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Predicting Consumer Purchase Intention and Purchase Behaviour of Fashion Items Made from Recycled Plastic Using the Theory of Planned Behaviour

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November, 2021



BUSINESS
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Resumo

Moda produzida a partir de plástico reciclado consiste numa inovação promissora que poderá simultaneamente minimizar os impactos da indústria da moda, enquanto recicla plástico que, em alternativa, seria desperdiçado, poluindo aterros ou oceanos. À medida que a indústria da moda cresce exponencialmente, impactando negativamente as pessoas e o planeta, moda produzida a partir de plástico reciclado é frequentemente apontada como alternativa minimizadora do impacto da *fast fashion*. Esta dissertação pretende explorar a intenção de compra dos consumidores e o comportamento de compra dos consumidores face a artigos de moda produzidos a partir de plástico reciclado. Aplica a Teoria do Comportamento Planeado como base para prever a intenção e o comportamento de compra dos consumidores, testando o modelo através de regressões lineares múltiplas. Um questionário online foi aplicado e 277 respostas válidas foram consideradas na análise. Em suma, os resultados demonstraram que as atitudes, as normas subjetivas e a perceção de controlo comportamental são preditores significantes da intenção de compra. Ademais, a perceção de controlo comportamental e a intenção de compra foram consideradas preditores do comportamento de compra. A consciência dos impactos negativos da *fast fashion*, contudo, não foi estabelecido como preditor da intenção de compra de moda reciclada. Esta dissertação enriquece a literatura sobre moda reciclada, particularmente no contexto português, e contribui para o estudo da intenção e do comportamento de compra. As contribuições para a gestão vão além de encorajar empresas a incorporarem moda reciclada nos seus processos, promovendo uma mentalidade de utilização de recursos desperdiçados para criar valor.

Palavras-chave: moda produzida a partir de plástico reciclado; intenção de compra dos consumidores; comportamento de compra dos consumidores; consciência dos impactos negativos da *fast fashion*; Teoria do Comportamento Planeado

Sistema de Classificação JEL:

M10 Business Administration: General

M14 Business Administration: Social Responsibility

Abstract

Fashion produced from recycled plastic offers considerable promise as an innovation that could simultaneously minimize the impacts of the fashion industry, while also recycling plastic that would otherwise go to waste, ending up in landfills for centuries or polluting oceans. As the fast fashion industry grows exponentially, creating negative impacts on people and the planet, fashion produced from recycled plastic is often mentioned as an alternative to minimize the impacts of fast fashion. This dissertation aims to explore consumer purchase intention and consumer purchase behaviour of fashion items produced from recycled plastic. This research applied the Theory of Planned Behaviour as a foundation to predict consumer purchase intention, as well as consumer purchase behaviour, testing the model through multiple linear regressions. An online questionnaire was applied and 277 valid answers were included in the analysis. Overall, findings demonstrate that attitudes, subjective norms and perceived behavioural control are significant predictors of purchase intention. Moreover, perceived behavioural control and purchase intention are also considered good predictors of purchase behaviour. Awareness of the negative impacts of fast fashion, however, was not established as a predictor of purchase intention of fashion produced from recycled plastic. This dissertation enriches knowledge on recycled fashion, particularly in the Portuguese context and draws new insights on consumer purchase intention and consumer purchase behaviour. Managerial contributions go beyond encouraging companies to adopt recycled plastic fashion in their processes, promoting the mindset of using wasted resources to produce value, proving that one man's trash is another man's treasure.

Keywords: fashion produced from recycled plastic; consumer purchase intention; consumer purchase behaviour; awareness of the negative impacts of fast fashion; Theory of Planned Behaviour

JEL Classification System:

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Chapter I – Introduction

A plethora of environmental problems are slowly depleting the planet of its natural resources (The New York Times, 2019¹). Fast fashion – a lucrative business model which explores resources in an intensive way, to keep up with trends and provide consumers with affordable and fashionable outfits – is one of the largest contributors to the pollution of the planet and to the exhaustion of its resources (United Nations, 2019²). The negative impacts of the fast fashion industry on people and the planet created the need for alternatives that approach fashion in a way that is more conscious in its use of resources. Therefore, understanding consumers' intentions and behaviours towards these alternative ways of consuming and producing fashion is essential so that investments can be made in studying and developing these alternative ways of producing fashion.

One of the alternatives which has been studied (Gupta et al., 2019; Leonas, 2016) to partly solve the problems incited by the fast fashion industry is the use of recycled materials (for example, recycled plastic) to produce clothing, shoes and accessories. This alternative tackles two different issues in just one solution: the plastic waste problem and the resource-consuming means of producing fast fashion. The recycled plastic alternative could save essential resources and ensure that the 9 out of 10 PET plastic bottles which end up in landfills (Gupta et al., 2019) are instead put to good use.

However, it is not enough to present the use of recycled plastic in fashion as a solution, if consumers do not wish to take part in purchasing fashion items produced with recycled plastic. Even though ethical consumer behaviour has been widely studied in a plethora of contexts, ranging from the effects of adopting recycling habits (Arbor, 1989), to ethical food consumption, focusing on organic production and fair labour practices (Harrison, Newholm & Shaw, 2005), the consumption of sustainable, ethical or eco-fashion (Jalil & Shaharuddin, 2019) has only been recently approached in research. Nonetheless, the importance of this topic, however new it may be, is unquestionable. After all, consumers lead the way in the sustainable fashion department (Moorhouse & Moorhouse, 2017) and companies follow suit, in order not to lose their regular clientele. Therefore, the importance of studying consumers' opinions on the topic of recycled fashion becomes apparent. Hence, this dissertation intends not only to enrich academic research on this subject, but to also contribute

¹ <https://www.nytimes.com/2019/09/03/books/review/how-fast-fashion-is-destroying-the-planet.html>

² <https://news.un.org/en/story/2019/03/1035161>

to managerial decisions within the fast fashion industry, offering insights on how consumers feel and behave towards recycled fashion.

When adopting innovative and exciting solutions to tackle old, but nonetheless urgent problems, it is essential that the theoretical basis of research are well-established. Therefore, this dissertation adopts a recognised model – the Theory of Planned Behaviour (Ajzen, 1991) – to better understand consumers' intentions and their behaviours towards purchasing fashion produced from recycled plastic, ensuring that not only are the literature bases solid, but that the practical implementation of theory is also robust. This model has been proven to be well supported by empirical evidence (Ajzen, 1991), predicting intentions and behaviours with a high level of accuracy.

The Portuguese context is one area where research on consumers' purchase intentions and behaviours regarding fashion produced with recycled plastic has not been widely studied. Nevertheless, the growing interest that Portuguese consumers have on sustainability indicates the relevance of adapting this topic to the national context. With a total of 92% of Portuguese consumers stating that they are already adopting measures of responsible and sustainable consumption (Oney, 2020), it becomes pertinent to further study this consumption. In this case, in the framework of the consumption of fashion that is produced with recycled plastic. This dissertation intends to contribute to a more accurate characterization of the Portuguese consumers, as well as their intentions and behaviours in the purchasing of recycled fashion.

Concerning its theoretical objective, this study's core intention is: *Understanding consumers' intentions and behaviours regarding the purchase of fashion items produced from recycled plastic.* This objective is put to practice through the exercise of answering the following research questions: *Do attitudes, subjective norms and perceived behavioural control accurately predict intention to purchase fashion items produced from recycled plastic?* and *Does awareness of the negative effects of fast fashion accurately predict intention to purchase fashion items made from recycled plastic?* and finally *Do perceived behavioural control and purchase intention accurately predict purchase behaviour of fashion items made from recycled plastic?*

This dissertation is composed by an organised structure that will be shortly presented. The second chapter, after the Introduction, will follow along with the Literature Review: an extensive overview of the topics that contribute to this research, such as the ethics of consumption, the attitude-behaviour gap, greenwashing, the Theory of Planned Behaviour –

which was used as the core theoretical basis for this research – fast fashion and the plastic problem. The Theoretical Approach will follow the Literature Review, presenting this thesis' objectives, the research questions and the hypotheses raised in the previous chapter. Thereafter, the Methodology chapter presents both the research and the conceptual models – further explaining the hypotheses and the connection between each question and its respective indicator – as well as the sample description. The next chapters are called Results Presentation and Discussion. These encompass statistical analysis, quantitative results and the discussion of these results. Finally, the last chapter, Conclusions, addresses the final considerations of the thesis, its limitations and suggestions for further studies of this topic.

Chapter II – Literature Review

The objective behind this dissertation is to study and predict purchase intention and purchase behaviour of fashion items produced using recycled plastic, through the use of the Theory of Planned Behaviour. In order to do so, this chapter explores the literary content surrounding this topic, setting the basis for further research. A review of relevant authors is presented, as well as literature from different decades, in order to showcase the evolution of each topic throughout time. The chapter starts by exploring the topic of ethical behaviour and consumption, considering consumers, companies and governments as essential actors; the attitude behaviour gap is also explained through classic and contemporary authors; next, the concept of greenwashing is described; the Theory of Planned Behaviour is explored extensively, explaining its evolution through time, its structure and uses; and finally fast fashion is explained and presented in contrast with fashion produced with recycled plastic.

2.1 Ethical Behaviour and Consumption

While companies play an intrinsic part in creating and satisfying purchasing needs, consumers are the agents who make the final call in the consumption experience. Sustainable fashion, for instance, “has often been considered a consumer led movement which brands have been pressured to act on” (Moorhouse & Moorhouse, 2017, p.1957). This means that brands’ power is limited, as consumers are gaining agency in consumption behaviours. Therefore, it seems relevant to define this type of consumption, in which consumers consider the politics behind the products (Micheletti, 2003).

Ethical consumption, as a literary concept, has been defined and analysed by a plethora of authors. Harrison, Newholm, and Shaw (2005) have defined it as purchasing and consumption that takes certain criteria into account, such as: societal and animal welfare, environmental concerns, corporate responsibility, fair-trade issues, labour practices, WTO (World Trade Organization) policies, and globalization. According to Collins, Steg and Koning (2007), consumers who are more worried with society as a whole are more likely to engage in behaviours that are both socially and environmentally concerned.

Not only do consumers and companies impact the way business is conducted, but legislators and policymakers are also responsible for determining the course of action in terms of ethical behaviour. Both consumers and governments are increasingly interested in sustainable and ethical issues (Tomsa, 2021). Although it is hard to determine whether it was

consumer behaviour that influenced government policy or the other way around, it is clear that both of these agents of society are growing together in their awareness of ethics. Therefore, adding to the undeniable impact that companies have on ethical behaviour and consumption, governments and consumers should also be taken into account, as crucial parties in the definition of consumption patterns.

This dynamic of individual consumption that can simultaneously impact governance can also be referred to as bottom-up actions, in which consumers exert power over governments. This new kind of consumer, who is more concerned with collective well-being, rather than with their own priorities, has been defined as a “citizen consumer” by Ricci, Marinelli and Puliti (2016). Although personal necessities are not completely removed from this citizen’s list of concerns, embracing an ethical and moral consumption is undeniably their top priority. When purchasing, this consumer takes three main aspects into account: environmental protection, social responsibility and labour security.

According to Mintel research from 2015, consumers are indeed becoming increasingly concerned with ethics when purchasing. The results showed that 45% of American consumers stated that they choose to consume ethically, by buying from brands that they perceive to be aligned with their own ethical expectations. Moreover, 35% of the inquired also reported that if there was no alternative available to substitute a product, they would stop buying from companies that they believe are unethical (Mintel, 2015³).

However, this kind of punitive behaviour might not represent everyone’s behaviour. Different consumers will certainly have different expectations. Kim, Krishna and Dhanesh (2019) found that while some consumers punish companies that they observe being unethical or misbehaving, others do not necessarily react to these transgressions. While, for some, the issue of exploitation of workers, for instance, might be a dealbreaker in purchasing from a brand, others might react differently. Perhaps it is possible that even those who do not boycott said brand are also concerned with the exploitation of workers. However, the way that they express their concern is non-identical. This proves that, as Pollex (2017) stated, there is no “one-size-fits-all” solution to the issue of unsustainable consumption (i.e., the over consumption that endangers or erases limited resources). However, it remains clear that the role of consumers is too important to ignore. Although consumers might not be directly

³ <https://www.mintel.com/press-centre/social-and-lifestyle/56-of-americans-stop-buying-from-brands-they-believe-are-unethical>

responsible for single-handedly changing companies' ethics, they can certainly influence change by choosing to purchase from an ethical option rather than its unethical competitor.

In accordance with the Mintel research, Nielsen (2015⁴) found that most consumers indicate that they are willing to pay extra for products and services provided by socially and environmentally responsible brands. In line with this data, Unilever's study (2017⁵) reveals that one-third of consumers frequently purchase from companies that they feel are "committed to having a positive impact on both society and environment". GreenPrint (2021⁶), an environmental technology company, found that nearly two-thirds of American consumers are willing to pay a premium price for products that are sustainable or environmentally friendly. White, Hardisty and Habib (2019) confirm that around 65% of consumers want to buy purpose-driven brands that advocate sustainability.

Other studies, however, have come to different conclusions. Although it is undeniable that ethical consumption is becoming an increasingly desirable social movement, its positive connotation might not completely translate into reality. Cowe and Williams (2000) illustrated the "30:3 syndrome" which shows that although 30% of consumers express ethical consumption concerns, the growth of ethically products tends to stagnate at a 3% market share. Throughout the years, several authors have since confirmed this theory. Among them are Govind, Singh, Garg and D'Silva (2017) who studied the attitude-behaviour gap – a concept that encompasses the difference between how people say they will behave and how they actually behave – in ethical consumerism in order to find ways to attenuate this gap, which will be better explained further ahead. White et al (2019) also contributed to studying this gap, stating that while 65% of consumers intend to buy purpose-driven brands, only around 25% actually end up doing so.

According to these research results, there is reason to believe that the gap between thoughts and actions is still evident. However, many authors are still contributing to this topic, intending to close, or at least narrow, the gap between consumers' intentions and their actual behaviours.

⁴ <https://nielseniq.com/global/en/insights/analysis/2015/the-sustainability-imperative-2/>

⁵ <https://www.unilever.com/news/press-and-media/press-releases/2017/report-shows-a-third-of-consumers-prefer-sustainable-brands/>

⁶ <https://www.businesswire.com/news/home/20210322005061/en/GreenPrint-Survey-Finds-Consumers-Want-to-Buy-Eco-Friendly-Products-but-Don%E2%80%99t-Know-How-to-Identify-Them>

2.2 Attitude-Behaviour Gap

Wiederhold and Martinez (2018) refer to the “attitude-behaviour gap” as the barrier that divides ethical intentions and ethical actions. While most people say and believe that they would behave in the most ethical way, when placed in an ethical dilemma, there is certainly a gap between what their intentions are and what they end up doing. This definition was based on Carrigan and Attala’s (2001) work, who coined this term in the ethical consumption domain. The importance of this topic is undeniable: for companies aiming to please the ethical consumer, it is essential to understand the reasons behind this gap and how this discrepancy can be solved. By incorporating behavioural models into their research, Wiederhold and Martinez (2018) came to the conclusion that the determinants affecting consumer choices can be divided into external (institutional, socio-economic and cultural) and internal (environmental knowledge, personal motivations, attitudes and values) factors.

When it comes to the external factors affecting consumers’ choices, price is unsurprisingly pointed out as one of the main drivers (Bray, Johns & Kilburn, 2010). Ethically produced products are not always cheap. As a matter of fact, their immediate cost is usually higher than the cost of products made without any ethical considerations (Rode, Hogarth & Menestrel, 2006). This means that, for some consumers, it might be difficult to justify the need to purchase a different item, which is more expensive, solely based on its ethical value (Bray et al, 2010). One way in which companies can tackle this problem is to clearly justify to consumers the reason behind each price tag. Campbell, Heinrich and Schoenmüller (2015) conclude that price increases which are clearly justified by fair trade commitments do not have a negative impact on purchase behaviour of said products. If consumers are made aware of the advantages of product (for example, longer life span, fairer production, better quality of the material used, etc.) before its purchase, this can help them make the final decision to either purchase or not. Kim, Kim and Rothenberg (2020) confirm that honesty is the best policy, concluding that price and production transparency positively affect a brand’s likelihood of being purchased.

Availability is also key for consumers. According to Papaoikonomou and Ginieis (2010), if ethical products are not easily or immediately available, some consumers tend to forget or dismiss their ethical intentions and simply purchase an alternative that is not necessarily ethically produced and developed.

Moreover, lifestyle and cultural habits clearly also affect consumer behaviour (Ramya & Ali, 2016). Something as simple as choosing home-delivery or in-store purchase can completely change a consumer's *modus operandi*. Convenience, based on “deep-rooted habits of consumption”, is considered to be a key factor in Wiederhold and Martinez's (2018) research.

In terms of internal factors, personal motivations – such as loyalty towards a brand – tend to shape behaviour, sometimes going against and defeating consumers' environmental and social concerns (Papaoikonomou, Ryan & Ginieis, 2010). Getting consumers to make ethical choices is a long fight. In order to transform knowledge into motivation, motivation into intention and intention into behaviour, a substantial investment has to be made (by companies and institutions) to show consumers how and why ethical consumption is the way forward (Wiederhold & Martinez, 2018). One of the main barriers to this process is that although consumers are aware of what they should be doing, in terms of ethical behaviour, they sometimes lack the tools to put their plans into practice (Carbone, Moatti, Schoenherr & Gavirneni, 2019).

Another problem arises in the midst of educating consumers: what happens when consumers are completely aware of ethical concerns but become sceptical toward brand behaviours, which they now perceive as marketing tactics that are not based on the company's actual behaviour – or, putting simply, greenwashing tactics? According to Schumpeter (2014), scepticism is on the rise and it can reduce companies' likelihood of receiving a competitive advantage when their marketing is based on corporate social responsibility.

2.3 Greenwashing

The term “greenwashing” was coined by Jay Westerveld, in 1986, in his criticism of the hotel industry for placing the onus of environmental concerns on the customers, by promoting the reuse of towels, all while forgetting to tackle much larger issues in other aspects of their business. Greenwashing became the term used to call out companies for their so-called ethical behaviour, with the sole intention of looking good in the public eye and with (close to) zero concern for environmental and social issues in their own actions.

As consumers become more interested in ethical production, distribution and commerce, brands are analysed under the microscope. Greater institutional changes, better

environmental policies and ethical strategies that are more transparent rely somewhat heavily on consumers' education and on the pressure that they place on decision-makers. George (2020) confirms this, by stating conscious consumerism is forcing brands to adopt new, ethical strategies to stay relevant. The Consumer Citizen Network (2005) states that while companies have the duty to correctly inform consumers about their products and business conduct, consumers have to be willing to educate themselves and to incorporate these newfound values into their lifestyles. Barnett (2005) also claims that while corporate codes of conduct can be adopted by companies, their success relies greatly on consumers' awareness. This predicament raises a difficulty: how can companies promote themselves without making consumers perceive this self-promotion as greenwashing?

Perhaps the answer lays not only on companies, but also on consumers. Seele and Gatti (2017) state that greenwashing cannot be studied by considering only what companies intend to communicate. It must also consider the "eye of the beholder": the consumers. During their research, Seele and Gatti (2017) conclude that greenwashing is co-constructed (between companies and consumers). Therefore, their studies underline the importance of buyers and not only of producers, which supports the goal of this thesis: to study consumers' behaviour towards brands. The key word here is behaviour, a concept that, within this thesis, is analysed thoroughly, through the lens of ethics.

2.4 Theory of Planned Behaviour

Predicting, studying and analysing behaviour has always been a widespread concept in several areas of literature. The theory of planned behaviour (henceforth referred to as TPB) is a psychological theory that links beliefs to behaviour. Developed by Ajzen (1991) as an improvement on Fishbein and Ajzen's (1967) theory of reasoned action (TRA), TPB combines three main components (attitude, subjective norms and perceived behavioural control) that, when considered together, can accurately predict an individual's behavioural intentions. TRA's main difference in comparison to TPB is that this older theory does not include the perceived behavioural control component, one of the three pillars of TOB. Therefore, this means that TRA is significantly weaker in its predictive power when compared to TPB.

In order to better understand the TPB, it is relevant to further clarify these three "conceptually independent determinants of intention" (Ajzen, 1991, p. 188) that support it.

The first predictor is the attitude toward the behaviour, and it refers to “the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question” (Ajzen, 1991, p. 188).

The second pillar of the TPB is called subjective norms. This social factor falls back on the perceived social pressure to either perform or not perform a certain behaviour (Ajzen, 1991). It can be defined as “a kind of opinion that people approve or disapprove about a certain behaviour which is undertaken and performed” (Jalil & Shaharuddin, 2019, p. 4225).

Finally, the third determinant of intention is perceived behavioural control. This predictor refers to the degree of difficulty of performing a certain behaviour, reflecting past experience and anticipated obstacles (Ajzen, 1991), as well as resources, such as time and money (Jalil & Shaharuddin, 2019, p. 4225).

As a general rule, the more favourable the attitude and the subjective norms and the greater the perceived behavioural control towards a certain behaviour, the stronger a person’s intention to execute this behaviour. The weight that each of these three predictors has on the intention and further decision to behave in a certain way varies depending on the situation (Ajzen, 1991). While in some situations, attitudes might be dominant in determining someone’s behaviour, while the same can be said for the two other pillars. Given that it is difficult to predict the weight that each predictor has on individual situations, Ajzen (1991) underlines the importance of including these three pillars as antecedents of behavioural intentions, in order to try to accurately predict intention and behaviours.

Moreover, it is relevant to expand on the concept of perceived behavioural control and its role as a core component of the TPB. Having improved on the TRA’s predictive power, one of the core principles of the TPB is that behavioural intention can accurately foresee and determine social behaviour. Through the addition of one component – perceived behavioural control – Ajzen extended TRA’s reach from predicting just intentions to TPB’s reach of predicting actual behaviour. According to Ajzen’s work, two rationales can explain why perceived behavioural control, along with behavioural intention, can directly predict behaviour. Firstly, when intention is held stable, the effort to transform a course of behaviour in a successful outcome is likely to increase with perceived behavioural control. As the author explains, “even if two individuals have equally strong intentions to learn to ski, and both try to do so, the person who is confident that he can master this activity is more likely to persevere than is the person who doubts his ability” (Ajzen, 1991, p.184). Secondly,

perceived behavioural control is often used to replace a measure of actual control. Whether this replacement is successful or not depends on the accuracy of the perceptions.

The connection between intention to perform a behaviour and the actual performance of said behaviour has been previously studied by several different authors. Sheppard and Hartwick (1988) state that intention and behaviour are connected to a high degree, which means that behaviours such as the purchase of a fashion item, for example, can likely be determined with considerable accuracy based on the intention to purchase the said item. Ajzen (1991) explains that intentions are indications of how much of an effort a person is willing to make to perform a behaviour. Generally, the strength of the intention is positively proportionate to the likelihood of the behaviour. However, the author warns that it should be made clear that “behavioural intention can find expression in behaviour only if the behaviour in question is under volitional control” (Ajzen, 1991, p.182); which means that intention is only a good predictor of behaviour if a person is acting as a result of a decision or choice to either perform or not perform the said behaviour. This opposes to factors which do not arise from decisions or choices, such as availability of opportunities or resources, such as time, money, skills, the cooperation of others, etc. (Ajzen, 1985).

Another perspective that is worth reflecting upon is the TPB’s goal of not only predicting, but also explaining (or helping to explain) human behaviour. The TPB argues that behaviour is a result of information or beliefs, relevant to that behaviour. And while people can simultaneously hold a great number of beliefs, only a small portion of them is actually relevant at a given moment to impact a behaviour. These beliefs that overpower others and help define the course of action are called salient beliefs. They can be defined as “beliefs that are considered to be the prevailing determinants of person’s intentions and actions” (Ajzen, 1991, p.189). The pillars of the TPB are explained by three kinds of salient beliefs: behavioural beliefs, which influence attitudes towards a behaviour; normative beliefs, which are the basis of subjective norms; and control beliefs which determine behavioural control.

The distinction between these three different types of beliefs is at the core of the TPB. However, some have questioned the need to distinguish between these three pillars. Miniard and Cohen (1981) are among the critics of Fishbein and Ajzen’s behavioural intention model, which was the basis for the TPB. These authors question the need to distinguish between behavioural and normative beliefs, stating that there could be a possibility that these concepts overlap and therefore commit a “double count” error. This criticism can also be extended to

the third pillar of perceived behavioural control, questioning its need in this model. Therefore, critics of the TPB argue that it should be possible to integrate all beliefs about a certain behaviour under a single umbrella and not under three separate concepts, which could never be truly independent from each other.

Ajzen (1991) objects to the criticism, arguing that it is unhelpful to blur these distinctions, both in theory and in practice. “Theoretically, personal evaluation of a behavior (attitude), socially expected mode of conduct (subjective norms), and self-efficacy with respect to the behavior (perceived behavioral control) are very different concepts, each of which has an important place in social and behavioral research.” (Ajzen, 1991, p.199).

Despite criticism, nowadays, this model is still widely used, which proves its usefulness. According to Thongpila (2019) the TPB has continually been used as a model for analysing purchasing intention in the green marketing and consumption fields. Furthermore, another advantage of the TPB model is said to be the optimization of “the potential relationship between intention and its determinants by measuring each construct at equivalent levels of specificity” (Paul, 2016, p.125).

Furthermore, the usefulness of the distinction between the TPB’s constructs has been proved to be relevant. Not only does Ajzen (1991) claim that these three pillars should remain separate and independent, the author also leaves the door open for other, additional predictors to be included in the theory, if proven necessary. For example, Beck and Ajzen (1991) consider ‘moral obligations’ to be a helpful, additional predictor in some cases. If, for instance, the sense of responsibility to behave in a certain manner is considered in the equation, then the intention to act in a more moral way (for example more ethical or more sustainable way) will be stronger.

In the context of this research, one other predictor was added to the TPB: awareness of the negative impacts of fast fashion (henceforth referred to as ‘fast fashion awareness’ in the analysis). This variable was considered relevant to the analysis due to its positioning as the opposite of slow fashion: an ethical and sustainable way of producing and consuming fashion. Slow fashion can be defined as a movement that “represents a vision of sustainability in the fashion sector based on different values and goals to the present day...a break from the values and goals of fast (growth-based) fashion” (Fletcher, 2010, p.262). Other scholars (Holt, 2009) also contribute to this perspective, positioning slow fashion as a direct opposite of fast fashion. Moreover, according to McNeil and Snowdon (2019) slow fashion, a construct that

has been getting more attention in the last few years, can encompass several concepts within its definition (for example: green fashion, fashion produced with plastic waste, ethically produced fashion, etc.). Therefore, it was considered relevant to include fast fashion awareness as a construct featured in this use of the TPB. Given that slow and recycled fashion are commonly referred to as opposites of fast fashion, it is expected that those who are more aware of the issues with the fast fashion industry are also more likely to engage with recycled fashion. Moreover, given the variety of concepts surrounding the recycled fashion industry, it is pertinent to further clarify them and to explain them individually.

2.5 The Fast Fashion Problem and the Recycled Plastic Solution

To the uninformed observer, the fashion industry could easily be summed up by stylish outfits, innovative runway looks and beautiful models. However, the industry's dark side is slowly being unveiled and, nowadays, it is widely believed to be the second most polluting industry in the world (United Nations, 2019⁷), surpassed only by the fuel industry. Fashion's enormous impact on people and the planet is mainly due to the fast fashion business model, which largely disregards people and the planet (Niinimäki, Peters, Dahlbo, Perry, Rissanen and Gwilt, 2020). This business model is based on creating excessive fashion consumption patterns, offering consumers frequent new trendy items at a low price point. By promoting impulse buying and frequent consumption, instilling a sense of urgency in keeping up with the trends, fast fashion brands often disregard workers' rights and the environmental impact of their business model (Anguelov, 2015). According to Caro and Martínez-de-Albéniz (2015) fast fashion can be defined as a highly lucrative business model that encompasses three core characteristics: quick response to trends; frequent changes in the brands' assortments; and fashionable designs, that mimic runway styles, at affordable price points.

In fact, 93% of the brands evaluated by the Fashion Checker (2020⁸) did not pay their workers a living wage. Recognised by the UN as a human right, a living wage consists of a wage that is sufficient to afford a decent standard of living for a worker and their family, moreover "it should be earned in a standard work-week of no more than 48 hours, and must include enough to pay for food, water, housing, education, health care, transportation, clothing and some discretionary earnings, including savings for unexpected events".

⁷ <https://news.un.org/en/story/2019/03/1035161>

⁸ <https://fashionchecker.org/>

Moreover, according to the 2020 Fashion Transparency Index⁹, only 2% of the brands investigated had “a time-bound, measurable roadmap or strategy for how they will achieve a living wage for all workers across their supply chains”.

The fashion industry is also responsible for as much as 8% of the world’s carbon emissions, which is more than all international flights and maritime shipping combined, according to UN Environment (2019¹⁰) data. Furthermore, textile production, almost exclusively tied with the fashion industry, is responsible for using nearly 70 million barrels of oil per year to produce polyester, one of the most popular and fabrics used in fast fashion (Forbes, 2015¹¹).

According to Caro and Martínez-de-Albéniz’s (2015) definition, one of the main strengths of the fast fashion business model is the ability to recreate runway looks at a much lower price point. This represents fast fashion’s value proposition. Good On You (2020¹²), a brand rating organisation, also underlines fast fashion’s incredibly low prices, which come at the cost to the lives of factory workers, often located in under-developed countries, and its fast-paced production, which allows new collections to come out as often as every two weeks.

Upon further analysis of the fast fashion problem, emphasis should be placed on fast fashion retailers’ tactics which made consumers change their perspectives on the lifespan of a garment (Good On You, 2020). While in the mid-twentieth century, clothes were made to last, nowadays retailers and consumers alike, view them as disposable and easily replaceable by the next trend. This throwaway mindset is one of the largest issues with the fashion industry (Niinimäki et al, 2020). There is some debate as to how many clothing items end up going to waste. The Clean Clothes Campaign (2019¹³) states that three out of five fast fashion items end up in a landfill, while the USA’s Environmental Protection Agency (2012¹⁴) reported that 84% of unwanted clothing items end up either in landfills or incinerators.

The textile and apparel industry is a model example of the linear economic model, which is defined by the concepts of ‘take, make, use and dispose’, relying on large quantities to maintain the low cost of production (Leonas, 2016). However, a recent trend that has been

⁹ https://issuu.com/fashionrevolution/docs/fr_fashiontransparencyindex2020

¹⁰ <https://www.unep.org/news-and-stories/press-release/un-alliance-sustainable-fashion-addresses-damage-fast-fashion>

¹¹ <https://www.forbes.com/sites/jamesconca/2015/12/03/making-climate-change-fashionable-the-garment-industry-takes-on-global-warming/#3da6b7d579e4>

¹² <https://goodonyou.eco/fast-fashion-facts/>

¹³ <https://cleanclothes.org/fashions-problems/waste-and-pollution>

¹⁴ <https://www.treehugger.com/clothes-you-donate-dont-always-end-peoples-backs-4863686>

on the rise in the fashion industry is the attempt to move from a linear to a circular model, adopting a closed-loop manufacturing process that aims to reduce or even eliminate waste (Leonas, 2016). Nike has been one of the companies to come forward with this intention, stating that they “envision a transition from linear to circular business models and a world that demands closed-loop products- designed with better materials, made with fewer resources and assembled to allow easy reuse in new products”. The extent to which this kind of intention will have repercussions in companies’ business models is a question that will only be answered as time goes by.

This idea of circularity for materials and energy has been around at least since the 60s, appearing in Boulding’s (1966) work, explaining that manufacturers should be cyclical in their system of production. As for the concept ‘circular economy’, it first appeared in Kneese’s (1988) work and it was further expanded through the economic crises of the following years. Kirchherr, Reike and Hekkert (2017) created a definition of circular economy, through the analysis of over 100 other definitions that contributed to its final characterisation. They stated that circular economy is “an economic system that replaces the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes” (p. 229) that can only be enabled by innovative business models and responsible consumers. These authors also found that the central purpose of the circular economy is to accomplish sustainable development, through the simultaneous creation of environmental quality, economic prosperity and social equity, which will benefit not only the current, but also all future generations.

Based on this concept of circular economy, an alternative that could help decrease fast fashion’s impact is turning waste into something valuable, for example, turning plastic into clothing items. According to Nguyen et al (2020) this solution of applying the circular economy model to the production of fashion through the use of recycled plastic waste “will partly overcome the shortage of natural resources and minimize environmental pollution” (p. 3621). In other words, this solution closes the loop, solving at least one of the issues of the fast fashion industry – unsustainable production that erases the world of resources – and at least one of the problems of the plastic industry – the end-of-life of non-degradable plastic that still exists after 700 years (Gupta, Shukla & Agarwal, 2019). Currently, only 10% of PET (polyethylene terephthalate) bottles are being recycled. If the fashion industry decides to tackle the plastic problem by turning PET bottles into fabric, “this will help protect the earth and our future” (Gupta et al, 2019, p.5416). Polyester, a fabric that is commonly used in fast

fashion and that can be made with PET bottles, which are widely available (Wagner & Heinzl, 2020), could be an option that helps fulfil this goal of sustainably turning plastic waste into useful clothing.

Gupta et al (2019) state that textile recycling could not only come with environmental, but also economic benefits. There is a plethora of advantages to this kind of production: the usage of landfills would be reduced and therefore so would the space used by landfills; the transportation cost (both in financial and environmental cost) would be reduced, given that the recyclable materials are locally available; and the demand for chemically based dyes and fixing agents would be reduced, through the use of plastic.

The authors further argue that this type of open-loop recycling process (using the original item to produce a different type of item), combined with a Dry-Dye technique (an unconventional dyeing method that uses 90% less water and 85% less energy than the usual conventional processes), could save essential resources. Furthermore, test results show that recycled polyester is scientifically superior to virgin polyester, which adds to the advantages of adopting this kind of recycling process (Gupta et al, 2019).

Although the option of recycling what would otherwise be plastic waste, doomed to stay in a landfill or ocean for centuries, and turning it into fashionable clothing items is not yet a generalised practice, some brands have taken steps to include this process in their manufacturing habits. Stella McCartney's luxury brand has created a shoe collection made from biodegradable and recycled plastic, some of Adidas' training shoes are now made out of plastic retrieved from oceans (Moorhouse & Moorhouse, 2017) and even low-cost, fast fashion brands, such as Primark, have started using recycled plastic in some of their items (Primark, 2020).

Given the constant update of technology and the rising interest on the topic of sustainability, brands now have the opportunity to position themselves as sustainability "heroes", taking a stand to address global issues, ironically, sometimes caused by these same brands (Moorhouse & Moorhouse, 2017). Therefore, it seems that although fashion produced with plastic might not answer all the issues that surround fast fashion – overconsumption, overproduction, single-use culture and the exploitation of workers, among others– it can undoubtedly improve the fashion industry's impact on the planet, slowly taking a step in the direction of sustainability. And perhaps a small but impactful step is more beneficial than an overachievement. After all, it has been argued that consumers feel disappointed when

promises laced with the “save-the-world” idea do not deliver results as prospected (Vehmas, Raudaskoski, Heikkilä, Harlin & Mensonen, 2017).

Chapter III – Theoretical Approach

Through the application of the Theory of Planned Behaviour, this dissertation aims to study consumers' intentions and behaviours towards the purchase of fashion items which were produced with recycled plastic. The versatility of the TPB model allows for this theoretical basis to be adapted to distinct contexts. In order to operationalise this aim, the main objective was formulated: *Understanding consumers' intentions and behaviours regarding the purchase of fashion items produced from recycled plastic*. This objective represents the overarching goal of this dissertation and is supported by three research questions which prelude the hypotheses.

The first research question aims to understand the effects of the three pillars of the TPB on consumers' intentions to purchase fashion produced from recycled plastic:

RQ1 – Do attitudes, subjective norms and perceived behavioural control accurately predict intention to purchase fashion items produced from recycled plastic?

Moreover, this first research question, which features the three pillars of the TPB, can be further divided into each pillar, in order to better understand how each one of these concepts impact consumers and their intentions to purchase the aforementioned products. The first hypothesis, connected with the first research question, takes the pillar of attitude into account, hypothesizing that:

H1 a): The attitude towards fashion products made from recycled plastic will have positive impacts on the intention to purchase these products.

The second hypothesis, also connected to the first research question, states that:

H1 b): Subjective norms regarding fashion products made from recycled plastic will have positive impacts on the intention to purchase these products.

From this research question, one more hypothesis was conceptualised, hypothesizing that:

H1 c): Perceived behavioural control will have positive impacts on the purchase intention of products produced from recycled plastic.

Furthermore, the second research question includes a variable that is not originally in the TPB model: the awareness of the negative impacts caused by the fast fashion industry

(which will be henceforth referred to as fast fashion awareness, for simplicity reasons). Given that the awareness of the dark side of fast fashion, in this dissertation, is pointed out as antonymous of intention of purchasing responsible fashion, in this case, fashion created from recycled plastic, a second research question ponders over the following:

RQ2 – Does awareness of the negative effects of fast fashion accurately predict intention to purchase fashion items made from recycled plastic?

Moreover, this research question ties into a hypothesis, that states:

H1 d): Awareness of the negative impacts of fast fashion will have positive impacts on the intention to purchase fashion products made from recycled plastic.

Lastly, the third and final research question seeks a better understanding of consumers' behaviour. This last research question ties into the last steps of the TPB, in which consumer purchase behaviour is analysed, beyond only consumer purchase intention. In the case of this dissertation, this research question pertains the purchase behaviour of fashion items which are produced using recycled plastic:

RQ3 – Do perceived behavioural control and purchase intention accurately predict purchase behaviour of fashion items made from recycled plastic?

Hypotheses derive from this research question, analysing the impacts that each variable will have on purchase intention. This ties in the remaining concepts in the TPB:

H2 a): Perceived behavioural control will have positive impacts on the purchase behaviour of products produced from recycled plastic.

H2 b): Purchase intention of fashion products produced from recycled plastic will have positive impacts on the purchase behaviour of these products.

Table 1 – Theoretical Approach

Objective	Research Questions	Hypotheses	References
Understanding consumers' intentions and behaviours regarding the purchase of fashion items produced from recycled plastic.	Do attitudes, subjective norms and perceived behavioural control accurately predict intention to purchase fashion items produced from recycled plastic?	The attitude towards fashion items produced from recycled plastic will have positive impacts on the intention to purchase these products.	Paul (2016); Liu, Tingchi Liu, Pérez, Chan, Collado and Mo (2020)
		Subjective norms regarding fashion items produced from recycled plastic will have positive impacts on the intention to purchase these products.	Paul (2016); Liu, Tingchi Liu, Pérez, Chan, Collado and Mo (2020)
		Perceived behavioural control will have positive impacts on the purchase intention of products produced from recycled plastic.	Paul (2016); Liu, Tingchi Liu, Pérez, Chan, Collado and Mo (2020)
	Does awareness of the negative effects of fast fashion accurately predict intention to purchase fashion items produced from recycled plastic?	Awareness of the negative impacts of fast fashion will have positive impacts on the intention to purchase fashion products made from recycled plastic.	Adpted from Liu, Tingchi Liu, Pérez, Chan, Collado and Mo (2020)
		Do perceived behavioural control and purchase intention accurately predict purchase behaviour of fashion items produced from recycled plastic?	Perceived behavioural control will have positive impacts on the purchase behaviour of products produced from recycled plastic.
	Purchase intention of fashion products produced from recycled plastic will have positive impacts on the purchase behaviour of these products.		Adapted from Sia, Shi, Tang, Wu and Lan (2020)

Source: Author's Elaboration

Chapter IV – Methodology

Following the theoretical segments of this dissertation, the Methodology chapter explains the quantitative method used to perform this analysis. The advantages of the type of approach chosen are presented, as well as the target population, the questionnaire structure and the items and scale used to answer it. Moreover, the data analysis process – through the strategy of multiple linear regression – is also briefly explained, in order to set the tone for the next chapter – Results and Discussion.

4.1 Research Design

This dissertation follows a deductive approach, which means that “if a causal relationship or link seems to be implied by a particular theory or case example, it might be true in many cases” (Gulati, 2009, p.42). This type of approach relies on the development of hypotheses, which are based on pre-existing theory that has already designed an accurate and reliable strategy to test them (Wilson, 2010). In this case, the basis for this dissertation’s method was the TPB, adapted to this topic, through the contributions of several authors.

A survey research and quantitative method were used, a statistical analysis was adopted, aiming to verify the investigation hypotheses previously explained. This type of research is useful to explore the links – either existing or not – between the variables that were proposed and that somehow contribute to the explanation of the connection between theory and research (Bryman & Bell, 2007).

The advantages of adopting a deductive analysis are the possibility of explaining causal relationships between variables or concepts, while also measuring concepts quantitatively and also the possibility of generalising research findings, at least to a certain extent (Wilson, 2010). Moreover, a quantitative approach is said to be advantageous also due to the possibility of generalising conclusions, given its large sample (Carr, 1994). Another advantage that authors underline is the fact that it is less time consuming than other types of analysis (Connolly, 2007).

In order to conduct this analysis, a self-administered online questionnaire – based on previous literature – was implemented through the software Qualtrics and analysed through IBM SPSS. The collection of data through online surveys is a method that has emerged mainly the last decade. Collecting data online has the advantages of being a fast, simple and

inexpensive method, which is also convenient for respondents to answer (Burns & Bush, 2006).

The questionnaire link was diffused through two social platforms (Instagram and Whatsapp) during the month of August 2021. All responses to this survey were anonymous and all respondents were volunteers.

The target population in this questionnaire were Portuguese consumers, who speak Portuguese and live in Portugal, between the ages of 18 and 75 years old, regardless of gender. Given the scarcity of research, focused on Portuguese consumers, in particular, and on the consumption of green, ethical or sustainable products (i.e. fashion produced with recycled plastic), this target aims to contribute to close this gap in knowledge, focusing specifically on consumers who live in Portugal. Moreover, some studies have shown that nationality and cultural background are strong predictors of consumers' behaviours in terms of "green consumption values" and choices (Nair and Little, 2016). Furthermore, the specificity chosen in regard to the age groups is based on the intention to compare perceptions, intentions and behaviours throughout generations. Ranging from the Boomer Generation, aged between 57 and 75 years old; to Generation X who is between 56 and 42 years old; to Generation Y, also known as Millennials, who are between the ages of 41 and 27; and finally, to Generation Z, between ages 26 and 11 (although only respondents over the age of 18 were considered in this analysis). Given that these four generations represent a large portion of the world population and, more importantly, of the Portuguese population, it seems relevant that they are the ones inquired in this research.

4.2 Questionnaire Structure

The questionnaire was divided in seven different blocks of questions. Before beginning, respondents were asked whether they live in Portugal. If the answer is negative, this was the end of the questionnaire for that respondent. If the answer is positive, they moved on to the first section, regarding attitudes towards fashion items made using recycled plastic. The next block regarded subjective norms towards these items and the following block concerned perceived behavioural control of intention to purchase these same items.

After these three sections, which symbolise the pillars of the TPB, the next block regarded purchase intention. Next was the section regarding purchase behaviour and finally,

the last section of the model, concerning fast fashion awareness. In the final block, respondents were asked sociodemographic questions.

The questions in each block and the topics selected (all except fast fashion awareness) were chosen with regards to previous work which was developed in the field of TPB, green consumption and sustainability (Paul, 2016; Roos & Hahn, 2016; Francis et al, 2004; Liu et al, 2020; Jalil & Shaharuddin, 2019). The topic of fast fashion awareness was included in this analysis given the research that underlines fast fashion as an environmental issue that could be tackled through the used of recycled materials in a circular economic model (Nguyen et al, 2020; Zhang, Zhang and Zhou, 2021; Gupta et al, 2019).

Prior to the distribution of the questionnaire, pre-tests were implemented with a sample of 15 respondents who matched the target population. Through the feedback of these respondents, questions were rewritten so that their structure was simpler to understand. After administering these changes, the data collection process began.

4.3 Items and Scale Measuring

A seven-point Likert scale was used in most of the questions inquired. This type of scale was chosen due to its ability to evaluate the strength of variables affecting the respondents' answers (Likert, 1932). In this case, the respondents' purchase intention or purchase behaviour of fashion items made using recycled plastic. A Likert scale measures the extent to which an answer is either positive or negative, according to the statement made (Likert, 1932) comprising seven options in a scale that range from negative (from the first to the third option) to neutral (the middle point, the fourth option) and to positive (from the fifth to the seventh point).

Even though seven-point Likert scales were available to answer almost every question, what the points in the scale represented was variable depending on the question. In terms of the block of questions that concerned attitudes, while the answers to the first question – I like the idea of purchasing fashion items produced with recycled plastic. – ranged from “Completely disagree” to “Completely agree”, this was not the case for the remaining two questions in the attitudes block. The second question's – I think that purchasing fashion items produced with recycled plastic would be... – answers ranged from “Bad” to “Good”. Moreover, in the third question – To me, purchasing fashion items produced with recycled

plastic would be... – the answers ranged from “Useless” to “Useful”. Within the blocks of subjective norms, perceived behavioural control, purchase intention and fast fashion awareness, every question considered in the analysis ranged from “Completely disagree” to “Completely agree”. In the purchase behaviour block, the first question also uses this range, while the second question – What is the percentage of fashion items you bought that was produced with recycled plastic. – asks for percentual answers (which were later recoded into a seven-point scale answer).

Table 2 – Methodological Research Design

Concepts	Original Statement	Adapted Statement	Reference
	I like the idea of purchasing green.	I like the idea of purchasing fashion items produced with recycled plastic.	Paul (2016)
Attitudes	For me consuming collaboratively within the next month would be... bad/good.	I think that purchasing fashion items produced with recycled plastic would be (bad or) good.	Roos, Hahn (2016)
	For me consuming collaboratively within the next month would be... worthless/valuable.	To me, purchasing fashion items produced with recycled plastic would (useless or) useful.	Roos, Hahn (2016)
Subjective Norm	Most people who are important to me would want me to purchase green products when going for purchasing	Most people who are important to me would want me to choose fashion items produced with recycled plastic.	Paul (2016)
	Social and public opinion advocates using DBS (dockless bike sharing) in a sustainable way.	Social and public opinion supports purchasing of fashion items produced with recycled plastic.	Francis et al. (2004) and Paul (2016)
	Most people who are important to me consume collaboratively.	Most people who are important to me purchase fashion items produced with recycled plastic.	Roos, Hahn (2016)
Perceived Behavioural Control	I have resources, time and willingness to purchase green products.	I have the required time and willingness to purchase fashion items produced with recycled plastic.	Paul (2016)
		I have the required financial resources to purchase fashion items produced with recycled plastic	Paul (2016)
	Green products are generally available in the shops where I usually do my shopping.	Fashion items produced with recycled plastic are generally available in the shops where I usually do my shopping.	Paul (2016)
	There are likely to be plenty of opportunities for me to purchase green products.	There are likely to be plenty of opportunities for me to purchase a fashion item produced with recycled plastic in the next month.	Paul (2016)
Fast Fashion Awareness	I am informed of environmental issues in the fast fashion industry such as waste and pollution caused by excessive production of garments.	I am aware of the environmental issues caused by the fast fashion industry.	Zhang, Zhang and Zhou (2021)
	I am aware of the social equity issues in the fast fashion industry, such as working conditions of factory workers and fair trade.	I am aware of the social issues caused by the fast fashion industry.	Zhang, Zhang and Zhou (2021)
Purchase Intention	I intent to buy ethical fashion goods in the future.	I intent to purchase fashion items produced with recycled plastic in the next month.	Liu, Tingchi Liu, Pérez, Chan, Collado and Mo
	I would actively seek out Eco-fashion clothes in a store in order to purchase it.	In the next month, I will actively seek out fashion items produced with recycled plastic.	Hatef Jalil and Shukhaila Shaharuddin (2019)
	I plan to spend more on environmental friendly product rather than conventional product.	In the next month, I plan to spend more in brands that produce fashion items with recycled plastic than others.	Paul (2016)
Purchase Behaviour	If I understand the potential damage to the environment that non-eco-fashion clothes can cause, I do not purchase those products.	I don't buy fashion items that aren't produced with recycled plastic because I understand their potential damage.	Hatef Jalil and Shukhaila Shaharuddin (2019)
	I choose the eco-fashion clothes alternative in shopping if one with a similar price is available.	If there is no price difference, I choose fashion items produced with recycled plastic.	Hatef Jalil and Shukhaila Shaharuddin (2019)
		What is the percentage of fashion items you bought that was produced with recycled plastic.*	Author's elaboration

* The original item ranged from 0 to 100, the item was recoded to a 7 point scale

Source: Author's Elaboration

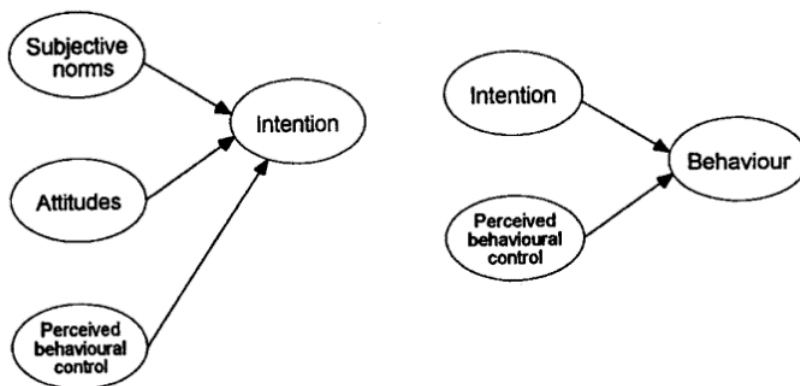
4.4 Data Analysis

In order to adopt the TPB in this analysis, composite variables were created by considering all questions regarding a certain topic, for example: for the concept of attitude, a composite variable was created, composed by all the questions that concerned attitude. In order to construct these composite variables, an internal consistency analysis was performed, through Cronbach's alpha and Spearman-Brown's coefficient. This analysis was meant to determine the consistency of all the different indicators (questions) in each concept and to remove those which negatively impacted internal consistency. The composite variables were created through an average mean of all the indicators that remained.

These composite variables were then analysed descriptively. Furthermore, sociodemographic indicators were also examined through descriptive analysis.

In order to understand the influence of the independent variables on the dependent variable, the strategy of multiple linear regression was adopted. Based on Hankins, French and Horne's (2007), Hasan, Muzumdar, Nayak and Wu's (2019) and also Jackson, Smith and Conner's (2011) previous work, in which this strategy was adopted.

Figure 1 – The Theory of Planned Behaviour modelled as two Multiple Linear Regressions

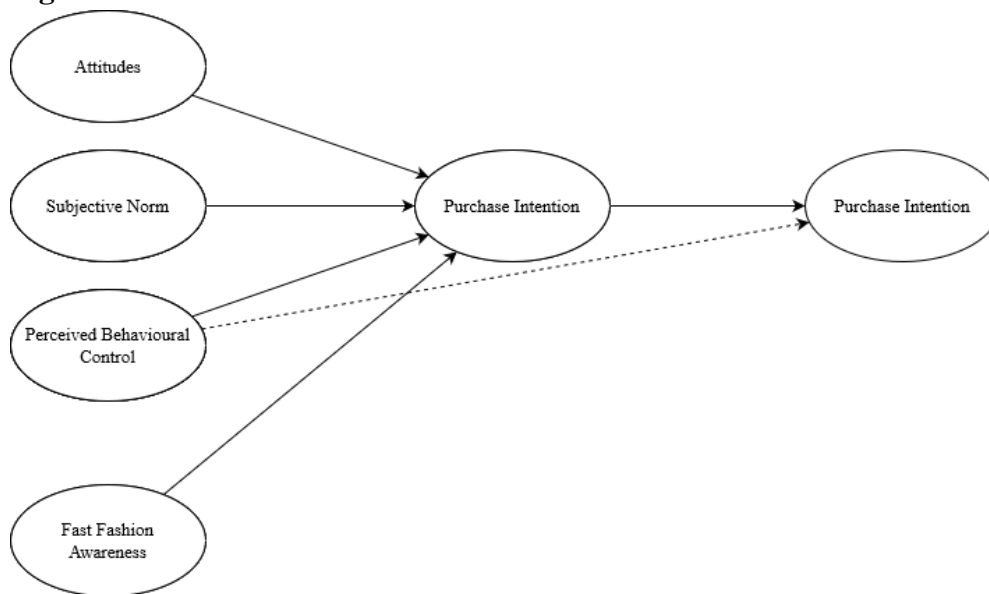


Source: Hankins, French and Horne (2007)

Within the Theory of Planned Behaviour's scope, two regressions were considered: the first regression aimed to predict purchase intention; and the second regression aimed to predict the purchase behaviour. In the first regression, the independent variables considered were attitudes, subjective norms, perceived behavioural control and fast fashion awareness, aiming to predict the dependent variable purchase intention. In the second regression,

perceived behavioural control and purchase intention were considered as independent variables, as the dependent variable was purchase behaviour.

Figure 2 – Theoretical Model



Source: Author's Elaboration

Sociodemographic variables were then inserted in the analysis, as control variables. Age and gender were the variables considered relevant to this analysis.

Moreover, a hierarchical regression was used to perform this analysis. In this strategy, variables are inserted in the analysis in separate blocks. The order in which they are considered in the analysis is based on logical or theoretical considerations. Unlike the traditional “enter” method, in which all variables enter the analysis at the same time, this hierarchical method allows us to investigate the relationships between the variables and the contribution of each one to the explaining the dependent variable. Furthermore, this hierarchical strategy allows us to investigate changes in the variance explained by the model used (i.e. the value of R^2). By introducing variables at different stages, this strategy allows for a more controlled analysis (Pedhazur, 1997).

The adoption of a multiple linear regression strategy lies in different reasons. An advantage related to the use of a multiple linear regression strategy is that it can include various predictor variables to predict one outcome. Not only is the overall explanatory power of all predictor variables available, but the relative importance of individual predictors can also be discovered through this analysis (Musil, Jones and Warner, 1997). Several authors who successfully used multiple linear regression in the analysis of the TPB also contributed to

the decision to perform this type of analysis. Some examples that ought to be mentioned are Hasan, Muzumdar, Nayak and Wu (2019) whose regression aimed to predict intention and also Jackson, Smith and Conner (2011) who aimed to predict not only intention, but also behaviour through the strategy of multiple linear regression.

Chapter V – Results Presentation

In this chapter, the analysis performed to evaluate respondents' answers was explained thoroughly. Moreover, results were analysed in-depth, in order to answer the aforementioned research questions and hypothesis. Quantitative data is presented, examined through statistical analysis and interpreted in clear terms.

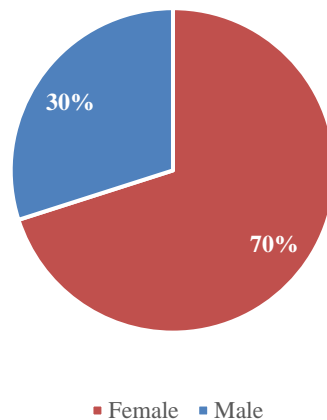
5.1 Sample Description

From a total of 366 respondents answering this questionnaire, 277 responses were considered valid. Of the remaining 89 responses, a total of 9 responses were filtered out of the analysis due to age limitations. The 8 respondents who were under 18 and the single respondent who was over 75 were excluded from the analysis, given that the questionnaire aimed to survey respondents between 18 and 75 years old. Additionally, there were 80 incomplete responses. These were partly due to respondents exiting the questionnaire before its completion and partly due to a glitch in the Qualtrics software, which erased part of the responses. All analysis were performed taking the valid 277 responses into account.

Sociodemographic questions were asked at the end of each questionnaire, regarding gender, age, geographical area of residence, number of members in the family unit and level of income of the family unit.

Around 70% (195) of respondents were female and 30% (82) were male, as seen in Figure 3. This disparity might have to do with the trend that indicates that women are more likely to participate in surveys than men (Curtin, Presser & Singer, 2000).

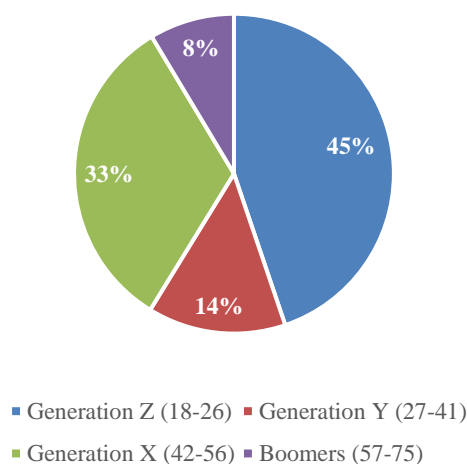
Figure 3 – Respondents’ Gender Distribution



Source: Author’s Elaboration

The 277 responses in the analysis can be divided in generational cohorts. A total of 45% (124) respondents were allocated to Generation Z, which encompasses respondents with ages between 18 and 26 years old; 14% (38) of respondents were between 27 and 41 years old, making them part of Generation Y; 33% (90) of inquired individuals belong to Generation X, encompassing ages between 42 and 56 years old; and finally, 8% (24) of answers belonged to the Boomer Generation, also known as those who are between 57 and 75 years old, as observed in Figure 4. The average age of respondents included in this analysis is 36,07 years old, the median age is 29 and the mode is 24.

Figure 4 – Respondents’ Age Distribution



Source: Author’s Elaboration

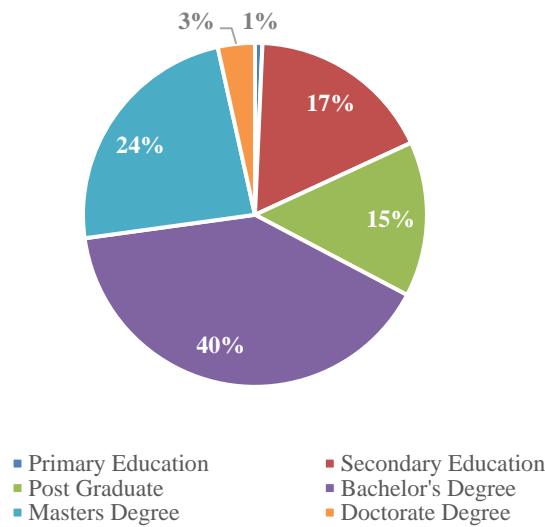
Regarding the level of education of those inquired, the results showed only 1% (2) of respondents stating that primary education was their highest level of education completed,

17% (48) answered secondary education, 15% (41) stated that they had completed schooling achieving a post graduate level, 40% (111) answered bachelor's degree, 24% (66) of respondents answered with master's degree and finally, 3% (9) finished their schooling at a doctorate level. These results can be analysed in Figure 5.

When crossing education levels with age, results point out that the respondents whose highest level of education is primary school are part of the Boomer Generation. Moreover, 70% of the respondents whose highest level of education is secondary education belong to Generation Z, while the remaining 30% belong to the older generations. In terms of respondents whose highest complete level of education is bachelor's degree, it is relevant to mention that 38% and 39% of respondents belong to Generation Z and Generation X, respectively, while the remaining 23% of responses belong to those in Generation Y or Boomers. Furthermore, the distribution of respondents' generation in post-graduate level follows the same pattern: 38% of respondents are from Generation Z, 48% of respondents are from Generation X and the remaining 14% belong to either Generation Y or Boomer Generation. In terms of the respondents whose highest level of completed education is a master's degree, 50% belong to Generation Z, 28% belong to Generation Y, 16% belong to Generation X and 6% belong to Boomers. Finally, in terms of respondents who have completed a doctorate degree, 90% are Generation X and 10% are Generation Y.

When considering these results, it is relevant to underline that most respondents in Generation Z are still not old enough to have completed a doctorate degree. Nevertheless, this generation showcases the best results in terms of complete levels of education, followed by Generation X and by Generation Y. Boomers come in last place, a result that was expected due to historical reasons. The most surprising piece of evidence that resulted from this analysis was the higher level of education in Generation X than in Generation Y.

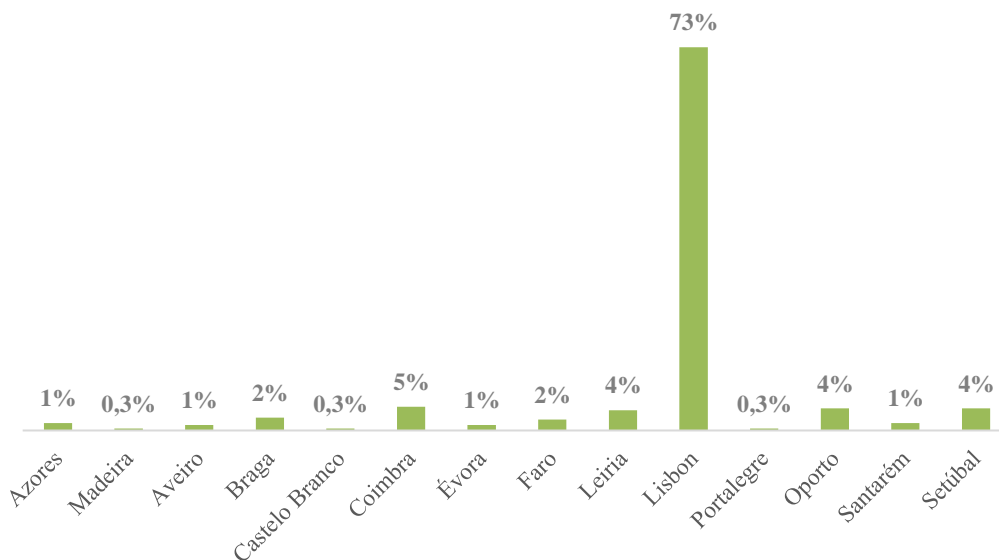
Figure 5 – Respondents’ Distribution of Highest Level of Education Completed



Source: Author’s Elaboration

As seen in figure 6, in regard to geographical area of residence, the results showed that 73% (202) of respondents live in Lisbon, 5% (13) in Coimbra, 4% (12) in Oporto and 4% (12) in Setúbal, while around 4% (11) live in Leiria, 2% (7) in Braga and 2% (6) in Faro. Only 1% (4) live in Azores, also 1% (4) in Santarém, 1% (3) in Aveiro, 1% (3) in Évora and only 0,3% (1) in Madeira, 0,3% (1) in Castelo Branco and 0,3% (1) in Portalegre.

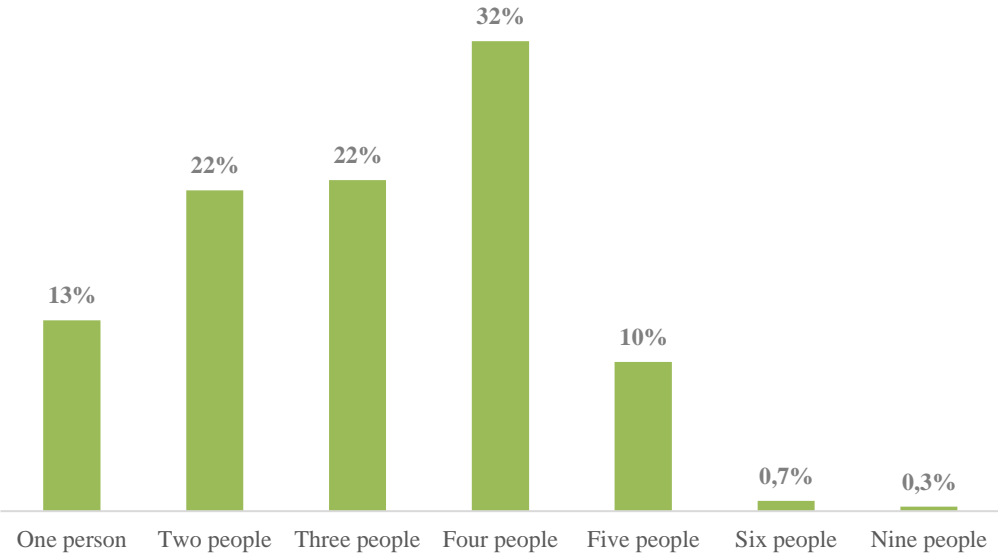
Figure 6 – Respondents’ Geographical Area of Residence Distribution



Source: Author’s Elaboration

In terms of number of members in each family unit, as seen in Figure 7, 13% (36) respondents come from a single-person household; 22% (60) live in a household with two people; 22% (62) answered that they live in a three people household; 32% (88) live in a four people household; 10% (28) come from a five people household; 0,7% (2) respondents live in a six people household; and only 0,3% (1) respondent lives in a household with nine people total.

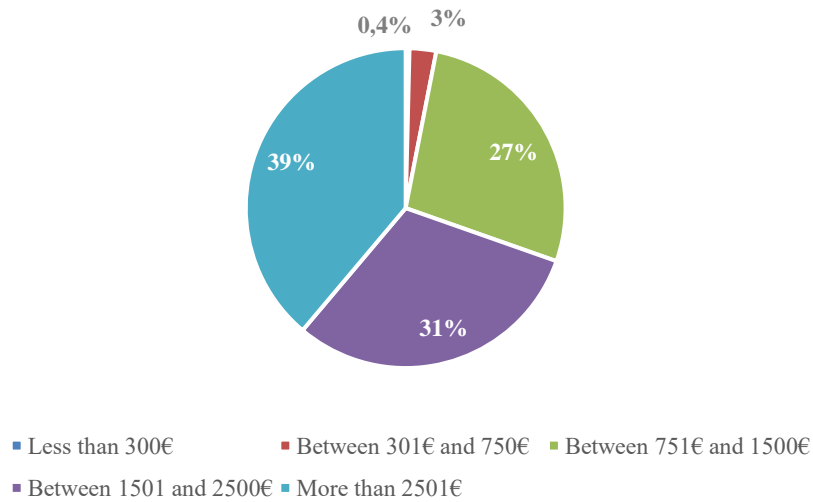
Figure 7 – Respondents’ Distribution of Number of Members in the Family Unit (%)



Source: Author’s Elaboration

Finally, as observed in Figure 8, in terms of income of the family unit (average, monthly and liquid), only 0,4% (1) respondent answered that their family unit’s income was under 300€, this respondent indicated that the number of members in their family unit was two. Additionally, 3% (7) answered that their monthly income was between 301€ and 750€, all of these respondents indicated that their family unit had four or less members. A total of 27% (76) of answers state that their family unit’s average monthly liquid income is between 751€ and 1500€, with more than half of these respondents living in a family unit of just one or two elements and the remaining respondents living in a family of three, four or five. Moreover, 31% (85) respondents placed their family unit’s income between 1501€ and 2500€, with around 90% of these respondents living in a family unit of two, three or four elements and the remaining living either in a single-person household or in a family unit of five. Finally, out of the 39% (108) respondents who indicated that their family unit’s income is over 2501€, over 95% live in a family unit with two to five elements and the remaining respondents live in a family unit of just one, of six or of nine elements.

Figure 8 – Respondents’ Distribution of Average, Monthly, Liquid Family Unit’s Income



Source: Author’s Elaboration

In sum, it should be highlighted that around 70% of the sample indicated that their average, monthly, liquid family income was superior to 1501€. These respondents mainly live in family units of two, three or four members.

5.2 Estimating Reliability of Constructs

In terms of the reliability of each concept included in this analysis, it is relevant to mention that a reduction in the number of items incorporated in each concept was performed, in order to increase the level of reliability of every concept. The details of this reduction are explained further ahead.

Cronbach’s alpha was used to estimate reliability for all constructs, except fast fashion awareness. For this concept, the Spearman-Brown coefficient was the preferred method, given that the Cronbach’s alpha is not adequate to estimate reliability between only two items.

The threshold of acceptability for alpha values is usually considered to include values as low as 0.7. Cronbach’s alpha results which are lower than 0.7 are usually considered not as robust as would be ideally desirable. However, a wide range of different qualitative descriptors can be used to interpret alpha values (Taber, 2018). Alpha value described as excellent range from 0.91 to 1.00; good alphas can range from 0.81 to 0.90; while good and acceptable alphas range between 0.71 and 0.80; acceptable alphas range from 0.61 to 0.70;

and finally, non-acceptable values range between 0.01 and 0.60 (Konting, 2009). Other authors consider that acceptable values go as low as 0.45 (Taber, 2018).

When considering the values presented in Table 3, presented below, this analysis can be considered robust. Fast fashion awareness's alpha is the highest recorded ($\alpha=0.942$), considered excellent in Konting et al.'s (2009) work. This alpha indicates the high robustness of this item, which is beneficial to the model, considering that this variable was an academic innovation of this dissertation, as it did not feature the model previously. It is also relevant to underline that this variable originally featured three questions: "I am aware of the environmental issues caused by the fast fashion industry.", "I am aware of the social issues caused by the fast fashion industry." and "What is the percentage of fashion items you bought that was produced by the fast fashion industry?". Taking these three questions into account, the alpha value was much lower ($\alpha=0.604$). Therefore, given that removing the third question from the analysis would prove itself beneficial for the internal robustness of the variable, the third question was removed.

Table 3 – Reliability of Concepts

Concept	N° of Items Retained (N° of Initial Items)	Mean	Std. Deviation	Minimum	Maximum	Reliability
Attitudes	3 (3)	6,02	1,01	1,67	7,00	0,822
Subjective Norms	3 (4)	3,50	1,26	1,00	7,00	0,721
Perceived Behavioural Control	4 (4)	3,68	1,02	1,25	7,00	0,612
Fast Fashion Awareness	2 (3)	5,74	1,49	1,00	7,00	0,942*
Purchase Intention	3 (4)	3,13	1,56	1,00	7,00	0,896
Purchase Behaviour	3 (3)	3,28	1,05	1,00	7,00	0,485

* For reliability analysis of 2-item variables the Spearman-Brown coefficient was used

Source: Author's Elaboration

Purchase intention ($\alpha=0.896$) and attitudes' alphas ($\alpha=0,822$) can be considered good, subjective norms' alpha ($\alpha=0.721$) is good and acceptable. These alphas are also indicators that the model is robust and well designed. The number of items considered in the variable attitudes remained constant throughout the analysis. However, both purchase intention and subjective norms had their number of items reduced.

Purchase intention featured a reduction from four to three questions total. The original questions were: "I intent to purchase fashion items produced with recycled plastic in the next month.", "In the next month, I will actively seek out fashion items produced with recycled plastic.", "In the next month, I plan to spend more in brands that produce fashion items with

recycled plastic than others.” and “I would purchase fashion items with recycled plastic if I saw them, by chance, in a store.”. The fourth question was removed from the analysis, increasing the alpha value from a mid-range good and acceptable ($\alpha=0.852$) to a higher good and acceptable value ($\alpha=0.896$).

Furthermore, subjective norms’ original questions were: “Most people who are important to me would want me to choose fashion items produced with recycled plastic.”, “Social and public opinion supports purchasing of fashion items produced with recycled plastic.”, “Most people who are important to me purchase fashion items produced with recycled plastic.” and “The people in my life whose opinions I value would approve/disapprove of purchasing fashion items produced with recycled plastic.”. With the removal of the fourth question, the alpha value increased from acceptable ($\alpha=0.700$) to good and acceptable ($\alpha=0.721$).

Moreover, perceived behavioural control’s alpha ($\alpha=0.612$) is considered acceptable and purchase behaviour’s alpha ($\alpha=0.485$) falls in the non-acceptable range, according to Konting et al. (2009). However, it is still considered acceptable in Taber’s (2018) work. Given that measuring behaviour has always been considered a difficulty in academic research (Bohrstedt, 2010), it comes as no surprise that both behavioural items score lower than the remaining items. It is relevant to add that both of these variables remained unaltered, as removing questions from the analysis did not increase the alpha value in either of these two variables.

5.3 Predicting Intention

This segment shows descriptive data, specifically mean and standard deviation, of the variables in the model. All variables range between 1 and 7, gender being a dichotomous variable further recoded as a dummy variable and age kept as a continuous scale variable.

Table 4 – Descriptive data for the TPB and control variables with intercorrelations among measures

	1	2	3	4	5	6	7	Mean ± s
1. Purchase Intention	-							3.13 ± 1.56
2. Attitudes	0.404***	-						6.02 ± 1.10
3. Subjective Norms	0.471***	0.327***	-					3.50 ± 1.26
4. Perceived Behavioural Control	0.650***	0.360***	0.565***	-				3.68 ± 1.02
5. Fast Fashion Awareness	0.220***	0.220***	0.132*	0.198***	-			5.74 ± 1.49
6. Gender	-0,039	-0.156**	0,095	0.112*	-0.182***	-		0.30 ± 0.46
7. Age	0,006	-0,076	0,045	0,032	-0.124*	-0,014	-	36.07 ± 14.50

*P < 0.05; **P < 0.01; ***P < 0.001

Source: Author's Elaboration

Mean scores for subjective norms ($m = 3.50$), perceived behavioural control ($m = 3.68$) and purchase intention ($m = 3.13$) scored close to the mid-point of the scale, indicating that the respondents were neutral on these items. Fast fashion awareness ($m = 5.74$) and attitudes ($m = 6.02$) registered high mean scores, indicating positive attitudes towards purchasing fashion items produced with recycled plastic and awareness of the fast fashion industry's issues.

The mean score for age was around 36 years old. Regarding the distribution of answers in terms of gender, the mean score was 0.3, which indicates a higher number of female respondents (coded as 0) than male respondents (coded as 1).

Before performing the regression to predict intention, a correlation analysis was conducted in order to study the relationships between variables. All of the traditional TPB measures were found to be correlated at a significant level, in a positive direction (the more one variable increases, the more the other also do so) and in a weak to moderate intensity (which means that although the variables are all correlated, this relationship is moderate at most, showing that these variables are related but not synonymous in their behaviour). Table 4 shows that purchase intention is most strongly correlated with perceived behavioural control ($r = 0.650$; $p < 0.001$), which means that stronger purchase intention of fashion items produced from recycled plastic is associated with stronger perceived behavioural control over the purchase of these items. Purchase intention was positively and moderately correlated with attitudes ($r = 0.404$, $p < 0.001$), and subjective norms ($r = 0.471$, $p < 0.001$), which indicates that the stronger the purchase intention of fashion items produced from recycled plastic, the stronger the attitudes and subjective norms towards the purchase of these items. It was most weakly correlated to fast fashion awareness ($r = 0.220$, $p < 0.001$) in a positive direction,

which means that the stronger the purchase intention of these items, the more aware respondents are of the negative impacts that the fast fashion industry causes.

The correlations between age and all other variables, except fast fashion awareness were not significant ($p > 0.05$). A significant correlation in a negative direction ($r = -0.124$, $p < 0.05$) between age and fast fashion awareness was found. This result indicates that the younger the respondent, the more tendency to have a higher awareness of the negative impacts of the fast fashion industry. However, it is relevant to highlight that this correlation was considered weak in its intensity.

Gender was not significantly correlated with purchase intention or with subjective norms. The correlation between gender and attitudes is significant and negative ($r = -0.156$, $p < 0.01$), which means that female respondents tend to have more positive attitudes towards purchase of fashion items produced from recycled plastic than male respondents. Nonetheless, it should be underlined that this correlation was considered weak. As for the correlation between gender and fast fashion awareness, it was also found to be significantly weak and negative ($r = -0.182$, $p < 0.001$), which indicates that women have the tendency to be more aware of the negative impacts of the fast fashion industry than men. Once again, it should not be forgotten that this correlation was defined as weak. Finally, gender and perceived behavioural control were correlated in a positive direction ($r = 0.112$, $p < 0.05$), which indicates that men tend to have higher perceived behavioural control towards the purchase of fashion items produced from recycled plastic than women. Nevertheless, this correlation was considered weak in intensity.

Control variables age and gender were inserted in the analysis in order to strengthen the model, aiming to explain the outcomes and conclusions with more certainty. A control variable is a variable which is not of interest to the study's objectives, but that should also be controlled given that it could somehow influence the outcomes. These aid in establishing a correlational or causal relationship between variables, through the enhancement of internal validity. Using these control variables, which are external to the model, reinforces the model's robustness (Bhandari, 2021). When these variables help explain variance, it is proved that their insertion in the analysis was pertinent. In the case that they do not help explain variance, this can serve as proof that the model was already robust without any control variables.

A hierarchical multiple regression was then performed to predict the respondent's purchase intention and to determine the strength of each of the TPB variables – attitudes,

subjective norms and perceived behavioural control – and control items age and gender (Table 5) in predicting intention. The TPB traditional variables and fast fashion awareness were introduced first (step 1, table 5). This dissertation followed the same criterion as previous literature (Ajzen, 1991; Paul, 2016; Liu et al, 2020), inserting attitude, subjective norms and perceived behavioural control in this first step.

Table 5 – Hierarchical multiple regression analysis to predict intention

Step	Variables	R ²	R ² change	Adj. R ²	β	R ² Part %
		0,469	0,469	0,461		
1 ^a	Attitudes				0.167***	2,303
	Subjective Norms				0.120*	0,955
	Perceived Behavioural Control				0.509***	16,497
	Fast Fashion Awareness				0,067	0,417
					F(4,272)	60.100***
		0,474	0,005	0,463		
2 ^a	Attitudes				0.151**	1,805
	Subjective Norms				0.127*	1,057
	Perceived Behavioural Control				0.522***	16,952
	Fast Fashion Awareness				0,053	0,250
	Gender				-0,076	0,524
	Age				0,001	0,000
					F(6,270)	40.622***

*P < 0.05; **P < 0.01; ***P < 0.001; ^aDependent variable: Purchase Intention
Source: Author's Elaboration

As Hankins, French and Horne (2000) argue, the adjusted R² should also be observed, as R² calculated from a sample has the tendency to overestimate the population value of R. R² measures the proportion of the variation of the dependent variable that is explained by the model's independent variables. The adjusted measure takes the sample size and number of independent variables into account, meaning it is a better measure of explained variance when comparing models and the effect of adding independent variables can be more accurately measured (Hankins, French & Horne, 2000). Both R² and adjusted R² were taken into account, as well as the R² change measure. This change measure is important because it indicates the contributions that inserted variables have on explained variance.

A significant regression equation was found (F(4,272) =60.100, p < 0.001), with a R² of 0.469 and an adjusted R² slightly lower, at 0.461. Therefore, a total of 46.1% of the

variance in purchase intention was explained by the variables inserted: attitudes, subjective norms, perceived behavioural control and fast fashion awareness.

Out of these variables, only fast fashion awareness was not significant ($\beta = 0.067$, $p > 0.05$). Attitudes were a significant predictor of intention ($\beta = 0.167$, $p < 0.01$), meaning more positive attitudes towards fashion items produced with recycled plastic resulted in a higher intention to purchase those items and therefore confirming the first hypothesis that states that attitudes regarding fashion products made from recycled plastic would have positive impacts on the purchase intention of these items. Subjective norms were also found to significantly predict purchase intention of fashion items produced with recycled plastic ($\beta = 0.120$, $p < 0.05$), which confirms the second hypothesis that theorizes that subjective norms towards fashion items made from recycled plastic would have positive effects on the intention to purchase these items. Finally, perceived behavioural control was found to be a significant predictor of intention ($\beta = 0.522$, $p < 0.001$), indicating that stronger behavioural control resulted in a higher purchase intention of fashion items produced with recycled plastic among the respondents, confirming the third hypothesis that predicts that *perceived behavioural control of purchasing* fashion produced from recycled plastic would have positive impacts on purchase intention of these same products.

Age and gender were entered next (step 2, table 5), as a control exercise for the model. A significant regression equation was found ($F(6,270) = 40.622$, $p < 0.001$), with a R^2 of 0.474, an increase of 0.005 in R^2 . An adjusted R^2 of 0.463 was calculated (a change of 0.002), meaning that the variance explained by all the independent variables inserted (attitudes, subjective norms, perceived behavioural control, fast fashion awareness, age and gender) increased by 0.2 % to a total 46.3%, after the second step.

This marginal increase becomes obvious when we analyse the betas and p-values from the control variables entered in step 2. Neither gender ($\beta = -0.076$, $p > 0.05$) nor age ($\beta = 0.001$, $p > 0.05$) were found to be significant predictors of purchase intention. This means that the control variables were not relevant to further explain variance. Fast fashion awareness was once again not a significant predictor of intention ($\beta = 0.053$, $p > 0.05$). This indicates that, in this model, higher awareness of the negative implications of fast fashion does not imply a higher intention to purchase fashion items produced with recycled plastics. This result might be due to series of reasons which will be further analysed in the discussion segment of this dissertation. Moreover, this result indicates that the fourth hypothesis is not confirmed: *H1 d*:

Awareness of the negative impacts of fast fashion will have positive impacts on the intention to purchase fashion products made from recycled plastic.

In both steps, attitudes, subjective norms and perceived behavioural control were found to be significant predictors of intention. Looking at their squared semi-partial correlation coefficients, the independent variables can be ranked in terms of their effect on the dependent variable, as well as analysed through their individual contribution to the explained variance. Perceived behavioural control was found to contribute the most to explain variance of purchase intention, noting an increase from step 1 to step 2. Attitudes and subjective norms have lower but significant contributions to explain purchase intention.

Overall, while respondent’s age, gender and fast fashion awareness had no significant influence on the dependent variable, a stronger perceived behavioural control, higher subjective norms, and more positive attitudes towards fashion items produced with recycled plastic were each positively associated with purchase intention of those same items.

5.4 Predicting Behaviour

Table 6 depicts descriptive measures, specifically mean and standard deviation, as well as correlation coefficients between all the variables in the model tested. These measures were calculated to better describe the data and to study the relationships between variables.

Table 6 – Descriptive data for the TPB and control variables with intercorrelations among measures

	1	2	3	4	5	Mean ± s
1. Purchase Behaviour	-					3.28 ± 1.05
2. Perceived Behavioural Control	0.430***	-				3.68 ± 1.02
3. Purchase Intention	0.476***	0.650***	-			3.13 ± 1.56
4. Gender	-0.022	0.112*	-0.039	-		0.30 ± 0.46
5. Age	-0.048	0.032	0.006	-0.014	-	36.07 ± 14.50

*P < 0.05; **P < 0.01; ***P < 0.001

Source: Author’s Elaboration

Mean scores for purchase behaviour, purchase intention and perceived behavioural control (3.68) are close to the midpoint meaning respondents were neutral on their answers to these items. Purchase behaviour (m = 3.28) and purchase intention (m = 3.13) scored slightly below the midpoint, while perceived behavioural control scored slightly above (m = 3.5).

Previously to performing the regression to predict behaviour, a correlation analysis was performed with the purpose of studying the relationships between variables in the analysis. Purchase behaviour is positively and moderately correlated to perceived behavioural control ($r = 0.430$, $p < 0.001$) and to purchase intention ($r = 0.430$, $p < 0.001$). This result means that the higher the purchase intention of fashion items produced from recycled plastic, the higher the purchase behaviour of these items. This conclusion contributes to the strength of the TPB model, proving a correlation between intention and behaviour. The highest correlation coefficient calculated was a correlation between perceived behavioural control and purchase intention ($r = 0.650$, $p < 0.001$). This means that the higher the perceived behavioural control that consumers have over the purchase of fashion items produced with recycled plastic, the higher will be the purchase intention of these items.

Control variable age was not found to be correlated at a statistically significant level to any of the model's variables (purchase behaviour, perceived behavioural control and purchase intention) and control variable gender was only significantly correlated to perceived behavioural control ($r = 0.112$, $p < 0.05$) and not significantly correlated to the remaining variables in the model (purchase behaviour and purchase intention). This means that male respondents tend to present more perceived behavioural control over the purchase of fashion items produced with recycled plastic than female respondents.

A hierarchical multiple regression was calculated to predict respondents' purchase behaviour based on perceived behavioural control and purchase intention and demographic variables gender and age were entered as a control exercise (Table 7).

Perceived behavioural control and purchase intention were entered first (step 1, table 7), following the model presented in the methodology chapter. A significant equation regression was found ($F(2,274) = 46.017$, $p < 0.001$), with an R^2 of 0.251 and an adjusted R^2 of 0.246, indicating the independent variables explained 24.6% of the variance in purchase behaviour.

Table 7 – Hierarchical multiple regression analysis to predict intention

Step	Variables	R ²			β	R ² Part %
		R ²	change	Adj. R ²		
1 ^a		0.251	0.251	0.246		
	Perceived Behavioural Control				0.209**	2,525
	Purchase Intention				0.340***	6,669
					F(2,274)	46.017***
2 ^a		0.256	0.004	0.245		
	Perceived Behavioural Control				0.220**	2.700
	Purchase Intention				0.332***	6.215
	Gender				-0.034	0.114
	Age				-0.058	0.337
					F(4,272)	23.381***

*P < 0.05; **P < 0.01; ***P < 0.001; ^aDependent variable: Purchase Behaviour
Source: Author's Elaboration

Perceived behavioural control is a significant predictor of purchase behaviour ($\beta = 0.209$, $p < 0.01$). This means that higher perceived behavioural control resulted in higher purchase behaviour of fashion items produced with recycled plastic. Purchase intention was also found to have a significant influence on purchase behaviour ($\beta = 0.340$, $p < 0.001$), which indicated that the higher the purchase intention, the higher the purchase behaviour of fashion items produced with recycled plastic. These results support the TPB model and are in line with what was predicted to happen in the results of this study.

In the second step, the control variables were entered (step 2, table 7). A significant equation regression was calculated ($F(4,272) = 23.381$, $p < 0.001$), with an R² of 0.256, a R² change of 0.004, and a adjusted R² of 0.245, meaning that the independent variables explained 24.5% of variance in purchase behaviour.

As argued earlier, the adjusted measure should be prioritized when comparing models and using multiple hierarchical regression. Although R² increased marginally, the insertion of the age and gender caused the adjusted R² decrease by 0.001. This may indicate that the model with only perceived behavioural control and purchase intention was better for the prediction of the dependent variable.

Age and gender were both found to have non-significant effects on the dependent variable ($\beta = -0.058$, $p > 0.05$) ($\beta = -0.034$, $p > 0.05$). This means that the control variables were not statistically significant predictors of the respondents' purchase behaviour.

Perceived behavioural control was found to be a significant predictor of purchase behaviour ($\beta = 0.220$, $p < 0.01$). This data confirmed the hypothesis which states that perceived behavioural control of buying fashion products made from recycled plastic would positively impact purchase behaviour of these items. Furthermore, purchase intention was also found to be a statistically significant predictor of behaviour ($\beta = 0.332$, $p > 0.001$), which means that the last hypothesis – which predicted that Purchase intention of fashion products made from recycled plastic would have positive impacts of purchase behaviour of these same products – was confirmed.

Analysing the squared semi-partial correlation coefficients, the independent variables can be ranked on their effect on the dependent variable, as well as observed according to their individual contribution to the explained variance. Purchase intention was found to have a higher contribution than perceived behavioural control to explain the variance in purchase behaviour.

In both models, perceived behavioural control and purchase intention were statistically significant predictors of purchase behaviour, indicating that stronger perceived behavioural control and higher purchase intention of fashion items produced with recycled plastic were associated with more favourable behaviour towards the purchase of those fashion items. These findings further support the TPB model and the appropriateness of the regression model.

Chapter VI – Discussion

The purpose of this dissertation was to use the Theory of Planned Behaviour to understand the factors influencing consumers in their purchase intention and in their purchase behaviour of fashion items made from recycled plastic, while also considering their awareness of the negative effects of fast fashion as an additional variable to explain purchase intention and behaviour.

In terms of the analysis to predict purchase intention of fashion items made from recycled plastic, the results showed that a total of 46.1% of variance was explained by the model's first step of the analysis. After the second step, which consisted in the addition of the control variables age and gender to the analysis, the variance explained by the model increased to 46.3%. This result means that 46.3% of the variance in purchase intention of fashion items made from recycled plastic was explained by the three pillars of the TPB. The additional variable – awareness of the negative effects of fast fashion – was not found to explain purchase intention. In the field of social sciences, it is difficult to determine what constitutes an acceptable minimum variance. Given that this research is innovative in the adoption of the TPB in the field of fashion produced with recycled plastic, this variance is considered acceptable as an initial research result.

Results also showcase that, in both steps, attitudes, subjective norms and perceived behavioural control were found to be significant predictors of intention. These conclusions are in line with previous research on this topic (Jalil and Shaharuddin, 2019) which also determined the significant quality of these predictors in the context of consumer purchase intentions of eco-fashion. In contrast with Liu et al. (2020), who concluded that perceived behavioural control was not a significant predictor in their model, in this analysis, perceived behavioural control was found to contribute the most to explain variance of purchase intention. This disparity in results might be related to the point of view from which Liu et al. (2020), placing more emphasis on attitudes and subjective norms than of behavioural items. These results contribute to confirming the first research question, which wondered whether attitudes, subjective norms and perceived behavioural control would be accurate predictors of intention to purchase fashion items produced from recycled plastic.

Furthermore, the independent variable fast fashion awareness, added to the TPB model in this dissertation, was found to be not significant in predicting purchase intention of fashion items produced from recycled plastic. This indicates that, in this model, more awareness of

the damaging impacts of the fast fashion industry does not imply a higher intention to purchase fashion items produced with recycled plastics. This result might be due to series of reasons. One possibility is that the consumers' knowledge is not necessarily translated into reality, a phenomenon that parallels the attitude-behaviour gap, which can be found in literature (Carrigan and Attala, 2001; Kim, Krishna and Dhanesh, 2019). This means that even though consumers are aware of the negative aspects of the fast fashion industry, this does not imply that they have boycotted fast fashion and started purchasing its alternative – fashion produced from recycled plastic. Another option is that the measurement of the awareness of negative effects of fast fashion on purchase intention of fashion produced from recycled plastic did not fully capture results. One other possibility as to why this might be the case is that consumers do not consider fashion produced from recycled plastic as a complete opposite of fast fashion. Hence, the second research question – which asked whether awareness of the negative effects of fast fashion could accurately predict intention to purchase fashion items made from recycled plastic – is not confirmed.

Moreover, control variables age and gender were also showed to have no significant influence on the dependent variable – purchase intention of fashion items produced from recycled plastic. These results indicate that the model's strength and robustness was not increased through the consideration of these other independent variables, external to the model. This means that opposite to other researchers' conclusions on this topic, who found age and gender to contribute to the prediction of intentions (Wu, Liang, Wu & Hong, 2021), in this research neither age nor gender contribute to predicting whether consumers intend to purchase fashion made from recycled plastic. Henceforth, this might serve as evidence that this dissertation's model is already sufficiently robust without any of these control variables.

All in all, age, gender and fast fashion awareness had no significant influence in predicting intention to purchase fashion items produced with recycled plastic. However, a stronger perceived behavioural control, higher subjective norms, and more positive attitudes were positively associated with purchase intention of those same items.

In terms of the last research question, a second regression was performed to predict purchase behaviour. Alike previous research (Ajzen, 1991; Jalil and Shaharuddin, 2019), the variables perceived behavioural control and purchase intention were considered in the analysis of purchase behaviour of fashion items made with recycled plastic. In parallel with Jalil and Shaharuddin's (2019) research on the purchase behaviour of eco-fashion, after the

first step in the multiple linear regression to predict purchase behaviour, the results showed that the independent variables inserted first – perceived behavioural control and purchase intention – were good predictors of the dependent variable purchase behaviour. In the context of this dissertation, these independent variables explained 24.6% of the variance in purchase behaviour. This value is relatively low, which might be related to the difficulty of measuring behaviours through questionnaire methods. Following the second step, where control variables – age and gender – were inserted in the analysis, the variance explained slightly decreased to 24.5%, which reflects the non-significance of the control variables in this model.

Purchase intention proved to be the best predictor out of the two variables and perceived behavioural control was also considered a significant predictor. These conclusions are also in line with Jalil and Shaharuddin's (2019) work and confirm the final hypotheses, which theorise that perceived behavioural control of buying fashion products made from recycled plastic would have positive impacts on the purchase behaviour of these same items and hypothesize that purchase intention of fashion items made from recycled plastic would have positive impacts on purchase behaviour of these products.

The results concerning control variables age and gender indicated that these variables were not significant predictors of purchase behaviour, the dependent variable. As previously mentioned, these results might indicate the model's robustness without the need for control variables to be added to its framework.

To sum up, it can be said that both perceived behavioural control and purchase intention are significant predictors of purchase behaviour in this model, confirming Ajzen's (1991) theory. Furthermore, age and gender were not considered significant in their role as predictors of purchase behaviour in this dissertation's model.

Finally, it is relevant to mention that one of the unique contributions of this research was the application of the TPB model, not only in predicting intention, but also in predicting behaviour of Portuguese consumers. While most literature (Paul, 2016; Thongpila, 2019; Wu et al., 2021) focuses only on the prediction of intention, this study aimed to research further, following the footsteps of Ajzen's (1991) work and other authors' contributions (Jalil and Shaharuddin, 2019). Henceforth, this research contributed to enrich academic literature, as well as to enhance managerial decisions on the topic. The results previously stated shed some light on the relationship between awareness of the negative impacts of fast fashion and purchase intention, as well as behaviour of fashion items produced from recycled plastic.

Even though the fast fashion variable was not significant to predict purchase intention and behaviour in this model, some recommendations for future research can be drawn so that other researchers are more successful in analysing this relationship and uncovering the possible connections between these concepts. These suggestions will be further explained in the conclusions chapter.

Chapter VII – Conclusions

The consumption of fashion made from recycled plastic is part of the ethical fashion movement, which opposes to fast fashion's business model (Leonas, 2016). Research conducted in 2021 on over 2000 UK respondents shows that consumer interest in adopting ethical and sustainable lifestyles is growing, with a total of 28% of consumers indicating that they have stopped purchasing a product due to ethical or sustainability concerns (Deloitte, 2021¹⁵). Led by Generation Z – in which this value is as high as 45% – consumers are becoming more demanding with companies from which they wish to purchase (Deloitte, 2021). Academic research confirms this trend, stating that a growing number of consumers make their purchasing decisions based on moral or pro-environmental motivations (Hoffman & Hutter, 2012). Sustainability, in general, has generated a significant amount of coverage both in academic, as well as non-academic sources. The different aspects of sustainable living – including fashion – have been a regular talking point in social debate. Hence, this topic has been established as a contemporary phenomenon which is inarguably worth studying.

A tenet of sustainable fashion is that innovation is the key for progress. Harmful business models, such as the current way of working in the fast fashion industry, can only be challenged and changed through research and modernisation. However, sustainable fashion, which is trending in social media (Brown, 2021) still has room to grow in terms of academic research. As technology evolves, alternatives which intend to close the loop of production, using waste from other industries to produce in fashion are gamechangers. Therefore, the need for further research on the subject of producing fashion from recycled materials is evident.

The results of this study showed that attitudes, subjective norms and perceived behavioural control all contributed significantly to predict purchase intention with a relative level of accuracy. This conclusion is in line with previous research performed in the context of the fashion industry (Jalil & Shaharuddin, 2019; Thongpila, 2019), which means that the hypotheses that estimated that the three pillars of the TPB were good predictors of the purchase intention of fashion items produced from recycled fashion were confirmed.

However, the additional hypothesis inserted in the model, which regarded the influence of awareness of negative effects of the fast fashion industry on purchase intention was not confirmed. This result might be interpreted in different ways. One option that seems

¹⁵ <https://www2.deloitte.com/uk/en/pages/consumer-business/articles/sustainable-consumer.html>

to be possible is that the awareness of the negative impacts of fast fashion is in fact not relevant to predict intentions. One other option lies in the possibility that fast fashion and recycled plastic-based fashion are not substitutes. The implications of this possibility in research mean that even though consumers are aware of the negative impacts of fast fashion, they do not necessarily consider fashion made from recycled plastic to be its complete opposite.

Given the research that confirms fast fashion industry as an opposite of the recycled fashion alternative (Leonas, 2016), the first option might not be entirely truthful. Even though it is possible that consumers may be under the influence of the attitude-behaviour gap, fast fashion remains as an opposite of fashion produced with recycled materials. Therefore, consumers who intend to purchase from fast fashion presumably should not intend to purchase recycled fashion as well, and vice-versa.

Furthermore, the second option – which hypothesizes that the measurement of the fast fashion variable needs to be perfected in order to draw conclusions – seems more likely in the context of this research. Due to the innovative nature of this exploratory study, the measurement of the awareness of the negative impacts of the fast fashion industry should be fine-tuned in future investigations, possibly combining quantitative and qualitative research. Nonetheless, it is evident that the relationship between awareness of the negative impacts of fast fashion and intention to purchase fashion produced from recycled plastic should be further analysed in order to establish more powerful conclusions.

Moreover, in line with previous research (Jalil & Shaharuddin, 2019), this study proved, once again, the adequacy of the TPB model in measuring behaviour. The hypotheses which predicted that purchase intention, as well as perceived behavioural control would be accurate predictors of purchase behaviour, confirm Ajzen's (1991) TPB model. In the context of this dissertation, this confirmation means that purchase intention and perceived behavioural control over fashion items produced from recycled plastic predict purchase behaviour of these products. In sum, this dissertation's main objective – *Understanding consumers' intentions and behaviours regarding the purchase of fashion items produced from recycled plastic.* – was successfully achieved.

All things considered, this dissertation contributes to partly closing the knowledge gap in literature regarding fashion produced with recycled materials. This academic contribution is particularly relevant in the Portuguese context, where literature in regard to this topic is

severely lacking. Due to its exploratory application of the well-established TPB model, this dissertation remains open for future reframing and reshaping, in order to better portray the reality of Portuguese consumers' purchase intentions of fashion items produced from recycled plastic, as well as consumers' purchase behaviours regarding those same items.

Regarding managerial implications, it is relevant to highlight that these results confirm consumers' interest in purchasing fashion produced from recycled plastic. Therefore, the contribution that this project can give to fashion companies intending to analyse and adapt to consumer desires is to consider the adoption of production techniques that turn plastic waste into fashion items. In terms of marketing implications, although the literature available sends some mixed signals as to consumers' reactions to marketing sustainable corporate campaigns (with some stating that consumers can perceive these campaigns as greenwashing, while others conclude that these initiatives help raise awareness on sustainable topics), the predominant conclusion seems to be that companies should clearly advertise their work in the sustainable field, being careful to not exaggerate achievements and remaining ambitious but realistic (Vehmas, Raudaskoski, Heikkilä, Harlin & Mensonen, 2018).

In terms of methodological contribution, this research further confirms the relevance and accuracy of the Theory of Planned Behaviour, through its adoption and confirmation in this study's analysis. The elements described in the TPB were proven significant in the prediction of intention and behaviour, suggesting there may be room for further applications of the model in future research exercises.

The first limitation that ought to be mentioned in the context of this research is the skewed sample, resulting in an asymmetrical distribution of certain sociodemographic variables such as gender, age, area of residence or level of schooling completed. These skews might have impacted overall results and it would be pertinent to adopt this model in a wider and more representative sample.

Additionally, as previously stated, the measurement of the fast fashion variable requires supplementary research to improve its accuracy and reliability. Further studies on this topic should aim to contribute to creating and improving measurements of the awareness of the negative impacts of the fast fashion industry.

Moreover, one other limitation which is common in social sciences is the difficulty of measuring behaviour. This dissertation aimed to soften this limitation through the application

of a well-established theoretical model, while following previously applied methodological mechanisms.

One recommendation that can be presented to tackle the limitation of a skewed sample would be the application of a large-scale study of Portuguese consumers. By widening the sample size, research would have the possibility of growing in robustness and accuracy in the representation of reality.

Moreover, as for the faults of the fast fashion variable, further studies on this topic should aim to contribute to creating and improving measurements of the awareness of the negative impacts of the fast fashion industry. In-depth questions and qualitative research might be necessary to complement incisive questions in quantitative studies.

As for the difficulty of measuring behaviour – a common limitation in social sciences – this dissertation adopted the recommendations which are usually mentioned: the adoption of strong models and the use of reliable methodology. Nonetheless, there is always room to grow in academic research, particularly when studying the (unpredictable) intentions and behaviours of consumers.

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Annexes

Annex A. Survey

Master Thesis - Questionário

O presente questionário foi elaborado no âmbito de uma dissertação de mestrado em Gestão de Empresas na ISCTE Business School.

As respostas são completamente anónimas e serão utilizadas única e exclusivamente para esta dissertação. Por favor responda de forma clara e honesta. O tempo de resposta previsto é de cerca de 5 minutos.

Qualquer questão relativamente a este questionário poderá ser enviada para camos@iscte-iul.pt.

Desde já, muito obrigada pela sua valiosa colaboração!

Por favor leia atentamente a definição que se segue:

Artigos de moda produzidos a partir de plástico reciclado: Artigos como roupa, fatos de banho, sapatos, malas, etc. em que tenha sido incorporado plástico reciclado (por exemplo, garrafas de plástico PET reciclado) na produção dos têxteis ou materiais que os constituem.

É residente em Portugal?

Sim (1)

Não (2)

Por favor indique o seu grau de concordância com as seguintes afirmações, utilizando as escalas indicadas.

Discordo
completamente

Concordo
completamente

1 2 3 4 5 6 7

Gosto da ideia de comprar artigos de moda produzidos a partir de plástico reciclado. ()



Mau

Bom

1 2 3 4 5 6 7

Considero que comprar um artigo de moda produzido a partir de plástico reciclado seria: ()



Inútil

Útil

1 2 3 4 5 6 7

Para mim, comprar um artigo de moda produzido a partir de plástico reciclado seria: ()






Por favor indique o seu grau de concordância com as seguintes afirmações, utilizando as escalas indicadas.

Discordo
completamente

Concordo
completamente


1 2 3 4 5 6 7

<p>A maioria das pessoas que são importantes para mim querem que eu opte por artigos de moda produzidos a partir de plástico reciclado. ()</p>	
<p>A opinião social e pública defende a compra de artigos de moda produzidos a partir de plástico reciclado. ()</p>	
<p>A maioria das pessoas que são importantes para mim compram artigos de moda produzidos a partir de plástico reciclado. ()</p>	

... desaprovar ...

... aprovar ...

1 2 3 4 5 6 7

<p>As pessoas, na minha vida, cujas opiniões valorizo iriam ... _____ ... a compra de artigos de moda produzidos a partir de plástico reciclado. ()</p>	
---	--

Por favor indique o seu grau de concordância com as seguintes afirmações, utilizando as escalas indicadas.

Discordo
completamente

Concordo
completamente

1 2 3 4 5 6 7

<p>Tenho o tempo e a vontade necessários para comprar artigos de moda produzidos a partir de plástico reciclado. ()</p>	
<p>Tenho os recursos financeiros necessários para comprar artigos de moda produzidos a partir de plástico reciclado. ()</p>	
<p>Artigos de moda produzidos a partir de plástico reciclado estão disponíveis nas lojas onde habitualmente consumo. ()</p>	
<p>É provável que existam muitas oportunidade para eu comprar um artigo de moda produzido a partir de plástico reciclado, durante o próximo mês. ()</p>	

Por favor indique o seu grau de concordância com as seguintes afirmações, utilizando as escalas indicadas.

	Discordo completamente	1	2	3	4	5	6	7	Concordo completamente
Tenho intenção de comprar artigos de moda produzidos a partir de plástico reciclado, no próximo mês. ()									
No próximo mês, vou procurar ativamente artigos de moda produzidos a partir de plástico reciclado para os comprar. ()									
No próximo mês, planeio gastar mais em marcas de moda produzidas a partir de plástico reciclado do que noutras. ()									
Compraria artigos de moda produzidos a partir de plástico reciclado se os visse, por acaso, numa loja. ()									

Por favor indique o seu grau de concordância com as seguintes afirmações, utilizando as escalas indicadas.

Discordo completamente	1	2	3	4	5	6	7	Concordo completamente
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Não compro artigos de moda que não são produzidos a partir de plástico reciclado porque compreendo os potenciais danos que estes podem causar. ()



Não havendo diferencial de preço, escolho artigos de moda produzidos a partir de plástico reciclado. ()



0 10 20 30 40 50 60 70 80 90 100

Considere todos os artigos de moda que comprou no último ano. Indique que percentagem dos artigos de moda que comprou foi produzida a partir de plástico reciclado. ()



Por favor leia atentamente a definição que se segue:

Fast fashion: Modelo de negócio altamente lucrativo que consiste em replicar as tendências das passarelas e da alta costura de forma rápida e massificada, com baixos custos para as marcas e para os consumidores.

Por favor indique o seu grau de concordância com as seguintes afirmações, utilizando as escalas indicadas.

Discordo
completamente

Concordo
completamente

1 2 3 4 5 6 7

Estou ciente dos problemas ambientais causados pela indústria da *fast fashion*. ()



Estou ciente dos problemas sociais causados pela indústria da *fast fashion*. ()



0 10 20 30 40 50 60 70 80 90 100

Considere todos os artigos de moda que comprou no último ano. Indique que percentagem dos artigos de moda que comprou foi produzida por *fast fashion*. ()



Indique o seu género:

Feminino (1)

Masculino (2)

Outro / Não respondo (3) _____

Indique a sua idade:

Qual é o nível de educação mais elevado que já completou?

- 1º ciclo do ensino básico (1)
 - 2º ciclo do ensino básico (2)
 - 3º ciclo do ensino básico (3)
 - Ensino secundário (4)
 - Licenciatura (5)
 - Pós-graduação (6)
 - Mestrado (7)
 - Doutoramento (8)
-

Qual é a sua situação face ao emprego? Pode seleccionar mais do que uma opção.

- Empregado a tempo inteiro (1)
- Empregado a tempo parcial (2)
- Desempregado (3)
- Reformado (4)
- Estudante (5)

Em que área geográfica reside? Considere a área onde residiu durante mais tempo no último ano.

- Arquipélago dos Açores (1)
- Arquipélago da Madeira (2)
- Aveiro (3)
- Beja (4)
- Braga (5)
- Bragança (6)
- Castelo Branco (7)
- Coimbra (8)
- Évora (9)
- Faro (10)
- Guarda (11)
- Leiria (12)
- Lisboa (13)
- Portalegre (14)
- Porto (15)
- Santarém (16)

Setúbal (17)

Viana do Castelo (18)

Vila Real (19)

Viseu (20)

Quantas pessoas constituem o seu agregado familiar?

Qual é o rendimento (médio, mensal, líquido) do seu agregado familiar?

Menos de 300€ (1)

Entre 301€ e 750€ (2)

Entre 751€ e 1500€ (3)

Entre 1501€ e 2500€ (5)

Mais de 2501€ (6)

Não respondo / Prefiro não dizer (7)