

Louvain School of Management

Promoting Sustainable Purchases : Exploring the Impact of Social and Rewarding Nudges in Online Fashion Sales

**Do social and/or rewarding nudges influence
consumers' choice for sustainable fashion ?**

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Abstract

The fashion sector ranks among the world's major contributors to pollution. The continuous demand for new fashion trends places significant pressure on environmental resources. In a world where the consequences of climate change are becoming increasingly evident, proactive actions are imperative. Existing literature suggests that nudging may serve as a motivating strategy for promoting environmentally-friendly actions. This research aimed to explore the effectiveness of specific nudges in guiding consumers towards sustainable fashion choices.

We investigated whether a social or rewarding nudge displayed on an online retailer's website could have a notable impact on consumers' decisions towards sustainable fashion. An online survey was utilised to gather data from 134 participants who were assigned randomly to three different experimental scenarios : control group (no nudge), social nudge, or rewarding nudge.

The results indicated a noteworthy and positive impact of the social nudge on selecting sustainable apparel, whereas the rewarding nudge displayed no significant effect. This implies that nudging holds promise as an effective strategy to guide consumers towards more environmentally conscious fashion choices. Additionally, the findings revealed a positive association between respondents' intention to purchase sustainable items and their susceptibility to normative influence, fashion involvement, and ecological consciousness. Notably, fashion involvement was identified as a moderating factor in relation to nudging.

“The fashion industry has a crucial role to play in addressing climate change. Sustainable fashion is not a trend ; it's a revolution.”

Safia Minney

(Social & Fashion entrepreneur)

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Introduction

Climate change emerges as one of the most significant and intricate challenges of the 21st century, with some viewpoints even considering it the highest priority. Its importance arises from the deep impact it has on our valuable and only liveable planet. Climate change knows no bounds, affecting every human being and living entity. Tackling this issue necessitates a comprehensive call to action. In the world of consumption, both businesses and customers bear the responsibility to respond.

This master's thesis centres on the fashion industry and explores how online retailers can encourage sustainable purchases on their websites. We will examine the application of social marketing, particularly the nudge theory, with the research question: “Do social and/or rewarding nudges influence consumers’ choice for sustainable fashion ?” This paper is organised into three sections : literature review, empirical study, and discussion.

In the first part, we will explore the fashion industry's environmental impact while proposing social marketing strategies to assist online retailers in confronting this challenge. The central focus will be on applying the nudge theory. Following a comprehensive review of existing research on the subject, we will underscore two specific nudges that will be implemented in our experimentation : the social nudge and the rewarding nudge.

The second part initiates the empirical study, presenting hypotheses aligned with the research question. After outlining our methodology and collecting data through an online questionnaire, preliminary procedures will be executed to validate the obtained data before embarking on detailed analyses. These analyses will provide insights to address our hypotheses.

The third and concluding part involves a comprehensive analysis of the results, stepping back to examine the business and managerial implications. Additionally, we will address the study's limitations and propose potential research directions for enhancing our findings.

Part 1 : Literature Review

The literature review begins by addressing the environmental challenges faced by our planet. It delves into the root causes, consequences, and undertaken measures to address them. Next, we will look into the industries that contribute the most to greenhouse gas (GHG) emissions.

This investigation will underscore the substantial influence of the fashion industry, setting the stage for a deeper exploration in the second chapter. In this context, we will examine the production and consumption aspects of the fashion sector and exploring the resulting environmental issues.

Consequently, the third chapter will focus on clarifying four strategies introduced by the fashion industry to reduce its environmental impact : sustainable fashion, degrowth, circular economy, and addressing the gap between consumers' attitudes and behaviours regarding sustainable purchases.

The latter topic will lead us to the fourth chapter, a concise part that will recognise the potential influence of social marketing and choice architecture in assisting the fashion industry to bridge this attitude-behaviour gap.

The fifth and last chapter, central to this literature review, focuses on the nudge theory. Here, the principles of the theory will be explained, its mechanisms will be analysed, and its tools explored. Existing nudging strategies used to promote sustainable behaviours will be examined, providing a foundation for considering strategies applicable to the fashion industry. Besides, existing studies in this industry will be synthesised to identify two specific nudges for our empirical study. Furthermore, we will closely study concepts like fashion involvement and ecological consciousness to uncover their role in nudging's impact.

Finally, to conclude this literature review, we will assess the legitimacy of the nudge theory by examining some of the criticisms it has faced.

Chapter 1 : Environmental issues

To properly understand the issue addressed in this paper, we will start the theoretical part by diving into the climate change issue and its causes.

Section 1 : Climate change

Over the past few decades, extensive scientific research and assessments, including those conducted by the Intergovernmental Panel on Climate Change (IPCC), have provided compelling evidence that human activities, particularly the burning of fossil fuels and deforestation, are significantly contributing to the increase in greenhouse gas concentrations in the atmosphere. This rise in greenhouse gases, such as carbon dioxide (CO₂), traps heat within the Earth's atmosphere, resulting in the warming of the planet's surface and disrupting natural climate patterns. (United Nations, 2023 ; World Bank, 2023)

The consequences of climate change are far-reaching and diverse. They encompass escalating global temperatures, the melting of glaciers and polar ice caps, rising sea levels, more frequent and intense extreme weather events, altered precipitation patterns, and shifts in ecosystems and biodiversity. These changes pose substantial risks to human societies, including threats to food security, water availability, public health, and socioeconomic stability. (Gerretsen, 2023 ; IPCC, 2023)

Recognising the urgency of addressing climate change, international efforts have been undertaken. The landmark Paris Agreement (2015), for instance, strives to limit global warming to well below 2 degrees Celsius compared to pre-industrial levels, with an additional aim of pursuing efforts to restrict the temperature increase to 1.5 degrees Celsius. This agreement highlights the collective commitment of nations to mitigate greenhouse gas emissions, enhance adaptive capacities, and promote sustainable development. (Hirst, 2020 ; United Nations, 2023)

Section 2 : Most polluting industries

Pollution significantly contributes to climate change, impacting our planet in various ways. Industries, through their pollution emissions, play a major role in driving this problem. The past decade has seen much of the world wake up to climate change, with now some governments

actually trying to do something about it. Yet, many industries remain a concern due to their polluting effects as well as the damage they cause to the environment.

In this part, we will discuss the industries that are the most polluting in the world and their effects on the environment. In reality, there is no standardised method of measuring the most polluting industries. Nevertheless, in order to build a top of these industries, we will focus on the three main types of pollution (air, water, soil) and rank them based on the greenhouse gas (GHG) emissions they produce. (Heatable, 2023 ; Howell, 2023)

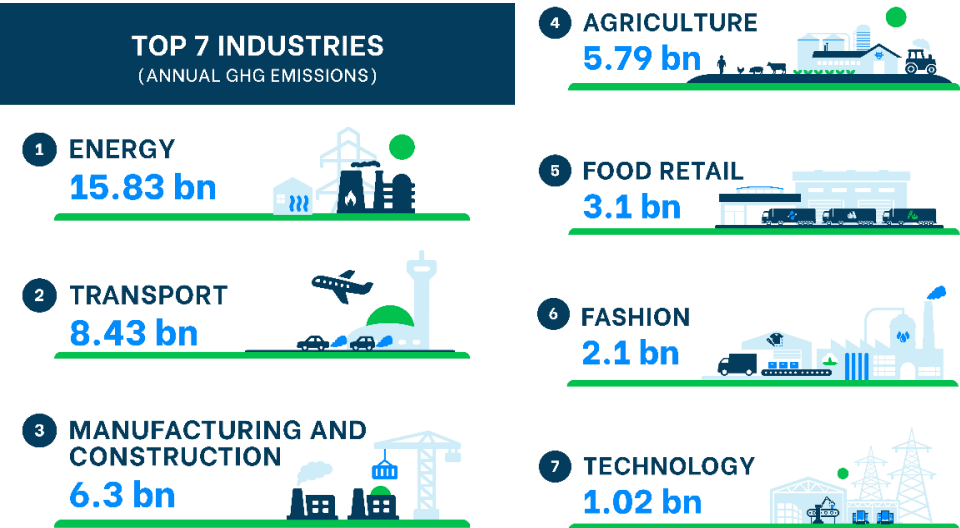


Figure 1 : Top 7 most polluting industries according to annual GHG emissions

(Source : Howell, 2023)

For the purposes of this paper, we will not consider every industry. Indeed, we will focus only on one of them : the Fashion industry. By emitting 2.1 billion tonnes of GHG emissions per year, this worldwide industry is the sixth most polluting in terms of GHG emissions.

Chapter 2 : Fashion industry

In its State of Fashion 2017 report, McKinsey & Company stated : “Fashion is one of the world’s most important industries, driving a significant part of the global economy. (...) If it were ranked alongside individual countries GDP, the global fashion industry would represent the world’s seventh largest economy”. (Amed et al., 2016) Thanks to this statement, we can easily understand the impact of fashion worldwide.

Let us examine the ecosystem of this sector to gain a comprehensive understanding of the true impact of such an industry.

Section 1 : Production & Consumption

With a substantial annual revenue of \$1.53 trillion in 2022, it is evident why the fashion industry holds significant prominence globally. However, high revenue imply massive production and consumption. Indeed, to realise this revenue, the global fashion industry produces more than 100 to 150 billion items of clothing per year. (FashionUnited, 2023 ; Smith, 2023)

Since 2000, the number of garments produced annually has doubled. The reason is that people buy and consume more clothes every year. As a result, clothing consumption has also grown explosively over the past 20 years and will continue to grow in the coming years. In 2021, the apparent consumption of apparel worldwide was approximately 168.4 billion pieces. (Smith, 2022 ; Statista Research Department, 2022)

1. Fast Fashion

This drastic increase in textile production and fashion consumption is reflected in the emergence of fast fashion, a business based on offering consumers frequent novelty in the form of low-prices, trend-led products. It relies on recurring consumption and impulse buying, instilling a sense of urgency when purchasing. (Maiti, 2022 ; Niinimäki et al., 2020)

This business model has been hugely successful, evidenced by its sustained growth, outperformance of more traditional fashion retail and market entry of new players such as online retailers, who can offer more agility and faster delivery of new products more frequently. (Lai, 2021 ; Niinimäki et al., 2020)

This is where the problem lies. Given the global proliferation of fast fashion and the volume of items produced and wasted, the fashion industry represents a major environmental threat. This cycle of buying and discarding creates a huge environmental problem, with the world accumulating mountains of textile and clothing waste every day, most of which are not biodegradable. Until recently, pollution and waste considerations were not a priority for fast fashion producers and retailers. Instead, the emphasis was on increased speed of delivery to the market while reducing cost. However, with public attention now on the climate crisis, the industry (producers, retailers and consumers alike) is being forced to seek out more sustainable practices and to take note of its environmental impact. (Lai, 2021 ; Niinimäki et al., 2020 ; Perry, 2017)

Section 2 : Environmental impacts

Now that we have gained a comprehensive understanding of the production and consumption dynamics in the fashion market, our attention will shift towards examining the environmental harm caused by this industry.

1. Facts & figures

According to the United Nations, the fashion industry, including the production of all clothes which people wear, contributes to around 10% of global greenhouse gas emissions due to its long supply chains and energy intensive production. The fashion industry is also a major consumer of water : 79 trillion litres per year. This consumption is responsible for around 20% of industrial water pollution from textile treatment and dyeing and contributes around 35% of oceanic primary microplastic pollution. It also produces vast quantities of textile waste, much of which (80%) ends up in landfill or is burnt, including unsold products. (Maiti, 2022 ; Niinimäki et al., 2020 ; The United Nations, 2018)

2. Fashion supply chain

The fashion supply chain is characterised by vertical disintegration and global dispersion of successive processes spanning a number of industries from agriculture (for natural fibres) and petrochemicals (for synthetics) to manufacturing, logistics and retail. Environmental impacts are exerted at each stage of the global supply chain, from water and chemical use during fibre, yarn and textile production to carbon dioxide emissions during the manufacturing, distribution and consumption of clothing. (Niinimäki et al., 2020)

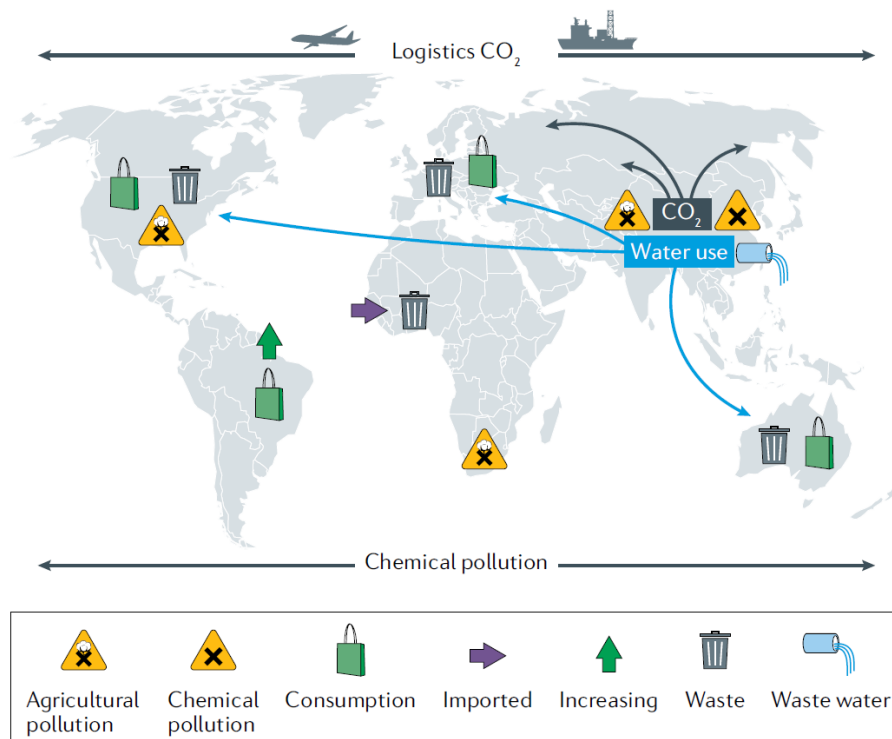


Figure 2 : Critical points in textile and fashion production

(Source : Niinimäki et al., 2020)

The above map shows the geographical distribution of the main key environmental impacts of the fashion supply chain. High volumes of production and consumption reinforced by the logic behind fast fashion increase the environmental impacts by promoting unsustainable manufacturing, distribution and use of garments. Moreover, waste is generated during both production and consumption, where it is either disposed of locally or exported. (Niinimäki et al., 2020)

3. The case of a t-shirt

What is one piece of clothing everyone owns ? A basic cotton t-shirt. It is likely the most worn garment in any wardrobe. Considering the environmental cost of fashion, we should wonder what the impact of this t-shirt is as its label probably mentions a faraway country.

First, it takes 2,700 litres of water just to grow enough cotton for a single t-shirt. To put this in perspective, this amount of water is enough to meet one person's drinking needs for two and a half years. Meanwhile, farmers use huge amounts of pesticides which deeply pollute the soil and water for local populations. After being sewed, the t-shirt is soaked into toxic colorants which are not only dangerous for health, but also often end up in water. (Chang, 2017 ; The European Parliament, 2022)

The production phase accounts for 70% of the environmental impact of a t-shirt. After that, comes the transportation. Even if intercontinental transport has an impact, the last few kilometres of transport are the most polluting. On average, a total of around 7 kilograms of CO₂ is generated before we take the t-shirt home. (EasyEcoTips, 2023 ; Rawat, 2021)

Pollution is also present during the user phase. Indeed, one load of laundry uses on average more than 150 litres of water. Considering its whole life, our t-shirt will be washed around 55 times before it becomes rubbish. According to the European Parliament (2023), 0.5 million tonnes of microfibres from washing synthetics are released in the ocean every year. This amount accounts for 35% of primary microplastics released into the environment. Additional processes of drying and ironing increases the level of CO₂ to almost 12 kilograms. (Chang, 2017 ; Rawat, 2021)

As a summary, our t-shirt consumes 2,700 litres of water to be produced to which we must add a portion of the 150 litres used for each load of laundry. In addition, around 12 kilograms of CO₂ are produced by this journey and we need bear in mind all the pesticides used in cotton farming. These statistics do not give the exact percentage of footprint generated by a t-shirt but give us a basic understanding of how the entire life-cycle of a single t-shirt affects the planet.

Section 3 : Ecological solutions in the fashion industry

As demonstrated, the fashion industry poses an environmental threat, necessitating immediate action within the sector. From unsustainable materials to high-emission production processes, many fashion brands have a lot of work to do when it comes to being environmentally friendly. The industry has started to acknowledge the need for more sustainable practices and has been exploring various solutions to induce ecological behaviour.

1. Sustainable fashion

The fashion industry has made some progress in using sustainable materials, as highlighted by the third annual “Material Change Index” by Textile Exchange (2023). The report shows that brands are using 50% preferred materials, with a 5% decrease in greenhouse gas emissions, resulting in a reduction of 1.9 million tonnes of CO₂ equivalent emissions. However, there are challenges and areas for improvement in the industry's sustainability efforts. (Textile Exchange, 2023)

While brands are incorporating more recycled materials, there is still a reliance on synthetic materials and a lack of utilisation of textile waste. Although sustainable alternatives to cotton, wool, and leather are gaining traction, the focus on preferred materials is overshadowing the need for fundamental changes to reduce production levels. Incremental improvements seem to be prioritised over transformative measures. (Textile Exchange, 2023 ; Webb, 2022)

2. Degrowth

According to Liesl Truscott, director of corporate benchmarking at Textile Exchange : “The reality is that we can’t keep exploiting natural resources in the ways that we have. All of the science tells us this can’t happen anymore.” (Textile Exchange, 2023) Using more sustainable materials is one thing, but brands need to start talking about degrowth to spur lasting change. (Webb, 2022)

According to the World Economic Forum, “Degrowth broadly means shrinking rather than growing economies, so we use less of the world’s energy and resources and put wellbeing ahead of profit.” (Masterson, 2022) In the fashion industry, the concept of degrowth begins with a fundamental shift away from the fast fashion model we have analysed earlier. This entails disconnecting the production of inexpensive clothing from profitability, focusing on producing a reduced quantity of garments that are designed for longevity, and prioritising clothing repair

rather than disposal. The term “slow fashion”, which is in contrast to fast fashion, is often used as a synonym for sustainable fashion. (Rees, 2022)

Despite the growing momentum for alternative business models, the Fashion Transparency Index 2022 revealed that only 14% of major fashion brands have implemented new models aimed at reducing consumption. (Rees, 2022)

3. Circular economy

Driven by concerns over limited resources and increasing consumer awareness of environmental impact, the fashion industry has begun adopting the concept of circular fashion. This alternative model involves creating new materials from old ones and forming a closed-loop system. By embracing circularity, the fashion industry can eliminate waste and pollution, reduce the extraction of virgin raw materials, restore natural systems, and tackle pressing global challenges like climate change and waste management. This transformation offers opportunities for responsible growth and addresses the shortcomings of the linear fashion model. (Chatterji, 2022 ; Ellen MacArthur Foundation, 2023)

3.1 Second-hand fashion

Second-hand consumption of clothing can support the transition to circular economies by prolonging the lifespan of products through reuse. Second-hand fashion, also known as reused clothing, is a term used to describe clothing that has already been worn and is available for sale again. (Kasavan et al., 2021)

Unlike new fashion items, second-hand clothing does not require additional production and is already integrated into the circular economy. Despite the stigma often associated with second-hand clothing, its value is projected to rise rapidly in the coming years. (D’Adamo et al., 2022 ; Smith, 2023)

4. Closing the attitude-behaviour gap

As we have observed, the fashion industry has begun to consider strategies for designing and developing garments that have a reduced negative impact throughout their entire lifecycle. Besides, numerous research in sustainable fashion has primarily focused on investigating consumers' intentions to purchase and use sustainable fashion products.

On one hand, studies have demonstrated that consumers' attitudes towards sustainable clothing significantly influence their purchase intentions. (Rausch & Kopplin, 2021 ; Song & Ko, 2017) Additionally, consumers' perceived environmental knowledge, which refers to their awareness

of environmental issues and the consequences of human actions on the environment, has been found to significantly influence their attitudes towards and intentions to purchase sustainable products. (Kollmuss & Agyeman, 2002 ; Preuit & Yan, 2017) On the other hand, several studies have explored the motivations and barriers to the widespread adoption of sustainable fashion. (Ertekin & Atik, 2014 ; Lundblad & Davies, 2015 ; Moon et al., 2014)

However, despite the increasing body of research in the sustainability field, actual consumer purchasing behaviour of sustainable apparel remains relatively low. For marketers aiming to promote sustainable fashion, bridging the gap between consumers' attitudes and their actual purchasing behaviour remains a challenge. (Lee, et al., 2020) While consumers express interest in sustainability, they often continue to prioritise fast and inexpensive fashion. (Jung & Jin, 2014) Indeed, their practical choices often do not align with their intention to be more sustainable when faced with a decision between an environmentally friendly product and a relatively cheaper and more accessible alternative. The theory of planned behaviour (Ajzen I. , 1985) and the attitude-behaviour gap (Wiederhold & Martinez, 2018) are often invoked to explain this phenomenon.

In the context of the sustainable fashion industry, consumers experience significant tension as they strive to make environmentally friendly and ethical choices while also seeking social acceptance and satisfying their need for belonging and self-esteem. (Lundblad & Davies, 2015) Moreover, various personal circumstances and barriers, such as lack of information, lack of information credibility, and lack of product availability, influence the relationship between attitude and purchase behaviour. (Wiederhold & Martinez, 2018)

Therefore, the question arises : What techniques can be employed to bridge the gap between consumers' behaviour and attitude ? In the following parts, we will discuss this question by using a social marketing point of view.

Chapter 3 : Social marketing

“Social marketing is an approach used to develop activities aimed at changing or maintaining people’s behaviour for the benefit of individuals and society as a whole.” (The National Social Marketing Centre, 2023) In the 1970s, Philip Kotler and Gerald Zaltman recognised that the marketing principles employed to sell products could also be applied to promoting ideas, attitudes, and behaviours. This realisation led to the emergence of social marketing as a discipline. (Kotler & Zaltman, 1971 ; Weinreich, 2006)

In the upcoming section, we will explore how social marketing can positively impact individuals and society by examining choice architecture. We will then use these principles to understand the nudge theory.

Section 1 : Choice Architecture

Choice architecture refers to the idea that the way in which choices are presented can heavily influence the decision-making process. “Decision makers do not make choices in a vacuum. They make them in an environment where many features, noticed and unnoticed, can influence their decisions.” (Thaler et al., 2010) Choice architects, like building architects, can impact behaviour by strategically placing elements such as doors, hallways, and bathrooms. They have the ability to influence decision-making through various design options such as the order in which options are presented, the ease of use of certain attributes, and the selection of defaults. (Johnson et al., 2012 ; Thaler et al., 2010)

These design choices can have significant, yet often overlooked, impacts on the choices individuals make. It may seem like presenting choices in a neutral way without any influence is possible, but in reality, any way a choice is presented will affect the decision-maker's choices. As a result, everyone who presents choices, whether it is a parent presenting bedtime options to their child or a government providing pension options to its citizens, is a choice architect who can influence decision-making. (Johnson, et al., 2012 ; Thaler et al., 2010)

Chapter 4 : The nudge theory

Although we have observed the potential to shape choice architecture for influencing decisions, creating policies for behavioural change requires a deep understanding of human behaviour. Unlike neoclassical economics' rational decision-making assumption, behavioural sciences highlight the role of cognitive and social psychology, focusing on human biases and decision context. (Shafir, 2012)

In this manner, the “nudge theory” is introduced as a tool to impact consumer behaviours. In this chapter, we will delve into how nudging can be employed to alter behaviours. We will begin by defining and explaining the concept, then proceed to provide examples of nudging methods and their connection to sustainable practices. Lastly, we will explore how the application of nudging in the fashion industry could potentially bridge the attitude-behaviour gap discussed earlier.

Section 1 : Concept & definition

Even if some formulations of the term “nudge” and associated principles were developed before, Richard Thaler and Cass Sunstein (2008) brought nudge theory to prominence with their book : “Nudge : Improving Decisions About Health, Wealth, and Happiness”. They defined the concept as the following :

“A nudge (...) is any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not taxes, fines, subsidies, bans, or mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not.” (Thaler & Sunstein, 2008, p. 8)

As we are aware, “choice architecture refers to the informational or physical structure of the environment which influences the way in which choices are made.” (Thaler & Sunstein, 2008) From the behavioural economics perspective, every situation represents some kind of choice architecture, even if it is not explicitly designed for a particular effect. Thus, nudges are deliberate alterations in the design of decision-making systems. They help to influence people's

behaviour by simplifying the information presented or by providing default options that steer individuals towards socially desirable outcomes. (Hansen, 2016 ; Thaler & Sunstein, 2008)

Nudges aim to facilitate private decisions that align with the individual's long-term interests and are beneficial to society, without attempting to change one's value system or increase information provision. The goal of nudges is to guide and enable individuals to make choices almost automatically, promoting socially desirable outcomes. (Hansen, 2016)

1. Libertarian Paternalism

In their 2008 book, Thaler and Sunstein refer to the influencing of behaviour without coercion as “Libertarian Paternalism”. This concept was originally introduced in their 2003 essay of the same name.

The two authors explain that the term “paternalistic” is often seen as derogatory by economists because they assume that it always involves coercion, but this is not necessarily true. Policies can be designed to influence the decisions of affected individuals in a manner that improves their well-being, without resorting to coercion. Thaler and Sunstein refer to this approach as libertarian paternalism, which they define as “an approach that preserves freedom of choice but authorises both private and public institutions to steer people in directions that will promote their welfare.” (Thaler & Sunstein, 2003, p. 179)

Section 2 : The mechanism of nudging

1. Two thinking systems

Daniel Kahneman (2011) has made a significant contribution to the public's understanding of human behaviour by presenting the concept of two thinking systems : System 1, characterised as fast and automatic ; System 2, characterised as slow and deliberate. System 1 plays a prominent role in our daily routines, where actions are performed almost instinctively, such as showering or riding a bike. On the other hand, System 2 requires more conscious mental effort when faced with important decision-making situations. While System 1 relies on heuristics, mental shortcuts, and biases, System 2 engages in thorough evaluations based on multiple criteria. (Kahneman, 2011 ; Lehner et al., 2016)

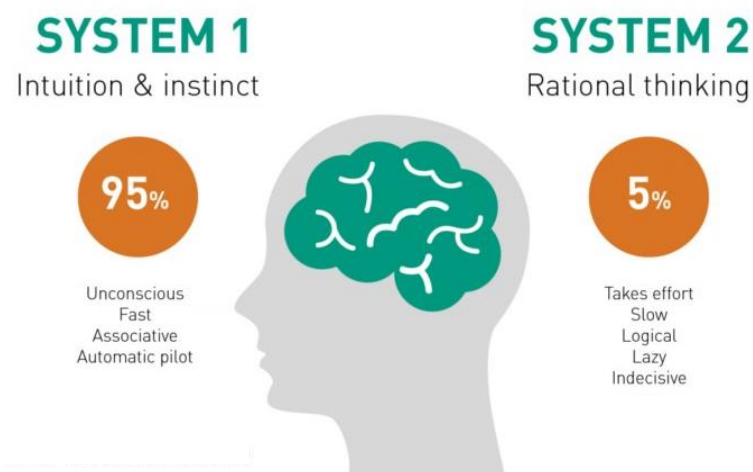


Figure 3 : Thinking systems - System 1 vs System 2

(Source : Kahneman, 2011)

The majority of current policy tools aimed at behaviour change primarily focus on System 2, which relies on the availability of information and our cognitive capacity to make rational choices. These tools operate under the assumption that the lack of information or misaligned incentives is the primary cause of irrational behaviour or the attitude-behaviour gap. However, studies have shown that providing information alone does not always result in behavioural changes. (Abrahamse et al., 2005 ; Steg & Vlek, 2009) People often make decisions that are not in their best interest due to procrastination, lack of self-control, susceptibility to contextual influences, or feeling overwhelmed by information. (Reisch & Gwozdz, 2013)

2. The potential of nudging

According to Kahneman's framework, human reliance on System 1 suggests that changing behaviour does not always require changing minds. It also implies that while information is important, it is not sufficient on its own to drive behavioural change, as behaviour is often automatic and intuitive. Informational tools, such as labeling, can be redesigned using nudge principles to make them more noticeable and intuitive, alongside other policy instruments like incentives. (Thaler & Sunstein, 2008)

Thaler and Sunstein (2008) suggest that nudges are effective in addressing biases and errors in human behaviour that occur when cognitive effort is not feasible due to situational constraints. They propose that nudges are suitable in scenarios where choices have delayed effects, are complex or infrequent, lack feedback, or involve ambiguous relationships between choice and outcome. According to Verplanken and Wood (2006), about 45% of our daily actions are

habitual behaviours that are not actively deliberated upon. Therefore, nudges are likely to be suitable for both routine behaviours and complex decisions that surpass human cognitive capacity.

Section 3 : Nudging techniques

Choice architects often employ nudges for two primary purposes : to discourage undesirable behaviour and/or to encourage desirable behaviour. In one of their papers, building upon their renowned book, Thaler and Sunstein (2010) explored several nudge principles aimed at achieving these two objectives. (see Table 1)

<i>Nudge principle</i>	<i>Description</i>	<i>Example</i>
Incentive	Making incentives more salient to increase their effectiveness.	Telephones that are programmed to display the running cost of phone calls.
Understanding mapping	Mapping information that is difficult to evaluate to familiar evaluation schemes.	Mapping megapixels to maximum printable size instead of pointing to megapixels when advertising a digital camera.
Defaults	Preselecting options by setting default options.	Changing defaults (from opt-in to opt-out) to increase the percentage of people who consent to being organ donors.
Giving feedback	Providing users with feedback when they are doing well or making mistakes.	Electronic road signs with smiling or sad faces depending on the vehicle's speed.
Expecting error	Expecting users to make errors and being as forgiving as possible.	Requiring people at an ATM to retrieve the card before they receive their money in order to help them avoid forgetting the card.
Structure complex choices	Listing all the attributes of all the alternatives and letting people make trade-offs when necessary.	Online product configuration systems that make choices simpler by guiding users through the purchase process.

Table 1 : Selection of nudge principles, descriptions, and examples (based on Thaler et al., 2010)

(Source : Weinmann et al., 2016)

6 years later, Lehner et al. (2016) conducted a comprehensive systematic review exploring policy tools to influence individual behaviour, with a specific focus on the effects of nudging towards sustainable consumption. They provided an in-depth analysis and organised the various types of nudges into four main categories :

- Simplification and framing of information ;
- Changes to a physical environment ;
- Changes to a default policy ;
- Use of social norms.

In this section, we will leverage this classification to explore potential strategies for promoting sustainable fashion consumption within the fashion industry.

1. Simplification & framing of information

Nudging recognises that the presentation of information plays a crucial role, not only in terms of the amount or accessibility of information but also in how it is framed. Simplification involves making information easier to understand and aligning it with individuals' decision-making processes, particularly valuable in complex domains like finance or investments. Framing, on the other hand, involves consciously phrasing information to activate specific values and attitudes in individuals. (Lehner et al., 2016)

For instance, a study examining menu item labeling in a school cafeteria found that using descriptive labels (e.g., “Grandma's Zucchini Cookies”) instead of plain informative labels (e.g., “Zucchini Cookies”) increased sales by 27%. (Wansink et al., 2001)

2. Changes to the physical environment

The physical environment has also a considerable influence on individuals' decision-making, as evident in various instances. (Lehner et al., 2016)

For example, product placement on shelves can nudge people to purchase specific items. Frequently, the most sold products are strategically positioned at eye level, and those closest to the cashier are often favoured. (Goldberg & Gunasti, 2007) Additionally, in all-you-can-eat settings, reducing plate size (Freedman & Brochado, 2012) and portion size (Rolls et al., 2002) has been shown to lower total energy intake and food waste.

3. Changes in the default policy

Besides, individuals often exhibit a tendency to opt for the path of least resistance, avoiding action unless necessary. This behaviour makes them highly susceptible to defaults, which are standard choices that determine the outcome when individuals take no action. (Lehner et al., 2016)

For instance, a default option for single-sided printing contributes to significantly higher paper consumption compared to a default for double-sided printing. A study conducted in Sweden revealed that 30% of paper usage is influenced by the default choice and that switching to a double-sided default option could reduce paper consumption by 15%. (Egebark & Ekström, 2016) Another well-known study examining organ donation programs found that countries with a default option of enrolling individuals in the program, presuming consent, observe significantly higher participation rates than countries where individuals must actively choose to opt into the program. (Johnson & Goldstein, 2003)

4. Use of social norms

Lastly, the use of social norms is also a powerful tool. Since humans are social beings, social norms are a strong force that influences human behaviour due to our innate social nature. (Lehner et al., 2016)

For instance, a study by Goldstein et al. (2008) harnessed the power of norms to increase towel reuse rates among hotel guests. By placing signs in bathrooms stating that the majority of guests reused their towels, they achieved significantly higher reuse rates than when focusing solely on environmental protection.

To gain a concrete understanding of this approach, let's explore the influence of social factors on consumer behaviour in more detail.

4.1 Social influence in consumer behaviour

The significance of social influences in consumers' purchasing decisions has been widely acknowledged. This is reflected in consumer decision-making models that integrate social norms as factors influencing behavioural intentions. (Ajzen & Fishbein, 1980)

According to Bicchieri (2006), social norms are :

“Behavioural rules for a situation (or type of situations) that lives up to two criteria : a sufficiently large share of the population (1) knows the rule and knows that it applies to

this particular type of situations and (2) conditionally prefers to conform to the rule in this type of situation.”

They serve as regulations within society and act as a collective representation of behaviours and approval shared by individuals or specific groups. (Higgs, 2015)

Besides, people's experiences are shaped by their differing degrees of sensitivity to the social dimensions of the world surrounding them. This concept of “susceptibility to interpersonal influence” has been identified as a general trait that differs across individuals. (Bearden et al., 1989) In consumer research, this construct plays a crucial role in determining consumer behaviours. By assessing consumers' predisposition to act on social cues during purchase or consumption decisions, it becomes possible to predict the relative significance of interpersonal factors on their purchase intentions. (Bearden & Rose, 1990)

Bearden et al. (1989) defined the susceptibility to interpersonal influence as the following : “The need to identify with, or enhance, one’s image in the opinion of significant others.” Generally, susceptibility to interpersonal influence has been conceptualised into two dimensions, which are : normative and informational influence. (Bearden et al., 1989) However, for the purposes of this paper, we will limit our research to the normative component.

4.2 Susceptibility to normative influence

What is normative influence ? According to Burnkrant and Cousineau (1975), it involves a desire to conform to the expectations of people and has been distinguished, by several researchers, between two forms ; utilitarian influence, and value expressive influence.

On one hand, the utilitarian influence refers to an individual's tendency to conform to the expectations of others in order to gain rewards or avoid punishments. An individual would be expected to comply with the preferences, or expectations, of another individual, or group, if : a) they perceive that they mediate significant rewards or punishments ; b) they believe that their behaviour will be visible or known to these others ; c) they are motivated to realise the reward or to avoid the punishment. (Bearden et al., 1989 ; Park & Lessig, 1977)

On the other hand, value expressive influence relates to an individual's motivation to enhance or support their self-concept. This influence operates through a process of identification, where individuals use reference groups to express themselves or boost their ego. Firstly, individuals seek consistency between their desire for self-expression and the psychological image associated with the reference group. Secondly, individuals are influenced by a value expressive

reference group simply because they like the group, and this does not require consistency with their own self-image. Consequently, individuals respond to the reference group's recommendations, even if the content of their responses is irrelevant to the group. (Burnkrant & Cousineau, 1975 ; Park & Lessig, 1977)

Section 4 : Exploring nudging strategies

In this section, we will conduct a systematic review of nudging's utilisation, particularly in the context of environmentally conscious consumption. This review aims to provide insights into applicable nudging techniques within the fashion industry.

1. Nudging to promote sustainable consumption

In 2014, Sunstein has highlighted the potential of nudge as a promising tool to promote sustainable consumption. More recently, in collaboration with Thaler, a chapter named “Saving the Planet” appeared in the final version of their well-known book. According to them, policies are needed to adapt to and combat climate change, and “those policies should incorporate choice architecture best practices and a host of nudges.” (Thaler & Sunstein, 2021)

In industrialised countries, housing, transport, and food and drink collectively account for a significant portion (around 75-80%) of the life cycle environmental impacts. (Lehner et al., 2016) Below, we will assess the existing evidence on the effectiveness of nudges in promoting sustainable consumption in these particular domains.

1.1 Energy consumption

Decades of evidence suggest that people under-invest in energy efficiency. As a result, various nudge-based approaches have been utilised to promote residential energy efficiency.

For instance, feedback interventions have demonstrated energy savings ranging from 1% to 20%. (Delmas, et al. 2013) Furthermore, social comparison feedback leverages the power of descriptive social norms, where individuals unconsciously tend to imitate the behaviour of others around them. This mechanism has been widely tested in electricity billing, and Delmas et al. (2013) reported an average effect size of 11.5% energy savings for social comparative feedback.

Other applications of nudge principles include changes to default options, particularly with “opt-out” contracts that offer environmentally friendly choices as defaults but allow consumers

to opt-out if they prefer otherwise. (Pichert & Katsikopoulos, 2008) In these cases, a significant number of consumers tend to stick with the environmentally friendly option.

Changes to users' physical environment, such as designing refrigerators with alarms to prevent leaving the door open, can support energy conservation behaviours as well. (Bhamra et al., 2011) Prompts, like stickers reminding users to turn off lights, are low-cost interventions that can be effective in energy-saving campaigns.

1.2 Food consumption

Food consumption is often habitual and reflexive, making it a suitable target for nudging interventions. Policy makers can influence environments to encourage healthier food choices.

In a public health campaign, Oullier et al. (2010) report on a range of examples of nudges to promote healthy eating. In a specific study, the consumption of crisps was reduced by half when red-coloured crisps were intermittently added to a tube of regular crisps. The authors explained : “Using these visual markers draws the attention of the eater, gives them points of reference for their own consumption and causes them to interrupt that consumption.” (Oullier et al., 2010) Another instance demonstrating the impact of signifiers is observed in the Swedish burger chain Max. By incorporating carbon labels on all their burgers, they observed a 16% increasing in sales for burgers with a lower carbon footprint compared to the average. (van Gilder Cooke, 2012)

In a different vein, in 2013, Kallbekken and Sælen focused on food waste. In their experiment, they placed a sign at the buffet of seven hotel restaurants : “Welcome back! Again! And again! Visit our buffet many times. That's better than taking a lot once”. This sign served as a cue for normal behaviour and led to a significant 20.5% reduction in food waste compared to the data collected before the intervention.

1.3 Transport

Transportation is an area that has been the focus of efforts to change behaviour for many years. The existence of various systemic approaches to address issues like access, congestion, and environmental pollution, stands as an evidence for the effectiveness of nudges.

Changing the physical environment have been reported as one of the most effective instruments to influence travel behaviour. For instance, Jacobsson (2014) showed that dynamic speed limits at a bridge between Copenhagen and Malmö could significantly reduce speeding. The

“Actibump-system”, which creates a 4 cm ridge if cars drive too fast, resulted in a decrease from 70% to 17% of cars exceeding the speed limit.

Besides, in-vehicle data recorders can provide feedback on driving patterns with the aim of rewarding various behaviours that promote road safety, the environment, and pro-social actions. This technology has gained popularity among the public, particularly when coupled with financial rewards, such as incentives provided by insurance companies. Remarkably, the measure has found the most appeal among drivers with more aggressive and risky driving styles. (Musselwhite, 2004)

Section 5 : Nudges in the fashion industry

After exploring the various nudges already employed to promote sustainable behaviours across different sectors, our attention now turns to the fashion industry. In this context, we aim to investigate the current state of the art of nudge theory implementation in fashion.

By examining existing research and practices, we seek to gain insights into the effectiveness, challenges, and potential opportunities of utilising nudges to drive sustainable consumption and behaviour in the fashion sector.

1. State of the art

As we have seen before, despite increasing research in sustainability, consumer purchasing behaviour for sustainable apparel remains low. Consumers express interest in sustainability but often prioritise fast and inexpensive fashion, leading to a gap between attitudes and actual behaviour. (Lee, et al., 2020 ; Wiederhold & Martinez, 2018) Consequently, several studies have explored the effectiveness of nudging to promote sustainable fashion consumption.

For instance, Gossen et al. (2022) examined how online retailers use sustainability labels for fashion products to communicate their sustainability information to consumers. The results show that a considerable number of fashion products are labelled as sustainable. However, only a small percentage of these labelled products have credible third-party verified sustainability labels. The absence of robust certification poses challenges for consumers in accurately assessing a product's sustainability and can hinder the purchase of sustainable apparel. (Wiederhold & Martinez, 2018)

Besides, research conducted by Roozen et al. (2021) demonstrated the significant impact of verbal nudges, and to a lesser extent, visual nudges, on consumers' fashion purchasing decisions. The study found that consumers were willing to pay higher prices for garments with sustainability nudges compared to those without. Similarly, other studies have supported the effectiveness of labeling systems when indicating standardised ethical and environmental conditions on clothing tags. (Aspers, 2008 ; Perez & Lonsdale, 2018) These findings highlight the potential of nudges and labeling in influencing consumer behaviour towards more sustainable fashion choices.

In their study, Mirbabaie et al. (2021) investigated the impact of digital nudging strategies on the purchasing behaviour of green fashion products in the context of e-commerce. The research explored the effectiveness of digital default and social norm nudges in an experimental setting for green fashion purchases. Surprisingly, the analysis of hypotheses did not reveal any statistically significant differences in purchasing behaviour between the treatment groups. Contrary to previous studies that demonstrated the significant motivating effect of social norm and default nudge strategies on consumer behaviour for purchasing green products (Demarque et al., 2015 ; Ingendahl et al., 2020), the results showed that all participants exhibited similar behaviour.

Indeed, Demarque et al. (2015) investigated the impact of descriptive norms on online grocery purchasing behaviours, considering them as powerful nudges to promote green consumption. The study's main findings underscore the potential of descriptive norms as effective tools for incentivising online shopping. These results not only support prior research on the influence of descriptive norms on pro-environmental behaviour but also extend the understanding to the context of financially incentivised online shopping.

Finally, Roozen et al.'s (2021) findings revealed that ecological consciousness, alongside nudges, significantly influence consumers' sustainable choice behaviour. This aligns with Alwitt and Berger's (1993) research, which indicated that consumers with higher environmental concern are more inclined to purchase green products. Additionally, results suggest that consumers with a relatively high level of fashion involvement are less willing to opt for sustainable fashion products, supporting Kim et al.'s (2018) findings, which emphasised the role of involvement in (fast) fashion development and its impact on emotional connections and loyalty toward the fashion industry.

2. Research opportunities

As demonstrated by previous research, nudging holds significant potential for promoting sustainable consumption in the fashion industry. However, further experimentations are necessary to identify the most effective types of nudges for this context. In this part, we aim to analyse and determine the appropriate types of nudges that could be utilised in this paper, to encourage sustainable behaviour within the fashion industry.

2.1 Visual nudges

On one hand, we have seen the effectiveness of various visual nudges such as eco-friendly information about the seller (Roozen et al., 2021) and the use of eco-labels (Gossen, et al., 2022). Additionally, a wide range of visual cues can be used as nudging techniques : “Graphics, highlights, callouts, signage, and other design elements can serve as a visual cue, guiding the eye toward a particular area or encouraging a specific behaviour.” (Siemer, 2023)

In this context, rewarding and punishment strategies can serve as effective solutions. These techniques involve using “incentives and penalties to encourage or discourage specific behaviours.” (Siemer, 2023) Incentives and disincentives can be strategically designed to align with environmental policy objectives, providing immediate and salient feedback tied to particular behaviours. By increasing the visibility of disincentives, choice architects can enhance their effectiveness in discouraging undesirable actions. (Thomas et al., 2011)

2.2 Social nudges

As previously discussed, social nudges utilising norms have demonstrated success in promoting green behaviours (Delmas et al., 2013 ; Demarque et al., 2015). The potential effectiveness of social nudges as a nudge technique is noteworthy.

Mirbabaie et al. (2021) evaluated the effectiveness of social and default nudges but did not yield statistically significant results. It is essential to note that their study did not specifically focus on the social nudge itself. Additionally, Demarque et al.'s (2015) research revealed the impact of descriptive norms on online grocery purchasing behaviours, further highlighting the potential of social nudges in influencing consumer choices online.

However, there are notable differences between grocery purchases and fashion purchases in terms of their purpose and buying frequency. Grocery products primarily fulfill basic sustenance needs and are bought more frequently, whereas fashion products are centred around personal style and self-expression, resulting in less frequent but more deliberate purchases.

(Charry, 2022 ; Zhu & Lin, 2019) Hence, in the context of fashion, social nudges could be investigated to understand their effect on sustainable purchase intention.

To summarize, this master's thesis aims to investigate two types of nudges in the context of online fashion : rewarding and social nudges. In addition, we will investigate the effect of the fashion involvement and the ecological consciousness discussed in Roozen et al. (2021).

3. Fashion involvement

According to Flügel (1929), certain individuals experience immense pleasure from their clothes or even from thinking about them. In 1974, Gurel defined clothing interest (or fashion involvement) as : “the attitudes and beliefs about clothing, the knowledge of and attention paid to clothing, the concern and curiosity a person has about his/her own clothing and that of others.”

Theoretically, we can establish an overall fashion involvement continuum by considering the combined impact of various essential fashion-related activities. According to King and Sproles (1973), based on previous research on fashion segmentation, there are at least five significant dimensions that contribute to the aggregate fashion involvement continuum :

- Fashion innovativeness and time of purchase ;
- Fashion interpersonal communication ;
- Fashion interest ;
- Fashion knowledgeability ;
- Fashion awareness and reaction to changing fashion trends.

In 1976, Tigert et al. used these five dimensions for the development of a “fashion involvement index” to measure participants’ perceived personal relevance or interest in fashion. They demonstrated that consumers with a relatively high score on fashion involvement purchase significantly more clothing items and spend more per item compared to consumers with a relatively low score on fashion involvement.

4. Ecological consciousness in fashion

Ecological consciousness is defined as a state of mind characterised by a psycho-spiritual connection to nature and a personal value that represents the harmonious development of humans and the natural world. (Alwitt & Berger, 1993) People with higher levels of ecological

consciousness tend to have a strong environmental concern, leading to a favorable association with sustainable purchase behaviour. (Alsmadi, 2007)

The growing ecological consciousness within the masses has led to the rise of eco-fashion or green fashion as a new trend, with consumers supporting fashion brands that produce sustainable products. (Niinimäki, 2010) However, to understand the impact of ecological consciousness on purchase intention, it is essential to consider the fashion involvement discussed in the preceding section. In general, individuals with a strong orientation towards fashion have a desire for the latest trends, seeking variety and novelty in their apparel choices. However, the concept of “sustainable fashion” may not align with the fashion quotient, creating a barrier to its consumption among fashion-oriented individuals. (Hassan et al., 2014 ; Park & Kim, 2016)

As a result, fashion orientation negatively influences ecologically conscious individuals towards purchasing sustainable products. High fashion orientation is associated with a higher engagement with fashion, leading to frequent purchases of new fashion products to satisfy their need for new experiences and staying trendy. (Beaudoin et al., 2000) Despite their frequent consumption, individuals with high fashion orientation may never feel fully satisfied, which can affect their sustainable purchase behaviour. (Fletcher, 2012) Consequently, even if ecologically conscious individuals have a positive orientation towards sustainability, their fashion orientation can negatively impact their sustainable purchase behaviour.

Section 6 : Nudging legitimacy concerns

While nudging has shown promise in influencing behaviour positively, it has also faced criticism, leading to concerns about its impact on democratic processes and personal autonomy.

Critics, such as Marteau et al. (2011) and Felsen et al. (2013), have expressed reservations about the potential manipulation inherent in nudging, as well as the risk of alienating individuals from public agendas. Additionally, there is apprehension about the fairness of nudging policies, particularly in situations where a minority of well-informed citizens may exploit the efforts made by the majority to achieve common goods, as highlighted by Sunstein and Reisch (2013).

These critiques extend beyond nudging itself and encompass the broader concept of “libertarian paternalism”, which underpins the approach. As a reminder, libertarian paternalism seeks to

preserve individual freedom while encouraging behaviour that promotes welfare. The question arises as to whether the government or, more broadly policymakers, should have a legitimate role in shaping people's behaviour, which may be a subject of disagreement among different populations. (Lehner et al., 2016)

As we explore the potential of nudges, it is essential to keep in mind these ethical considerations and engage in a thoughtful discussion about their application in policy-making and societal context.

Conclusion of the literature review

As a conclusion, we will summarise the insights we have gathered from our comprehensive literature review.

The opening chapter shed light on the urgent concern of climate change, particularly highlighting the significant environmental footprint of the fashion industry. Our examination revealed that the fashion sector ranks as the sixth most polluting industry in terms of greenhouse gas emissions. As we went deeper into this vast industry, we gained an extensive understanding of its complex environmental impact.

Afterwards, we examined four solutions within this field, focusing particularly on reducing the disparity between consumers' attitudes and behaviours regarding sustainable buying. We recognised the pivotal role of choice architects in influencing individuals' decisions through choice architecture, potentially assisting in closing this gap.

Here emerged the nudge theory. We discovered that nudging is considered as a tool to encourage individuals to make better choices for themselves and society. It acts on our intuitive and instinctive thinking system, commonly engaged in the majority of our decision-making.

We examined four nudge techniques : simplifying and framing information, changing physical environments, altering default policies, and utilising social norms. We developed the latter by exploring susceptibility to normative influence and recognised that individuals exhibit varying levels of responsiveness to social pressure.

Then, we conducted an in-depth analysis of existing efforts aimed at promoting sustainable behaviours in three key sectors : energy, food, and transport. Although these sectors may not directly relate to the fashion industry, this review provided valuable insights and research opportunities to implement effective techniques within the fashion industry.

After analysing existing techniques in the fashion industry, we identified two promising nudge types : rewarding and social nudges. These have not been extensively tested in online fashion settings. As a result, the upcoming empirical study aims to assess their effectiveness in this context. We will also explore how factors like fashion involvement and ecological consciousness impact nudge outcomes, along with studying susceptibility to normative influence in relation to social nudges.

Part 2 : Empirical study

The initial phase of this master's thesis involved conducting an exploratory study through a review of existing literature. The aim was to gain insights into the current knowledge in the field, as well as to identify the specific research problem. It is important to note that the research problem represents the main question that we will explore through hypotheses and research inquiries. In this case, it is formulated as follows : “Do social and/or rewarding nudges influence consumers' choice for sustainable fashion ?”

The second part of this master's thesis focuses on the empirical study, which will enable us to address the research problem identified. Six hypotheses will be presented, followed by a detailed explanation of the quantitative analysis and data collection methodology. Finally, we will analyse and interpret the results obtained from the empirical study.

Chapter 1 : Hypotheses

During the exploratory phase of this study, we gained valuable insights into the problem at hand. This phase allowed us to identify two nudges, namely a rewarding nudge and a social nudge, which will be employed to promote sustainable behaviours in the fashion industry. Additionally, we recognised the significance of various variables, including the susceptibility to normative influence, fashion involvement, and ecological consciousness when purchasing apparels, to better comprehend the respondents' characteristics and their purchase decisions.

To achieve our objective of promoting sustainable purchase decisions in the fashion industry, we have formulated specific working hypotheses. These hypotheses will be rigorously tested to assess the impact of the chosen nudges and further contribute to the existing body of knowledge in this field.

First hypothesis : Rewarding nudge

In the literature review, we found evidence supporting the effectiveness of visual nudges, such as labels and eco-friendly information, in promoting sustainable purchases in the fashion industry. (Gossen, et al., 2022 ; Roozen et al., 2021) Additionally, rewarding nudges have shown promise in influencing consumer behaviour, as demonstrated in grocery purchases (Thomas et al., 2011) and promoting road safety. (Musselwhite, 2004)

However, there is a noticeable research gap in their application within the fashion industry. This hypothesis aims to address this gap and investigate the potential of rewarding nudges to promote sustainable fashion purchases.

Then, we hypothesise that a rewarding nudge will positively impact consumers' sustainable purchase intentions, contributing to a more environmentally conscious fashion industry.

H1 : Using a rewarding nudge (versus no nudge) leads to higher sustainable fashion purchase intentions.

Second hypothesis : Social nudge

Social nudges have proven to be effective in promoting sustainable behaviours, especially when leveraging normative influence. (Delmas et al., 2013 ; Demarque et al., 2015) Demarque et al. (2015) demonstrated the impact of descriptive norms on online grocery purchasing, showcasing the potential of social nudges in influencing consumer choices.

However, fashion purchases differ from grocery purchases in terms of purpose and frequency. Given these distinctions, investigating the use of social nudges in the fashion context to encourage sustainable purchase intentions becomes relevant.

Consequently, the following hypothesis is formulated :

H2 : Using a social nudge (versus no nudge) leads to higher sustainable fashion purchase intentions.

Third hypothesis : Rewarding nudge vs Social nudge

The third hypothesis serves to compare the two first hypotheses and the effectiveness of the two types of nudges they represent. As discussed previously, several studies have demonstrated the significant impact of social nudges on promoting sustainable behaviours, whereas there is limited research on the effectiveness of rewarding nudges in this context.

In addition, we consider Ajzen and Fishbein's (1975) theory of reasoned action (TRA), which seeks to explain and predict human behaviour, particularly in decision-making situations. TRA proposes that behavioural intentions are shaped by attitudes toward the behaviour and the subjective norms associated with it. While we will not directly influence customers' attitudes in this study, we will target and influence the subjective norm through the use of a social nudge.

By specifically targeting one of the two components of TRA, namely the subjective norm, we expect the social nudge to have a more significant impact compared to the rewarding nudge.

H3 : Using a social nudge leads to higher sustainable fashion purchase intentions than using a rewarding nudge.

Fourth hypothesis : Susceptibility to normative influence

The objective of the fourth hypothesis is to investigate the moderating role of susceptibility to normative influence on the impact of the social nudge. As the effectiveness of the social nudge relies on social pressure, we expect that individuals' susceptibility to normative influence will play a significant role in shaping their response to the nudge.

Individuals vary in their sensitivity to social influences and may respond differently to normative cues based on their differing levels of susceptibility. (Bearden et al., 1989) We anticipate that those who are more susceptible to normative influence will be more influenced by the social nudge, leading to higher sustainable fashion purchase intentions compared to individuals with lower susceptibility.

Therefore, we formulate the following hypothesis :

H4 : The susceptibility to normative influence moderates the impact of social nudge on fashion purchase intentions. More precisely, we expect that the positive impact of the social nudge (on sustainable fashion purchase intentions) will be higher if the susceptibility to normative influence is higher.

Fifth hypothesis : Fashion involvement

Drawing on the insights from Roozen et al. (2021) and Kim et al. (2018), our fifth hypothesis aims to investigate the potential moderating impact of fashion involvement on sustainable fashion purchases.

As a reminder, according to Roozen et al. (2021), consumers with higher fashion involvement tend to exhibit less willingness to choose sustainable fashion products. Additionally, Kim et al. (2018) emphasise the significant role of involvement in fast fashion development, leading to emotional connections and increased loyalty to the fashion industry.

However, we aim to delve deeper into this relationship by examining how fashion involvement may moderate the effectiveness of our two nudges in promoting sustainable fashion choices. We anticipate that individuals with greater fashion involvement may be less responsive to the nudges, resulting in a reduced effectiveness compared to those with lower levels of fashion involvement.

H5 : The fashion involvement moderates the impact of nudging on fashion purchase intentions. More precisely, we expect that the positive impact of nudging (on sustainable fashion purchase intentions) will be lower if the fashion involvement is higher.

Sixth hypothesis : Ecological consciousness

Expanding on the insights from Roozen et al. (2021), our sixth and final hypothesis seeks to explore the potential moderating influence of ecological consciousness on sustainable fashion purchases.

As mentioned earlier, Roozen et al.'s (2021) findings demonstrated that ecological consciousness significantly impacts consumers' sustainable choice behaviour, a notion consistent with Alwitt and Berger's (1993) research, which highlighted that individuals with higher environmental concern are more inclined to purchase green products.

With this hypothesis, we aim to further investigate the relationship between ecological consciousness and the effectiveness of our two nudges in promoting sustainable fashion choices. We expect that individuals with a stronger ecological consciousness may display greater responsiveness to the nudges, leading to an improved effectiveness compared to those with lower levels of ecological consciousness.

H6 : The ecological consciousness when purchasing apparels moderates the impact of nudging on fashion purchase intentions. More precisely, we expect that the positive impact of nudging (on sustainable fashion purchase intentions) will be higher if the ecological consciousness is higher.

Synthesis of the working hypotheses

The six working hypotheses establish cause-and-effect relationships, with certain ones also accounting for potential moderating effects. To enhance clarity regarding these hypotheses, a synthesis is presented below :

H1 : Using a rewarding nudge (versus no nudge) leads to higher sustainable fashion purchase intentions.

H2 : Using a social nudge (versus no nudge) leads to higher sustainable fashion purchase intentions.

H3 : Using a social nudge leads to higher sustainable fashion purchase intentions than using a rewarding nudge.

H4 : The susceptibility to normative influence moderates the impact of social nudge on fashion purchase intentions. More precisely, we expect that the positive impact of the social nudge (on sustainable fashion purchase intentions) will be higher if the susceptibility to normative influence is higher.

H5 : The fashion involvement moderates the impact of nudging on fashion purchase intentions. More precisely, we expect that the positive impact of nudging (on sustainable fashion purchase intentions) will be lower if the fashion involvement is higher.

H6 : The ecological consciousness when purchasing apparels moderates the impact of nudging on fashion purchase intentions. More precisely, we expect that the positive impact of nudging (on sustainable fashion purchase intentions) will be higher if the ecological consciousness is higher.

Table 2 : Synthesis of the working hypotheses

Chapter 2 : Experimental design

In order to be able to verify our hypotheses, a quantitative research was conducted. The study was carried out within a simulated fashion e-commerce environment, deliberately avoiding the citation of specific real e-commerce websites to mitigate any potential bias associated with brand influence.

Section 1 : Experimental conceptual model

The survey aims to establish causal relationships between variables, necessitating the manipulation of certain variables (dependent variables) and the measurement of others (independent variables). Two different nudges will be considered : a rewarding nudge and a social nudge. The manipulation of these nudges will be achieved through the use of three distinct scenarios (see Table 3), while the measurement of variables will be conducted through various scales incorporated in the accompanying questionnaire following the scenario description.

No nudge	Social nudge	Rewarding nudge
<i>Scenario 1</i>	<i>Scenario 2</i>	<i>Scenario 3</i>

Table 3 : Experimental plan

The 3 scenarios used in this study are defined as follows:

- Scenario 1 : The choice architecture does not contain any nudges (Control) ;
- Scenario 2 : The choice contains a social nudge ; the sustainable option is highlighted by “The choice of ecologists” ;
- Scenario 3 : The choice contains a rewarding nudge ; a big flower stands next to the sustainable option while a significantly shorter flower stands next to the non-sustainable option.

The setup is a between-subject design : each participant will encounter only one of the three scenarios. (see Appendix 1) This ensures independent responses, minimising bias and facilitating clearer interpretation of the nudge's impact on sustainable fashion purchase intentions.

To test the hypotheses mentioned earlier, we will analyse consumers' purchase intentions. Additionally, we will measure three concepts acting as moderating variables : susceptibility to normative influence, fashion involvement, and ecological consciousness when purchasing apparels. The different concepts used in this study are summarised through the conceptual model below.

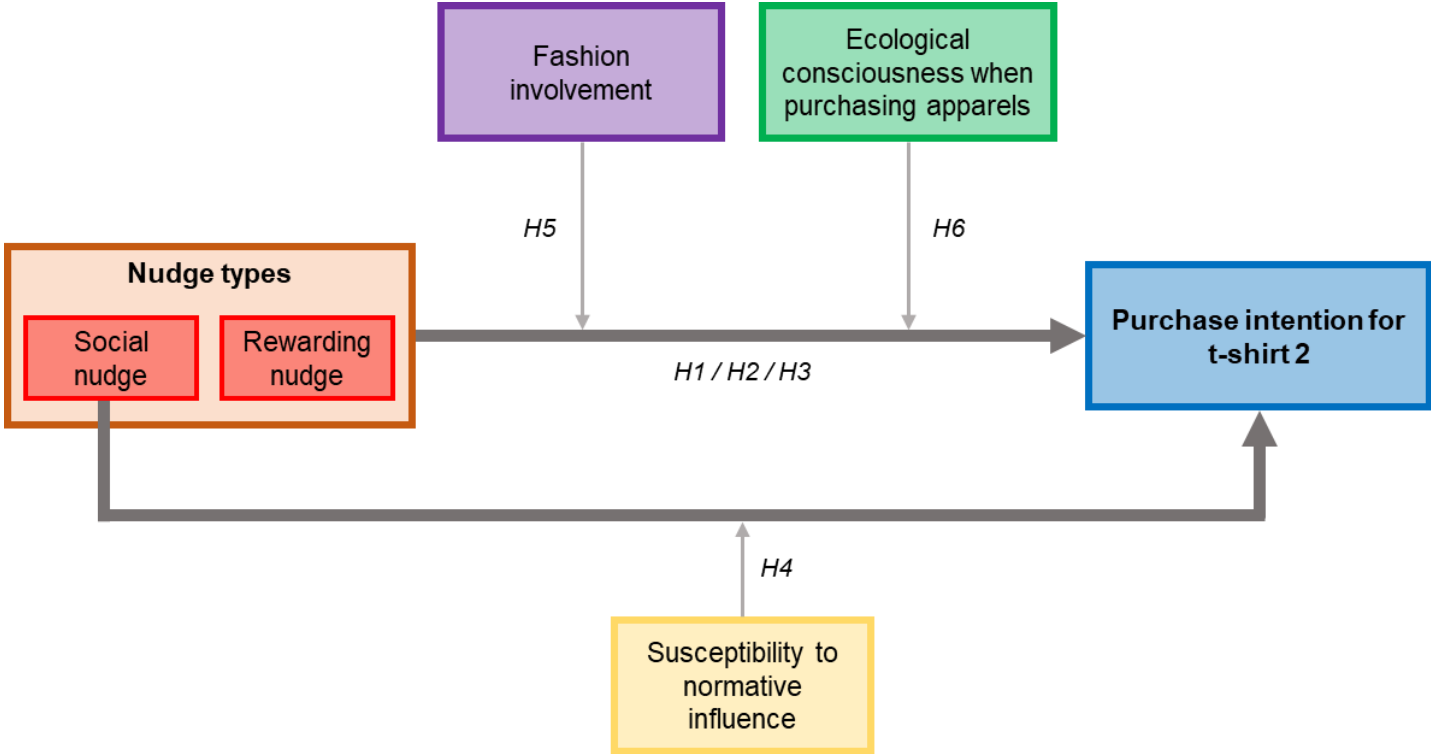


Figure 4 : Experimental conceptual model

Section 2 : Methodology

With the hypotheses and experimental design in place, this section is dedicated to presenting the process followed for developing the methodology and designing a data collection instrument.

1. Choice of an online questionnaire

An online questionnaire was chosen as a relevant method to gain in-depth knowledge of online consumers' responses to purchasing apparels in online environments. Lime Survey, a specialised platform for online statistical surveys, was selected for deploying the questionnaire.

This method offers direct access to a population of internet users who are familiar with online surveys and allows reaching geographically dispersed participants at their convenience. However, there are limitations to consider when interpreting the results, such as the recruitment bias from a network of acquaintances and potential response style biases, including acquiescence, extremism, centrism, and overgeneralisation biases. (Cadario et al., 2017)

Before the official data collection, a pre-test was conducted with a diverse group of 5 individuals to assess the relevance of the questions, both in terms of content and format. Following some adjustments based on their feedback, the final questionnaire, available in French, was administered online from July 23rd, 2023, to July 26th, 2023, to collect the data.

2. Questionnaire design & structure

The main purpose of the questionnaire is to collect data through the questions posed to the respondents in order to validate or reject the formulated hypotheses. As a result, it consists of several stages, including a series of closed-ended questions. (see Appendix 2)

The questionnaire was divided into 9 sections :

- 1) The survey started with a brief introduction to the study and its subject. The topic of the survey, which focused on the respondent's online consumption habits, was presented in a general manner. Special attention was given to ensure the anonymity and confidentiality of the questionnaire, along with the importance of gathering honest responses.
- 2) The respondents were randomly assigned to one of three scenarios. After the introduction, they were presented with their respective scenario and were pleased to carefully analyse the situation they were facing :

- Scenario 1 : two black t-shirts were shown, one made from conventional cotton priced at €10 and the other made from organic cotton priced at €12, following findings by Roozen et al. (2021) showing a higher willingness to pay for sustainable options ;
 - Scenario 2 : presentation like Scenario 1, but with a green frame (“The choice of ecologists”) around the sustainable t-shirt ;
 - Scenario 3 : presentation like scenario 1, but with two flowers ; a larger one by the sustainable option and a smaller one by the regular option.
- 3) Below this scenario, respondents were requested to make a choice between the two t-shirts and express their purchase intentions for each option using a 7-level Likert scale ranging from “*Very unlikely*” to “*Very likely*”. (Roozen & Raedts, 2020)
- 4) On the subsequent page, the respondent's fashion involvement was evaluated using Tigert et al.'s (1976) scale, which consists of five statements assessed on a 7-point Likert scale. The statements include : “I try to keep my wardrobe up-to-date with fashion trends” ; “I like to shop for clothes” ; “I like fashion” ; “I often buy T-shirts” ; “I often buy clothes in general”. The scale was carefully translated into French to ensure that the chosen words preserved the original meaning of the sentences.
- 5) On the same page, two manipulation checks were presented to assess the respondent's attentiveness to the scenario. The first check asked if the respondent remembered the colour of the two t-shirts, and the second check asked if they recalled their prices.
- 6) Another scale was used to assess the respondents' ecological consciousness when purchasing apparels. The Likert scale, adapted from Sudbury-Riley & Kohlbacher (2016), consists of four items on a 7-point scale : “When I purchase apparels, I always make a conscious effort to buy textiles that are low in pollutants” ; “If I understand the potential damage to the environment that some products can cause, I do not purchase them” ; “I normally make a conscious effort to limit my purchases of apparels that are made of or use scarce resources” ; “I switch brands for ecological reasons”. This scale was translated into French to ensure its relevance for the participants.
- 7) On the following page, the third scale used aimed to assess susceptibility to normative influence based on Bearden et al.'s (1989) eight items Likert scale. The scale included the following statements : “If other people can see me using a product, I often purchase the brand

they expect me to buy” ; “When buying products, I generally purchase those brands that I think others will approve of” ; “I often identify with other people by purchasing the same products and brands they purchase” ; “I achieve a sense of belonging by purchasing the same products and brands that others purchase” ; “I like to know what brands and products make good impressions on others” ; “I rarely purchase the latest fashion styles until I am sure my friends approve of them” ; “If I want to be like someone, I often try to buy the same brands that they buy” ; “It is important that others like the products and brands I buy”. This scale was translated into French to ensure its relevance for the participants.

- 8) On the same page, a third manipulation check was presented to assess if the respondents noticed the difference between the two shirts presented earlier.
- 9) On the fourth and final page, respondents were asked about their socio-demographic attributes, including gender, age, and education level.

Table 4 provides an overview of the various Likert scales utilised in the questionnaire.

Scale	Measure	References
Purchase intention	Likelihood on a 7-point Likert scale.	Roosen, I., & Raedts, M. (2020). The power of negative publicity on the fast fashion industry. <i>Journal of Global Fashion Marketing</i> , 11(4), 380-396.
Fashion involvement	Agreement / Disagreement on a 5-items 7-point Likert scale.	Tigert, D. J., Ring, L. J., & King, C. W. (1976). Fashion Involvement and Buying Behavior: a Methodological Study. <i>NA - Advances in Consumer Research</i> , 3, 46-52. Association for Consumer Research.
Ecological consciousness when purchasing apparels	Agreement / Disagreement on a 4-items 7-point Likert scale.	Sudbury-Riley, L., & Kohlbacher, F. (2016, August). Ethically minded consumer behavior: Scale review, development, and validation. <i>Journal of Business Research</i> , 69(8), 2697-2710.
Susceptibility to normative influence	Agreement / Disagreement on an 8-items 7-point Likert scale.	Bearden, W. O., Netemeyer, R. G., & Teel, J. E. (1989, March). Measurement of Consumer Susceptibility to Interpersonal Influence. <i>Journal of Consumer Research</i> , 15(4), 473-481.

Table 4 : Summary of the measurement scales

Chapter 3 : Analysis and interpretation of results

We have already established our working hypotheses, presented the experimental model, and conducted data collection following the outlined methodology. The next step is to assess the findings and draw conclusions based on the analysis.

In this chapter, we will analyse the collected data and evaluate the results to determine whether our formulated research hypotheses are supported or rejected.

Section 1 : Sampling & Data description

1. Sampling

Through the selected distribution method for the questionnaire, we successfully reached 235 individuals who accessed the survey link. However, due to incomplete responses, 66 were excluded from the initial collection leaving 169 observations in our database.

Next, we verified the manipulation checks, which comprised three questions :

- What was the colour of the 2 t-shirts ? (MC1)
- What was their price ? (MC2)
- Besides the price, did you notice any difference between the 2 offered t-shirts ? (MC3)

The primary aim of these three manipulation checks is to assess the effectiveness of the manipulation in our experimental design. If a respondent provides an incorrect response to the control question, his questionnaire will be excluded from the analysis. After conducting the verification, we observed 52 mistakes, with 11 for MC1, 21 for MC2, and 20 for MC3. As a result, 35 participants made at least one mistake in these manipulation checks, and their observations were removed from the study.

As a result, we obtained 134 fully completed questionnaires, which will be used for our study after being coded and processed using the statistical software “SAS Enterprise Guide 8.3”. The substantial number of respondents is promising, as it indicates that our findings are likely to be applicable to a broader population.

2. Coding

The respondents' responses have been extracted from the Lime Survey platform in Excel format. Thanks to the naming system of the platform, the data were directly ready to be analysed. The data coding is summarised in the table below.

Scales	Answer	Coding score
<i>Nominal scale of t-shirt choice</i>	T-shirt 1	1
	T-shirt 2	2
<i>Likert scale of purchase intention (t-shirt 1 & 2)</i>	Very unlikely	1
	Unlikely	2
	Slightly unlikely	3
	Neither likely nor unlikely	4
	Slightly likely	5
	Likely	6
	Very likely	7
<i>Likert scale of fashion involvement (5 items)</i>	Strongly disagree	1
	Disagree	2
	Slightly disagree	3
	Neutral	4
	Slightly agree	5
	Agree	6
	Strongly agree	7
<i>Likert scale of ecological consciousness when purchasing apparels (4 items)</i>	Strongly disagree	1
	Disagree	2
	Slightly disagree	3
	Neutral	4
	Slightly agree	5
	Agree	6
	Strongly agree	7
<i>Likert scale of susceptibility to normative influence (8 items)</i>	Strongly disagree	1
	Disagree	2
	Slightly disagree	3
	Neutral	4
	Slightly agree	5
	Agree	6
	Strongly agree	7
<i>Nominal scale of manipulation checks (MC 1 / 2 / 3)</i>	Green / €10 & €12 / “One t-shirt was for women, and the other was for men.”	1

	Black / €5 & €15 / “One was made of conventional cotton, and the other was made of organic cotton.”	2
	Red / €10 & €20 / “I did not notice any difference.”	3
	“I do not remember.”	4
<i>Categorical nominal scale of gender</i>	Female	1
	Male	2
	Other	3
<i>Categorical nominal scale of age</i>	Below 18	1
	18 – 24	2
	25 – 34	3
	35 – 44	4
	45 – 54	5
	55 – 64	6
	Above 64	7
<i>Categorical nominal scale of education level</i>	Primary education	1
	Lower secondary education	2
	Higher secondary education	3
	Professional bachelor’s degree	4
	Academic bachelor’s degree	5
	Master’s degree	6
	PhD	7
	“I prefer not to answer this question.”	8

Table 5 : Data coding

3. Data description

In order to gather essential socio-demographic information about the respondents, the survey included three key questions focusing on gender, age, and education level.

Firstly, we note that the majority of the sample consists of women, accounting for 88 respondents (65.7%), while men make up 46 respondents (34.3%). However, this imbalance is consistent with the global fashion market. According to Statista's data for 2022, the women's apparel market was approximately 50% larger than the men's market. This indicates a significant difference in revenue generated between the two markets, with women's clothing surpassing men's clothing in terms of market size and consumer spending. (Statista Research Department, 2023)

Secondly, our respondents exhibit a diversity in terms of age. Although there are no respondents below the age of 18, every older age category is well-represented, with each category having at least five participants. It is worth noting that the majority of respondents, totalling 63 individuals (47%), fall within the 18 to 24-year-old age range. This observation is likely because the online questionnaire was mainly distributed among individuals within my age group through my social media networks. The remaining categories consist of 71 respondents (53%). As a result, the average age of our sample falls into the 25-34 category, estimated to be around 28.2 years old.

Thirdly, the education level of our respondents is also quite diverse. While we have a majority of 43 (32.1%) respondents with a master's degree, the other categories are also well represented. In fact, we have respondents with education ranging from lower secondary school (5) to PhD (2).

Section 2 : Analysis of scale validity and reliability

Prior to delving into the analysis of the results, it is important to ensure the validity and reliability of the scales used in our survey. While these scales have been previously validated in scientific research, it remains crucial to ascertain their accuracy and consistency to interpret our findings accurately.

As a reminder, we employed three 7-point scales to assess three significant constructs : fashion involvement, ecological consciousness when purchasing apparels, and susceptibility to normative influence. By establishing the validity and reliability of these scales, we can confidently proceed with the analysis and draw meaningful conclusions from the data.

1. Scales validity

To assess the validity of the multi-item scales, we will employ the Kaiser-Meyer-Olkin (KMO) index. This index helps us evaluate the correlation quality among the various items within each scale, which is essential for assessing intra-scale validity.

In order for the scale to be considered valid, the KMO index should be higher than 0.5. A value between 0.7 and 0.8 is considered “good”, between 0.8 and 0.9 is labelled as “very good”, and a value above 0.9 is considered “excellent”. (Ducarroz & Sinigaglia, 2022 ; Glen, 2023)

Scales	KMO Index
<i>Fashion involvement</i>	0.801
<i>Ecological consciousness when purchasing apparels</i>	0.826
<i>Susceptibility to normative influence</i>	0.879

Table 6 : KMO index for the three 7-point scales

Table 6 presents the KMO index for each scale used in our questionnaire. All KMO indices are above 0.5, ranging from 0.801 to 0.879. These results indicate that the scales are considered valid, meaning that the items within each scale effectively measure their respective variables.

2. Scales reliability

In addition to assessing the validity of a scale, it is essential to measure its reliability. To verify the reliability of the scales, we will use Cronbach's alpha coefficient, which evaluates the internal consistency of a scale comprising a set of items.

Cronbach's alpha coefficient varies between 0 (items are independent) and 1 (items are perfectly correlated). A minimum threshold of 0.7 is typically considered as a reference for acceptable internal consistency. (Ducarroz & Sinigaglia, 2022)

Scales	Cronbach's alpha
<i>Fashion involvement</i>	0.852
<i>Ecological consciousness when purchasing apparels</i>	0.864
<i>Susceptibility to normative influence</i>	0.900

Table 7 : Cronbach's alpha for the three 7-point scales

Table 7 presents the Cronbach's alpha for each scale used in the survey. All three coefficients are above 0.7, ranging from 0.852 to 0.9. These results indicate a high level of reliability and internal consistency for the three scales used in the study.

In conclusion, the scales selected to measure our variables have been found to be both valid and reliable, as supported by existing literature.

Section 3 : Group equivalence

Before proceeding with the analysis of our hypotheses it is also crucial to ensure that the three groups are equivalent. To achieve this, we will conduct tests to ensure the equivalence of groups in terms of socio-demographic attributes, such as gender, age and education level. Moreover, it is essential to verify the equivalence of the experimental groups concerning fashion involvement, ecological consciousness when purchasing apparels, and susceptibility to normative influence.

This step is necessary to ascertain that the three groups are comparable. Ensuring group equivalence helps reduce the influence of potential confounding factors that could impact the study's results. (Ducarroz & Sinigaglia, 2022)

1. Group equivalence in terms of socio-demographic attributes

1.1 Group equivalence in terms of gender

We will examine the equivalence of our experimental groups in terms of gender. As mentioned in the data description section, 65.7% of our respondents are women, and 34.3% are men. However, the focus here is to ensure the comparability of the three groups.

Gender	Group 1	Group 2	Group 3	Total
<i>Female</i>	31	28	29	88
<i>Male</i>	12	15	19	46
Total	43	43	48	134

Table 8 : Gender distribution in the 3 experimental groups

To assess the similarity of the groups regarding gender, we will employ the non-parametric Pearson Chi-square test. This statistical test helps us determine if there is a dependence between two categorical variables. (Ducarroz & Sinigaglia, 2022)

Thus, we formulate two hypotheses :

- ✓ H0 : The gender composition is equivalent in the 3 experimental groups ;
- ✓ H1 : The gender composition is not equivalent in the 3 experimental groups.

To reject H0, the p-value should be less than or equal to the threshold of 5%. If the p-value is higher, the observed differences will not be considered statistically significant.

Pearson Chi-Square Test	
Chi-Square	1.3803
DF	2
Asymptotic Pr > ChiSq	0.5015
Exact Pr >= ChiSq	0.5083

Table 9 : Chi-square test of equivalence in gender in the 3 experimental groups

The p-value obtained from Pearson's Chi-square test is 0.508, which exceeds the significance level of 0.05 (or 5%). Therefore, we do not reject the null hypothesis (H0), indicating that there is no significant difference in the gender representation among our three groups. In other words, the groups are considered equivalent in terms of gender distribution.

1.2 Group equivalence in terms of age

The equivalence of our experimental groups in terms of age needs to be analysed too. Although we are aware that there is a majority of respondents aged from 18 to 24 (47%), we will now examine the equivalence between our three groups.

Age	Group 1	Group 2	Group 3	Total
18 – 24	21	21	21	63
25 – 34	4	9	9	22
35 – 44	1	3	7	11
45 – 54	11	5	4	20
55 – 64	4	4	5	13
Above 64	2	1	2	5
Total	43	43	48	134

Table 10 : Age distribution in the 3 experimental groups

In this case, the Chi-square test may not be a valid test. Indeed, the chi-squared distribution is a suitable test when the expected values are not “too small”. In practice, it is commonly accepted that the chi-squared distribution is appropriate if all the expected values in the contingency table are five or more, which is not the case for the age distribution (see Table 10). This criterion ensures the reliability of the test results and helps avoid potential issues with small frequencies. (Der & Everitt, 2007)

Nevertheless, when confronted with small sample sizes an alternative option is Fisher's exact test. This particular test is well-suited for such situations and provides reliable results without relying on the assumptions of the chi-square test. (Der & Everitt, 2007)

We create similar hypotheses as those used for testing gender equivalence :

- ✓ H0 : The age composition is equivalent in the 3 experimental groups ;
- ✓ H1 : The age composition is not equivalent in the 3 experimental groups.

Fisher's Exact Test	
Table Probability (P)	<.0001
Pr <= P	0.3115

Table 11 : Fisher's exact test of age equivalence in the 3 experimental groups

The p-value obtained from Fisher's exact test, as presented in Table 11, is 0.312. Based on this result, there is no significant evidence to suggest that age is associated with the experimental groups.

1.3 Group equivalence in terms of education level

Finally, we will take a look at the equivalence of our three experimental groups in terms of education level.

Education level	Group 1	Group 2	Group 3	Total
<i>Lower secondary education</i>	2	2	1	5
<i>Higher secondary education</i>	5	6	10	21
<i>Professional bachelor's degree</i>	15	9	11	35

<i>Academic bachelor's degree</i>	8	7	10	25
<i>Master's degree</i>	11	17	15	43
<i>PhD</i>	1	1	0	2
<i>"I prefer not to answer this question."</i>	1	1	1	3
Total	43	43	48	134

Table 12 : Education level distribution in the 3 experimental groups

As for the age distribution, we have cells with fewer than 5 observations. Therefore, it is recommended to use Fisher's exact test to assess the group equivalence in terms of education level.

Again, we formulate the same type of hypotheses than for the gender and age equivalence :

- ✓ H0 : The education level composition is equivalent in the 3 experimental groups ;
- ✓ H1 : The education level composition is not equivalent in the 3 experimental groups.

Fisher's Exact Test	
Table Probability (P)	<.0001
Pr <= P	0.8813

Table 13 : Fisher's exact test of education level equivalence in the 3 experimental

The p-value obtained from Fisher's exact test, as indicated in Table 13, is 0.881. This result indicates that there is no substantial evidence to support a relationship between education level and the experimental groups.

2. Group equivalence in terms of fashion involvement

Throughout the questionnaire, we assessed the fashion involvement of the respondents using five questions related to fashion and apparel consumption. As a reminder, each question had a 7-point scale for respondents to indicate their level of agreement or disagreement. To facilitate the analysis of these results, we introduced a new variable named "fashion_involvement". This variable was created by calculating the average of all five scale responses for each individual

respondent. The table below displays the average fashion involvement of respondents for each group.

Fashion involvement	Group 1	Group 2	Group 3
<i>Mean</i>	4.18	4.44	3.97
<i>Minimum</i>	1	1.2	1
<i>Maximum</i>	6.4	6.6	6.6

Table 14 : Fashion involvement statistics in the 3 experimental groups

To assess the group equivalence of this variable, we will utilise the “One-Way ANOVA” statistical test. This will provide us with an F-statistic and a p-value. The F-statistic measures the variation between group means relative to the variation within groups. The p-value will determine if there is a significant difference between the means of the groups. (Ducarroz & Sinigaglia, 2022)

For this analysis, we will formulate two hypotheses, which are similar in structure to the ones used for the socio-demographic variables :

- ✓ H0 : There is no difference in the means of fashion involvement among the three experimental groups ;
- ✓ H1 : There is a significant difference in the means of fashion involvement among the three experimental groups.

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	5.1244614	2.5622307	1.32	0.2704
Error	131	254.0564341	1.9393621		
Corrected Total	133	259.1808955			

Table 15 : One-way ANOVA of Fashion involvement in the 3 experimental groups

The results indicate that there is no significant difference between the three experimental groups in terms of fashion involvement, as the p-value (27.04%) exceeds the significance level of 5%.

3. Group equivalence in terms of ecological consciousness when purchasing apparels

To evaluate the equivalence of ecological consciousness when purchasing apparels across the three groups, we will follow a similar procedure as for the previous variable. This scale consists of 4 items that were assessed using a 7-point scale. We formulated a new variable named “eco_consciousness” by aggregating scale responses and computing the average for each individual respondent.

Ecological consciousness when purchasing apparels	Group 1	Group 2	Group 3
<i>Mean</i>	3.95	4.10	3.78
<i>Minimum</i>	1	1	1
<i>Maximum</i>	5.75	6.25	7

Table 16 : Ecological consciousness when purchasing apparels statistics in the 3 experimental groups

The two hypotheses are the following :

- ✓ H0 : There is no difference in the means of ecological consciousness when purchasing apparels among the three experimental groups ;
- ✓ H1 : There is a significant difference in the means of ecological consciousness when purchasing apparels among the three experimental groups.

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	2.3776087	1.1888043	0.68	0.5103
Error	131	230.3019622	1.7580302		
Corrected Total	133	232.6795709			

Table 17 : One-way ANOVA of Ecological consciousness when purchasing apparels in the 3 experimental groups

The findings suggest that the p-value (51.03%) for fashion involvement is greater than the 5% significance level, indicating no significant difference between the three experimental groups in this aspect.

4. Groups equivalence in terms of susceptibility to normative influence

Lastly, we also need to analyse the susceptibility to normative influence. To do this, we created a new variable called “suscept_norm_influence”, by averaging the responses from the 8 items completed by respondents on a 7-point scale.

Susceptibility to normative influence	Group 1	Group 2	Group 3
<i>Mean</i>	2.28	2.31	2.34
<i>Minimum</i>	1	1	1
<i>Maximum</i>	4.625	5.25	5.125

Table 18 : Susceptibility to normative influence statistics in the 3 experimental groups

The two hypotheses are the following :

- ✓ H0 : There is no difference in the means of susceptibility to normative influence among the three experimental groups ;
- ✓ H1 : There is a significant difference in the means of susceptibility to normative influence among the three experimental groups.

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	0.0729650	0.0364825	0.03	0.9713
Error	131	164.2625061	1.2539123		
Corrected Total	133	164.3354711			

Table 19 : One-way ANOVA of Susceptibility to normative influence in the 3 experimental groups

The p-value (97.13%) exceeds the 5% significance level, suggesting no significant difference between the three experimental groups in terms of susceptibility to normative influence.

In summary, all 3 experimental groups are equivalent in terms of socio-demographic attributes (gender, age, education level) as well as in fashion involvement, ecological consciousness when purchasing apparels, and susceptibility to normative influence. With these results, we can proceed with our analysis.

Chapter 4 : Hypotheses testing

Therefore, with the validity and reliability of the scales used in our questionnaire confirmed, and the equivalence of our three experimental groups, we are now fully prepared to proceed with the analysis of our hypotheses.

As a reminder, our working hypotheses seek to examine the impact of the two nudges (rewarding & social) utilised in this study. Furthermore, we will assess the influence of the scales (fashion involvement, ecological consciousness, and susceptibility to normative influence) as well as their potential role as moderating variables.

To test our hypotheses, we will employ two different analysis methods. Firstly, to assess the effectiveness of our two nudges (H1, H2, H3), we will use the t-test to compare the averages of the groups. Next, for the hypotheses that include a moderating variable (H4, H5, H6), we will utilise the General Linear Model to examine any potential moderating effects.

In these analyses, the dependent variable will be the respondent's purchase intention towards the second t-shirt (Pi2), which is presented as the sustainable option. During the examination of the results, our primary focus will be on the p-values. We will use a significance threshold of 5% to assess the statistical significance of our variables. This approach will help us determine whether the observed effects are statistically significant or merely due to chance.

Preliminary analyses

Before delving into the analysis of the hypotheses, let's first examine the choice made by the respondents between the two t-shirts proposed.

T-shirt 1	T-shirt 2
81	53

Table 20 : Distribution of respondents' t-shirt choices

We observe that a majority of participants opted for t-shirt 1 (made from regular cotton) rather than t-shirt 2 (made from ecological cotton). This difference can likely be attributed to the price contrast between the two options ; €10 for t-shirt 1 and €12 for t-shirt 2.

However, in the subsequent analyses, our attention will be directed towards the respondents' intentions concerning both t-shirts. Concentrating on intentions (measured on a scale from 1 to 7) provides a more nuanced and comprehensive understanding compared to solely focusing on the binary choice (1 or 2). This approach enables us to delve deeper into the impact of nudges on purchase intentions.

Prior to this, the logical consistency of the respondents' choices was evaluated. Specifically, each respondent who selected t-shirt 1 also indicated a higher purchase intention for t-shirt 1 compared to t-shirt 2. Similarly, the opposite pattern was observed for those who chose t-shirt 2.

We observe that the mean purchase intentions for both t-shirts are generally comparable, although some variations are more pronounced within specific groups. Consequently, we will explore whether any variations in purchase intentions exist between the three experimental groups.

Means of purchase intention	Total population	Group 1 (no nudge)	Group 2 (social nudge)	Group 3 (rewarding nudge)
<i>T-shirt 1</i>	4.46	4.12	4.81	4.43
<i>T-shirt 2</i>	4.10	3.93	4.84	3.60

Table 21 : Mean purchase intentions for both t-shirts across the entire population and among the three experimental groups

To begin, we will focus on the purchase intention towards the first t-shirt (Pi1), which is the regular one made from conventional cotton. Table 21 presents the means of Pi1 within each of the three experimental groups. While the means are not exactly equal, they appear to be relatively similar across the groups.

To compare the means of the three groups, we will conduct a General Linear Model (GLM) analysis. This statistical method enables us to determine if there is a significant difference between the groups in terms of purchase intention.

- ✓ H0 : The means of the three groups are equal on the purchase intention for t-shirt 1.
- ✓ H1 : The means of the three groups are not equal on the purchase intention for t-shirt 1

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	10.4886107	5.2443054	1.25	0.2906

Table 22 : General Linear Model on purchase intention for t-shirt 1 by groups

With a p-value of 29%, which is above the 5% threshold, we can conclude that the means of the Pi1 are considered equal across the three groups. This indicates that the nudges (social & rewarding) have no significant impact on Pi1.

Nevertheless, we did not expect any variation in Pi1 due to the nudges. Indeed, the focus of the study was on the variation in Pi2. Therefore, let's perform the same analysis using Pi2 as the dependent variable.

Table 21 displays also the means of Pi2 for each of the three experimental groups, and it is evident that the means vary across the groups. To verify the statistical significance of these variations, we need to conduct further analyses.

- ✓ H0 : The means of the three groups are equal on the purchase intention for t-shirt 2.
- ✓ H1 : The means of the three groups are not equal on the purchase intention for t-shirt 2.

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	36.4069840	18.2034920	3.95	0.0216

Table 23 : General Linear Model on purchase intention for t-shirt 2 by groups

The analysis of Table 23 reveals a significant difference in the means of Pi2 among the three experimental groups, as indicated by the p-value of 0.022, falling below the 5% threshold. This finding suggests that the nudges have a notable impact on Pi2, influencing participants' sustainable fashion purchase intentions.

These results align with the findings discussed in the literature by Roozen et al. (2021) : “Nudging can significantly influence consumers’ choice for sustainable fashion”. Moreover, by examining our hypotheses, we will be able to investigate the specific effects of each nudge, providing a deeper understanding of their respective roles in shaping sustainable fashion purchase intentions.

Now that we have established that our three experimental groups are different in terms of Pi2, let's delve into the analysis of our hypotheses.

Section 1 : Analysis of first hypothesis

H1 : Using a rewarding nudge (versus no nudge) leads to higher sustainable fashion purchase intentions.

To analyse the hypothesis, we will study the impact of the rewarding nudge by comparing the means of the purchase intention toward the second t-shirt (Pi2) within 2 groups : the “no nudge” group (scenario 1) and the “rewarding nudge” group (scenario 3).

Table 21, which we analysed previously, indicates that the mean of the first group is higher than the mean of the third group, where the rewarding nudge was implemented. This finding contradicts our initial hypothesis, as it suggests no positive effect of the rewarding nudge. However, to determine if this difference is statistically significant, we will conduct a t-test to compare the means of the two groups.

Hence, we formulate two hypotheses :

- ✓ H0 : The mean of group 1 is equal to the mean of group 3 on the purchase intention for t-shirt 2.
- ✓ H1 : The mean of group 1 is not equal to the mean of group 3 on the purchase intention for t-shirt 2.

Method	Variances	DF	t Value	Pr > t
Pooled	Equal	89	0.69	0.4898

Table 24 : t-test of purchase intention for t-shirt 2 in groups 1 (no nudge) and 3 (rewarding nudge)

The t-test results presented in Table 24 indicate a p-value of 0.49 (> 0.05). Based on this significance level, we fail to reject the null hypothesis as the difference in means between the two groups is not statistically significant.

Therefore, we can conclude that using a rewarding nudge does not result in higher sustainable fashion purchase intentions. Moreover, the rewarding nudge does not appear to have any significant impact on sustainable fashion purchase intentions.

Section 2 : Analysis of second hypothesis

H2 : Using a social nudge (versus no nudge) leads to higher sustainable fashion purchase intentions.

To analyse this hypothesis, we will perform a similar analysis to that of H1, but this time we will focus on the “no nudge” group (scenario 1) and the “social nudge” group (scenario 2).

As shown in Table 21, the mean of the first group is lower than the mean of the second group, where the social nudge was implemented. This result aligns with H2, suggesting a positive effect of the social nudge. However, in order to establish the statistical significance of this difference, it is necessary to conduct a t-test to compare the means of the two groups.

Hence, we propose two hypotheses :

- ✓ H0 : The mean of group 1 is equal to the mean of group 2 on the purchase intention for t-shirt 2.
- ✓ H1 : The mean of group 1 is not equal to the mean of group 2 on the purchase intention for t-shirt 2.

Method	Variiances	DF	t Value	Pr > t
Pooled	Equal	84	-1.97	0.0521

Table 25 : t-test of purchase intention for t-shirt 2 in groups 1 (no nudge) and 2 (social nudge)

The t-test results presented in Table 25 indicate a p-value of 0.052 (> 0.05), suggesting that there is no statistically significant difference in means between the “no nudge” group and the “social nudge” group. However, it is noteworthy that the p-value (5.2%) is very close to the established significance threshold of 5%. Therefore, we can affirm that the results of this test are marginally significant.

Consequently, this research hypothesis can be considered statistically valid. This implies that using a social nudge leads to higher sustainable fashion purchase intentions, aligning with our hypothesis.

Section 3 : Analysis of third hypothesis

H3 : Using a social nudge leads to higher sustainable fashion purchase intentions than using a rewarding nudge.

To test this hypothesis, we will conduct a similar analysis to that of H1 and H2, but this time, we will compare the effectiveness of the two nudges used in the study, focusing on the “social nudge” group (scenario 2) and the “rewarding nudge” group (scenario 3).

As depicted in Table 21, the mean of the second group is higher than the mean of the third group. This finding supports H3, suggesting a more positive effect of the social nudge over the rewarding nudge. To determine the statistical significance of this difference, a t-test will be conducted to compare the means of the two groups.

Hence, we propose two hypotheses :

- ✓ H0 : The mean of group 2 is equal to the mean of group 3 on the purchase intention for t-shirt 2 ;
- ✓ H1 : The mean of group 2 is not equal to the mean of group 3 on the purchase intention for t-shirt 2.

Method	Variances	DF	t Value	Pr > t
Pooled	Equal	89	2.84	0.0055

Table 26 : t-test of purchase intention for t-shirt 2 in groups 2 (social nudge) and 3 (rewarding nudge)

The results obtained from the t-test, as presented in Table 26, demonstrate a statistically significant difference in means between the “social nudge” group and the “rewarding nudge” group, with a p-value of 0.0055 (< 0.05). Consequently, we reject the null hypothesis and find evidence in support of the alternative hypothesis.

This suggests that the implementation of a social nudge leads to a greater level of sustainable fashion purchase intentions compared to using a rewarding nudge, thus confirming the alignment with our initial hypothesis.

Section 4 : Analysis of fourth hypothesis

H4 : The susceptibility to normative influence moderates the impact of social nudge on fashion purchase intentions. More precisely, we expect that the positive impact of the social nudge (on sustainable fashion purchase intentions) will be higher if the susceptibility to normative influence is higher.

Distinguished from the first three hypotheses, the fourth hypothesis introduces a moderating element. It aims to explore the role of susceptibility to normative influence (SNI) as a moderator on the influence of the social nudge. To achieve this, our focus will be directed towards both the “no nudge” group (scenario 1) and the “social nudge” group (scenario 2).

To analyse the impact of this moderating variable, we transformed it into a “dummy variable”. We calculated the mean of this variable for the entire population (mean : 2.31). Respondents scoring below this mean were assigned a code of 0 (low SNI), while those scoring above the mean were assigned a code of 1 (high SNI).

		Group 1	Group 2	Group 3
Low SNI	<i>Number</i>	22	26	28
	<i>Mean</i>	1.46	1.59	1.43
High SNI	<i>Number</i>	21	17	20
	<i>Mean</i>	3.14	3.41	3.61

Table 27 : Descriptive statistics of susceptibility to normative influence as a dummy

Before turning our attention to the specific groups under consideration, let's examine whether a higher SNI is associated with an increased purchase intention for t-shirt 2 across the entire population. To conduct this analysis, we employ the General Linear Model, incorporating

both the scenario and SNI as explanatory factors to account for the variability in purchase intention for t-shirt 2.

Source	DF	Type III SS	Mean Square	F Value	Pr > F
suscept_norm_influen	1	43.93102229	43.93102229	10.43	0.0016
scenario	2	29.00931911	14.50465955	3.44	0.0350

Table 28 : General Linear Model on purchase intention for t-shirt 2 by groups and by susceptibility to normative influence

As we already know, we note that the scenario's impact on purchase intention for t-shirt 2 is significant ($p < 0.05$), indicating differences among the three groups. Additionally, the SNI exhibits a main effect on the entire population ($p < 0.05$). Further analyses indicate that this effect is positive.

Now, turning our attention to specific groups (“no nudge” & “social nudge”), we will conduct a similar analysis as before but exclusively for these two groups.

Hence, we propose two hypotheses :

- ✓ H0 : The relationship between the social nudge and the purchase intention for t-shirt 2 is the same regardless of the level of susceptibility to normative influence ;
- ✓ H1 : The relationship between the social nudge and the purchase intention for t-shirt 2 is different depending on the level of susceptibility to normative influence.

Source	DF	Type III SS	Mean Square	F Value	Pr > F
scenario	1	17.37469470	17.37469470	3.93	0.0509
suscept_norm_influen	1	12.10941378	12.10941378	2.74	0.1019
scenario*suscept_nor	1	7.24503839	7.24503839	1.64	0.2043

Table 29 : General Linear Model on purchase intention for t-shirt 2 by groups (only 1 & 2) and by susceptibility to normative influence

With a p-value of 20.43% surpassing the 5% threshold, no significant interaction effect is found between the social nudge and the SNI. Consequently, we retain the null hypothesis.

In addressing our fourth hypothesis, we conclude that, although susceptibility to normative influence does have a main effect on the population, it does not serve as a moderator for the impact of the social nudge.

Section 5 : Analysis of fifth hypothesis

H5 : The fashion involvement moderates the impact of nudging on fashion purchase intentions. More precisely, we expect that the positive impact of nudging (on sustainable fashion purchase intentions) will be lower if the fashion involvement is higher.

The fifth hypothesis introduces another moderating element : the fashion involvement (FI). This hypothesis seeks to examine whether fashion involvement acts as a moderator in the influence of nudging (both social & rewarding).

To analyse the impact of this moderating variable, we employed the same approach as before, transforming it into a “dummy variable”. We calculated the mean of this variable for the entire population (mean : 4.19) and assigned corresponding codes (0 or 1) to each respondent.

		Group 1	Group 2	Group 3
Low FI	<i>Number</i>	20	14	25
	<i>Mean</i>	3.13	3.06	2.69
High FI	<i>Number</i>	23	29	23
	<i>Mean</i>	5.10	5.11	5.36

Table 30 : Descriptive statistics of fashion involvement as a dummy

To assess the validity of H5, we will combine the two groups where a nudge was employed. This consolidation results in two groups : Group 1 (no nudge) and Group 2 (nudge utilised). We will employ the General Linear Model for this analysis.

Hence, we propose two hypotheses :

- ✓ H0 : The relationship between nudging and the purchase intention for t-shirt 2 is the same regardless of the level of fashion involvement ;
- ✓ H1 : The relationship between nudging and the purchase intention for t-shirt 2 is different depending on the level of fashion involvement.

Source	DF	Type III SS	Mean Square	F Value	Pr > F
scenario	1	0.55943666	0.55943666	0.13	0.7221
fashion_involvement_	1	25.22031809	25.22031809	5.73	0.0181
scenario*fashion_inv	1	17.76987489	17.76987489	4.03	0.0467

Table 31 : General Linear Model on purchase intention for t-shirt 2 by groups (nudge or not) and by fashion involvement

We observe that FI holds a significant main effect on the purchase intention for t-shirt 2, with a p-value of 1.81%. Additional analyses indicate that this effect is positive. Furthermore, an interaction effect between nudging and FI is evident, as indicated by a p-value (4.67%) below the 5% threshold. Consequently, we reject the null hypothesis.

Based on our fifth hypothesis, we can deduce that fashion involvement does play a role in shaping the purchase intention for t-shirt 2 and further acts as a moderator for the impact of the nudges. Interestingly, both effects are constructive, resulting in an augmentation of respondents' inclination towards the sustainable option. This outcome stands in contrast to the initially assumption of a negative effect of fashion involvement in H5.

Consequently, the hypothesis is partially validated : its first aspect concerning the moderating effect is affirmed, whereas the second aspect, suggesting a negative effect, is not supported.

Section 6 : Analysis of sixth hypothesis

H6 : The ecological consciousness when purchasing apparels moderates the impact of nudging on fashion purchase intentions. More precisely, we expect that the positive impact of nudging (on sustainable fashion purchase intentions) will be higher if the ecological consciousness is higher.

The sixth and last hypothesis introduces ecological consciousness when purchasing apparels (EC) as a moderating factor. This hypothesis aims to explore whether EC moderates the influence of nudges, both social and rewarding.

Using a comparable approach as earlier, we will analyse the impact of this moderating variable. We transformed it into a “dummy variable”, calculating the mean for the entire population (mean : 3.94), and assigned corresponding codes (0 or 1) to each respondent.

		Group 1	Group 2	Group 3
Low EC	<i>Number</i>	17	18	24
	<i>Mean</i>	2.78	2.94	2.59
High EC	<i>Number</i>	26	25	24
	<i>Mean</i>	4.71	4.94	4.97

Table 32 : Descriptive statistics of ecological consciousness when purchasing apparels as a dummy

To evaluate the validity of H6, we will merge the two groups where a nudge was utilised, similar to our approach for H5. This results in two groups : Group 1 (no nudge) and Group 2 (nudge utilised). We will utilise the General Linear Model for this analysis.

Hence, we propose two hypotheses :

- ✓ H0 : The relationship between nudging and the purchase intention for t-shirt 2 is the same regardless of the level of ecological consciousness when purchasing apparels ;
- ✓ H1 : The relationship between nudging and the purchase intention for t-shirt 2 is different depending on the level of ecological consciousness when purchasing apparels.

Source	DF	Type III SS	Mean Square	F Value	Pr > F
scenario	1	1.88470984	1.88470984	0.42	0.5185
eco_consciousness_du	1	30.05388849	30.05388849	6.68	0.0108
scenario*eco_conscio	1	6.12523937	6.12523937	1.36	0.2453

Table 33 : General Linear Model on purchase intention for t-shirt 2 by groups (nudge or not) and by ecological consciousness when purchasing apparels

We note a positive main effect of EC on t-shirt 2 purchase intention (p-value : 1.08%). However, there is no observable interaction between nudging and EC, evident from the p-value (24.53%) exceeding the 5% threshold. Thus, we retain the null hypothesis.

Considering our sixth hypothesis, it implies that while ecological consciousness does influence t-shirt 2 purchase intention, it does not moderate the nudges' impact. Hence, we reject this last hypothesis.

Chapter 5 : Answering the research question

As a reminder, the research question of the study was : “Do social and/or rewarding nudges influence consumers’ choice for sustainable fashion ?”

We formulated different hypotheses to help answer the research question. The first three hypotheses aimed to understand how social and rewarding nudges impact consumer choices and compared their effects. Then, we analysed the potential moderating effect of the susceptibility to normative influence, the fashion involvement and the ecological consciousness when purchasing apparels.

The summarised results of our hypothesis tests are presented in the table below :

HYPOTHESIS	PREDICTION	RESULT
H1	Using a rewarding nudge (versus no nudge) leads to higher sustainable fashion purchase intentions.	Rejected
H2	Using a social nudge (versus no nudge) leads to higher sustainable fashion purchase intentions.	Supported
H3	Using a social nudge leads to higher sustainable fashion purchase intentions than using a rewarding nudge.	Supported
H4	The susceptibility to normative influence moderates (positively) the impact of social nudge on fashion purchase intentions.	Moderating effect : Rejected Positive effect : Supported
H5	The fashion involvement moderates (negatively) the impact of nudging on fashion purchase intentions.	Moderating effect : Supported Negative effect : Rejected
H6	The ecological consciousness when purchasing apparels moderates (positively) the impact of nudging on fashion purchase intentions.	Moderating effect : Rejected Positive effect : Supported

Table 34 : Summary of hypotheses testing results

The response to our research question is affirmative. Although the rewarding nudge did not exhibit an impact on respondents' purchase intentions, the social nudge demonstrated a positive influence on encouraging sustainable purchasing intentions.

On one hand, when analysing H1, we observed that employing a rewarding nudge did not lead to increased intentions for purchasing sustainable fashion. Additionally, the rewarding nudge did not show any significant impact on intentions to buy sustainable fashion.

On the other hand, H2 supports the idea that social nudges are effective in encouraging sustainable purchases, consistent with what we found in the literature review. Despite the hypothesis test results showing only modest significance, I assumed the social nudge influenced our respondents and pushed them to make sustainable fashion purchases. Moreover, H3 was confirmed, showing that the social nudge had a stronger (positive) effect compared to the rewarding nudge.

In addition to our primary research question, we recognised a positive influence of susceptibility to normative influence within our population, driving the promotion of sustainable fashion. However, we lacked evidence for the presumed moderating effect of the social nudge, as suggested in H4.

On the contrary, we discovered that fashion involvement served as a moderating factor for the nudges' impact. Specifically, in both groups where a nudge was introduced, its influence was moderated by the respondents' level of fashion involvement. Moreover, contrary to our findings in the literature review and the latter part of H5, we observed that a higher degree of fashion involvement corresponded to an increased intention towards the sustainable t-shirt, leading to a partial validation of the hypothesis.

Finally, in a similar vein to H4, we confirmed a positive relationship between the ecological consciousness of our respondents and their sustainable purchase intentions. As ecological consciousness rises, so does the inclination to purchase the sustainable t-shirt. However, we lack evidence to support any moderating effects of this concept in our context of nudging, consequently leading to the rejection of H6.

Part 3 : Discussion & Limits

Chapter 1 : Managerial recommendations

As established in our literature review, the fashion industry stands as a significant global polluter. With the rise of e-commerce, online fashion retailers are on the front line to address this issue. But, despite the emergence of new strategies for sustainable fashion, barriers persist. This study aimed to explore how nudging can encourage more sustainable clothing choices. Our findings not only provide insights for retailers to navigate environmental challenges but also contribute to the larger effort of tackling ecological issues.

Thanks to Roozen et al. (2021), prior knowledge had established that nudging can notably shape consumers' preference for sustainable choices. In their research, the efficacy of verbal nudges was evident, and to a lesser degree, the impact of visual nudges. Our own empirical study demonstrated that social nudges also play a significant role in promoting sustainable fashion purchases.

Consequently, a potential strategy to overcome obstacles in popularising sustainable fashion collections could involve merging a verbal nudge with a social nudge. Some prominent online retailers already employ social nudges to showcase products as, for instance, “Top-rated” or “Best-sellers” on their websites. This framing approach could be integrated with comprehensive clarification of the apparel's sustainable attributes.

Certainly, it is imperative for companies to prioritise the managerial dimension of their websites and ensure the company's profitability. Interestingly, well-known fashion websites already showcase a wide range of sustainable clothing options, indicating that the offerings are already available. Incorporating these nudging techniques could serve to accentuate the visibility of these sustainable products.

Furthermore, our study underscored that individuals with a strong affinity for fashion displayed a notable willingness to embrace sustainable products. Fashion enthusiasts seem prepared to shift towards sustainability, which should encourage fashion retailers to seize the opportunity to make their business more environmentally friendly and, by definition, sustainable.

Chapter 2 : Limitations & Suggestions for future research

In the process, our study has uncovered important insights, while also highlighting a few limitations. Concluding this master's thesis necessitates addressing these limitations and highlighting the potential avenues for future research.

Section 1 : Online questionnaire & Quantitative study

Firstly, certain constraints arise concerning the utilisation of an online questionnaire. A primary limitation pertains to the recruitment of participants, which was not fully controllable due to reliance on social network sharing. While the population was diverse, many who took part were from my personal network. This might have led to a certain kind of profile being more common due to shared interests.

Additionally, the online questionnaire's lack of examiner intervention results in all measures being self-reported. This introduces certain shared limitations, such as the susceptibility to social desirability bias, where individuals may provide inaccurate information to align with societal norms. Moreover, respondents might make genuine errors due to memory lapses, inattention, or the generalized nature of the questions, rather than offering insights into specific purchase situations. (Sudbury-Riley & Kohlbacher, 2016)

Furthermore, our study primarily focused on theoretical exploration for hypothesis development and a quantitative study for hypothesis testing. Considering future enhancements, the incorporation of a qualitative study holds potential. Such an approach could capture the respondents' authentic sentiments and attitudes, providing a deeper understanding of their perspectives.

Section 2 : Manipulation of the rewarding nudge

Secondly, we need to question the effectiveness of the rewarding nudge's presentation. The notably low rate of sustainable t-shirt purchases within the group exposed to the rewarding nudge prompts doubts about the efficacy of the flower employed. It is plausible to consider that participants from the third group might not have understood the significance of the flower or even notice it. Future studies on these nudge techniques should focus on making the rewarding

nudge more noticeable and clearer for participants. One interesting avenue for further research could be to add dynamic elements, similar to a moving gauge that matches the chosen t-shirt, to enhance the effectiveness of the rewarding nudge.

Section 3 : The diversity of the fashion industry

Thirdly, in each scenario we proposed a simple product : a black t-shirt. However, given the vastness and diversity of the fashion industry's product range, future investigations are necessary to determine if the observed nudging effect extends to other fashion items and sustainable materials.

Moreover, it is crucial to recognise that the sector's negative impact encompasses not only the environment but also extends to social dimensions, particularly within the fast fashion industry. This includes concerns such as exceedingly low wages, the absence of clear worker's rights, and adverse health effects on labourers operating under hazardous conditions. In light of these complex social issues, it becomes imperative to explore the potential impact of nudges as a means of addressing these multifaceted issues ; for instance, promoting “child-labour free” clothing.

Conclusion

As we reach the end of this master's thesis, let's draw our conclusion and summarise our journey within these pages. To recap, our initial research question was : “Do social and/or rewarding nudges influence consumers’ choice for sustainable fashion ?”

The theoretical segment of our study directed our attention toward social marketing concepts, including the nudge theory. Through our literature review, we identified a gap in research regarding two types of nudges : social nudges and rewarding nudges. Moreover, we recognised the significance of delving into concepts such as susceptibility to normative influence, fashion involvement, and ecological consciousness, all of which contribute to a comprehensive understanding of nudging dynamics within the fashion sector.

Then, we translated the research question into several hypotheses, which were tested through our empirical study. These hypotheses had a dual objective : to assess the impact of social and rewarding nudging on sustainable purchase intentions, and to identify potential moderating variables that could enhance the effectiveness of these nudges.

Our findings revealed distinct insights. The rewarding nudge, unfortunately, demonstrated no impact on purchase intentions for sustainable fashion. In contrast, the social nudge exhibited a notable and positive influence. Furthermore, while susceptibility to normative influence, fashion involvement, and ecological consciousness all displayed a positive association with sustainable purchase intentions, it was only the fashion involvement variable that exhibited a moderating effect on nudging.

To sum up, our findings suggest that online fashion retailers should consider using social nudging techniques. Despite some limitations, such as methodological constraints and challenges with the rewarding nudge manipulation, this study highlights the potential impact of nudging in the fashion sector. Additionally, we showed that fashion enthusiasts, highly engaged in the industry, could play a key role in promoting sustainable clothing and advancing the goal of sustainable business development.

In brief, nudging holds the potential to contribute to the fashion industry's journey towards sustainability. Rising temperatures, sea levels, storm intensity, and wildfires are projected to escalate in the upcoming decades, affecting every individual on Earth. Nowadays, the global

population is gradually gaining a deeper awareness of these changes. However, despite shifting attitudes, consumers still require a gentle push to facilitate changes in their purchasing behaviours.

To conclude this paper, I would like to share a quote from Richard H. Thaler and Cass R. Sunstein, found in the chapter “Saving the Planet” of the final edition (2021) of their renowned book, that could summarise this entire master’s thesis :

“Now, if you are reading this chapter hoping to hear that you shouldn’t worry because low-cost nudges will make this problem go away, we are going to disappoint you. As we have often stressed, not all problems can be solved with light-touch interventions. (...) Unfortunately, we do not have the option of running away from climate change, but unlike in the case of a tsunami, we do have a bit more time to act. And although it is true that nudges will not solve the problem, they can help, and we need all the help we can get.”
(Thaler & Sunstein, 2021, p. 286)

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