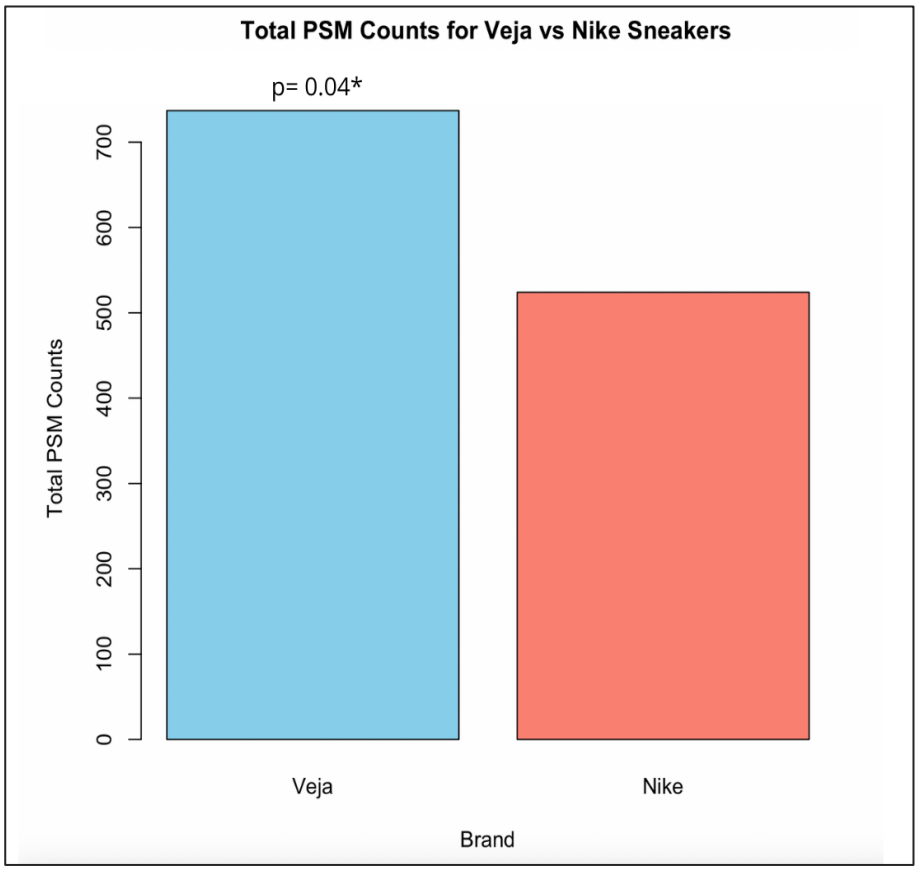


Source: Own Calculation.

b) Analysis and interpretation of PSM data

Participants better perceived Veja sneakers as made of sustainable materials compared to Nike sneakers. Specifically, Veja sneakers received 737 PSM counts, surpassing the 524 PSM counts attributed to Nike sneakers (Fig. 6).

Figure 6 *Perceived sustainable materials (PSM) count for Veja and Nike sneakers*



Source: Own Calculation.

The ANOVA analysis of the mean PSM ratings for both brands confirms the above findings, revealing a statistically significant difference [Mveja= 47.73; Mnike= 34.93, F(1, 28) =4.37, p=0.04] in PSM ratings between Veja and Nike sneakers (Table 7).

Table 7 *ANOVA analysis of the mean PSM ratings for Veja and Nike sneakers*

Variable	Df	Sum of Squares	Mean Square	F	p-value	Significance
Brand	1	1512	1512.30	4.37	0.04*	Significant
Residuals	28	9693	346.2			

*Notes: Asterisks *, **, and *** indicate statistical significance at the 1, 5, and 10 percent level. Own Calculation.*

In summary, Study 1 provides insight into the specific sustainability attributes that distinguish Veja from Nike. MAD and PSM are the two specific sustainability attributes

distinguishing Veja from Nike, impacting consumer preferences for sustainable sneakers. As a result, Hypothesis 1 – It is more (versus less) likely that Veja (versus Nike sneakers) will be perceived as more sustainable among consumers shopping for sneakers online – is supported.

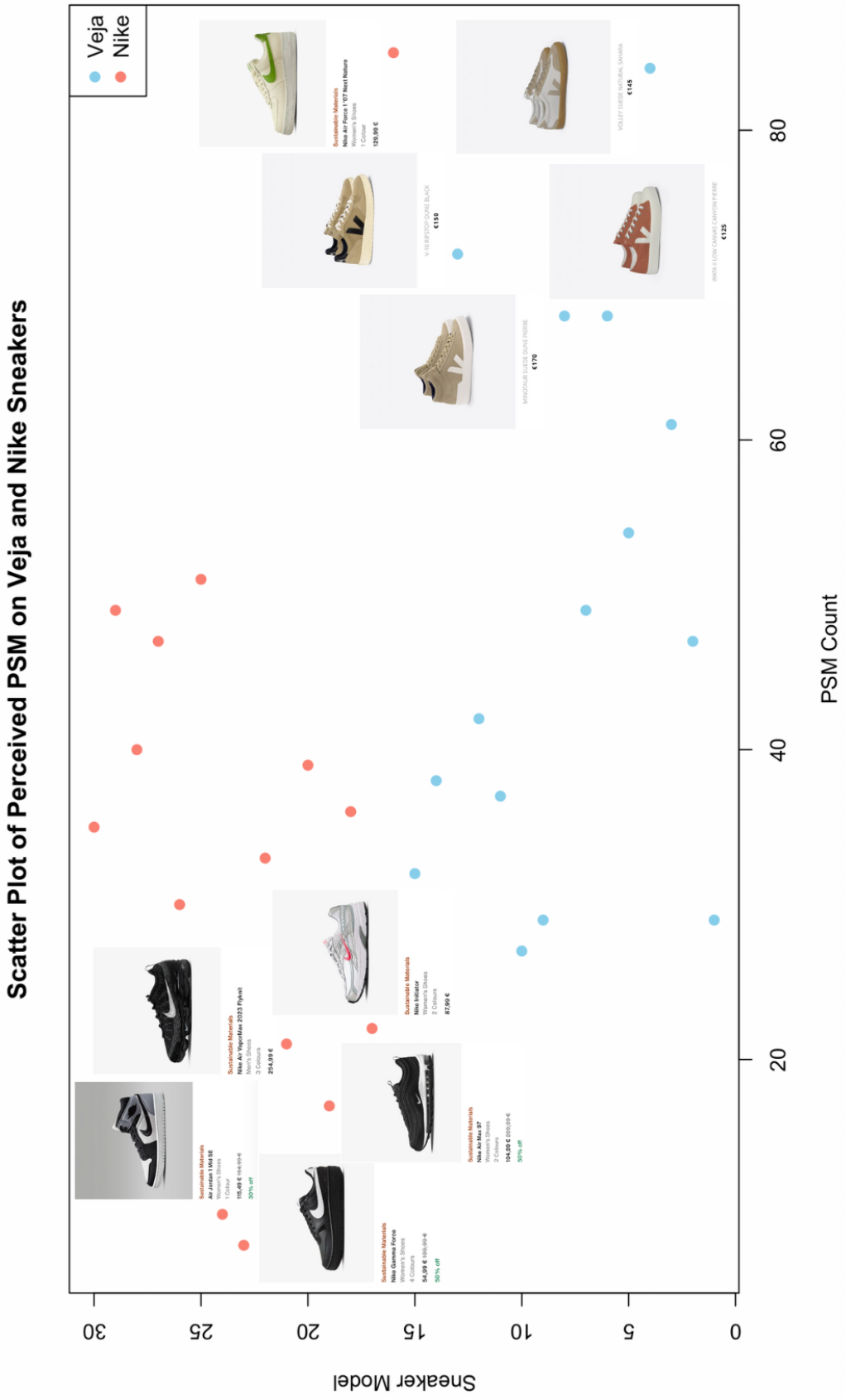
c) Analysis of secondary attributes and regression results

The scatter plot (Figure 7) visually represents participants' perceptions of sneakers made of sustainable materials. The plot reveals that Nike black sneakers are the least perceived as made of sustainable materials, while Veja sneakers, along with one Nike pair, are perceived most favorably in this regard. Surprisingly, contrary to the research expectations based on prior literature, associating eco-friendliness with green and white colors (Diego-Mas et al., 2016), the most perceived sneakers feature earthy tones like brown, grey, beige, and green. This unexpected deviation challenges the validity of H2a – that a white sneaker would elicit a stronger pro-environmental stance compared to a black-colored one.

Participants may have unconsciously associated these earthy colors with natural elements like soil, trees, sand, rocks, aligning with perceptions of sustainability and eco-friendliness. As a result, this observation suggests that color may play a role in determining PSM.

Furthermore, for this question, the 'Sustainable materials' red label was omitted from the Nike sneaker images (Annex 3) to prevent any influence on participants' perceptions. However, the scatter plot reveals that sneakers with names like 'Next Nature' and 'Natural' garnered the highest PSM counts, while others incorporating nature-related terms like 'Dune', 'Canyon', 'Pierre' (French for 'stone'), and 'Sahara' also scored well. Conversely, the least perceived sneakers lacked nature-related names. Therefore, this observation implies that sneaker names may impact participants' perceptions.

***Figure** 7 Scatter plot of perceived PSM on Veja and Nike sneakers*



Source: Own Calculation.

Based on these findings, the study conducted an analysis of various secondary attributes depicted in the sneakers' pictures, including sneaker color, sole color, brand logo color, sole smoothness, sneaker name nature-related terms, capitalized brand name, price discount information, sustainability-related promotion, and marketing communication text. These attributes were investigated to identify factors influencing participants' perceptions of sustainability attributes. To facilitate the analysis, the secondary attributes were coded in SPSS, with Table 8 serving as a summary of how these attributes were coded.

Table 8 *Summary of secondary attribute coding in SPSS*

Secondary attributes	Value	Label
Color sneaker	1.00	White
Color sneaker sole	2.00	Black
	3.00	Tan
	4.00	Light white
	5.00	Grey
	6.00	Lavender
	7.00	Light grey
	8.00	Bronze
	9.00	Brown
	10.00	Gold
	11.00	Mixed
	12.00	Cream
Color brand logo	1.00	Navy blue
	2.00	White
	3.00	Peach
	4.00	Brown
	5.00	Grey
	6.00	Black
	7.00	Silver
	8.00	Teal
	9.00	Olive
	10.00	Tan
	11.00	Red
Smoothness sneaker sole	0.00	Non-smooth
	1.00	Smooth
Brand name nature-related Capitalized brand name Price discount information Sustainability related promotion Marketing communication text	0.00 1.00	No Yes

Note: Own elaboration.

Linear regression was conducted to explore the relationships between secondary attributes of the sneakers and consumers' perceptions of sustainability attributes (mean ratings). The results revealed significant associations between certain secondary attributes and the mean rating of sustainability attributes. Specifically, sneaker names containing nature-related terms were found to be statistically significant [$F(9, 20) = 5.281$, $p= 0.004$] with the mean rating of PSM. This suggests that the more the sneaker name contains nature-related terms, the more the participants perceive the sneaker as made of sustainable materials.

Additionally, the smoothness of the sole showed significance with several sustainability attributes: TD [$F(9, 20) = 2.634$, $p < 0.001$], MAD [$F(9, 20) = 3.061$, $p < 0.001$], and REPAIR [$F(9, 20) = 1.303$, $p = 0.044$]. In essence, sneakers with smoother and flatter soles were perceived by participants as having a timeless and minimalist appearance in their design, as well as being more repairable. Table 9 summarizes the regression model results, providing a comprehensive overview of the relationships between secondary attributes (independent variables) and sustainability attributes perception (dependent variable). It enables a deeper understanding of how various aspects of sneaker design influence consumers' perceptions of sustainability.

Overall, Study 1 revealed that Veja sneakers were perceived as more minimalist and made of sustainable materials compared to Nike sneakers. Additionally, earthy-colored sneakers were better perceived as made of sustainable materials, while black sneakers fell behind. Finally, sneaker names featuring nature-related terms were strongly associated with sustainable materials perception, alongside smoother soles linked to repairability, timeless and minimalist design. These findings underscore the nuanced factors influencing consumer perceptions of sustainable footwear.

Table 9 *Regression analysis of secondary attributes and sustainability attributes mean ratings*

Dependent variable	Independent variables	Coefficient	t	p-value
PSM mean	Color sneaker	0.696	1.685	0.108
	Color sneaker sole	0.665	1.688	0.107
	Color brand logo	1.184	1.632	0.118
	Smoothness sneaker sole	8.275	-0.337	0.740
	Brand name nature-related	**6.535**	**3.253**	**0.004****
	Capitalized brand name	17.509	0.412	0.685
	Price discount information	10.835	-0.114	0.910
	Sustainability related promotion	19.025	-0.902	0.378
	Marketing communication text	18.395	-0.898	0.380
AELC mean	Color sneaker	0.015	0.337	0.740
	Color sneaker sole	0.014	-1.502	0.149
	Color brand logo	0.025	0.011	0.992
	Smoothness sneaker sole	0.177	0.285	0.778
	Brand name nature-related	0.140	0.061	0.952
	Capitalized brand name	0.374	0.704	0.490
	Price discount information	0.232	-0.049	0.961
	Sustainability related promotion	0.407	-0.492	0.628
	Marketing communication text	0.393	-0.756	0.459
REPAIR mean	Color sneaker	0.018	0.586	0.564
	Color sneaker sole	0.017	-1.420	0.171
	Color brand logo	0.031	0.114	0.910
	Smoothness sneaker sole	**0.214**	**2.151**	**0.044***
	Brand name nature-related	0.169	-0.330	0.745
	Capitalized brand name	0.452	0.834	0.414
	Price discount information	0.280	0.411	0.686
	Sustainability related promotion	0.492	-0.721	0.479
	Marketing communication text	0.475	-0.437	0.667

Table 9 *Continued*

Dependent variable	Independent variables	Coefficient	t	p-value
TD mean	Color sneaker	0.026	-0.667	0.513
	Color sneaker sole	0.025	-0.250	0.805
	Color brand logo	0.045	-0.355	0.726
	Smoothness sneaker sole	**0.315**	**3.998**	**< 0.001*** **
	Brand name nature-related	0.248	-0.174	0.430
	Capitalized brand name	0.666	0.255	0.801
	Price discount information	0.412	-0.749	0.462
	Sustainability related promotion	0.723	0.307	0.762
	Marketing communication text	0.454	0.650	0.523
OAHA mean	Color sneaker	0.014	1.016	0.322
	Color sneaker sole	0.013	-1.822	0.084
	Color brand logo	0.024	-0.183	0.857
	Smoothness sneaker sole	0.167	0.373	0.713
	Brand name nature-related	-0.132	-0.302	0.766
	Capitalized brand name	0.353	1.013	0.323
	Price discount information	0.218	0.540	0.595
	Sustainability related promotion	0.383	-0.931	0.363
	Marketing communication text	0.370	-1.050	0.306
MAD mean	Color sneaker	0.028	-0.644	0.527
	Color sneaker sole	0.027	0.023	0.982
	Color brand logo	0.048	-0.284	0.779
	Smoothness sneaker sole	**0.335**	**4.014**	**< 0.001*** **
	Brand name nature-related	0.265	-0.222	0.826
	Capitalized brand name	0.709	1.056	0.303
	Price discount information	0.439	0.079	0.938
	Sustainability related promotion	0.771	-0.690	0.498
	Marketing communication text	0.745	-0.534	0.599

Table 9 *Continued*

Dependent variable	Independent variables	Coefficient	t	p-value
FWTWE mean	Color sneaker	0.013	0.628	0.537
	Color sneaker sole	0.012	-1.959	0.064
	Color brand logo	0.022	-0.301	0.767
	Smoothness sneaker sole	0.155	0.234	0.817
	Brand name nature-related	0.122	-0.071	0.944
	Capitalized brand name	0.328	0.526	0.604
	Price discount information	0.203	-0.139	0.890
	Sustainability related promotion	0.357	-0.698	0.493
	Marketing communication text	0.345	-0.741	0.467
ERDP mean	Color sneaker	0.015	1.294	0.210
	Color sneaker sole	0.015	-1.388	0.180
	Color brand logo	0.026	-0.045	0.965
	Smoothness sneaker sole	0.183	0.095	0.925
	Brand name nature-related	0.145	-0.007	0.995
	Capitalized brand name	0.388	0.995	0.332
	Price discount information	0.240	0.601	0.554
	Sustainability related promotion	0.421	-0.523	0.607
	Marketing communication text	0.407	-1.342	0.195
PNBD mean	Color sneaker	0.016	1.348	0.193
	Color sneaker sole	0.015	-1.278	0.216
	Color brand logo	0.026	-0.325	0.749
	Smoothness sneaker sole	0.185	0.260	0.798
	Brand name nature-related	0.146	-0.344	0.734
	Capitalized brand name	0.391	0.707	0.487
	Price discount information	0.242	0.410	0.686
	Sustainability related promotion	0.425	-0.193	0.849
	Marketing communication text	0.411	-0.779	0.445

*Notes: Asterisks *, **, and *** indicate statistical significance at the 1, 5, and 10 percent level. Own Calculation.*

7 Methods of Study 2

The aim of Study 2 was to investigate the causal relationship of the effect documented in Study 1. Specifically, the study aimed to assess whether Veja's dominant secondary attributes exert a causal effect on the perception of sustainability and to explore the underlying psychological processes driving this effect. Additionally, the study sought to examine whether these secondary attributes have any downstream consequences on consumer choices, such as product preference and WTP for sustainable products. Conducted on MTurk, Study 2 employed a randomized controlled experimental design.

a) Study design

Building upon the findings of Study 1, I designed a 3-way experimental study with sneaker name (nature or neutral terms), color (earthy or black), and sole type (smoothy or bumpy) as independent variables or stimulus. The dependent variables included product preferences, WTP, and pro-environmental orientation.

For Study 2, I selected the Veja sneaker that was better perceived as made of sustainable materials, featuring a smooth sole, earthy color, and a name with nature-related terms (Figure 7). Using Photoshop, I created 8 different sneaker models (Annex 8) to represent the 8 experimental conditions based on the two levels of each independent variable (Table 10).

The original name of the selected sneaker was 'Volley Suede Natural Sahara'. However, in consideration of the potential influence of the sneaker name on participants' perceptions and preferences, I made modifications to the name. Recognizing that the term 'Natural' could serve as a guiding cue, I opted to remove it from the sneaker name. This decision was based on the anticipation that retaining the term 'Natural' might lead to an expected bias, potentially overshadowing the subtler effects I aimed to explore. Instead, I offered two variations: 'Volley Suede Sahara' (nature-related name) and 'Volley Suede' (neutral name). By adopting this approach, I sought to investigate whether nature-related terms like 'Sahara' could elicit similar pro-environmental priming effects as the term 'Natural'.

I recruited a sample of 363 participants (age 18-85+) through MTurk, ensuring a minimum of 30 participants per experimental condition to guarantee sufficient power for accurately capturing the true value of the phenomena.

Table 10 *The 8 experimental conditions of Study 2*

Experimental Conditions	Characteristics
Condition 1	Earthly-color sneaker Smoothy sole Nature-related name
Condition 2	Earthly-color sneaker Bumpy sole Nature-related name
Condition 3	Black sneaker Smoothy sole Nature-related name
Condition 4	Black sneaker Bumpy sole Nature-related name
Condition 5	Earthly-color sneaker Smoothy sole Neutral name
Condition 6	Earthly-color sneaker Bumpy sole Neutral name
Condition 7	Black sneaker Smoothy sole Neutral name
Condition 8	Black sneaker Bumpy sole Neutral name

Note: Own elaboration.

All participants were initially asked to agree with the statement of consent (Annex 9). Following this, they were directed to an instruction page (Annex 10), which intentionally omitted any mention of sustainability focus, mirroring the approach used in Study 1. This omission aimed to prevent bias and foster genuine participant perceptions.

Subsequently, participants received a 'pre-information' for the first task: "Task 1. In the coming pages, you will be presented with a picture of the sneaker. Click next whenever you are ready". This pre-information aimed to prepare participants to observe the picture carefully. Following this, each participant was randomly assigned to one of the eight experimental conditions. Annex 11 provides an example.

After observing the picture, participants' perceptions of the four significant sustainability attributes identified in Study 1 (PSM, MAD, TD, and REPAIR) were assessed using a Likert-type scale ranging from (1) 'Extremely unlikely' to (7) 'Extremely likely'. An example of this assessment is provided in Annex 12. Participants' reaction time was measured to further evaluate the perceived congruence between the target (e.g. environmental concepts) and the stimulus (Minton et al., 2017). Subsequently, participants were presented with two questions to measure the dependent variables: product preference and WTP. Additionally, a question assessing eco-friendliness perception was included. All three questions utilized a Likert-type scale. Table 11 provides an overview of these questions.

Table 11 *Overview of Likert scale questions assessing product preference, WTP, and eco-friendliness perception*

Variable	Question	Likert Scale
Product Preference	Based on what you just saw, what is your impression of the sneaker?	1 = Extremely bad; 7 = Extremely good (Gupta et al., 2024)
WTP	Based on what you just saw, how likely are you to purchase the sneaker?	1 = Extremely unlikely; 7 = Extremely likely
Eco-friendliness	Based on what you saw, how eco-friendly do you think the sneaker is?	1 = Not at all; 7 = Extremely

Note: Own elaboration.

The survey continues with the New Environmental Paradigm (NEP) scale, a well-established measure used to assess the "environmental concern of the respondents" (Ntanos et al., 2019). In Study 2, the NEP scale served to measure the variable 'pro-

environmental orientation'. This scale consisted of 9 items, each rated on a Likert-type scale ranging from (1) 'Strongly disagree' to (7) 'Strongly agree' (Ntanos et al., 2019; Taye et al., 2018). Table 12 outlines the NEP scale's items. Additionally, I included an 'attention check' question among the 9 items to control participants' attentiveness. This question, "This item is testing how attentive you are. Please click 'Somewhat disagree'", serves to ensure the quality of participants' responses (Ramirez et al., 2024). Participants who do not answer this question correctly are automatically disqualified from continuing the survey.

Table 12 *The 9 items of the New Environmental Paradigm Scale (NEP)*

NEP Scale Items
1. "Humans have the right to modify the natural environment to suit their needs."
2. "When humans interfere with nature it often produces disastrous consequences."
3. "The earth has plenty of natural resources if we just learn how to develop them"
4. "The balance of nature is strong enough to cope with the impacts of modern industrial nations."
5. "The so-called "ecological crisis" facing humankind has been greatly exaggerated."
6. "If things continue on their present course, we will soon experience a major ecological catastrophe."
7. "Plants and animals have as much right as humans to exist".
8. "Humans were meant to rule over the rest of nature."
9. "The balance of nature is very delicate and easily upset."

Note. Adapted from Ntanos et al., 2019; Taye et al., 2018.

The survey concluded with the collection of sociodemographic information from participants (e.g. age, gender, and education level). Subsequently, participants were debriefed about the true purpose of the study to ensure transparency and ethical conduct (Annex 13). Finally, participants were presented with a 'manipulation check' question (Annex 14) designed to assess their recall of the sneaker picture they were exposed to at the beginning of the survey. This served as a means to evaluate whether

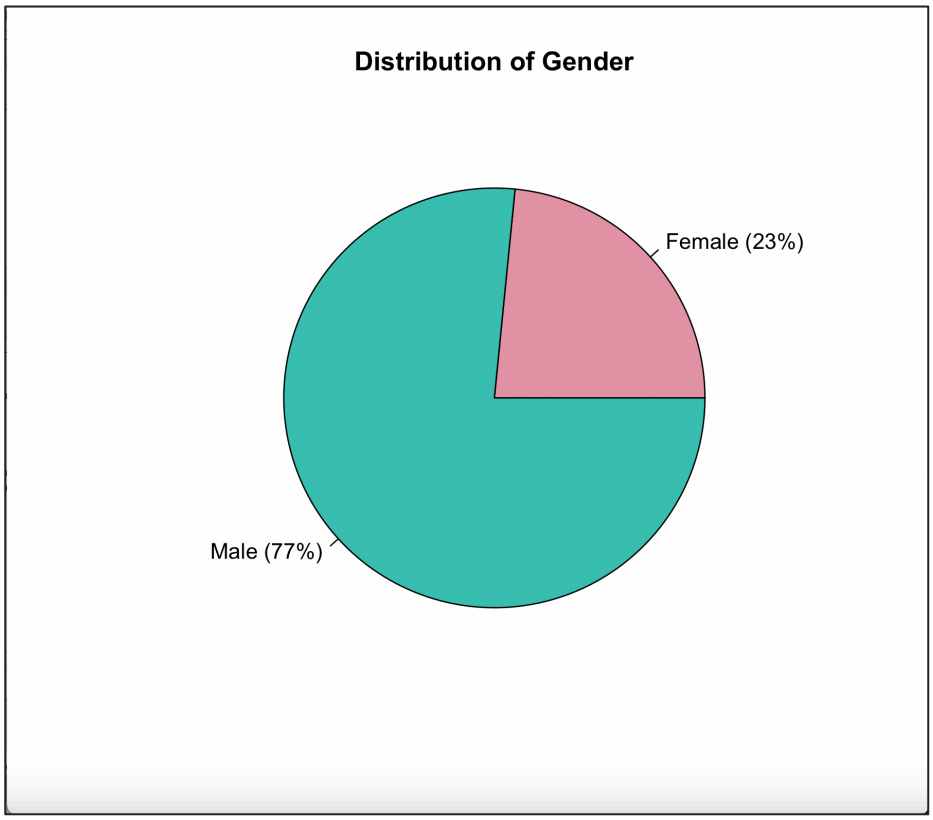
participants had formed unconscious associations between environmental concepts and the stimulus.

b) Data collection

A total of 363 participants initially took part in the MTurk survey for Study 2. However, 60 participants failed the attention check question designed to ensure survey engagement and attentiveness. Therefore, the final sample size for Study 2 consisted of 303 participants.

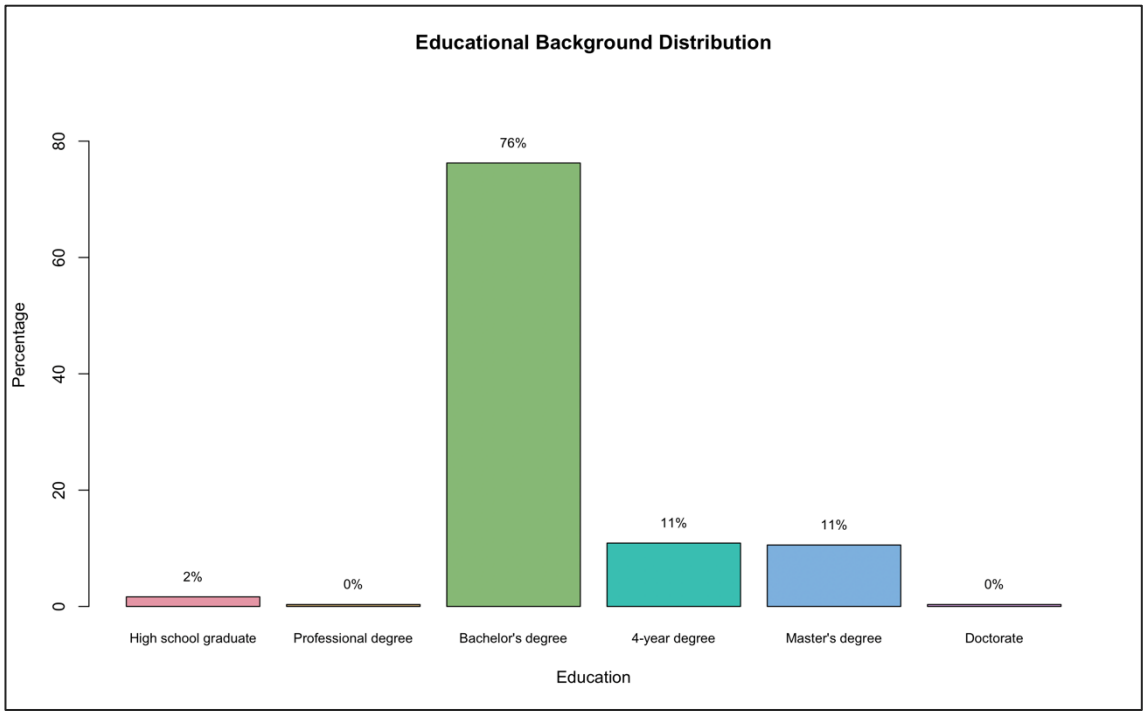
In contrast to Study 1, the demographic distribution in Study 2 reveals disparities in gender representation, with a higher percentage of male participants (77%) compared to female participants (23%) (Fig. 8). Additionally, a significant majority of participants hold a Bachelor's degree (76%), with an equal distribution of 11% each for those with a 4-year degree and a Master's degree (Fig. 9). This distribution indicates a well-educated sample population. Finally, the sample comprises predominantly young individuals, with 72% falling between the ages of 25 and 34, and an additional 16% between 35 and 44 years old (Fig. 10). As for Study 1, the age distribution closely aligns with that of typical sneaker consumers (Slaton & Pookulangara, 2022), providing valuable context for interpreting the study findings.

Figure 8 *Pie chart of the distribution of gender among participants of Study 2*



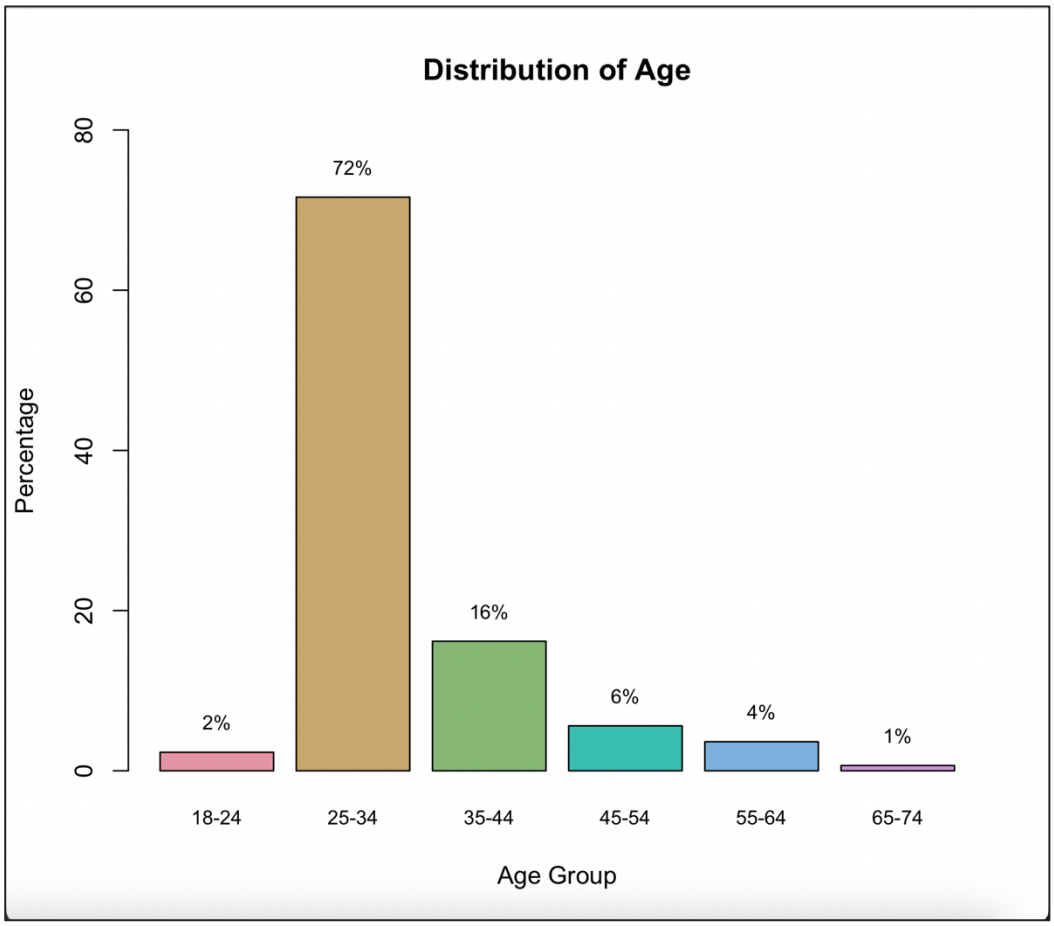
Source: Own Calculation.

Figure 9 *Bar chart of the distribution of educational background among participants of Study 2*



Source: Own Calculation.

Figure 10 *Bar chart of the distribution of age among participants of Study 2*



Source: Own Calculation.

8 Results of Study 2

This chapter presents the findings of Study 2's experimental design and provides an interpretation of the results. The original data of the study have been uploaded to OSF for replication and verification purposes (Annex 2).

Study 2 aimed to explore if Veja's secondary attributes causally affect consumers' sustainability perceptions, investigate the underlying psychological processes, and examine their impact on consumer choices such as product preference and WTP. The ANOVA model was employed to examine the effects of these stimuli (prime) on the various outcome variables.

a) Analysis and interpretation of the effect of stimulus on perceived sustainability attributes

The analysis of variance of the effects of stimulus on the four sustainability attributes (PSM, MAD, TD, and REPAIR) reveals significant results.

Specifically, ANOVA with the stimulus as independent variables and the sustainability attribute PSM as the dependent variable, revealed that the 'color' stimulus significantly influences participants' perceptions of PSM across the eight conditions [$F(1, 7) = 4.353$, $p = 0.038$] (Table 13). Surprisingly, the corresponding bar chart (Fig. 11) presents findings contrary to the hypothesis H2c. Contrary to expectations, black sneakers are better perceived as made of sustainable materials than earthy-colored sneakers. The color black may have unconsciously activated concepts in the minds of participants, which they associated with sustainability. Indeed, according to the spreading activation theory, "a prime activates nodes in memory that are associated with the prime" (Minton et al., 2017). Previous experiments have demonstrated that consumers often associate black color with qualities such as durability (Hagtvedt, 2020), dominance and power (Chung & Saini, 2022).

Based on the semantic and associative priming theory, which suggests that primes increase the activation of concepts in individuals' memory (Janiszewski & Wyer, 2014; Minton et al., 2017), the activation of the concepts of power and dominance in the minds of participants may have influenced their perception of sustainability. Indeed, powerful products are often perceived to last longer.

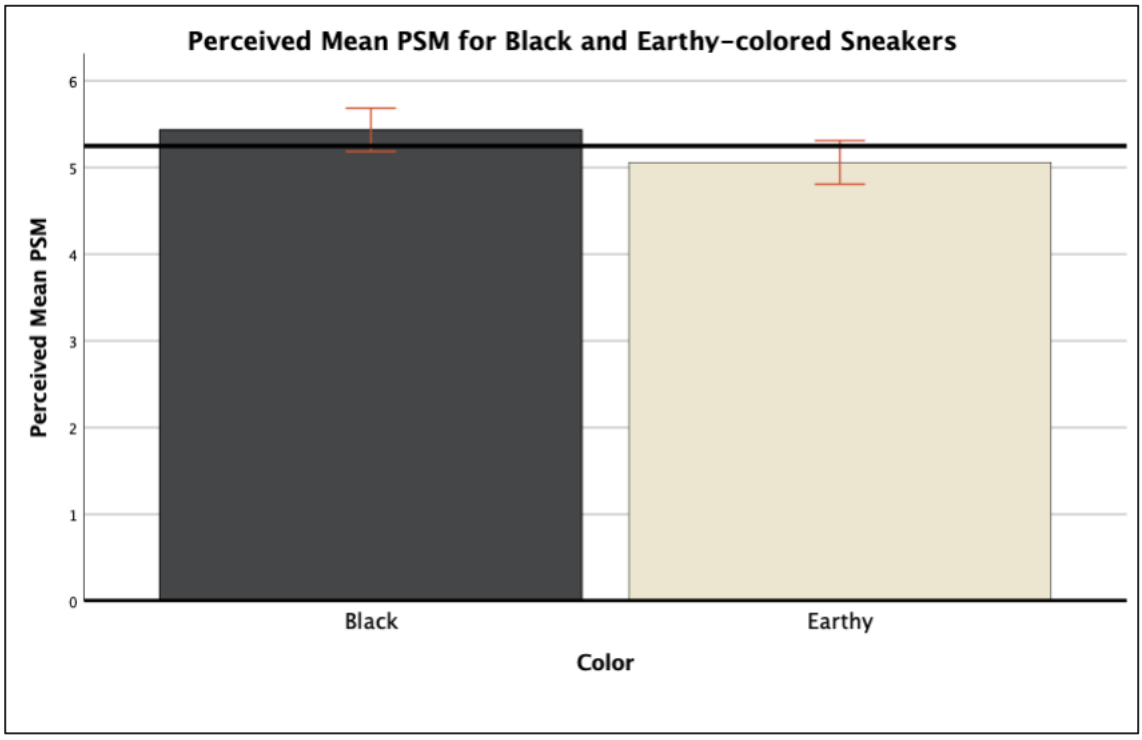
On the other hand, the earthy-colored sneaker did not convey the intended association with natural elements such as soil, trees, and sand. This lack of association between the color and environmental concepts could explain the findings.

Table 13 *ANOVA results of the effect of stimulus color on participants' perception of PSM*

Variable	Df	Sum of Squares	Mean Square	F	p-value
Color	1	10.622	10.622	4.353	0.038*
Corrected Model	7	34.593	4.942		
Total	303	9098.000			

*Notes: Asterisks *, **, and *** indicate statistical significance at the 1, 5, and 10 percent level. Own Calculation.*

Figure 11 *Perceived PSM of sneakers by color condition*



Source: Own Calculation.

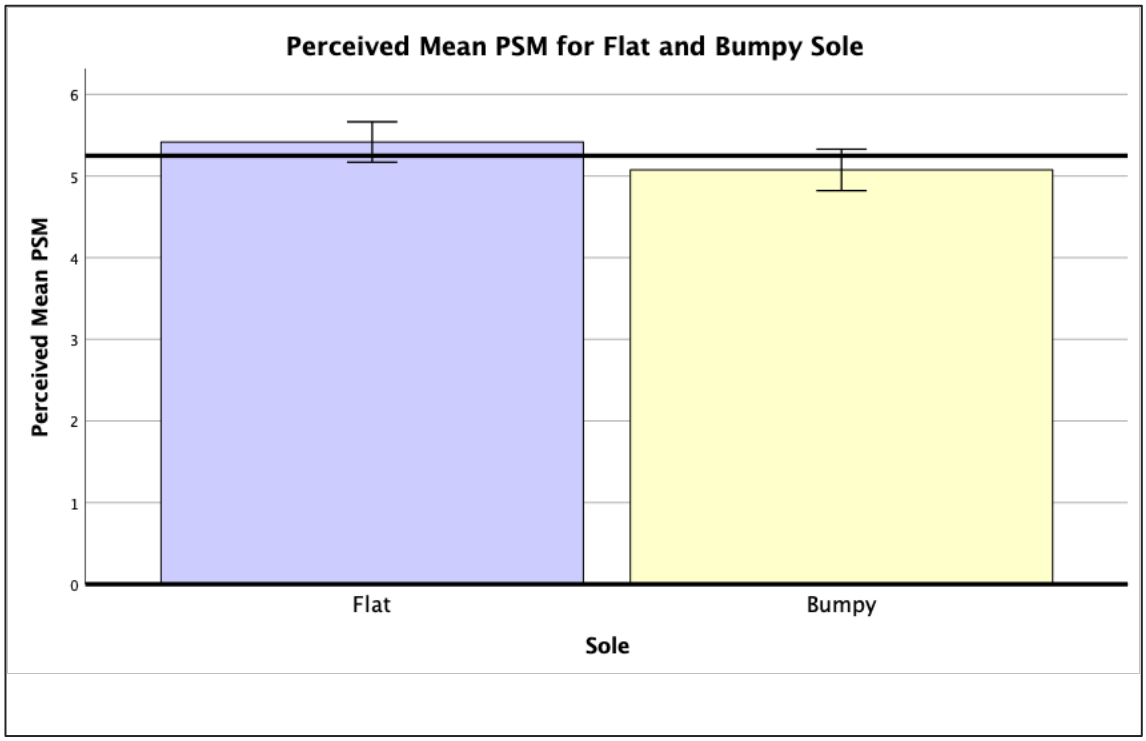
The ANOVA also reveals a marginally significant effect of 'sole' on participants' perception of PSM across the eight conditions [F(1, 7) = 3.621, p= 0.058] (Table 14). The bar chart (Fig. 12) confirms H2a, with smoother soles being better perceived as sustainable than rough soles.

Table 14 *ANOVA results of the effect of stimulus sole on participants' perception of PSM*

Variable	Df	Sum of Squares	Mean Square	F	p-value
Sole	1	8.835	8.835	3.621	0.058
Corrected Model	7	34.593	4.942		
Total	303	9098.000			

Source: Own Calculation.

Figure 12 *Perceived PSM of sneaker by sole condition*



Source: Own Calculation.

Furthermore, ANOVA conducted with the stimulus as independent variables and the sustainability attribute MAD as the dependent variable, revealed a significant influence of the 'color' stimulus on participants' perceptions of MAD across the eight conditions [F(1, 7) = 4.556, p= 0.034] (Table 15). The corresponding bar chart (Fig. 13) confirms the unexpected direction of hypothesis H2c, indicating that black sneakers are better perceived as sustainable with a minimalist appearance in their design compared to earthy-colored sneakers. This finding aligns with previous research suggesting that black color is often associated by consumers with simplicity, classicism, and timelessness (Koh, 2019). Consequently, black sneakers may have unconsciously activated these concepts in participants' minds, explaining the observed results.

Table 15 *ANOVA results of the effect of stimulus color on participants' perception of MAD*

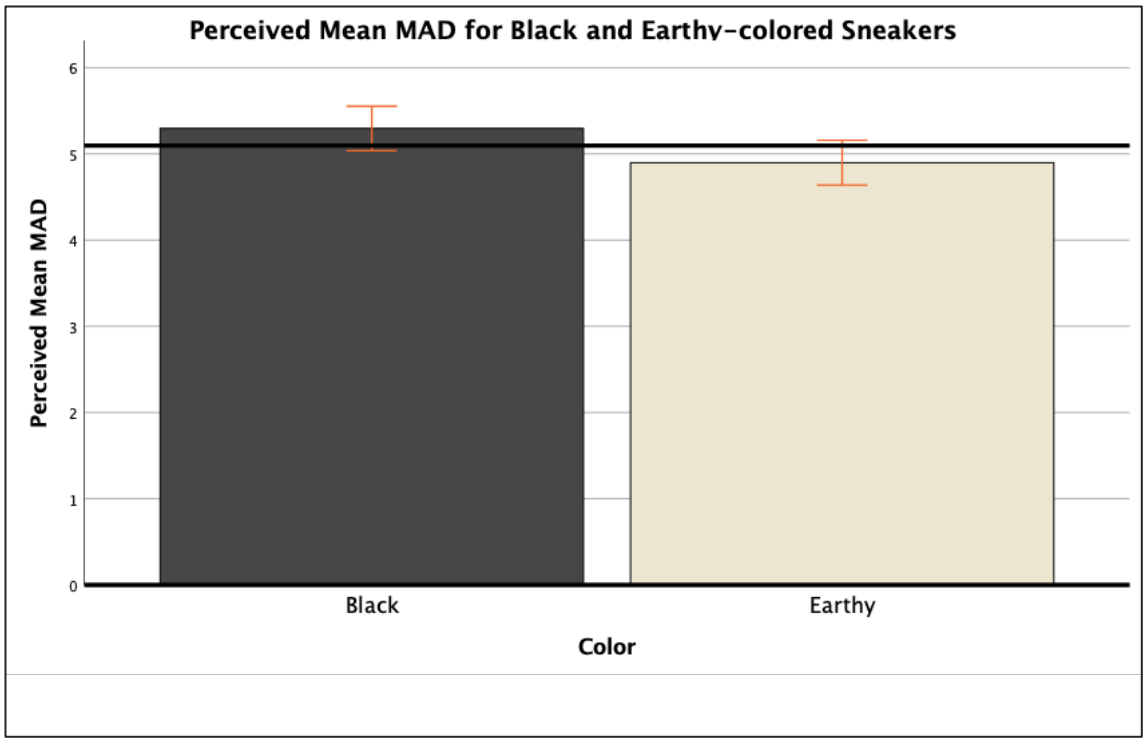
Variable	Df	Sum of Squares	Mean Square	F	p-value
Color	1	11.856	11.856	4.556	0.034*
Corrected Model	7	24.534	3.505		
Total	303	8660.000			

*Notes: Asterisks *, **, and *** indicate statistical significance at the 1, 5, and 10 percent level. Own Calculation.*

No statistical significance was found for ANOVA with TD and REPAIR as dependent variables. Additionally, the stimulus 'sneaker name' with nature-related terms did not yield significant results in any of the ANOVA tests.

As a result of this analysis, the findings provide partial support or support in the opposite direction for hypothesis H2c. Hypothesis H2b is not supported, while hypothesis H2a is supported. These results suggest that the effects of the stimuli on participants' perceptions may be driven by potential psychological mechanisms, such as unconscious psychological processes, which activate concepts and traits in participants' minds when exposed to the stimulus (Janiszewski & Wyer, 2014; Minton et al., 2017; Srull and Wyer, 1979). Further exploration of the psychological mechanism will be detailed in the subsequent result section.

Figure 13 *Perceived MAD of sneaker by color condition*



Source: Own Calculation.

b) *Analysis and interpretation of 'congruence perception' using the 'reaction time' variable*

Study 2 assessed participants' reaction times to gauge the alignment between the presented stimulus and target (environmental concepts).

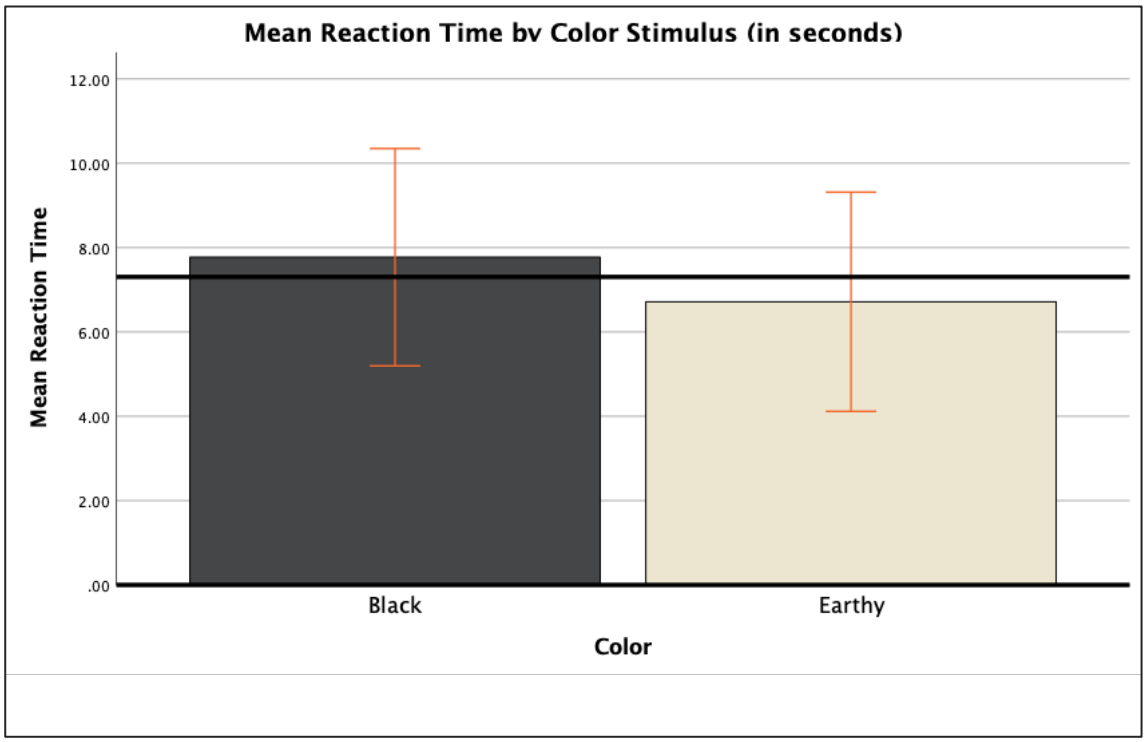
According to the spreading activation theory, "all concepts with the same valence are interconnected in semantic memory by links through which activation can spread" (Spruyt et al., 2002). When participants were exposed to the stimulus, they unconsciously activated related concepts in their memory such as simplicity, classicism, durability, dominance, and timelessness for the black color (Koh, 2019; Hagtvedt, 2020; Chung & Saini, 2022). In order to assess if the activated concepts were associated with the target (the question about sustainability attributes perception), participants' reaction time was measured.

Spruyt et al. (2002) suggest that individuals respond more quickly to targets when related concepts are pre-activated, facilitating the cognitive processing. Indeed, a pre-activation of concepts related to sustainability in participants' memory will decrease the

reaction time to respond to the question about sustainability attributes perception since stimulus and target are congruent.

However, contrary to expectations, the ANOVA results for reaction times did not reach statistical significance, and the direction of effect observed in the bar charts does not align with hypotheses H3d, H3e, and H3f. Specifically, participants exposed to black sneakers (Fig. 14), flat soles (Fig. 15), and sneaker names with nature-related terms (Fig. 16) tended to exhibit longer reaction times compared to those exposed to earthy-colored sneakers, bumpy soles, and neutral sneaker names. Consequently, the reversal of effects observed in the study contradicts hypotheses H3d, H3e, and H3f, indicating nonsupport and a lack of congruence between the stimulus and target.

Figure 14 *Mean reaction time to sustainability attribute questions by color stimulus (in seconds)*



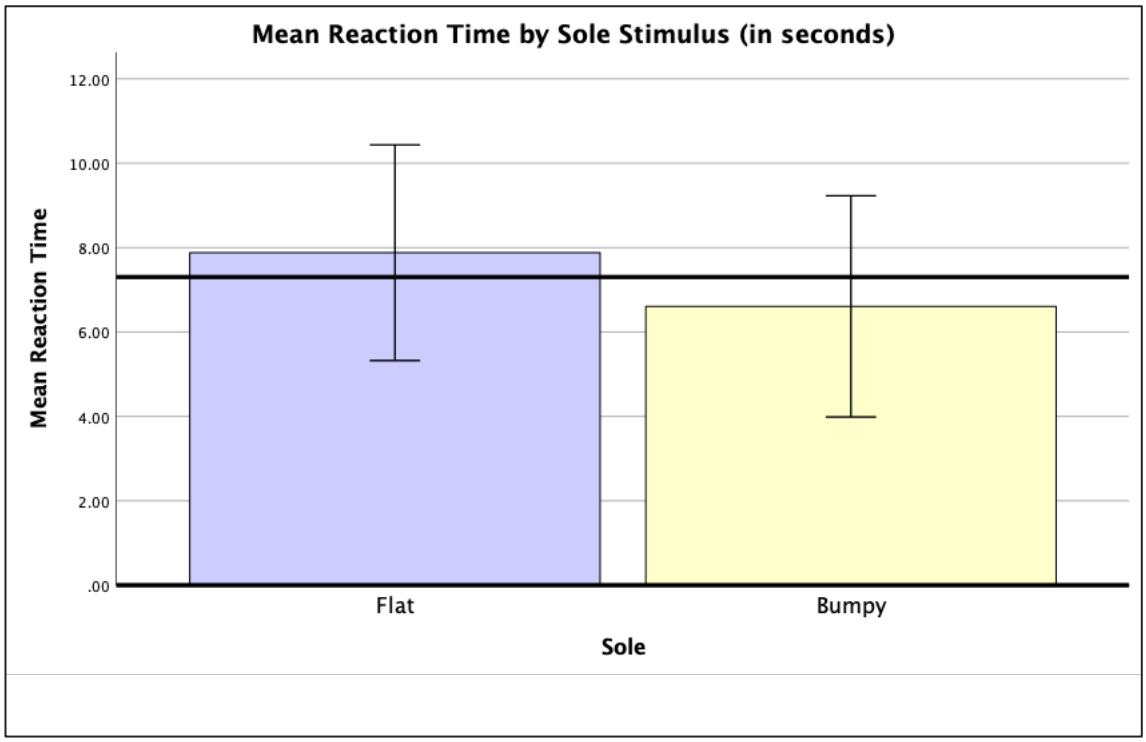
Source: Own Calculation.

The observed reversed effects could be attributed to the prominence of alternative dominant concepts, exerting a more substantial influence on participants' responses than the anticipated automaticity and semantic priming concepts. For

example, when individuals engage in elaboration, indicated by their extended processing time of stimuli (e.g., longer reaction time), they tend to make more informed decisions. This phenomenon resonates with the Elaboration Likelihood Model, suggesting that participants in the study may have employed deeper cognitive processing (central route to persuasion) by carefully evaluating the presented information (J. Kitchen et al., 2014).

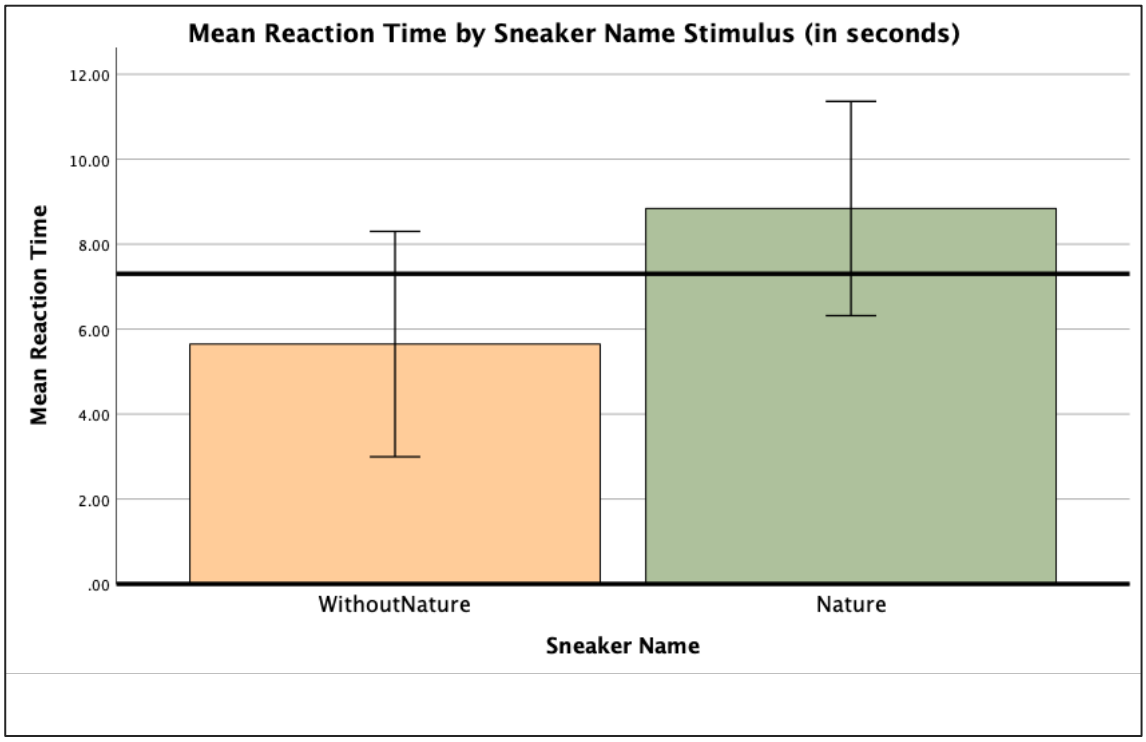
Alternatively, the results suggest that perceived congruence, tested through reaction time, which was posited as an underlying reason or mechanism for the direct effect of the stimuli on PSM, might not be a favorable explanation.

Figure 15 *Mean reaction time to sustainability attribute questions by sole type stimulus (in seconds)*



Source: Own Calculation.

Figure 16 *Mean reaction time to sustainability attribute questions by sneaker name stimulus (in seconds)*



Source: Own Calculation.

c) Analysis and interpretation of the 'pro-environmental orientation' variable

In Study 2, the NEP scale was employed to gauge participants' environmental concerns and assess whether their behavior correlated with their traits or identity. However, the ANOVA results for pro-environmental orientation did not achieve statistical significance, and the associated bar charts did not reveal any discernible trend or direction. This suggests that the stimulus did not activate encoded behavior in participants' memory. According to Srull & Wyer (1979), the accessibility of encoded behavior in memory influences how trait categories are "accessed and used to interpret information". More specifically, the authors demonstrated that when individuals were repeatedly exposed to behaviors or stimuli that are linked to a particular trait, those associations became stronger in their minds. For instance, individuals who frequently engage in pro-environmental behaviors are more likely to develop a strong association with the trait of environmental concern. Consequently, when facing judgments related to the environment, such as in the NEP scale, individuals will be more inclined to base

their responses upon that trait, resulting in a higher score. Conversely, participants lacking this encoded pro-environmental trait in memory may not access it to answer the NEP scale, resulting in lower scores.

According to Srull and Wyer (1979), “favorable trait concepts are generally more difficult to activate” than concepts stored in individuals' memory. This difficulty in activation could potentially explain the non-significant results obtained in Study 2. Indeed, it may be easier to activate general concepts and memory associations than to influence or change individuals' traits towards a pro-environmental orientation. Another plausible explanation for the results could be related to participants' pre-existing traits. If participants had anti-environmental orientations, attempting to shift them towards a pro-environmental orientation solely through the stimulus might have been challenging. However, since the study design did not allow for the filtering of individual traits, this information is unavailable. Online survey platforms like Prolific and MTurk only enable filtering based on demographic or economic criteria. Consequently, having a sample composed of predominantly pro-environmental participants could have facilitated the activation of this trait.

In conclusion, hypotheses H3a, H3b, and H3c are not supported.

d) Analysis and interpretation of the variables ‘WTP’ and ‘product preference’

The ANOVA conducted with the stimulus as independent variables and WTP as dependent variable revealed a significant influence of the combination of color and sole type stimuli on participants' WTP for sustainable sneakers across the eight conditions [$F(1, 7) = 7.576$, $p = 0.006$] (Table 16). This significant result suggests that sneaker companies should prioritize considerations of both color and sole type when aiming to incentivize consumers’ WTP for sustainable products.

The bar chart (Fig. 17) provides further insights into the findings. Specifically, the results indicate that participants exhibit a higher willingness to pay for black sneakers with a bumpy sole and for earthy-colored sneakers with a flat sole.

In conclusion, the results underscore the significant influence of both color and sole type on consumers' WTP for sustainable sneakers. These findings are particularly intriguing given that participants demonstrated limited recall of the sole type they were

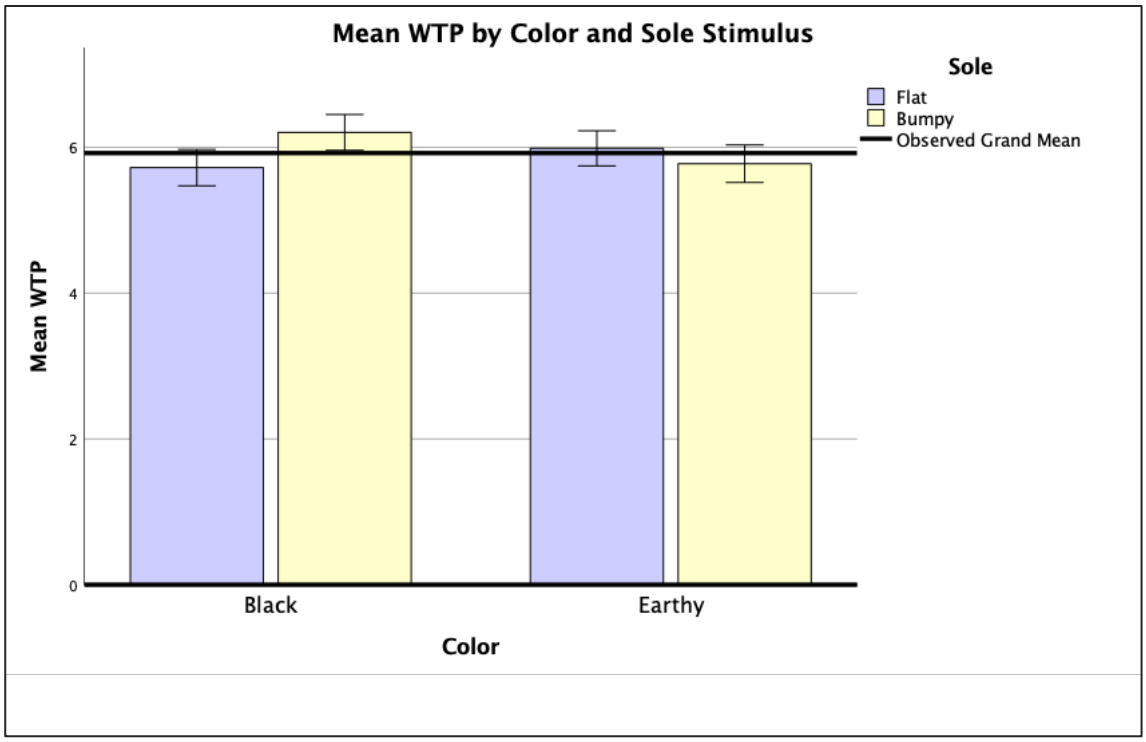
exposed to at the beginning of the survey, as indicated by the manipulation check question. Specifically, the ANOVA indicated non-significant results for the independent variable sole ($p = 0.994$, $p > 0.05$), suggesting that participants' association between sole type and WTP for sustainable sneakers was largely unconscious.

Table 16 *ANOVA results of the effect of the combinate stimulus color and sole on participants' WTP*

Variable	Df	Sum of Squares	Mean Square	F	p-value
Color * Sole	1	9.101	9.101	7.576	0.006***
Corrected Model	7	15.736	2.248		
Total	303	10992.000			

*Notes: Asterisks *, **, and *** indicate statistical significance at the 1, 5, and 10 percent level. Own Calculation.*

Figure 17 *Mean WTP by color and sole stimulus*



Source: Own Calculation.

Surprisingly, the ANOVA results for product preference did not reach statistical significance, and the associated bar charts did not reveal any discernible trend or direction. Interestingly, despite participants might have a less favorable impression of the sneakers, they still demonstrate a willingness to pay for the product. This behavior suggests that participants may have made their WTP decisions unconsciously.

As a result, hypotheses H4a and H4c are partially supported, indicating that the color and sole type stimuli positively influenced consumers' WTP for sustainable sneakers but not their preference. However, hypothesis H4b is not supported.

In summary, Study 2 revealed significant effects of color and sole stimuli on participants' perception of PSM. Black sneakers were perceived as more sustainable than earthy-colored ones, and flat soles were preferred over bumpy ones in terms of sustainability. Additionally, the color stimulus significantly influenced participants' perception of MAD, with black sneakers better perceived as sustainable with a minimalist design. Surprisingly, the sneaker name stimulus had no statistically significant effect on participants' perceptions of sustainability attributes. The analysis also sheds light on the lack of congruence between the stimulus and target. Furthermore, the study found no discernible influence of the stimuli on individuals' pro-environmental orientation. However, the combination of color and sole type stimuli significantly influenced participants' WTP for sustainable products, with a higher WTP for black sneakers with a bumpy sole and earthy-colored sneakers with a flat sole. Finally, the stimuli had no discernible effect on participants' preferences for the product itself.

9 Discussion

9.1 Theoretical contributions

This research contributes to the existing literature by providing novel insights into consumer perceptions of sustainability attributes within the context of sneakers, particularly between Veja and Nike sneakers. The findings shed light on the pivotal role of specific attributes and product features in shaping consumers' perceptions and driving their behavior toward sustainable choices.

Moreover, the findings of this study both support and challenge prior research in various domains. While previous research suggested that colors like white or green would intuitively be associated with sustainability (Diego-Mas et al., 2016; Kareklas et al., 2019), the study revealed that black color, typically associated with qualities like durability and timelessness (Koh, 2019; Hagtvedt, 2020), also evoked perceptions of sustainability among consumers, particularly in the context of sneakers. This unexpected discovery adds a new dimension to the existing literature on color symbolism and sustainability perceptions, underscoring the complexity of consumer psychology in the context of sustainable product choices.

Additionally, the research discovered a significant yet unconscious association between flat soles and sustainability, a finding that adds substantial value to the existing body of literature. Understanding that sneakers featuring flat soles can subconsciously promote sustainability behavior holds profound implications for businesses. Specifically, the revelation that black sneakers with bumpy soles and earthy-colored sneakers with flat soles exerted a considerable influence on participants' willingness to pay for sustainable products, underscores the importance of aligning product attributes with consumer unconscious associations to drive purchasing decisions. This insight equips businesses with the knowledge needed to effectively address consumer needs and maintain a competitive advantage in the market landscape.

Lastly, this research advances the theoretical understanding of how priming stimuli shape consumer behavior in the context of sustainability.

9.2 Substantive contributions

The research offers actionable insights for businesses and online retailers seeking to enhance the sustainability perception of their products and appeal to the burgeoning segment of environmentally conscious consumers (Huang et al., 2022). Online retailers can adjust their advertising strategies by highlighting sustainability attributes such as minimalist design, sustainable materials, and nature-related terms. Indeed, by emphasizing these specific product features that evoke sustainability perceptions, such as black color and flat soles, retailers can enhance the perceived sustainability of their products, thereby enhancing their appeal in the online marketplace.

For Veja and Nike, the findings offer valuable guidance for future production, promotion, presentation, and marketing strategies. While Nike sneakers are currently characterized by vibrant colors with varied textures, unconventional forms, and distinctive appearances (Nike, n.d.-b), the research suggests that Nike should consider integrating more sustainable materials and minimalist design with neutral colors into its sneaker line, and emphasize these attributes in promotional campaigns to align with consumers' perception of sustainable sneakers.

On the other hand, Veja's mainline collection predominantly features minimalist white sneakers. Based on the findings of this study, the brand could enhance consumers' perception of sustainability by integrating more black-colored sneakers into its sustainable sneaker lines. Additionally, Veja should continue to build on its existing reputation for sustainability by reinforcing these attributes in product design and marketing efforts, thus maintaining its position as a leader in sustainable sneakers.

Moreover, both brands can capitalize on the consumer associations identified in this study by strategically integrating black color into their sustainable sneaker lines and pairing it with flat soles—or, if associated with black color, bumpy soles.

Finally, the findings of this research provide valuable insights for businesses and policymakers seeking to promote sustainable consumption behaviors among consumers. By understanding the specific attributes and product features that influence consumer perceptions of sustainability, businesses, and policymakers can develop targeted interventions and initiatives to encourage the adoption of sustainable purchasing behaviors. Specifically, focusing on minimalist design, sustainable materials, color, sole

type, and nature-related language can resonate with consumer values and foster positive attitudes toward sustainable products.

10 Conclusion

In the dynamic world of fashion, sneakers have emerged as not just footwear but as enduring symbols of cultural identity and style. They have transcended time and continue to be a “must-have” in every wardrobe. This high demand for sneakers resulted in the production of 24 billion pairs in 2022 (Smith, 2024), ranking the footwear industry as the fifth most environmentally impactful sector (Da Costa Sanches Galvão *et al.,* 2021). As consumer demands for transparency, quality, timeless designs, and sustainability continue to rise (Salamzadeh *et al.,* 2024), the need for eco-conscious footwear options becomes increasingly imperative to align with global sustainability goals.

This research delved into two seemingly disparate sneaker brands, Nike and Veja. While both brands operate on sustainable business models, the research revealed that Veja’s sustainability attributes resonate more strongly with consumers, highlighting the significance of its sustainable design ethos.

The research addressed two research questions:

RQ1: What specific sustainability attributes distinguish Veja from Nike, impacting consumer preferences for sustainable footwear?

RQ2: How do specific attributes influence consumer preferences and willingness to pay in the context of eco-responsible sneakers?

The results revealed that Veja sneakers were perceived as more sustainable than Nike sneakers, with specific attributes such as MAD and PSM, influencing consumer preferences for sustainable footwear. Surprisingly, black sneakers were perceived as more sustainable, increasing consumers’ willingness to pay, while features like smooth soles were linked to repairability, timelessness, and minimalist design.

Additionally, the research uncovered intriguing insights. Black sneakers with bumpy soles and earthy-colored sneakers with flat soles exerted a considerable influence on participants' willingness to pay for sustainable products. Interestingly, participants

demonstrated limited recall of the sole type they were exposed to at the beginning of the survey, suggesting that their association between sole type and willingness to pay for sustainable sneakers was largely unconscious.

These findings underscore the importance of subtle cues in shaping consumer perceptions towards sustainable products, highlighting the need for businesses to consider these psychological mechanisms in their marketing strategies.

Overall, the findings underscore the significant role of product features and attributes in shaping consumers' decision-making processes and perception of sustainable products. Specifically, both the design of sneakers and the materials used emerged as influential factors in determining consumers' willingness to pay (WTP) for sustainable products.

These insights hold immense value for businesses aiming to enhance the willingness to pay for their sustainable footwear. Rather than relying solely on traditional marketing strategies, which may be perceived as greenwashing (Szabo & Webster, 2019), businesses can leverage these findings to invest in research and development focused on sustainable design and materials. By aligning their products with consumers' unconscious associations with sustainability, businesses can effectively meet consumer preferences and foster genuine engagement with their sustainable offerings.

In conclusion, the findings of the research provide a strong foundation for future research as well as practical applications in the field of sustainable footwear.

10.1 Limitations and future research

While this research provides valuable insights into consumer perceptions of sustainable sneakers, several limitations should be acknowledged. Firstly, the study focused exclusively on two specific sneaker brands, which may limit the generalizability of the findings. To enhance the robustness of the results, future research should replicate the experimental studies with a wider range of brands.

Additionally, the research aimed to assess the correlation between participants' environmental concerns and their behavior using the NEP scale. However, the results did not reach statistical significance, possibly due to several factors. Firstly, it may be easier to activate concepts in participants' minds than traits, as suggested by Srull and Wyer

(1979). Moreover, the NEP scale has been criticized for its “weak linkages to environmental behaviors” (Kim et al., 2021). Therefore, future studies should explore alternative scales to evaluate consumers' pro-environmental orientation. Lastly, it may be because of participants' pre-existing traits, with potentially having participants with anti-environmental orientations. Consequently, since the study design on Prolific and MTurk did not allow for the filtering of individual traits, future research should consider pre-study assessments to filter participants based on their environmental concerns.

Furthermore, the assessment of participants' reaction times to gauge alignment between the presented stimulus and target revealed interesting and reversed effects but did not reach statistical significance. To unveil hidden effects, future research should recruit a larger sample size and rerun the experiment with 100 participants per experimental condition.

The research also failed to support hypotheses related to the positive influence of the stimulus on consumers' preferences. While participants demonstrated a willingness to pay for the product, their overall impression was not favorable. This discrepancy may be attributed to participants' unconscious buying decisions. Future studies should consider refining the experimental design to achieve statistical significance and gain deeper insights into consumers' preferences.

Lastly, the research highlighted the activation of concepts related to the stimulus and target in participants' minds. Future studies should delve deeper into this mechanism to better understand the unconscious processes at play in consumers' decision-making processes.

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12 List of tables and charts

Tables

Figures

13 Annexes

Annex 1: AsPredicted pre-registration pdf link.

https://aspredicted.org/L8K_RG7

Annex 2: OSF link

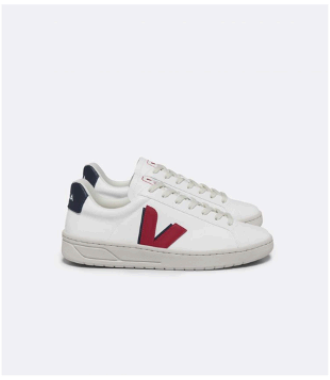
https://osf.io/wtyh6/?view_only=4265268376864ff8a2f5bdd4208fc974

Annex 3: List of the 30 randomly selected Veja and Nike sneakers

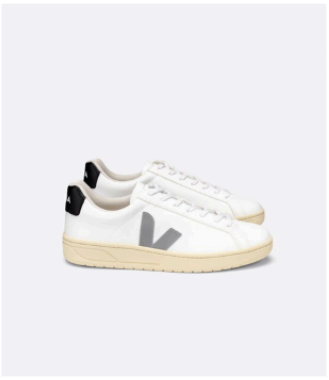
CAMPO CHROMEFREE LEATHER WHITE PAROS
€150

MINOTAUR SUEDE DUNE PIERRE
€170

RECIFE CHROMEFREE LEATHER WHITE SABLE
€160



URCA CWL WHITE PEKIN NAUTICO
€160



URCA CWL WHITE OXFORD GREY BLACK
€160

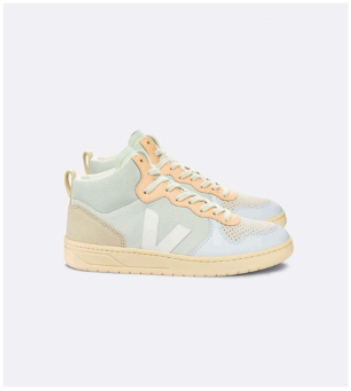
V-10 B-MESH WHITE NAUTICO
€150

V-10 RIPSTOP DUNE BLACK
€150

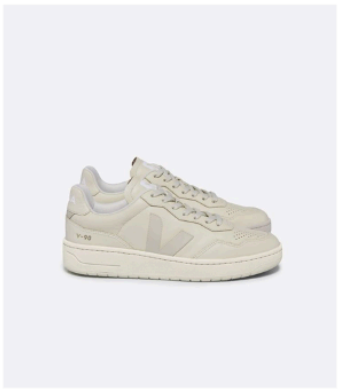
V-12 LEATHER WHITE LIGHT GREY
€160

V-15 LEATHER WHITE NAUTICO
€175

Annex 3: Continued



V-15 SUEDE JADE WHITE MULTICO
€180



V-90 LEATHER CASHEW PIERRE
€165

VOLLEY SUEDE NATURAL SAHARA
€145

WATA II LOW CANVAS PUMPKIN PIERRE
€125

WATA II LOW CANVAS CANYON PIERRE
€125

WATA II CANVAS OASIS PIERRE
€135

Annex 3: Continued

Bestseller
Nike V2K Run
Shoes
9 Colours
129,99 €

Bestseller
Nike V2K Run
Shoes
9 Colours
129,99 €

Bestseller
Nike Air Force 1 '07 Next Nature
Women's Shoes
3 Colours
129,99 €

Sustainable Materials
NikeCourt Royale 2 Next Nature
Men's Shoes
1 Colour
77,99 €

Sustainable Materials
Nike Court Vision Low Next Nature
Men's Shoes
6 Colours
87,99 €

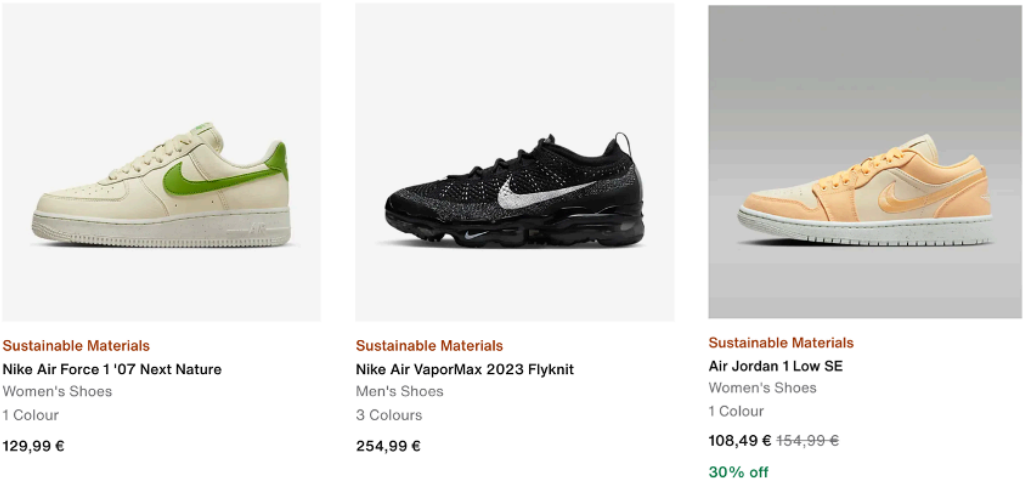
Member product
Nike Air Force 1 '07 Next Nature
Men's Shoes
1 Colour
139,99 €

Sustainable Materials
Air Jordan 1 Mid SE
Women's Shoes
1 Colour
115,49 € ~~164,99 €~~
30% off

Sustainable Materials
Nike Gamma Force
Women's Shoes
4 Colours
54,99 € ~~109,99 €~~
50% off

Sustainable Materials
Nike E-Series AD
Women's Shoes
3 Colours
52,99 € ~~87,99 €~~
39% off

Annex 3: Continued



Source: Veja and Nike respective main website. Own elaboration.

Annex 4: Information and consent page of Study 1.

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INFORMATION AND CONSENT PAGE
Please read the following consent request information page before you agree to participate in the research project.

Purpose of the project
The purpose of this research project is to understand consumers' thoughts about sneaker products. The survey is estimated to take between 3 to 5 minutes.

Institution responsible for processing the information
The data collected from this research project will be handled by a master's student and an academic fellow at the University of South-Eastern Norway.

What we will ask you to do
You will be asked to answer close-ended questions that measure your level of agreement on selected social or economic issues and personality characteristics. These questions will be presented in standard self-reporting questionnaires.

Risks and discomforts
Participating in this research project carries no anticipated risks or discomforts.

Identification in Publication
Your identity will remain anonymous if the findings from this research project are published.

Date the project is scheduled to end
Data collection for this research project will take place from April 9th, 2024, to April 12th, 2024. Later, the collected data will be analyzed for research publication purposes. For replication and verification purposes of the findings, the original data will be anonymized and securely stored further on OSF.

Compensation to Participation
You will receive Prolific compensation for valid responses (not randomly generated) with a rate of £6,00/hour per response.

Privacy/Confidentiality/Data Security
Your participation in this survey is anonymous, and no identifying information will be passed to the analysis stage. The only information collected is your Prolific code for approval purposes of your payment compensation corresponding to your response attention check. We ensure that your participation presents no greater risk than everyday internet use.

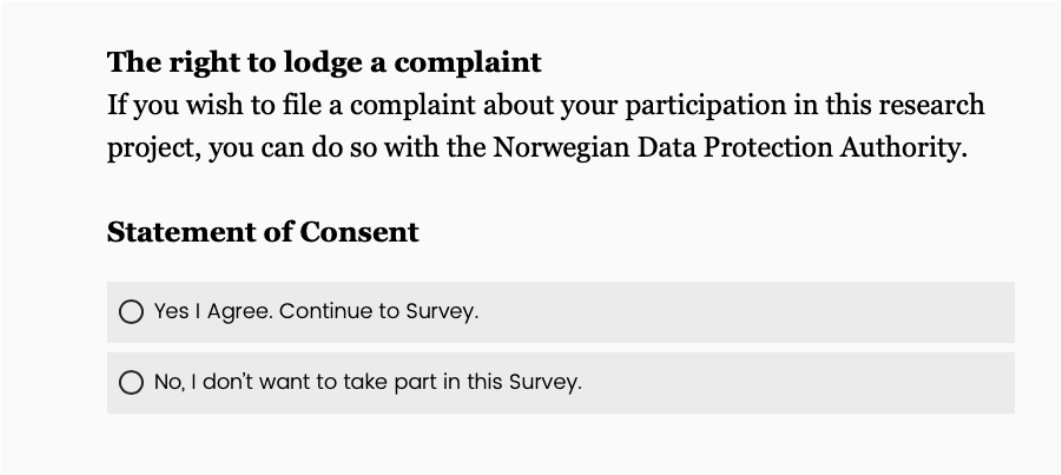
Sharing De-identified Data Collected in this Research
De-identified data from this study may be shared with the research community at large to advance science. Any identifying information (Prolific code) will be removed or coded to protect your privacy.

Participation is voluntary
Participation in this project is voluntary, and you can withdraw at any time without providing a reason. Your information will be anonymized upon withdrawal, and there will be no negative consequences for your decision.
We check your attention along the way and might discontinue the survey if you are replying to the survey randomly.

Contact Details
The main researcher conducting this study is Marie Grandemange, a graduating class Master's student in Sustainability Management at the University of South Eastern Norway. If you have questions, you may contact her at 258597@student.usn.no, or her supervisor Mesay Menebo (PhD) at Mesay.Moges.Menebo@usn.no.

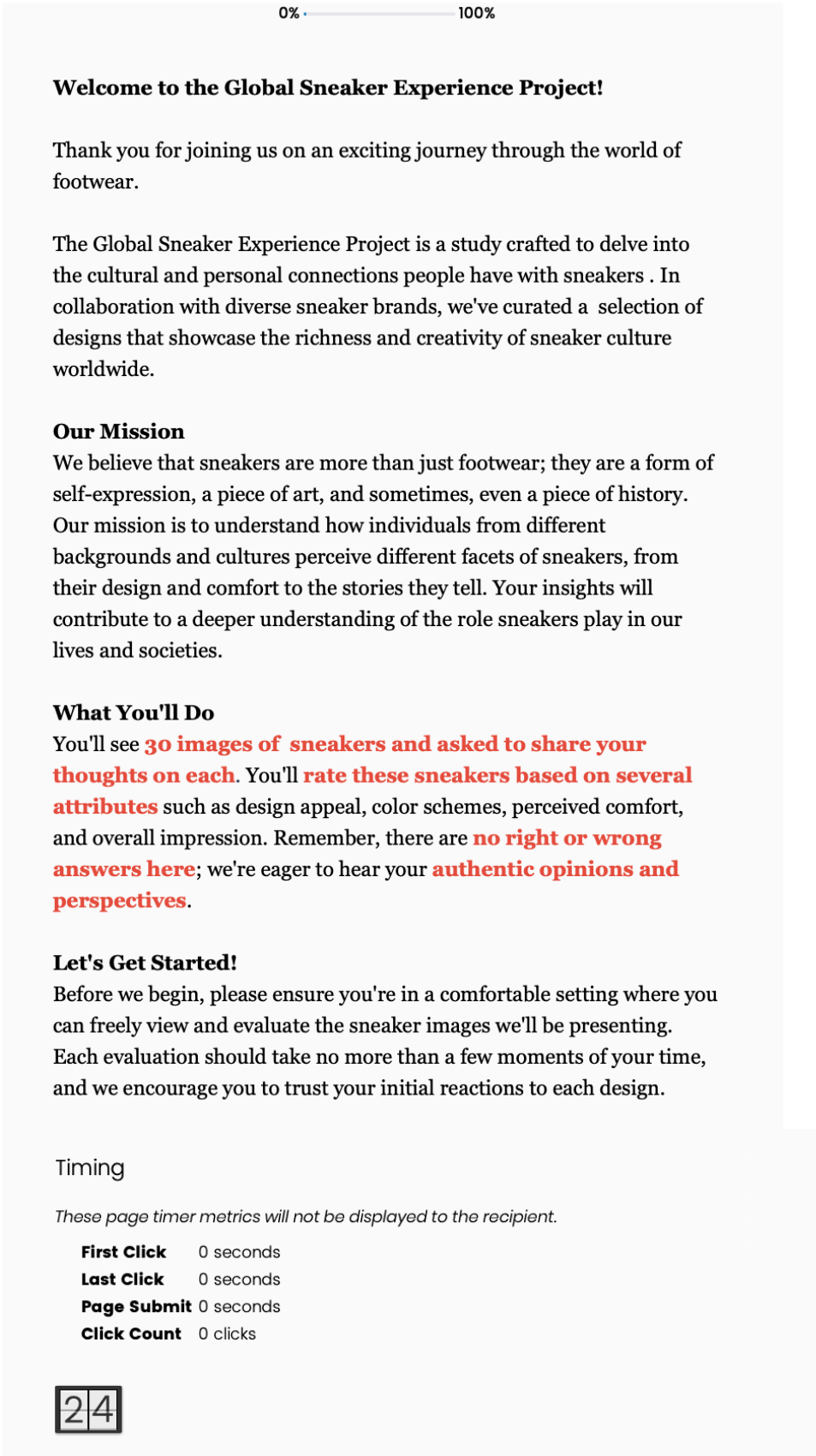
Your right as a participant
You have the right to access, correct, and delete information, as well as the right to data portability/copy. However, since no identifying information is being collected other than the Prolific code, retrieving and tracing back to the identity of individual responses is impossible. Therefore, accessing, correcting, deleting and copying of response information is only possible before you submit the responses on Prolific.

Annex 4: Continued



Source: Qualtrics. Own elaboration.

Annex 5: Introduction page of Study 1.



Source: Qualtrics. Own elaboration.

Annex 6: Question measuring consumers' perceptions on the different sustainability attributes.

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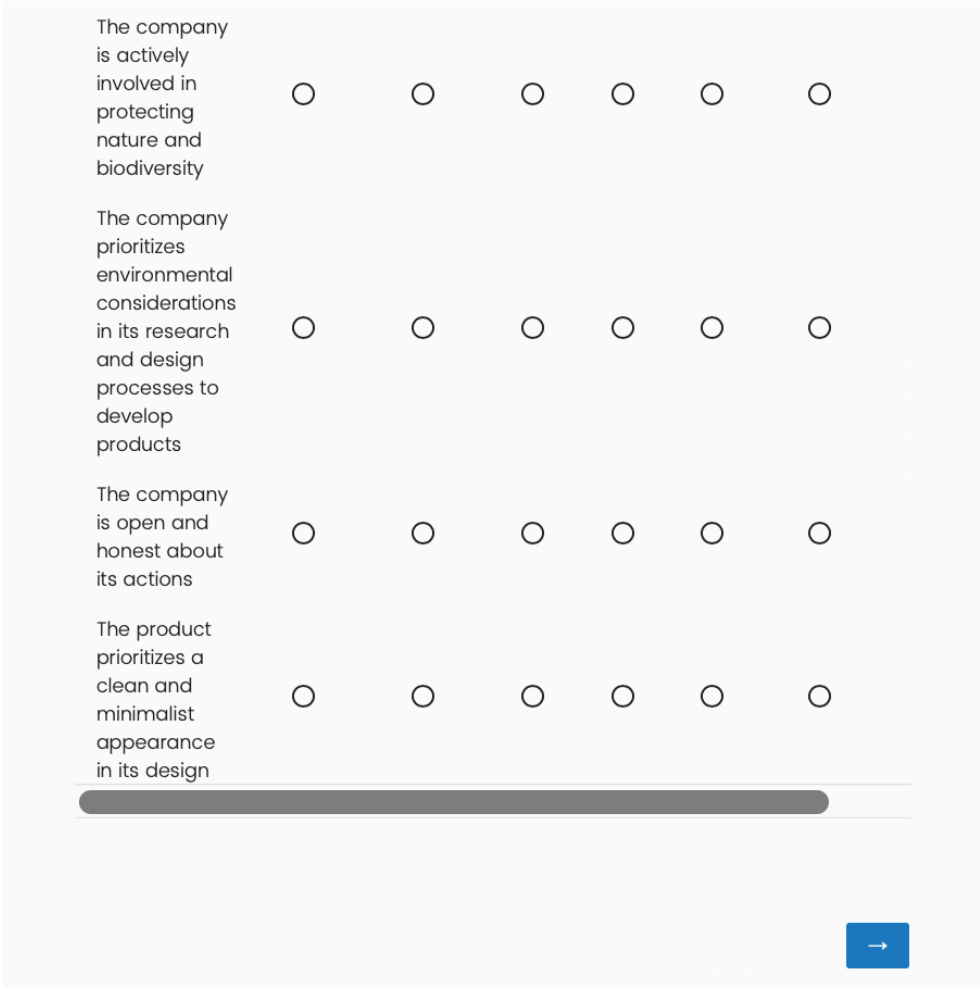
According to the information presented, how likely do you think:

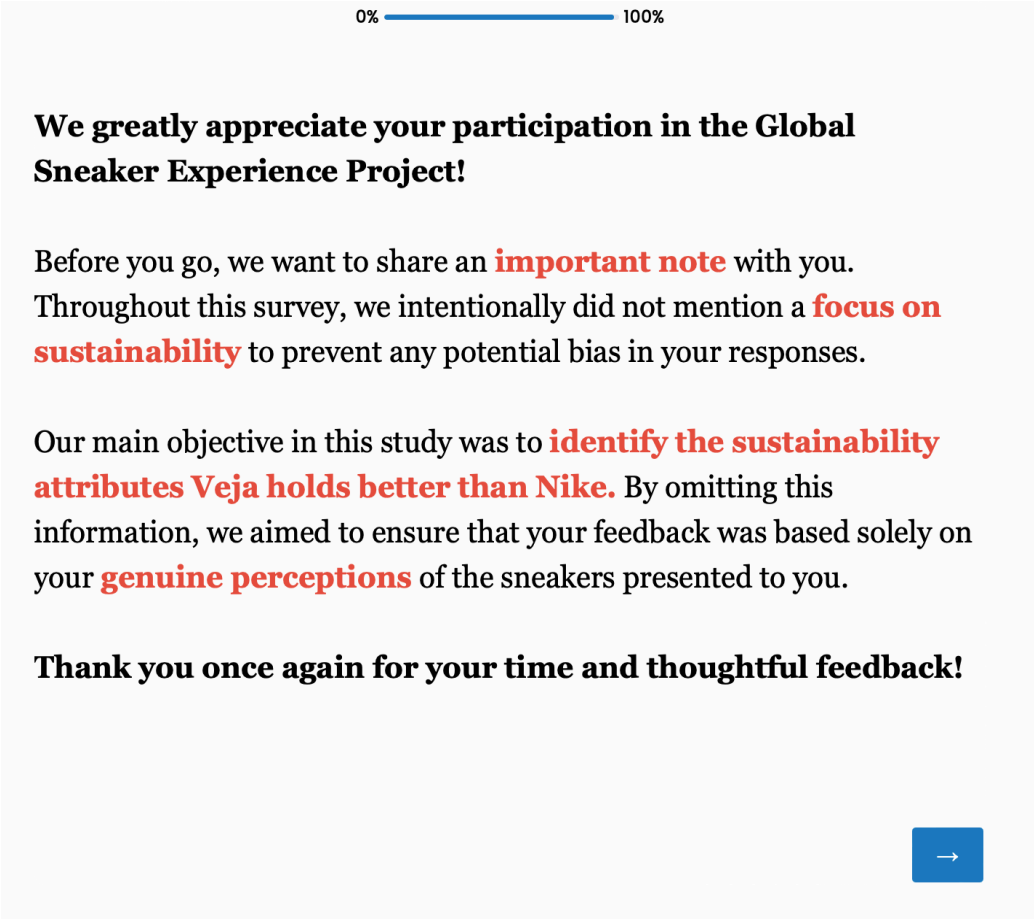
	Extremely unlikely	Moderately unlikely	Slightly unlikely	Neither likely nor unlikely	Slightly likely	Moderately likely	Ex
The product exhibits a timeless design	○	○	○	○	○	○	
The company prioritizes fair wages and treats its workers ethically	○	○	○	○	○	○	
The product is repairable	○	○	○	○	○	○	
The company is devoted in engaging on activities that empower local communities	○	○	○	○	○	○	
This item is testing how attentive you are. Click on 'Extremely likely'.	○	○	○	○	○	○	

Annex 6: Continued



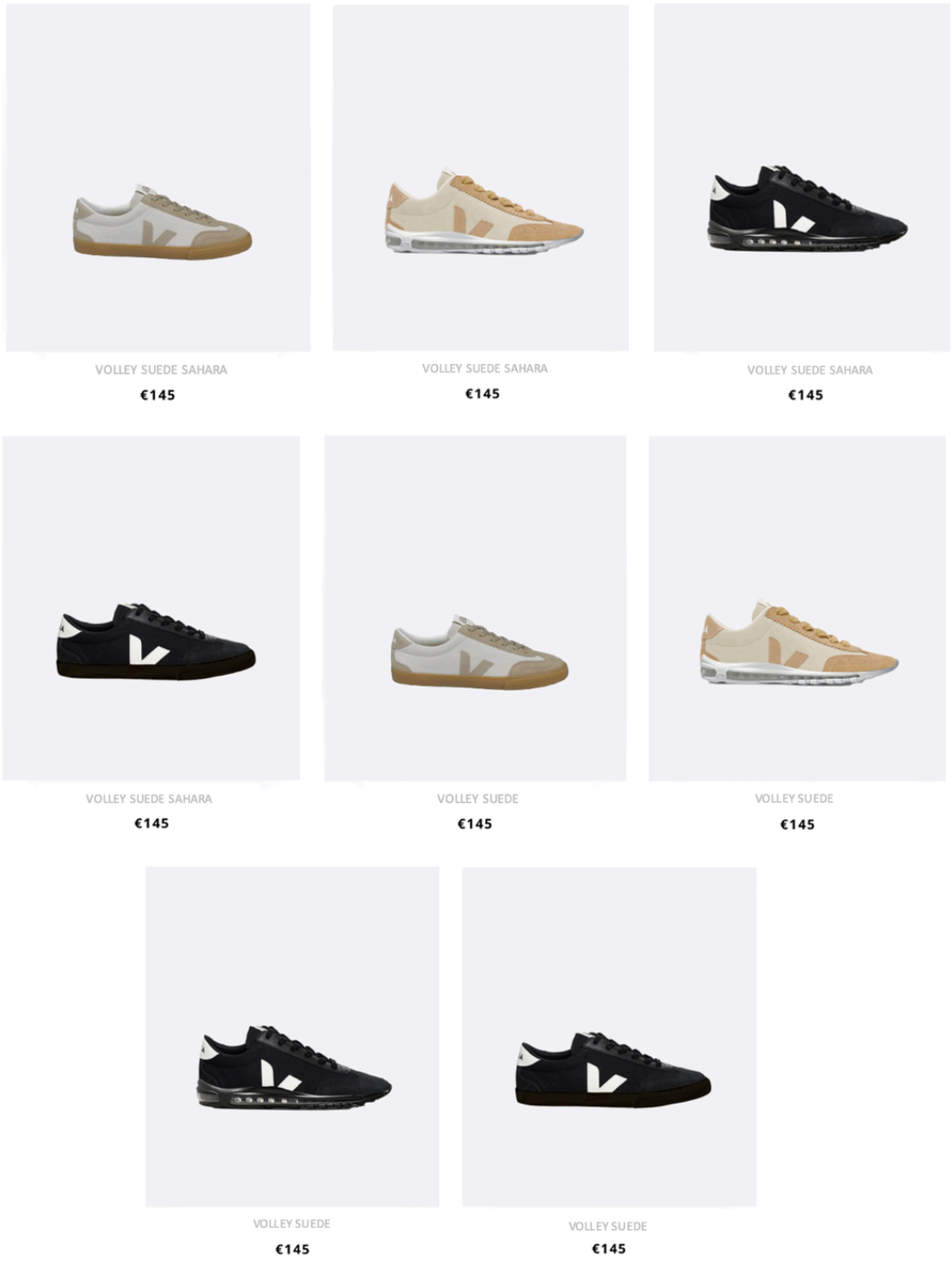
Source: Qualtrics. Own elaboration.

Annex 7: Disclosure of Study 1's true purpose.



Source: Qualtrics. Own elaboration.

Annex 8: Modified sneaker models for experimental conditions of Study 2



Note: Own elaboration.

Annex 9: Information and consent page of Study 2.

INFORMATION AND CONSENT PAGE
Please read the following consent request information page before you agree to participate in the research project.

Purpose of the project
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Institution responsible for processing the information
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What we will ask you to do
You will be asked to answer close-ended questions that measure your level of agreement on selected social or economic issues and personality characteristics. These questions will be presented in standard self-reporting questionnaires.

Risks and discomforts
Participating in this research project carries no anticipated risks or discomforts.

Identification in Publication
Your identity will remain anonymous if the findings from this research project are published.

Date the project is scheduled to end
Data collection for this research project will take place on April 24th, 2024. Later, the collected data will be analyzed for research publication purposes. For replication and verification purposes of the findings, the original data will be anonymized and securely stored further on OSF.

Compensation to Participation
You will receive Mturk compensation for valid responses (not randomly generated).

Privacy/Confidentiality/Data Security
Your participation in this survey is anonymous, and no identifying information will be passed to the analysis stage. The only information collected is your Mturk code for approval purposes of your payment compensation corresponding to your response attention check. We ensure that your participation presents no greater risk than everyday internet use.

Sharing De-identified Data Collected in this Research
De-identified data from this study may be shared with the research community at large to advance science. Any identifying information (Mturk code) will be removed or coded to protect your privacy.

Participation is voluntary
Participation in this project is voluntary, and you can withdraw at any time without providing a reason. Your information will be anonymized upon withdrawal, and there will be no negative consequences for your decision.
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Your right as a participant
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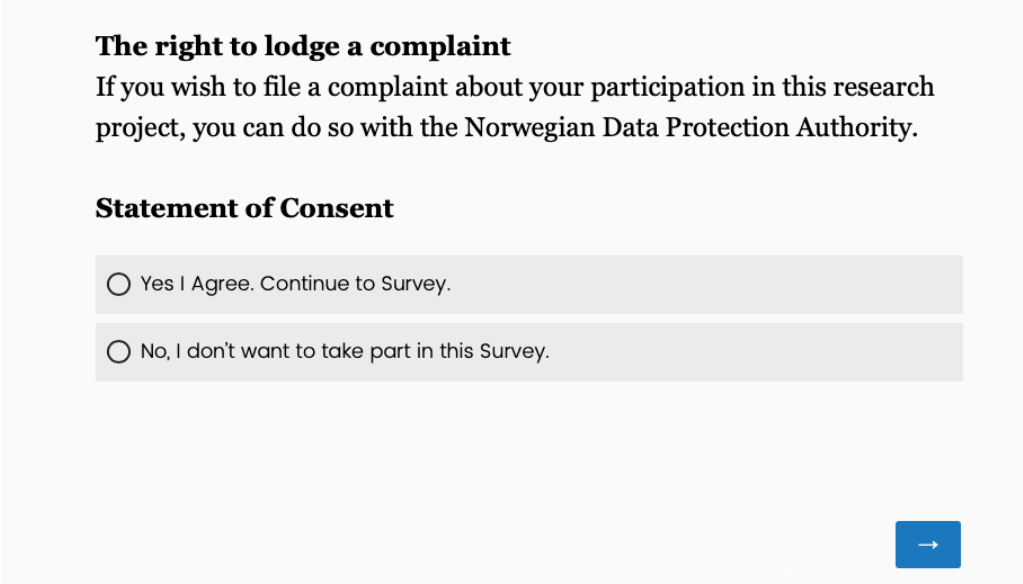
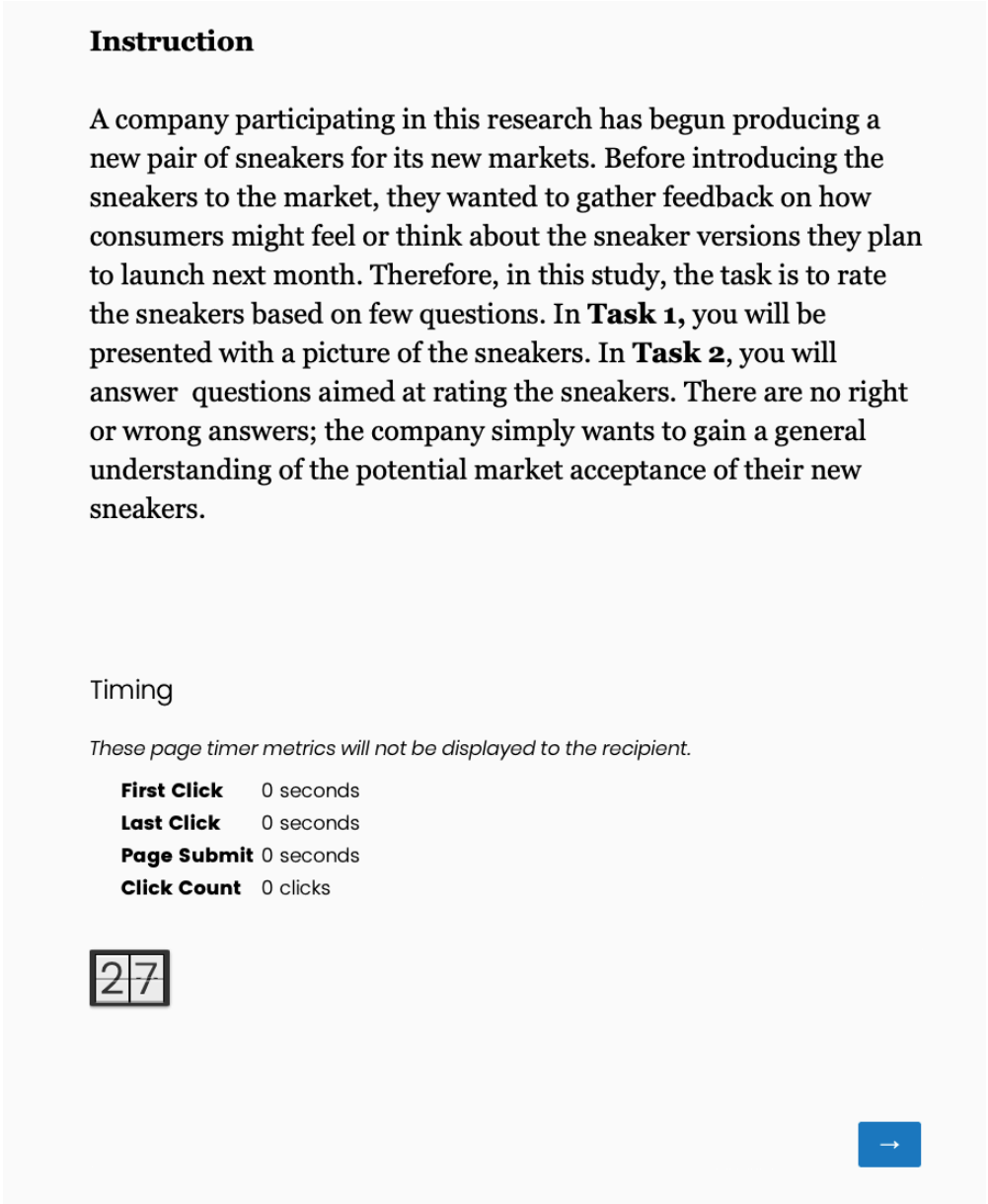
Annex 9: Continued



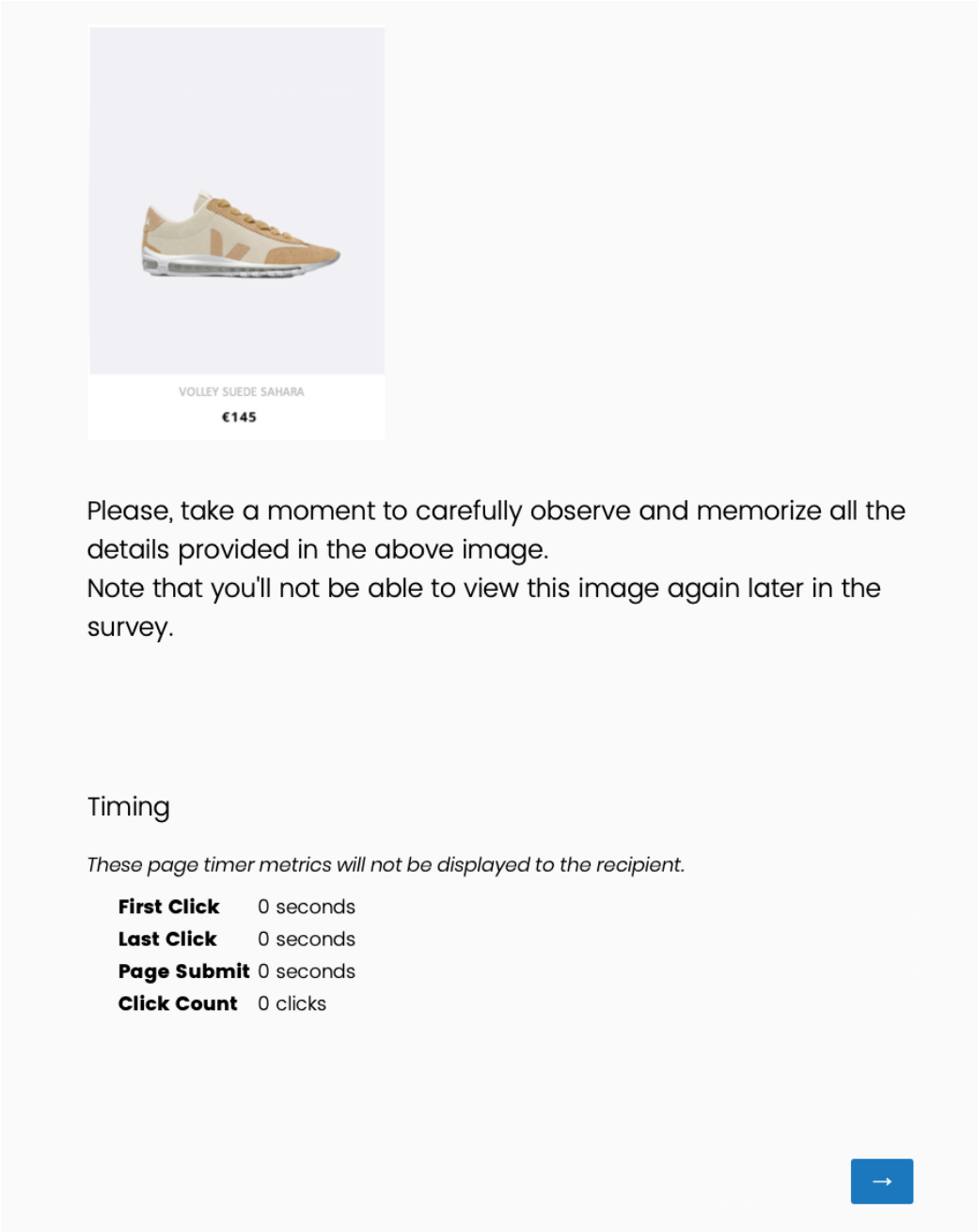
Source: Qualtrics. Own elaboration.

Annex 10: Instruction page of Study 2.



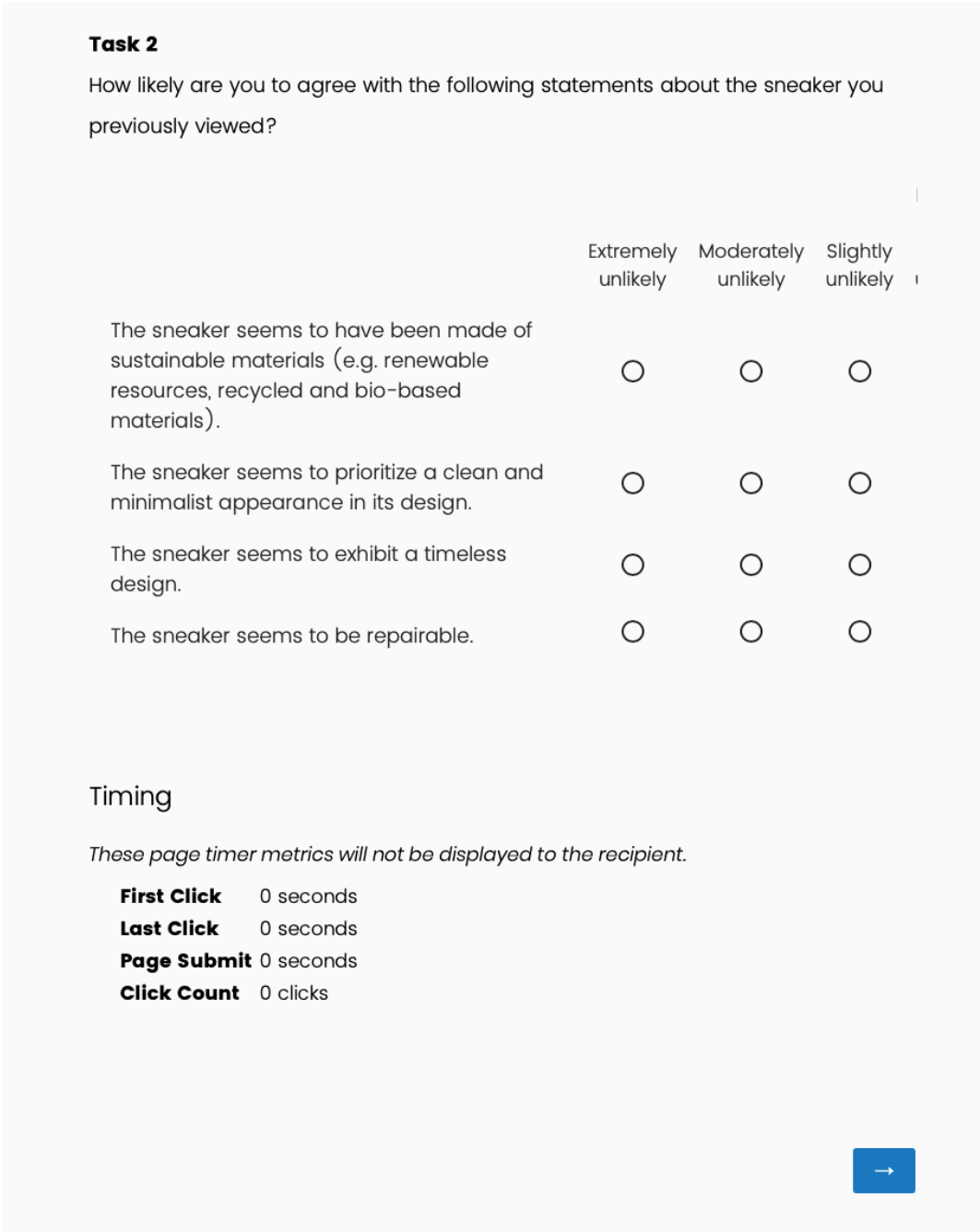
Source: Qualtrics. Own elaboration.

Annex 11: Example of one of the eight experimental conditions



Source: Qualtrics. Own elaboration.

Annex 12: Question measuring participants' perceptions on the four significant sustainability attributes.



Task 2

How likely are you to agree with the following statements about the sneaker you previously viewed?

	Extremely unlikely	Moderately unlikely	Slightly unlikely
The sneaker seems to have been made of sustainable materials (e.g. renewable resources, recycled and bio-based materials).	○	○	○
The sneaker seems to prioritize a clean and minimalist appearance in its design.	○	○	○
The sneaker seems to exhibit a timeless design.	○	○	○
The sneaker seems to be repairable.	○	○	○

Timing

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First Click 0 seconds
Last Click 0 seconds
Page Submit 0 seconds
Click Count 0 clicks

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Source: Qualtrics. Own elaboration.

Annex 13: Disclosure of Study 2's true purpose.

We greatly appreciate your participation in the Sneaker Mystery Journey!

Before you go, we want to share an **important note** with you. At the start of the survey, you were **randomly assigned to one particular sneaker**, which was modified into eight different models based on secondary product attributes like color (black or earthy tons), sole type (flat or bumpy), and sneaker name (with nature-related terms or neutral terms).

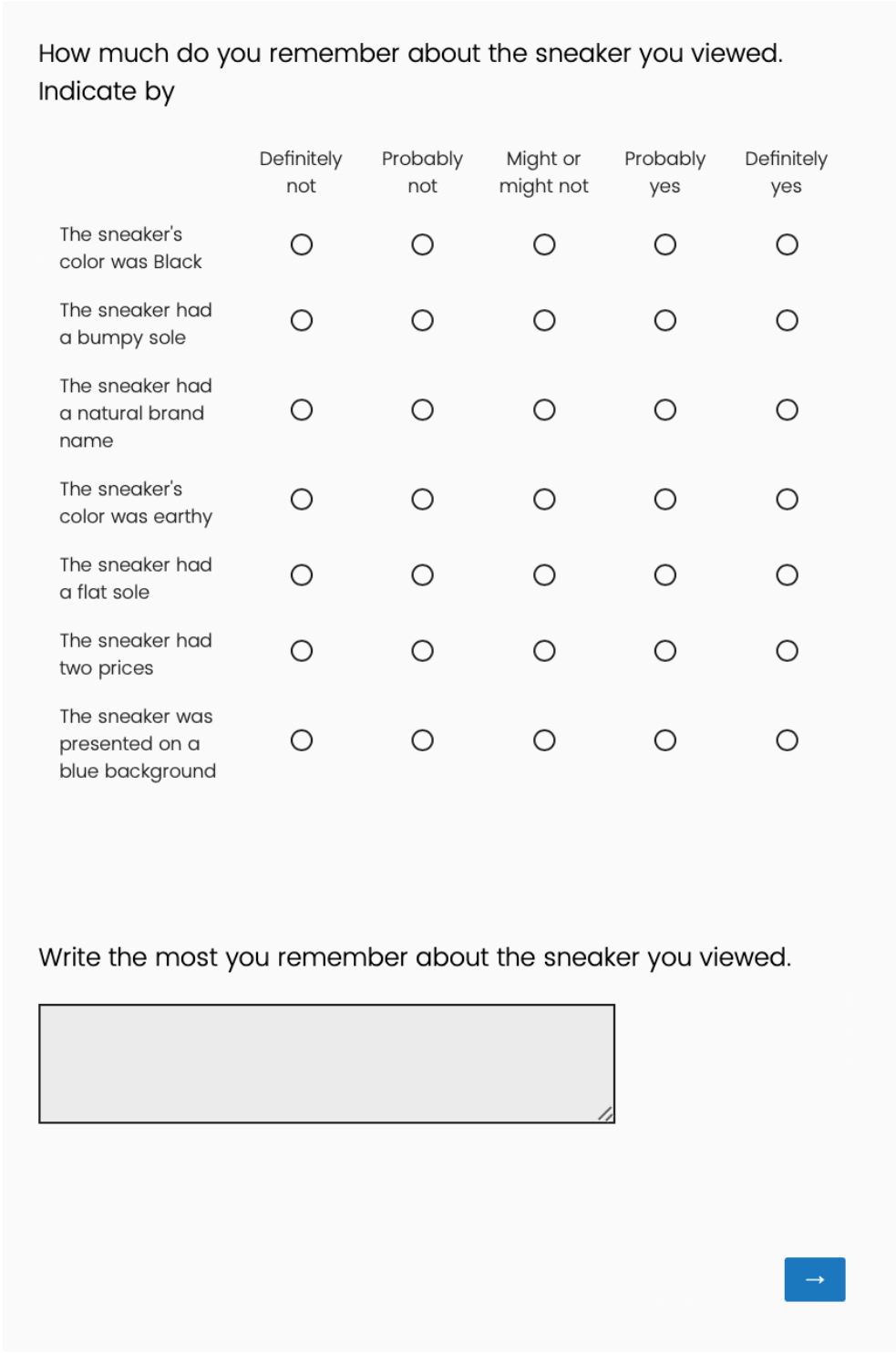
Our main objective in this study was to **examine how these secondary attributes influence perceptions and purchasing behavior toward sustainable sneakers**, and whether there was an **unconscious association** made between these attributes and sustainability.

We intentionally did not mention that **the sneaker was eco-friendly** to prevent any bias in your responses, ensuring your feedback was based solely on your **genuine perceptions**.

Thank you once again for your time and thoughtful feedback!

Source: Qualtrics. Own elaboration.

Annex 14: Manipulation check questions



Source: Qualtrics. Own elaboration.