THE IMPACT OF SIGNALLING ENVIRONMENTAL CONSCIOUSNESS ON THE PERCEIVED CONTAMINATION AND ATTRACTIVENESS OF SUSTAINABLE CLOTHING

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Abstract

The consumption of raw materials, the use of water and energy, and the pollution and emissions caused by apparel production all contribute to the severe damage to the global environment. One way in which to address the significant environmental impact of apparel production is to reduce the volume of raw materials used to make textiles, specifically, by using recycled materials. The term 'recycled' describes the process of breaking down objects into materials to make new items. Yet, research investigating consumers responses to recycled waste used to make sustainable clothing is nascent. Emerging research suggests that clothing made from recycled plastic waste, specifically used plastic bottles, is perceived to be contaminated by consumers, reducing product attractiveness and consumers' willingness to purchase the clothing. However, whether different properties of the recycled waste influence perceived contamination and consumers' subsequent responses to sustainable clothing has not yet been explored.

Specifically, to date, no research has investigated consumer responses to sustainable clothing made from organic or agricultural waste. This waste, opposed to plastic waste, comes in many forms such as such as used coffee grounds, orange peels or pineapple leaves. Further, it is not clear whether the extent to which the recycled waste is perceived by consumers to be fit-for-purpose for use as a textile in sustainable clothing influences their responses to sustainable clothing made from such recycled waste. Natural preference bias suggests that consumers will have more favourable responses to sustainable clothing made from recycled waste which is organic (as

opposed to inorganic) and fit-for-purpose for use as a textile on the basis that the recycling process for such waste would encompass less human intervention. Thus, the first aim of this research was to examine the effect of the properties of recycled waste on consumer responses to sustainable clothing made from that waste.

There is little known on how to overcome negative consumer contamination responses to sustainable clothing made from recycled waste. One emerging research path suggests showing attractive others touching the plastic bottles used in the production of sustainable apparel to counteract the negative contamination effects of such recycled material. Another way in which to overcome negative consumer responses, drawing from the concept of conspicuous consumption, might be through visually signalling environmental consciousness. Conspicuous conservation denotes that supporting green products acts as a signal of positive qualities (e.g., trustworthiness, friendliness, or attractiveness), which can build a prosocial reputation and boost an individual's social status. Thus, the second aim of this research was to investigate whether including a visual symbol on sustainable clothing to signal environmental consciousness and make conspicuous conservation more explicit may overcome the effect of perceived contamination on consumers' responses to sustainable clothing made from recycled waste.

These research aims were addressed through two 2x2 factorial experiments conducted via online surveys. Results from Study 1 demonstrate that consumers view sustainable clothing made from recycled waste that is organic and more fit-for-purpose for use as a textile to be less contaminated. However, unexpectedly, it was also found that the composition of the recycled waste (organic versus inorganic) did not affect the

perceived attractiveness of the sustainable clothing, while recycled waste that was perceived to be more fit-for-purpose to be a textile decreased the attractiveness of the sustainable clothing. Study 2 , a replication-extension study, re-examined the effect of fitness-for-purpose of the recycled waste on perceived attractiveness and investigated the impact of visual signalling environmental consciousness on this relationship. Study 2 confirmed the negative relationship between perceived fitness for purpose of the recycled waste and product attractiveness, but did not find that signalling environmental consciousness moderated this relationship. Instead, a direct, negative relationship between signalling environmental consciousness through a visual signal on the product and the perceived attractiveness of sustainable clothing was identified.

Theoretically, this research extends the emerging studies examining how recycling influences contamination perceptions and other consumer responses to sustainable apparel. Specifically, this research deepens the understanding of the theory of consumer contamination in the context of sustainable clothing made from recycled waste by showing how natural preference affects contamination perception. Furthermore, this research also builds on the literature examining how the effects of negative contamination can be managed. Specifically, it applies the concept of conspicuous conservation, operationalised as the visual signalling of environmental consciousness, to improve the attractiveness of sustainable clothing made from recycled waste. Practically, this research offers insights for sustainable businesses, suggesting the use of recycled waste that is perceived to be more natural (i.e., organic and fit-for-purpose) to manufacture sustainable clothing lowers consumer contamination perceptions. However, for companies that wish to promote sustainable clothing, signalling environmental consciousness should be undertaken with caution.

While this approach is supported in promoting pro-environmental consumption, it is not recommended as a strategy to promote sustainable clothing using big and 'showy' symbols on sustainable clothing. Exploration of other potential ways to signal environmental consciousness is indicated, along with additional research on other means to overcome consumer contamination perceptions of sustainable clothing.

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Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature: _____ QUT Verified Signature _____

Date: _____12.08.2021_____

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Chapter 1: Introduction

This chapter describes the background and the context of the research (section 1.1), the brief outlines of the research approach of Study 1 (section 1.2) and Study 2 (section 1.3) are also introduced. Section 1.4 outlines the theoretical and practical significance of this research and finally, section 1.5 includes an outline of the remaining chapters of the thesis.

1.1 BACKGROUND AND INTRODUCTION

Within Australia, 'fast fashion' stores offer both low prices and constantly updated product ranges, and this trend has been beneficial for many businesses over a long period (Cataldi et al., 2017). Meanwhile, fast fashion is responsible for the significant consumption of raw materials to make textiles, which eventually end up as textile waste in landfills (Nayak, 2020; Ross, 2019). Nationwide, 6000 kilograms of cheap, disposable and mass-produced fast fashion items are dumped in landfills every 10 minutes (Lane, 2020). Synthetic fibres that are commonly used in mass-produced clothing can take up to a thousand years to degrade in landfills (Nayak, 2020).

Although the rising environmental concerns around fast fashion might have hindered industry performance, the weak growth of disposable income has encouraged consumers to seek cheaper clothing alternatives (Bhardwaj & Fairhurst, 2010). The progressively cheaper clothing retailed by fast fashion businesses, such as Zara and H&M, still has increasingly made its way into the mainstream market (IBISWorld,

2021). As the second-largest industrial polluter after aviation (Lane, 2020), the fashion industry is under pressure to reduce its environmental impact.

Sustainable fashion has gradually gained ground as consumers, brands, designers, retailers, and manufacturers become more aware of the devastating effect of fast fashion on the environment (Cataldi et al., 2017; Khandual & Pradhan, 2019). To improve the long-term sustainability of the fashion supply chain, the fashion industry has started to recycle waste into new fabric in recent decades (Mukendi et al., 2020; Nayak, 2020). Recycled waste, such as plastic waste, food waste and agricultural waste, are being collected, broken down, and made into textiles that are suitable for a wide range of apparel. For instance, the process of turning plastic bottles into textiles involves the collection of clear plastic bottles made from polyethylene terephthalate (PET), which are then melted, spun into fibres, and woven into fabric used in apparel (Meng & Leary, 2019; Morgan, 2019). More recently, used coffee grounds have been recycled alongside plastic bottles to make textiles (Innovation in Textiles, 2018; Singtex, 2021). Using bio-based (organic as opposed to inorganic) materials can reduce petroleum consumption by 25% in textile production and offer a better wearing experience (Innovation in Textiles, 2018).

Sustainable clothing has gained some momentum in the market, although there is an opportunity to improve demand further, nascent research in this domain shows consumers perceive sustainable clothing made from recycled plastic bottles to be contaminated, reducing consumers willingness to buy this sustainable clothing (Magnier et al., 2019; Meng & Leary, 2019). That is, drawing from the theory of consumer contamination, this extant research suggests recycling serves as a

contamination cue and decreases product desirability (Meng & Leary, 2019). According to Argo et al. (2006), in the retail environment, a contamination cue can signal to a consumer that someone else has previously come into physical contact with the product and trigger contamination concerns. However, little is known about consumer responses to sustainable clothing made from other types of recycled waste and whether it is perceived to be equally contaminated. For example, to date, no research has examined consumer responses to sustainable clothing made from organic recycled waste (e.g., used coffee grounds, orange peels, etc.) as opposed to inorganic recycled waste. With the rising trend of using organic recycled waste in the production of sustainable clothing, it is crucial to examine consumer responses to such clothing. As such, the research aims to address the following research questions:

RQ1: Are different types of recycled waste perceived to be contaminated to the same degree?

RQ2: Does the type of recycled waste affect the perceived attractiveness of sustainable clothing?

Moreover, little is known about how to overcome negative consumer responses, stemming from perceived contamination of sustainable clothing made from recycled waste. Emerging research suggests that showing attractive others touching the plastic bottles used in the production of sustainable apparel counteracts the negative contamination effects of such recycled material (Meng & Leary, 2019). Another way to overcome negative consumer responses to sustainable clothing, drawing on conspicuous conservation, might be through visually signalling environmental consciousness. The concept of conspicuous conservation denotes that

supporting green products acts as a signal of positive quality (e.g., trustworthiness, friendliness or attractiveness), which can build a prosocial reputation and boost an individual's social status (Griskevicius, 2008; Griskevicius et al., 2010; Iredale, 2012; Sexton & Sexton, 2014; Trigg, 2001). It suggests a possibility that including a visual symbol on sustainable clothing to signal environmental consciousness so that conspicuous conservation is more explicit when the product is purchased may overcome the negative effect of perceived contamination on consumers' responses to sustainable clothing made from recycled waste. This gives rise to the following research question:

RQ3: Does the signaling of environmental consciousness moderate the relationship between the type of recycled waste and the perceived attractiveness of sustainable clothing?

Given the significant scope of exisiting research in sustainable consumption and consumers' contamination perceptions (Magnier et al., 2019; Meng & Leary, 2019), two 2 x 2 factorial experimental designs were employed to quantitatively address the research questions. An experimental research design establishes causal relationships by manipulating the presumed cause of a phenomenon and measuring the outcome in a quantifiable manner (Shadish et al., 2002). Study 1 addressed the first and second research question, and its hypotheses, methodology and results are summarized in the section below, while Study 2 addressed the third research question, and the approach is summarized in Section 1.3.

1.2   STUDY 1 HYPOTHESES, METHOD AND RESULTS

Research investigating consumers' responses to sustainable clothing made from recycled waste is nascent. However, Magnier et al. (2019) show that consumers may perceive products made of ocean plastic waste to be less safe and contaminated. Meng and Leary (2019) extend on this research and demonstrate that apparel made from recycled waste that sits close to the skin, such as clothing, is perceived to be more contaminated, decreasing consumers' purchase intention towards these products. Contamination concern is derived from the evolutionary need to avoid disease, according to the Fundamental Motives Framework (Griskevicius & Kenrick, 2013; Kenrick, Neuberg, et al., 2010).

Natural preference suggests consumers may respond to sustainable clothing made from organic recycled waste differently to inorganic recycled waste such as plastic bottles. Consumers demonstrate a robust 'natural preference', whereby 'natural' products are preferred (Raimi et al., 2020) on the basis that human intervention is inherently damaging (Rozin, 2005). Natural preference may affect consumers' view on recycled organic waste such that they do not respond to sustainable clothing made from organic waste in the same way as inorganic or man-made waste such as used plastic bottles. Moreover, natural preference suggests that consumers will prefer sustainable clothing that is perceived to be more fit-for-purpose on the basis that it would require less human intervention in the recycling process. Fitness for purpose reflects the extent to which refinement is required in the process of recycling waste into textile for sustainable clothing, and how close it is to the final product (i.e., clothing). For instance, in terms of organic waste, recycled cotton that comes from pre-worn clothing would be more fit-for-purpose as it is already a textile and so requires

less human intervention to be recycled compared to used coffee grounds. In summary, natural preference bias suggests that consumers will perceive sustainable clothing to be more attractive if (1) the composition of recycled waste that is made from is closer to nature (i.e., organic) and (2) it has been subjected to less human intervention in the recycling process (i.e., fit-for-purpose) (Raimi et al., 2020; Rozin et al., 2004; Vega-Zamora et al., 2014). On this basis, for Study 1 it was hypothesized:

H$_1$: Perceived contamination of sustainable clothing varies depending on the properties of the recycled waste from which it is made, such that the more organic and fit-for-purpose the recycled waste is perceived to be, the less contaminated.

H$_2$: When considering sustainable clothing, the extent to which the recycled waste is perceived to be organic will be positively related to the perceived attractiveness of that clothing, such that clothing made from more organic recycled waste is perceived to be more attractive than inorganic recycled waste.

H$_3$: When considering sustainable clothing, the extent to which whether the recycled waste is perceived to be organic predicts the perceived attractiveness of that clothing is moderated by the perceived fitness for purpose of the recycled waste, such that better fitness for purpose will strengthen the positive relationship between the extent to which the recycled waste is perceived to be organic and the perceived attractiveness of the clothing.

Study 1 used a 2 x 2 between-subjects factorial design that manipulated two independent variables, the composition of the recycled waste (organic/inorganic) and its fitness for purpose, to test their effects on the dependent variables of perceived

contamination and perceived attractiveness respectively. To manipulate the composition (organic/inorganic) and perceived fitness for purpose (fit/not fit) of the material the product comprises, mock advertisements were created. The mock advertisement showed a unisex grey T-shirt that was described as made with recycled waste and having several generic features (e.g., sizing, stitching, range of colours). Pre-worn cotton was proposed as organic waste that would be considered fit-for-purpose, pre-worn polyester was proposed as inorganic waste that would be considered fit-for-purpose, used coffee grounds were proposed as organic waste that would not be considered fit-for-purpose, and finally, used plastic bottles were proposed as inorganic waste that would not be considered fit-for-purpose. The target population was identified as English-speaking Australian adults aged between 18 and 85. This study employed a non-probability convenience sampling strategy ($n = 283$) as all participants were recruited through market research company Dynata. Study 1 collected data through an online survey where participants were randomly allocated to one of the conditions and asked about their perceptions of product contamination and attractiveness, the composition of the recycled waste and perceived fitness for purpose of types of recycled waste, participants' demographics, status consumption, fashion consciousness, environmental concern, and disgust sensitivity. Manipulations checks and realism checks were also conducted to ensure the success of the experimental manipulation designs.

Multiple linear regression was used to test the hypothesis using the IBM SPSS 26 data analysis package. In relation to H$_1$, the two-predictor model was able to account for 27% of the variance in perceived contamination (*Adj. R^2* = .27, f (2, 213) = 41.02, p < .05). The composition of the recycled waste (β = -.23, p < .00) and

perceived fitness for purpose ($\beta = -.37$, $p < .05$) have a significant negative relationship with contamination. This indicates that participants perceived recycled waste that was more organic and fit for being used as a textile to be less contaminated. This result supports H_1. In relation to H_2 and H_3, in the final moderated regression model, the interaction between the composition of the recycled waste and perceived fitness for purpose was not significant (R^2 $Ch. = .01$, $F(1, 208) = 4.25$, $p = .06$), indicating that fitness for purpose did not moderate the relationship between whether the recycled waste was organic/inorganic and perceived attractiveness of the sustainable clothing (H_3). Interestingly, the composition of the recycled material did not make a unique contribution to predicting the perceived attractiveness of sustainable clothing ($\beta = -.02$, $p > .05$) (H_2), while perceived fitness for purpose does have a significant but negative relationship with perceived attractiveness ($\beta = -.40$, $p < .05$).

1.3   STUDY 2 HYPOTHESES, METHOD AND RESULTS

Study 2 is a replication-extension study (Bonett, 2012) that aims to build upon the findings from the first study. Study 2 builds on Study 1 by re-examining the effect of perceived fitness for purpose of the recycled waste on perceived attractiveness. However, it also extends on Study 1 by examining a means through which to overcome negative consumer responses to sustainable clothing made of recycled waste, stemming from perceived contamination. As previously mentioned, contamination concern is derived from the evolutionary need to avoid disease according to the Fundamental Motives Framework (Griskevicius & Kenrick, 2013; Kenrick, Neuberg, et al., 2010). Research suggests that it is possible to activate two or more fundamental motives to counterbalance decision biases and errors inherent in any one fundamental motive (Griskevicius & Kenrick, 2013). In this case, it may be possible that activating

another fundamental motive, like a status motive, could compensate for the activation of the disease avoidance motive in the case of sustainable clothing made from recycled waste.

The status motive is an evolutionary motive to gain higher status and maintain respect and prestige, and it is also a behavioural tendency to seek products that signal prestige (Griskevicius & Kenrick, 2013; Kenrick, Neuberg, et al., 2010). One way in which to gain higher status is to choose environmentally friendly products to enhance one's prosocial reputation (Griskevicius et al., 2010). Even though there are limits to the extent to which the effects of perceived contamination on product attractiveness can be decreased, there is still the possibility of increasing the product attractiveness by increasing its status or social benefit. Signalling theory explains this strategy for how this can be done. This theory suggested that one individual (the sender) seeks to convince another individual (the receiver) that he or she holds a desired positive quality, however, this quality is not directly observable if not signalled (Gambetta, 2009; Spence, 1978). In the context of sustainable consumption, environmentally friendly products are more attractive when they allow individuals to signal desirable qualities, such as social status or prosocial values, through sustainable product consumption and display (Berger, 2019; Iredale, 2012). In this case, consumers can gain individual advantages in social interactions by signalling higher environmental consciousness, and these advantages can act as additional incentives in accepting sustainable products. On this basis, for Study 2 it was hypothesised:

H4: When considering sustainable clothing, visually signalling environmental consciousness moderates the relationship between perceived fitness for purpose and the perceived attractiveness of sustainable clothing made from that recycled

waste, such that signalling of environmental consciousness will strengthen the positive relationship between fitness for purpose and perceived attractiveness of sustainable clothing.

Study 2 is a 2 (perceived fitness for purpose: fit/not fit) x 2 (signalling: presence/absence) between-subject factorial experimental design. Similarly to Study 1, mock advertisements were created, pre-worn polyester was proposed to be fit-for-purpose and plastic bottles were proposed to be not fit-for-purpose in line with the results of Study 1. A pilot study was first conducted to select an appropriate symbol to signal environmental consciousness. A symbol of two hands holding the Earth was selected on the basis that it had the most consistent and accurate descriptions of being environmentally conscious. Study 2 employed the same sampling method used in the first study. Study 1 collected data through an online survey ($n = 274$) where participants were randomly allocated to one of the conditions and asked about their perceptions of product contamination and attractiveness, perceived nature and fitness for purpose of types of recycled waste, participants' demographics, status consumption, fashion consciousness, environmental concern, and disgust sensitivity. As with Study 1, manipulations checks and realism checks were also conducted to ensure the success of the experimental manipulation designs.

In relation to H4, in the final moderated regression model, the interaction term (perceived fitness for purpose*environmental consciousness) was not statistically significant ($p = .76$). This indicates that signalling environmental consciousness with a symbol on sustainable clothing did not moderate the relationship between perceived fitness for purpose of the recycled waste and the perceived attractiveness of sustainable clothing. However, both perceived fitness for purpose of the recycled waste ($\beta = -.33$,

$p < .00$) and signalling of environmental consciousness ($\beta = -.31$, $p < .00$) showed a significant, negative relationship with the perceived attractiveness of sustainable clothing. This result aligns with those in Study 1, which is that when the perceptions of fitness for purpose of recycled waste increase, the perceived attractiveness of sustainable clothing decreases. Moreover, interestingly, the presence of the signalling of environmental consciousness also decreases the perceived attractiveness of sustainable clothing.

1.4   THEORETICAL AND PRACTICAL CONTRIBUTIONS

Limited research has examined the influence of different properties of recycled waste on contamination perception with existing studies focusing exclusively on products made from recycled plastic waste (Bleicher, 2020; Magnier et al., 2019; Meng & Leary, 2019; Nayak, 2020). The studies in this thesis thus contribute by providing a more in-depth understanding of how the properties of the recycled waste from which sustainable clothing is made influence consumers' contamination perception. In particular, the research shows how natural preference influences perceived contamination, with more natural (organic and fit-for-purpose) recycled waste lowering perceptions of contamination of sustainable clothing that is made from such waste. This is important as past research on natural preference has typically focused on appetitive items such as food and medicine (Rozin et al., 2005; Rudski et al., 2011), while little research has examined whether natural preference extends towards textiles, especially material that is processed from recycled waste.

The final theoretical contribution of this study relates the effect of signalling environmental consciousness on the relationship between the properties of recycled

waste and the perceived attractiveness of sustainable clothing made from the waste. It is an important extension of the work of Meng and Leary (2019) and Magnier et al. (2019) in that it examines an additional means through which the negative effects of perceived contamination of recycled products can be overcome. Although Study 2 showed that signalling environmental consciousness did not enhance the attractiveness of sustainable clothing made from recycled waste, it provides a basis for future research in this domain that may focus on less conspicuous signalling.

Practically, one recommendation would be to use organic and more fit-for-purpose recycled waste, such as pre-worn cotton, as the key material for sustainable T-shirts to reduce consumers' contamination perception of these products. This builds upon Meng and Leary (2019)'s study which finds that products close to the skin (e.g., T-shirts) are impacted more significantly by contamination perception. Contrarily, items that are not in constant contact with the skin are less impacted by contamination (Meng & Leary, 2019) and to further increase these products' attractiveness, managers could consider the use of less fit-for-purpose recycled waste, such as coffee grounds and plastic bottles, as the key material for bags or accessories.

1.5   THESIS OUTLINE

This thesis is comprised of five chapters. Chapter One: Introduction (the current chapter) outlines the background and the research context of this study. It has described the research gaps, addressed the purpose of this research by outlining the research questions and the guiding theoretical framework. This chapter has also introduced the research design, sampling method and analysis used in the two studies.

Chapter Two: Literature Review contains a comprehensive review of the literature underpinning this thesis. It introduces the background of the current sustainable fashion market, with a key focus on the topic of consumer contamination and natural preference in relation to product attractiveness in sustainable clothing made of recycled waste. This chapter also provides discussions on the role of conspicuous conservation in promoting sustainable fashion. The theoretical framework and research hypotheses are proposed which guide the thesis to address the research gaps identified.

Chapter Three: Research Design describes the research methodology used to conduct this research. It outlines the methodology, including the experimental designs and their place in quantitative research. The sampling procedures and data collection methods are discussed. Survey designs in the two studies, including the measurement scales and stimuli development, and the data analysis techniques employed are outlined as well.

Chapter Four: Results presents the quantitative results of the two studies. Data is analyzed and hypotheses are tested on the main and interaction effects of the conceptual relationships. Conclusions about which hypotheses the data supports are also provided.

Chapter Five: Discussion is the final chapter of the thesis, and it discusses the results of the two studies, addressing each of the research questions proposed for this research. Theoretical and practical implications and contributions are considered within the research context of sustainable fashion, as well as the research limitations. Lastly, future research directions and recommendations are provided.

Chapter 2: Literature Review

2.1 SUSTAINABILITY IN THE FASHION INDUSTRY

Within the last few years, sustainability in the fashion industry has come to the fore as more consumers become aware of the negative environmental effects caused by the consumption of ever-changing fashion (Claudio, 2007; Joung & Park-Poaps, 2013). Businesses and consumers have all benefited from market globalisation; however, this also has made it possible to produce clothing at progressively lower prices, to a point where many consumers consider this form of apparel to be easily disposable (i.e., fast fashion) (Birtwistle & Moore, 2007; Claudio, 2007). The increase in fashion purchasing has led to a new phenomenon of disposing of garments which may only have been worn a few times, which is described as a trend of 'throwaway' fashion by Birtwistle and Moore (2007). The consumption of raw materials, the use of water and energy, and the pollution and emissions caused by the apparel production all contribute to the severe damage to the global environment (Nayak, 2020; Ross, 2019).

Although consumers' awareness of the need for sustainability has increased, their textile disposal behaviours have yet to be improved. Fashion production makes up 10% of humanity's carbon emissions, yet 85% of all textiles go to the dump each year (Mcfall-Johnsen, 2019). Well-known fast fashion retailers, such as H&M, TopShop and Zara, sell garments at a low price that are used less than ten times on average before disposal (Joung & Park-Poaps, 2013). On balance, it is argued that fashion by its very nature is suggestive of transience, destined for a short lifespan and

not the prolonged existence that products require to be deemed sustainable (Walker, 2006, p. 71). Nonetheless, it is undeniable that the quick disposal of garments results in significant exhaustions of raw materials.

In general, a *sustainability focus* suggests that used resources can be reused by mimicking the circular flows of resources in nature, and it respects the fact that resources are limited (White et al., 2019). Subsequently, past research has identified that *sustainable consumer behaviours* could include voluntarily reducing or simplifying one's consumption in the first place (Dorothy, 1981; McDonald et al., 2006); choosing sustainable product sourcing, production and features (Luchs et al., 2012); conserving water and energy during use; and choosing sustainable ways of product disposal (White et al., 2019; White & Simpson, 2013). In the fashion industry specifically, to reduce the environmental effect of apparel production at its source, there is a need to cut down the volume of raw materials used to make textiles, specifically, by using recycled materials. The term 'recycled' describes the process of breaking down objects into materials to make new items (King et al., 2006). Several terms are used in the literature to describe the reworking of waste or other materials into different products (see Table 1), the term 'recycled' best describes the process being studied by this research.

Table 1. *Possible descriptive terminology explained*

IV terms	Explanation	Literature
Recycled	Recycling must imply the provision of secondary resources of the same quality and reliability as compared with that of primary resources.	Schneider and Ragossning (2015, 694)
	Recycling is the series of activities by which discarded materials are collected, sorted, processed, and used in the product of new products.	King et al. (2006)
Upcycled	Upcycling is a process where the resulting products were at least of equal value or preferably of a higher value then the original goods and components.	McDonough and Braungart (2002)
	Upcycling is a different type of recycling method making use of the materials and components of	Cassidy and Han (2017)

	discarded goods to transform them through clever design and skilled craftsmanship into new, high-value products.	
Remanufactured	Remanufacturing not only captures the value of the engineered materials but also the physical form of the product using parts and assemblies that are either in or can be upgraded to a like-new or better than new condition.	Hamzaoui-Essoussi and Linton (2014)
	Remanufacturing is a production strategy where the goal is to recover the residual value of used products via reusing, refurbishing, and/or replacing components such that the end-item is restored to a like-new condition.	Debo et al. (2005)
Repurposed	Repurposing of a material is defined as the utilization of a material, which as originally	Alkhalidi et al. (2019)

	manufactured to serve a primary function, to serve a secondary purpose instead of being disposed of after its primary function is spent.	
Waste	Waste is traditionally categorised with respect to its provenance, and includes agricultural, industrial, animal, and municipal (urban) waste.	Chen et al. (2017)

This concept first gained broader public awareness when Esprit presented its first Ecollection in 1994 (Black, 2008). In 2007, Katharine Hamnett London, in collaboration with the United Nations, developed the first certificate for sustainable clothing (Black, 2008). However, there remain diverse views on the nature of *sustainable fashion*, especially sustainable clothing. Several studies defined sustainable fashion from a consumer perspective (Hill & Lee, 2012; Joergens, 2006; Morgan & Birtwistle, 2009; Reimers et al., 2016). For instance, according to Morgan and Birtwistle (2009), sustainability demands durability and the practice of recycling.

On the other hand, some studies have taken perspectives from wider stakeholders beyond consumers (Haug & Busch, 2016; Thomas, 2008). For instance, Thomas (2008, p. 533) explained that "sustainable fashion is the result of the positive impact of a designer, a consumer choice, or a method of a product as experienced by

workers, consumers, animals, society and the environment." In this study, a more comprehensive definition is adopted. *Sustainable fashion* refers to:

> "Clothing that is designed, produced, (re-)used and disposed in a way that is aligned with the concept of sustainable development. Thus, we consider not only the sustainability of the production of the garments but also the sustainability of their usage and post-usage phase (Stanszus & Iran, 2015, p. 154)."

In sustainable fashion, garments are designed in a way to minimise the waste of cutting fibre or yarn (i.e., raw materials), and subsequently, manage environmental impact (Stanszus & Iran, 2015). According to Ross (2019), recycling is the initial step in achieving a more sustainable solution to waste management that can eventually reduce the number of raw materials that need to be produced. To reduce further waste of raw materials and reduce the carbon footprint of clothing manufacturing, top companies such as Adidas, G-star Raw, and The North Face have been launching new collections of clothing made from plastics collected from the oceans, which is then recycled into fibres (Boscio, 2016; Morgan, 2019). The recycling process employed by numerous retailers is to collect and melt clear plastic bottles made of polyethylene terephthalate (PET), then reprocess them to be netted into fabrics and other applications. From an energy and water consumption perspective, recycled PET is a better alternative than using virgin PET (Claudio, 2007).

Despite increasing support from customers for sustainable fashion (Mukendi et al., 2020), there is some criticism of such recycled material. In general settings, sustainable fashion is being understood as the use of natural materials like cotton in garments instead of using synthetic, oil-based materials like nylon (Jastram &

Schneider-Di Meo, 2018). However, in terms of their ecological impact, it is difficult to say which one is the better choice. For instance, products made of manufactured materials generally consume less water, yet using polyester results in more emissions (Fletcher, 2010). Moreover, a study has shown that washing synthetic clothing would potentially cause higher levels of plastic pollution in the marine system (Boscio, 2016). As a result, businesses have started sourcing materials from organic waste, such as orange peels, potato waste, coffee grounds, and pineapple leaves (Mukendi et al., 2020; Pinnock, 2019). This organic waste is then recycled and broken down into new natural fibres for fashion garments. For instance, extracts from used coffee grounds are processed in a high-pressure environment to be woven into the naturally anti-bacterial fabric (Newman, 2016).

Despite sustainable fashion gaining momentum as more fashion brands adopt more sustainable approaches, some recycled materials are criticised by consumers and products that contain recycled materials are reluctantly considered (Bleicher, 2020). Initial research carried out by Magnier et al. (2019) in the Netherlands found that participants had a mainly positive general attitude (overall impression in terms of bad/good) toward textile products made of ocean plastics, including positive expectations of quality, functionality, and attractiveness. Yet, research investigating consumers' responses to recycled waste is nascent. The authors also suggested that consumers may perceive products made of ocean plastic waste to be less safe and contaminated. Meng and Leary (2019) extend on this research and demonstrate that apparel made from recycled waste that sits close to the skin, such as clothing, is perceived to be more contaminated, decreasing consumers' purchase intention towards these products. The low desirability of products made from recycled waste is proposed to be owing to perceived contamination of these products, by virtue of their

construction from waste. Interestingly, previous studies tend to underrate this key challenge in designing and marketing sustainable clothing. This current research intends to contribute to the limited understanding of consumers' perceived contamination of clothing made of recycled waste and its impact on consumers' response to such clothing.

Specifically, whilst it has been established that clothing made from recycled plastic waste (i.e., used plastic bottles) is perceived to be contaminated by consumers and reduces product attractiveness and consumers' willingness to purchase, whether the properties of the recycled waste influence perceived contamination and consumers' subsequent responses to the sustainable clothing have not yet been explored. That is, it is not known whether consumers respond similarly to clothing made from recycled organic waste or waste that requires less refinement through processing and human intervention (i.e., that is more "fit-for-purpose") compared to used plastic bottles. This is important owing to concerns regarding the true extent of the sustainability of making clothing from plastic waste, and the emergence of practice whereby companies have started recycling organic waste into new natural fibres for fashion garments (Pinnock, 2019). Thus, this research will extend the current understanding of consumers' perceived contamination of clothing made of recycled waste, specifically examining whether organic waste or waste that is considered more "fit for purpose" than used plastic bottles are perceived in the same way by consumers. This research is critical as contamination perceptions are a strong evolutionary response that might render these emerging products unattractive on the market, which is a further waste of resources. In order to achieve this research objective, it is necessary to review the literature around contamination, and specifically contamination theory, which is presented next.

2.2 LAW OF CONTAGION

Fear of contamination can be complex, powerful, yet is essential for human survival (Rozin & Nemeroff, 1990b). Contamination concerns are relevant in daily settings, for instance, the prevalent use of contactless payments and online transactions is triggered by the fear of contamination in the context of the global COVID-19 pandemic (Hazée & Van Vaerenbergh, 2020). Within a marketplace context, products that have been handled or owned by someone else previously can be perceived to be contaminated through this contact with others, devaluing the product (e.g., demonstration products, floor-room models) (Argo et al., 2006). Further, objects near contamination sources, such as dressing rooms, can be perceived as less desirable than those far away (Argo et al., 2006; Morales & Fitzsimons, 2007). It shows that customers cannot easily deactivate contamination concerns once activated (Rozin & Nemeroff, 1990b). Thus, it is a key psychological barrier to the purchase of products for marketers to consider, particularly when marketing products that are more likely to be subjected to contamination concerns, such as those made from recycled waste.

Contamination concern is derived from the evolutionary need to avoid disease, according to the Fundamental Motives Framework (Kenrick, Griskevicius, et al., 2010; Kenrick, Neuberg, et al., 2010). This framework outlines key psychological adaptations that humans have for addressing specific ancestral social challenges, including (1) evading physical harm, (2) avoiding disease, (3) making friends, (4) attaining status, (5) acquiring a mate, (6) keeping a mate, and (7) caring for family. Under *disease avoidance*, in response to the threat of pathogens, humans have developed a physical immune system to fight off infection. Another response to the presence of the disease has been the evolution of a "behavioural immune system" that allows humans to avoid infection through our behaviours (Griskevicius & Kenrick,

2013; Schaller & Park, 2011). Automatic responses like sneezing, coughing, and recognition of foul odours are activated by cues suggesting the presence of diseases (Miller & Maner, 2011). A disease avoidance system can also be triggered by exposure to products that elicit some level of disgust as certain products are associated with harmful qualities and are avoided by consumers (Griskevicius & Kenrick, 2013). For instance, worn and dirty money bills trigger contamination concerns and people get rid of them quicker. While many diseases spread from person to person, disease-causing organisms can also be transmitted by objects (Huang et al., 2017). Thus, contamination concerns may influence customer experience as well as customer perceptions and behaviours such as seeking clean, familiar, or new products and services (Griskevicius & Kenrick, 2013). This phenomenon can be explained by extensive research on contagion and contamination.

The laws of sympathetic magic were introduced by anthropologists such as Frazer and Tylor in the late 1800s and early 1900s (Argo et al., 2006; Frazer, 1890; Nemeroff & Rozin, 1994; Rozin et al., 1986; Tylor, 1871). Among them, the law of contagion states that "people, objects, and so forth, that come into contact with each other may influence each other through the transfer of some or all of their properties" (Nemeroff & Rozin, 1994, p. 159). Therefore, contagion generally refers to people experiencing a 'source' of contagion transferring some of its, usually undesirable, properties to the target (Rozin et al., 1986). Since the source is expected to transfer a contagious entity to the target on contact, the properties would remain a part of the target even after the contact has stopped (Morales & Fitzsimons, 2007; Rozin & Nemeroff, 1990a). Accordingly, perceived contamination or contamination concern results from the perceived transfer of contagious properties between objects or people.

People can have both negative and positive responses to contagion, termed positive and negative contagion (Nemeroff & Rozin, 1994; Rozin et al., 1986). Responses may result from two different models of contagion, namely the *non-physical model* (i.e., symbolic contagion) and the *physical model* (i.e., physical contagion) (Nemeroff & Rozin, 1994) (see Figure 1). Positive contamination usually results from symbolic contagion, in that it may occur when the object is associated with an attractive or famous person (Argo et al., 2008; Hazée et al., 2019; Meng & Leary, 2019; Newman et al., 2011). In this case, the symbolic model of contagion is based on interpersonal/moral factors (Nemeroff & Rozin, 1994) and illustrates that people want to be connected with objects that are associated with a strong and positive figure (i.e., celebrity).

On the other hand, negative contamination may result from both the symbolic and physical model of contagion. According to Nemeroff and Rozin (1994), contact with an undesirable entity can make an object less desirable in three ways: (1) a physical transfer of properties, (2) a transfer of non-physical and hence ideational properties, or (3) negative associations having to do with the contaminant. Physical contagion requires physical contact between entities, which would trigger contamination (Nemeroff & Rozin, 1994). For instance, consumers believe others would transfer residue or germs through touching objects, thus, avoid using access-based services such as car-sharing (Hazée & Van Vaerenbergh, 2020; Hazée et al., 2019). This avoidance behaviour in response to negative contagion is also observed in food-related domains, in which people avoid drinks touched by a cockroach (Rozin et al., 1986). Alternatively, negative contamination may also be caused by a symbolic transfer, for example, a laundered sweater worn by Adolf Hitler ((Nemeroff & Rozin, 1994). Morales and Fitzsimons (2007) argued that individuals' belief about the transfer

of germs or toxic residue was enough to generate a negative response such as avoidance behaviour.
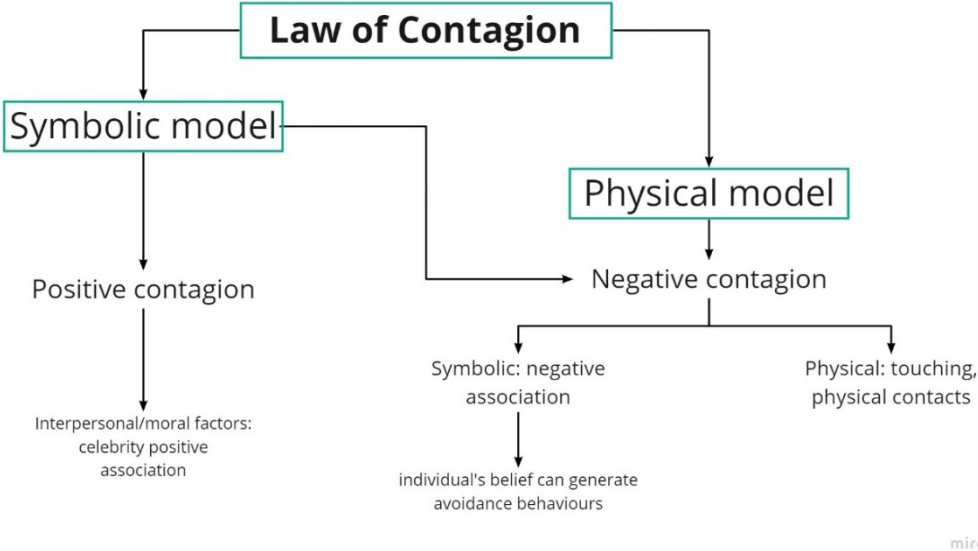
Figure 1. Visualisation of the two models of contagion.

To conclude, previous studies discuss that negative contamination is caused primarily by a transfer of entity through physical contact, which decreases the value of an object, as in the sweater example; while positive contamination effects are driven primarily by the desired association with positive and strong people (Argo et al., 2006; Nemeroff & Rozin, 1994). Given the focus of this study, this thesis will focus on negative contamination (i.e., both physical contagion and symbolic association) in the retail context. It seeks to understand consumer response to sustainable clothing made from recycled waste, when the recycled waste may have come into contact, or be perceived to have come into contact with objects or other people, and so, triggers negative contamination.

2.3 PERCEIVED CONTAMINATION OF RECYCLED PRODUCTS

In the retail context, the theory of consumer contamination outlines the negative impact of contamination concerns on product evaluation was proposed by Argo et al. (2006). According to Argo et al. (2006), in the retail environment, a contamination cue can signal to a consumer that someone else has previously touched the product and trigger contamination concerns. The authors proposed three environmental cues. First, proximity to contact as a cue refers to the extent to which consumers' evaluation of the product decreases if the product is closer to touching other customers' bodies. Second, time elapsed since contact as a cue refers to how recent the product has been touched by others. Third, number of contact sources as a cue refers to how many other customers have touched the product. It is believed that these environmental cues greatly influence consumers' contamination perceptions, lower product evaluations, and ultimately lower purchase intentions and willingness to pay (Argo et al., 2006; Meng & Leary, 2019; Morales & Fitzsimons, 2007; White et al., 2016). Furthermore, Argo et al. (2006) argue that the low desirability of second-hand products is because consumers believe in the potential transfer of germs or residue through incidental product touching or usage (e.g., demonstration products). Similarly, Morales and Fitzsimons (2007) propose that simply touching a product with undesired or disgusting entities can trigger contamination concern in consumers, while a recent study by White et al. (2016) identified damaged packaging (e.g., ripped label) can act as a contamination cue that adversely influences consumer product evaluations.

The theory of consumer contamination suggests a relationship between recycled goods and contamination, with recycling being a possible contamination cue. The theory suggests the more salient the contact between other people (or other objects) and a product, the more contaminated the product is believed to be, and the less

desirable the product is perceived to be by customers (Argo et al., 2006; Hazée et al., 2019; Morales & Fitzsimons, 2007). Despite the fact that 'recycling implies the provision of secondary resources of the same quality and reliability as compared with that of primary resources' (Schneider & Ragossnig, 2015, p. 694) and advanced technology makes recycled waste suitable for use (Schneider & Ragossnig, 2015), recycled materials are still perceived as contaminated owing to the magical belief of symbolic interactions: 'once in contact, always in contact' (Frazer, 1890). Studies show that clothing made from plastic waste, specifically used plastic bottles, is perceived to be contaminated by consumers (Magnier et al., 2019; Meng & Leary, 2019), and lowers customer evaluation of this clothing and eventually the perceived attractiveness of such clothing.

However, the extent to which the different properties of the recycled waste from which sustainable fashion is made affect contamination concerns and subsequent responses to the clothing is underexplored. For example, it is unknown whether sustainable clothing made from organic waste or waste that is considered more 'fit for purpose' than inorganic waste, such as used plastic bottles, is perceived to be contaminated in the same way by consumers. Consumers demonstrate a robust 'natural preference', whereby 'natural' products are preferred (Raimi et al., 2020) on the basis that human intervention is inherently damaging (Rozin et al., 2005). Consumers' view on organic waste may be affected by this naturalness bias such that they do not respond to sustainable clothing made from 'more natural' waste or waste that is more fit for purpose (and subject to less human intervention) in the same way as 'less natural'/man-made waste such as used plastic bottles. The literature on natural preference is explored below.

2.4 NATURAL PREFERENCE

In western society, the word 'natural' is usually viewed entirely positively (Rozin et al., 2005). Rozin et al. (2005) and Rozin et al. (2004) found that consumers demonstrate a consistent preference for natural products. This phenomenon is termed 'natural preference', which refers to the tendency to prefer natural things to otherwise equivalent unnatural alternatives (Li & Chapman, 2012). It is apparent particularly within the context of food though this natural preference is mirrored in research on risk perception where equivalent hazards caused by humans are seen as more severe than those caused by nature (Raimi et al., 2020).

This raises a question: how is our natural preference related to negative contamination perception? Research shows that the distrust in new technologies and scientific processes more generally will lead to resistance to any developments that could potentially interfere with nature in the future (Raimi et al., 2020). Regardless, people prefer natural entities to those which have been produced with human intervention due to both respects for nature as well as fear of human intervention (i.e., any chemical transformation involving subtracting or adding extra unnatural entities) (Raimi et al., 2020; Rozin, 2005; Rozin et al., 2004). Hence, the more humans intervene with an item, the less preferred it becomes.

There are two reasons to explain such 'naturalness preference' suggested by Rozin et al. (2004): instrumental bias and ideational bias. First, *instrumental (aka, consequential) bias* assumes that human intervention always causes damage to nature and that natural entities are 'purer' (where "pure" is often a free associate of "natural") (Rozin, 2005; Rozin et al., 2004; Rudski et al., 2011). It mainly refers to the functional superiority of natural products, such as effectiveness, safety, taste, or environmental

benefits (Li & Chapman, 2012). Second, the *ideational (aka, moral) bias* stems from the belief that 'natural' is inherently better, and it has moral connotations (Li & Chapman, 2012; Rozin et al., 2004). For instance, organic foods are held in high esteem and are considered 'better' in all aspects, even if: health, flavour, aroma, naturalness, and safety (Basarir & Gheblawi, 2012; Vega-Zamora et al., 2014).

Past studies, however, have diverse opinions on how instrumental and ideational biases influence natural preference. Rudski et al. (2011) propose that the instrumental reasons for natural preference tend to utilise analytic thinking, while ideational reasons for natural preference are more closely linked to ideational reasoning. Rozin (2005) argues that if a natural object undergoes two processes or alterations, it is less preferred to an object which only undergoes one. Moreover, even when the second alteration undoes the effect of the first alteration, the second alternation is still less preferred. It suggests that natural preference is not based on analytical reasoning but simply what feels 'more right'. On the other hand, Li and Chapman (2012) argued that ideational and instrumental reasons for natural preference are both important, and are closely connected, there may be the possibility that instrumental reasons form prior to ideational reasons. It also suggests that opposition to technologies that interfere with natural products is based on both beliefs (Li & Chapman, 2012; Rozin et al., 2004).

In the current study, the natural preference bias suggests that consumers may respond differently to sustainable clothing that is perceived to be more natural, that is, sustainable clothing that is made from organic as opposed to inorganic waste and waste that is perceived to be more fit-for-purpose as opposed to not-fit-for-purpose. Specifically, the ideational bias that leads to natural preference, which is a belief that natural entities are inherently better, suggests that consumers will prefer sustainable clothing made from organic as opposed to inorganic waste. Organic waste, such as

coffee grounds and orange peels, is inherently closer to nature than inorganic waste like recycled plastic bottles. The bias that leads to natural preference, which captures the extent to which human intervention has 'damaged nature', suggests that consumers will prefer sustainable clothing that is perceived to be more fit-for-purpose.

Fitness for purpose is conceptualised to reflect the extent to which refinement is required in the process of recycling waste into a textile that is used in sustainable clothing, and how close it is to the final product (i.e., clothing). This implies something that is more fit for purpose has less human intervention or alternatively, represents the shortest distance from the existing (waste) product and desired end (new fabric) product. This differs from the conceptualisations from other disciplines such as law and engineering. For instance, in terms of organic waste, recycled cotton that comes from pre-worn clothing, would be more fit-for-purpose as it is already a textile and so sits closer to its original intended purpose than coffee grounds, and thus, can arguably be perceived to require less human intervention as part of the recycling process. Similarly, in terms of inorganic waste, recycled polyester that comes from pre-worn garments is already a textile and is more fit for purpose than used plastic bottles. Waste that is MORE fit-for-purpose as a textile, is thus conceptualised as waste that requires LESS refinement through processing to be recycled into fabrics to make sustainable clothing.

Hence, it is hypothesized:

H_1: Perceived contamination of sustainable clothing varies depending on the properties of the recycled waste from which it is made, such that the more organic and fit-for-purpose the recycled waste is perceived to be, the less contaminated.

Several studies (Rozin, 2005, 2006; Rozin et al., 2005; Rozin et al., 2004) revealed that perceived naturalness is reduced by chemical transformation and by contact with unnatural entities, especially with additives. It suggests that consumers may perceive sustainable clothing made from recycled organic waste to be purer as its original content is associated with less unnatural entities (Rozin, 2005; Rozin et al., 2004), and subsequently, less contaminated. This proposition is further supported by the fact that organic waste is typically a by-product of manufacturing, rather than the by-product of consumption by others, such as in the context of used plastic bottles. Moreover, based on the theory of perceived contamination, the more salient the contact between other people and a product, the more contaminated the product is believed to be, and the less desirable the product is perceived to be by customers (Argo et al., 2006; Hazée et al., 2019; Morales & Fitzsimons, 2007).

Therefore, in accordance with the natural preference bias and the theory of contamination, consumers could perceive sustainable clothing made from organic waste, a by-product of manufacturing, to be less contaminated and thus more attractive than clothing made from inorganic waste, a by-product of consumption, such as used plastic bottles. On this basis, it is hypothesised:

> **H$_2$**: When considering sustainable clothing, the extent to which the recycled waste is perceived to be organic will be positively related to the perceived attractiveness of that clothing, such that clothing made from more organic recycled waste is perceived to be more attractive than inorganic recycled waste.

Moreover, natural preference bias suggests that consumers will perceive sustainable clothing to be more attractive if (1) the composition of recycled waste that is made from is closer to nature (i.e., organic) and (2) it has been subjected to less human intervention in the recycling process (i.e., fit-for-purpose) (Raimi et al., 2020; Rozin et al., 2004; Vega-Zamora et al., 2014). On this basis, consumers will perceive sustainable clothing to be more attractive if it is made from more natural recycled waste, that is, made from more organic recycled waste that is perceived to be fit-for-purpose for use as a textile. Thus, it is hypothesized:

> **H3**: When considering sustainable clothing, the extent to which whether the recycled waste is perceived to be organic predicts the perceived attractiveness of that clothing is moderated by the perceived fitness for purpose of the recycled waste, such that better fitness for purpose will strengthen the positive relationship between the extent to which the recycled waste is perceived to be organic and the perceived attractiveness of the clothing.

While the research reviewed to date provides insights into properties of recycled waste from which sustainable clothing is made that may influence the perceived contamination and subsequent attractiveness of thiconsus clothing, it is necessary to examine the literature for factors that may enable contamination concerns to be overcome. Therefore, from a managerial perspective, this would give marketers practical insights to promote sustainable clothing made from recycled waste by reducing the associated perceived contamination and subsequently increase the perceived attractiveness of such clothing. It is discussed in the following section.

2.5 COUNTERACTING CONTAMINATION PERCEPTIONS

Previous research suggests that negative contamination due to previous contacts with others can be mitigated by achieving positive contamination through the inclusion of an attractive other. Firstly, Meng and Leary (2019) propose that positive contamination can be activated using the evolutionary response to attractive others. When a product is touched by an attractive person, the product is viewed as more attractive, resulting in positive contamination (Argo et al., 2006, 2008; Nemeroff & Rozin, 1994). It is suggested to focus on showing attractive others touching the plastic bottles used in the production of the apparel to counteract the negative contamination effects of such recycled material. Secondly, research reveals that consumers experience heightened contamination concerns about objects used in proximity to their bodies (Hazée et al., 2019). Therefore, Meng and Leary (2019) suggest focusing on manufacturing products used peripherally to the body (e.g., carry bags) in order to reduce negative contamination effects on product evaluations. Overall, however, relatively little is known about how to mitigate negative contamination and improve product attractiveness. Perceived contamination produces long-lasting and enduring changes in how consumers respond to and evaluate contaminated products (Morales & Fitzsimons, 2007). Hence, there is a need to expand research into factors that could overcome the effect of negative contamination on the perceived attractiveness of clothing made of recycled waste.

Several theoretical and interconnected perspectives that provide a foundation for proposing that signalling environmental consciousness may mitigate negative contamination. As previously mentioned, according to the Fundamental Motives Framework, a fundamental motive can be activated by external or internal cues indicating threats (or opportunities) related to a specific evolutionary challenge (Griskevicius & Kenrick, 2013). Disease avoidance can be triggered by exposure to products that elicit some level of disgust (Griskevicius & Kenrick, 2013). Thus, it underpins the law of contagion and negative contamination. The Fundamental Motives Framework has generated insights about how fundamental motives influence basic psychological behaviours such as altruism and gaining status, and interestingly, each fundamental motive has its weakness. For instance, activating a status motive and becoming overconfident might lead to biases and errors in judgement (Anderson et al., 2012). Then, Griskevicius and Kenrick (2013) explained that activating another fundamental motive such as self-protection by attuning people to information suggesting they might be in danger might produce more accurate judgement or reverse this overconfidence bias. It suggests the potential for activating two or more fundamental motives in order to counterbalance decision biases and errors. In this case, it may be possible that activating another fundamental motive, like a status motive, could compensate for the activation of the disease avoidance motive in the case of sustainable clothing made from recycled waste.

Previous research has proven that social factors are one of the most influential factors in terms of affecting sustainable consumer behavioural change (Abrahamse & Steg, 2013), one implication has already been suggested by White et al. (2019) – to make sustainable products or behaviours socially desirable and to buffer against potential negative perceptions linked to sustainable consumption (White et al., 2019).

Therefore, it shows that signalling environmental consciousness (i.e., status motive) could attenuate the negative contamination effects (i.e., disease avoidance motive) on the perceived attractiveness of sustainable clothing. The status motive is an evolutionary motive to gain higher status and maintain respect and prestige, and it is also a behavioural tendency to seek products that signal prestige (Griskevicius & Kenrick, 2013; Kenrick, Neuberg, et al., 2010). One way in which to gain higher status is to choose environmentally friendly products to enhance one's prosocial reputation (Griskevicius et al., 2010).

The following section expands the examination of signalling environmental consciousness as a possible means through which to activate a status motive to mitigate the effects of disease avoidance, specifically negative contagion, on the perceived attractiveness of sustainable clothing.

2.6   SIGNALLING ENVIRONMENTAL CONSCIOUSNESS

Environmental consciousness is a multidimensional construct known to influence a person's knowledge, attitude, behaviour, intentions and actions (Mishal et al., 2017), and it generally refers to individuals' propensity towards pro-environmental behaviours (Zelezny & Schultz, 2000). This attitude has then evolved from avoiding purchasing certain environmentally hazardous goods to supporting the production of green products (Grunert & Juhl, 1995; Huang & Kung, 2011). Therefore, environmental consciousness is now commonly interpreted as when a consumer is more cognizant about environmental problems and follows a more environmentally friendly lifestyle that results in minimising environmental impacts in the purchase, use, or disposal of products (Park & Oh, 2005; Park et al., 2013). Within the context of

sustainable clothing, this waste reduction also entails reduced raw material consumption to help preserve the natural environment. Subsequently, an increased environmental consciousness in consumers leads to a more positive attitude towards environmentally conscious activities, such as supporting the purchase of sustainable clothing (Lee, 2003). Environmentally conscious behaviour is then categorised as resource conservation, public awareness, environmental preservation, and recycling consciousness by Park and Oh (2005), and it is positively affected by the influence of reference groups, consumer awareness, environmental interest and exposure to environmental education (Park et al., 2013; Park & Rhee, 1995). For instance, Kim (1995) studies on eco-conscious consumer behaviour and clothing purchasing type suggested that the high eco-consciousness group was more active in recycling clothes. As recycling is found to be closely related to pro-social behaviour such as altruism and social contribution (Hopper & Nielsen, 1991), and social influences on going green are stronger around the globe resulting in increased inclination towards green products (Cheah & Phau, 2011), it is important to study the effect of signalling environmental consciousness in promoting sustainable products, specifically in promoting sustainable clothing made of recycled waste that is perceived to be contaminated.

One way in which to signal environmental consciousness is through environmentally friendly consumption. Environmentally friendly consumption was defined by Pieters (1991) as 'consumption activities that have a less negative or more positive effect on the natural environment than substitutable activities' (p. 59). Consumers are usually motivated by the social benefits of engaging in environmentally friendly consumption, such as higher social status or being perceived as 'more attractive to mates, even if going green requires some sacrifice in terms of economic costs and resources (Hardy & Van Vugt, 2006). Min and Rhee (1999) examined

environmentally friendly consumption attitudes at the social-oriented level and individual-oriented level, and they claimed that direct individual benefits are more influential than social concerns to promote the activity. Hence, increasing the social benefits of obtaining green products is the key to making green products more attractive and more desirable.

Even though there are limits to how far one's contamination perception of sustainable clothing made of recycled waste can be decreased, there is still the possibility of increasing the product attractiveness by increasing its social benefit. Signalling theory explains this strategy for how this can be done. This theory suggested that one individual (the sender) seeks to convince another individual (the receiver) that he or she holds a desired positive quality, however, this quality is not directly observable if not signalled (Gambetta, 2009; Spence, 1978). In the context of sustainable consumption, it is explained that environmentally friendly products are more attractive when they allow individuals to signal desirable qualities, such as social status or prosocial values, through sustainable product consumption and display (Berger, 2019; Iredale, 2012). In this case, consumers can gain individual advantages in social interactions by signalling higher environmental consciousness as their positive personality traits, and these advantages can act as additional incentives in accepting sustainable products. This shows that signalling individuals' environmental values to enhance one's social reputation has the potential to increase desirability in sustainable products, and this type of purchase behaviour is demonstrated by the notion of conspicuous consumption

2.7 SOCIAL STATUS AND CONSPICUOUS CONSUMPTION

Thorstein Veblen (1973 [1899]) put forward a related concept of 'conspicuous consumption', referring to the display of easily recognisable expensive goods to increase social status. This concept was then extended into the area of environmental conservation – conspicuous conservation, suggesting that people display conservation behaviours to improve their status. Activating status motives is effective in promoting pro-environmental or other types of pro-social behaviour (Griskevicius et al., 2010). It highly aligns with the framework suggested by White et al. (2019) of the predictors of sustainable consumer behaviours. White et al. (2019) proposed that consumers are more willing to perform pro-environmental behaviours when the context leverages psychological factors – Social influence, Habit formation, Individual self, Feelings and cognition, and Tangibility – which are represented by the acronym SHIFT. Amongst the factors, White et al. (2019) explained 'social desirability' can impact sustainable behaviours, such that selecting sustainable options can convey higher social status to others (e.g., hybrid vehicles; (Griskevicius et al., 2010). It supported previous research that discussed that possessing products that are conspicuously made of recycled waste can improve social status (Griskevicius, 2008; Griskevicius et al., 2010; Sexton & Sexton, 2014). According to Magnier et al. (2019), the higher the degree to which the fact that a product made of recycled plastic is reflected in the visual appearance of the product, the higher the positive influence it has on consumers' willingness to pay a price premium for such products (i.e., high recognisability). It suggested that the more obvious the product is made of recycled waste, the higher the consumers' purchase intention.

In the current research, the effect of signalling on whether it can influence consumers' responses to sustainable clothing made of recycled waste that is perceived

to be contaminated is examined. In particular, the signalling effect on the relationship between perceived fitness for purpose and the perceived attractiveness of sustainable clothing is tested. Furthermore, Rozin (2005); Rozin et al. (2004) suggested that the history of an entity's processing is more crsucial in determining the overall naturalness than the nature of the entity's contents. As perceived fitness for purpose is conceptualised as the refinements required to turn the recycled waste into being used as a textile through processing, this property is described to be more essential in influencing consumer preference in the type of recycled waste. Thus, this research focuses on testing the impact of fitness for purpose property on the perceived attractiveness of sustainable clothing.

Moreover, with less fit-for-purpose recycled waste, it requires more human intervention to be recycled into textiles in processing, which then increases its associated negative contamination perception, and thus, reduces the perceived attractiveness of sustainable clothing. In this case, the signalling of environmental consciousness in sustainable clothing made of recycled waste with such property requires investigation to examine whether signalling can moderate the negative relationship. Therefore, this study takes a novel approach to address consumer contamination response to sustainable clothing and increase its product attractiveness. Thus,

> **H4:** When considering sustainable clothing, visually signalling environmental consciousness moderates the relationship between perceived fitness for purpose and the perceived attractiveness of sustainable clothing made from that recycled waste, such that signalling of environmental consciousness will strengthen the positive relationship between fitness for purpose and perceived attractiveness of sustainable clothing.

In sum, it is expected that consumers will perceive sustainable clothing made of recycled waste to be negatively contaminated, leading to a reduced preference towards such products. It is anticipated that the properties of different types of recycled waste will affect consumers' contamination perception and product attractiveness [**Study 1**]. Finally, to contribute insights to overcoming such contamination perception, it is predicted that the effect of signalling environmental consciousness will attenuate the effect of negative contamination on clothing and ultimately enhance product attractiveness [**Study 2**]. The methodology of the two studies exploring these predictions is investigated in the following sections.

Chapter 3: Research Design

3.1 INTRODUCTION

The previous chapter, Chapter 2, introduced the theoretical foundation of this research and discussed the literature regarding sustainable fashion, perceived contamination, natural preference, and the impact of signalling environmental consciousness on sustainable clothing. This chapter outlines the design adopted by this research to achieve the aims and objectives stated in Chapter 1. It subsequently provides an outline of the methods employed and presents the justification of the research design to address the research questions.

3.2 RESEARCH DESIGN

This section presents an overview of the design adopted by this research. Methodology is 'the strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes' (Crotty, 2020, p. 3). Given that the prior experimental research in Meng and Leary (2019) and Maginer et al., (2019) used experimental designs to show the presence of negative contamination perception when consumers considered sustainable products made of recycled waste material, this thesis intended to extend the research by using two 2 x 2 factorial experimental designs to quantitatively address the research questions. An experimental research design establishes causal relationships by manipulating the presumed cause of a phenomenon and measuring the outcome in a quantifiable manner (Shadish et al., 2002). Factorial designs provide an

efficient method of evaluating more than one intervention in a single experiment with the inclusion of two or more independent variables (with two or more levels) (Montgomery et al., 2003). A factorial design is also a useful design if there might be interactions between independent variables (Montgomery et al., 2003). In this thesis, both Study 1 and Study 2 comprised an experiment to manipulate two independent variables (i.e., variously recycled waste composition, perceived fitness for purpose, and visual signalling) to test hypotheses about a dependent variable (i.e., product attractiveness perceptions).

Data collection was conducted using two online Qualtrics surveys. Although the accuracy of online survey data may be impacted by perceptual and self-report biases, a well-designed survey allows valid findings to be generalised to a wider population, and online surveys are an efficient method to collect large amounts of data at relatively low cost in a short period of time (Robson & McCartan, 2016). Self-report studies are also a timely and appropriate method for accessing a large sample of geographically diverse participants who fit the criteria (Setia, 2016). To eliminate potential errors and confounds in the results, data cleaning and screening were employed (see Chapter 4).

In both Study 1 and Study 2, a 2 x 2 factorial experiment was conducted using a survey instrument that presented one of four stimuli and asked participants to respond to a series of questions. The studies employed a non-probability convenience sampling strategy to survey a total of 668 participants – Study 1 comprises 283 participants, and Study 2 comprises 274 participants with a pilot study before Study 2 which comprises 111 participants. The following sections will discuss the research design, survey measures and sampling methods used in Study 1 and Study 2 in more detail.

3.3   STUDY 1 METHOD

3.3.1 Factorial Experimental Design

The aim of Study 1 was to investigate whether the different properties of recycled waste impact perceived contamination as theory would suggest [**RQ1**] and whether they impact the perceived attractiveness of sustainable clothing [**RQ2**]. Thus, Study 1 used a 2 x 2 between-subjects factorial design that manipulated two independent variables, the composition of recycled waste (organic or inorganic) and its perceived fitness for purpose, to test their effect on the dependent variables of perceived contamination and perceived attractiveness respectively. The following hypotheses were investigated:

H₁: Perceived contamination of sustainable clothing varies depending on the properties of the recycled waste from which it is made, such that the more organic and fit-for-purpose the recycled waste is perceived to be, the less contaminated.

H₂: When considering sustainable clothing, the extent to which the recycled waste is perceived to be organic will be positively related to the perceived attractiveness of that clothing, such that clothing made from more organic recycled waste is perceived to be more attractive than inorganic recycled waste.

H₃: When considering sustainable clothing, the extent to which whether the recycled waste is perceived to be organic predicts the perceived attractiveness of that clothing is moderated by the perceived fitness for purpose of the recycled waste, such that better fitness for purpose will strengthen the positive

relationship between the extent to which the recycled waste is perceived to be organic and the perceived attractiveness of the clothing.

As shown in Table 2, Study 1 manipulated the composition (organic/inorganic) and perceived fitness for purpose (fit/not fit) of the recycled waste the product comprises to assess its impact on perceived contamination and perceived attractiveness respectively. All other conditions were held constant, ensuring high internal validity in comparing groups on the dependent variable (Collins et al., 2009).

Table 2. *Study 1 Factorial design*

		Composition of recycled waste	
		Organic waste	Inorganic waste
Fitness for purpose	Fit	Perceived contamination/ Perceived attractiveness	Perceived contamination/ Perceived attractiveness
	Not fit	Perceived contamination/ Perceived attractiveness	Perceived contamination/ Perceived attractiveness

3.3.2 Stimuli Development

To manipulate the composition (organic/inorganic) and perceived fitness for purpose (fit/not fit) of recycled waste the product comprises, mock advertisements were created to act as experimental stimuli for the 2 x 2 factorial design. The mock advertisement showed a unisex grey T-shirt that was described as made with recycled waste and having several generic features (e.g., sizing, stitching, range of colours). The descriptions of the recycled waste materials were sought from real products and matched to one of the four conditions: *Pre-worn cotton* was proposed as organic waste that would be considered fit-for-purpose, *pre-worn polyester* was proposed as inorganic waste that would be considered fit-for-purpose, *used coffee grounds* were proposed as organic waste that would not be considered fit-for-purpose, and *used plastic bottles* were proposed as inorganic waste that would not be considered fit-for-purpose (see Table 3). All of the recycled waste was described as either used or pre-worn to reinforce the recycled nature of the material. Specifically, used plastic bottles as recycled material were included to extend Meng and Leary (2019)'s study.

Table 3. *Study 1 Manipulations*

		Composition of recycled waste	
		Organic waste	Inorganic waste
Fitness for purpose	Fit	Pre-worn cotton	Pre-worn polyester
	Not fit	Used coffee grounds	Used plastic bottles

To improve experimental realism, the mock advertisements need to (a) be realistic in their product descriptions, and (b) communicate the type of recycled waste used in the T-shirt, as if it would be common in print advertisements in retail. The description of the recycled waste was bolded to highlight the manipulation (e.g., '80% used coffee grounds'). Images of the mock advertisements are presented in Table 4.

To control for confounding factors, several execution elements were considered. First, the colour of T-shirts could potentially influence consumers' perception of the products, specifically relating to how 'clean' or 'pure' the product is perceived to be (Magnier & Schoormans, 2015). According to Sherman and Clore (2009), white represents purity and cleanliness, but black is associated with pollution. To maintain colour neutrality, grey T-shirts were shown in the manipulations. Second, the pricing of the product was not shown in the mock advertisements to avoid its confounding effects. Third, self-referencing can have significant impacts upon advertising evaluations, including attitudes toward the product, advertisement, and brand (Martin et al., 2004) so the unmodelled T-shirt image was selected to achieve better ethnic, gender and age neutrality.

Table 4. *Mock advertisements used in Study 1*

[Manipulation 1: Used plastic bottles]	[Manipulation 2: Pre-worn cotton]
Classic T-Shirt Made with recycled waste **80% used coffee grounds** Standard sizing Doubling stitching Comes in a variety of colors (shown in Grey)	Classic T-Shirt Made with recycled waste **80% pre-worn cotton** Standard sizing Doubling stitching Comes in a variety of colors (shown in Grey)
[Manipulation 3: Used plastic bottles]	[Manipulation 4: Pre-worn polyester]
Classic T-Shirt Made with recycled waste **80% used plastic bottles** Standard sizing Doubling stitching Comes in a variety of colors (shown in Grey)	Classic T-Shirt Made with recycled waste **80% pre-worn polyester** Standard sizing Doubling stitching Comes in a variety of colors (shown in Grey)

Note: Words surrounded by [] are not shown to participants

3.3.3 Research Procedure

After consenting to participate in the research project by reading the statement of informed consent (see Section 3.7), participants were invited to complete an online survey that showed one of the four mock advertisements (as shown in Table 4) and asked them to respond to a series of questions. Before the survey began, participants were introduced to the product context: '*Imagine the T-shirt below is a new product being developed by a clothing company that specialises in making textiles from recycled waste. The company is seeking feedback from consumers on this new product*'. This introduction aimed to highlight the use of recycled waste as clothing material. Subsequently, participants were randomly assigned to view one of the four mock advertisements.

The subsequent survey comprised four sections. First, participants were asked to indicate the perceived attractiveness and perceived contamination of the T-shirt using seven-point Likert scales. Next, participants were asked to evaluate the composition and perceived fitness for purpose of the recycled waste as material that they were presented with. This was followed by an attention check, asking participants to select the material that was used to make the T-shirt they were presented with. This attention check question was used to screen out inattentive participants in order to increase the quality of data collected. Goodman et al. (2013) suggested that filtering out participants who are inattentive using attention checks can effectively reduce statistical noise and increase the likelihood of obtaining statistically significant differences between groups. A realism check was also included to ensure that the mock advertisements and their manipulations were realistic. The survey concluded with a series of demographic and individual difference questions: age, gender, employment

status, level of education, status consumption, fashion consciousness, environmental concern, and disgust sensitivity. Participants completed the survey using the Qualtrics platform and each survey took approximately 10-15 minutes. All measurement scales and sampling methods will be discussed in the following section.

3.3.4 Survey Measures

Study 1 collected data on perceptions of product contamination and attractiveness, composition and perceived fitness for purpose of types of recycled waste, participants' demographics, status consumption, fashion consciousness, environmental concern, and disgust sensitivity. Manipulation checks and realism checks were also conducted to ensure the success of the experimental manipulation designs. The measures used are outlined here:

Perceived contamination was measured using a single-item, 7-point bipolar scale developed by Meng and Leary (2019) based on the Theory of Perceived Contamination. Given that contamination is (in large part) a function of whether consumers view a product as clean or dirty (Zhong et al., 2010), this scale item asks participants to *"Please rate the t-shirt that you saw"* on a bipolar scale from dirty to clean *(1 = Dirty, 7 = Clean).*

Naturalness of the material was measured using a single-item, self-developed measure to test how participants perceive the composition of recycled waste used as clothing material in sustainable T-shirts. The scale item asked, *"How natural is the recycled waste that the t-shirt is made from?"* on a seven-point bipolar scale from artificial to natural (1 = Artificial, 7 = Natural).

Perceived fitness for purpose was measured using a single-item, self-developed measure to test whether the recycled waste used in sustainable T-shirts was considered as more or less fit for textiles. The scale item asked, *"How fit-for-purpose is the recycled waste that the t-shirt is made from?" on a seven-point bipolar scale from not fit to fit for purpose (1 = not fit for purpose, 7 = fit for purpose).*

Perceived attractiveness was measured using a six-item semantic differential scale adapted from Orth et al. (2013). The scale items asked *how attractive, beautiful, likeable, interesting, pleasing and appealing the item was on a seven-point scale (1 = not at all [attractive/beautiful/likable/interesting/pleasing/appealing], 7 = very [attractive/beautiful/likable/interesting/pleasing/appealing]).*

Realism was measured using a self-developed, single item on a 7-point Likert scale (1 = *unrealistic*, 7 = *realistic*) to test if the mock advertisement was realistic. The scale item asked, "*How realistic is it that the t-shirt is primarily made from this material?".*

Attention was measured using a self-developed, single item. The item asked, "*What material was the t-shirt primarily made from?"* and participants selected the option that matched their manipulation.

Demographic and individual differences variables comprising age, gender, employment status, education level, status consumption, fashion consciousness,

environmental concern, and disgust sensitivity were measured to control for their effects. Appendix A summarises these measures.

3.3.5 Sample

Defining the target population is critical as it defines the characteristics of the units of analysis and it is important for the population generalisation at the later stage (Hair et al., 2013). The target population was identified as English-speaking Australian adults aged between 18 and 85. This study employed a non-probability convenience sampling strategy as all participants were recruited through market research company Dynata (formerly Research Now and Survey Sampling International; SSI). A total of 283 participants (approximately 50 per cell on average) were recruited to the study and randomly assigned to one of the experimental conditions, as random assignment increases internal validity by evenly distributing the incidence of potentially confounding variables across all the conditions (Salkind, 2010).

3.4   STUDY 2 METHOD

3.4.1 Factorial Experimental Design

Study 2 is a replication-extension study (Bonett, 2012) that aimed to build upon the findings from the first study. Study 2 re-examined the effect of percieved fitness-for-purpose of the recycled waste on perceived attractiveness and further examined whether visually signalling environmental consciousness would mitigate any negative consumer responses stemming from perceived contamination. It helps to explore whether the signalling of environmental consciousness helps overcome consumers' contamination perception in products and restores the perceived attractiveness of products [**RQ3**].

As in Study 1, Study 2 used a 2 x 2 between-subjects factorial design that manipulated two variables, the perceived fitness for purpose of the recycled waste and the signalling of environmental consciousness, to test the direct effect of percieved fitness-for-purpose and the moderating effect of signalling on the perceived attractiveness of the product. The following hypothesis was investigated:

> **H4:** When considering sustainable clothing, visually signalling environmental consciousness moderates the relationship between perceived fitness for purpose and the perceived attractiveness of sustainable clothing made from that recycled waste, such that signalling of environmental consciousness will strengthen the positive relationship between fitness for purpose and perceived attractiveness of sustainable clothing.

As shown in Table 5, Study 2 manipulated the fitness for purpose (fit/not fit) of the recycled waste the product comprises and the presence or absence of a signal of environmental consciousness to assess their impact on the perceived attractiveness of the product. All other conditions were held constant, ensuring high internal validity in comparing groups on the dependent variable (Collins et al., 2009).

Table 5. *Study 2 Factorial design*

		Signalling of Environmental Consciousness	
		Presence	Absence
Fitness for purpose	Fit	Perceived attractiveness	Perceived attractiveness
	Not fit	Perceived attractiveness	Perceived attractiveness

3.4.2 Stimuli Development
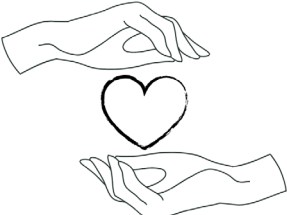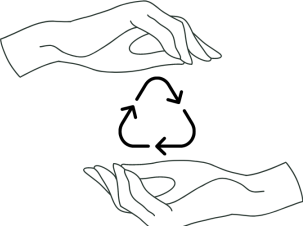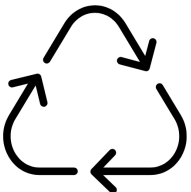
To manipulate the fitness for purpose (fit/not fit) of recycled waste and environmental consciousness signalling (present/absent), mock advertisements were again created to act as experimental stimuli for the 2 x 2 factorial design. The mock advertisement showed a unisex grey T-shirt that was described as made with recycled waste and having several generic features (e.g., sizing, stitching, range of colours). The descriptions of the recycled waste materials were repeated from Study 1: *Pre-worn polyester* was proposed as a fit-for-purpose type of recycled waste, while *used plastic*

bottles were proposed as not fit-for-purpose (see Figure X). Both types of recycled waste were described as used or pre-worn to reinforce the recycled nature of the material. Specifically, used plastic bottles as recycled material were included to extend Meng and Leary (2019)'s study.

To manipulate the presence or absence of environmental consciousness signalling, a pilot study was undertaken to identify a symbol that would generically communicate environmental consciousness. The pilot study is a mixed-method design, collecting both the quantitative and qualitative data via a survey instrument to examine if participants perceive one of four possible symbols as a signal of environmental consciousness. A mixed-method research design has the advantage of complementarity, which allows the researcher to gain a more complete understanding of the research problem (Bryman, 2008).

The pilot study examined four symbol designs and a control (see Table 6): hands holding the Earth (Symbol 1), hands holding a heart (Symbol 2), hands holding a recycling symbol (Symbol 3), a recycling symbol (Symbol 4), and a plain t-shirt without a symbol (control). A convenience sample of 135 participants was recruited from Dynata to complete the pilot survey. The survey included attention checks asking participants to identify the symbol shown on the t-shirt they viewed and what the shirt was made from. 24 participants were deleted from the study as they failed the attention checks, resulting in 111 participants being retained for analysis. Male and female participants were evenly represented.

Table 6. *Possible symbols of environmental consciousness*

Symbol 1: Hands holding the Earth	Symbol 2: Hands with a heart
Symbol 3: Hands holding a recycling symbol	**Symbol 4: Recycling symbol**

To identify which of the four symbols was most suitable for Study 2, a one-way between-groups analysis of variance was conducted to examine if participants would perceive a specific symbol as a way to signal environmental consciousness. There was a statistically significant difference ($p < .05$) in environmental consciousness between the symbols, $F(4, 106) = 15.66$, $p < .00$. Post-hoc comparisons using the Tukey HSD

indicated that the mean scores of all symbols were significantly different from each other. The mean scores for Symbol 1 ($M = 4.80$, $SD = 1.20$), Symbol 2 ($M = 4.21$, $SD = .97$), Symbol 3 ($M = 4.83$, $SD = 1.61$) and Symbol 4 ($M = 5.40$, $SD = 1.45$) were all significantly different from that of the control ($M = 2.65$, $SD = 1.45$).

To further explore consumers' perception of each symbol, open-ended qualitative responses to the question "Please describe what this symbol means to you when you see it" were considered. When describing what a randomly allocated symbol means to them, participants generally considered Symbol 1 as a symbol of sustainability, Symbol 2 as a symbol of caring and love, Symbol 3 as a symbol of recycling, and Symbol 4 as a symbol of recyclables. The aim was to select the symbol that had the most consistent, accurate descriptions of being environmentally conscious, which was the specific altruistic signal of interest in this research. According to the responses, Symbol 1 was persistently interpreted as a signal for being 'environmentally friendly' and 'sustainability'. Among all the answers, the descriptions provided for Symbol 1 were most aligned with the concept of environmental consciousness and the idea of environmental conservation. Thus, Symbol 1 was used in Study 2 as one of the experimental manipulations.

Following Study 1 and to control for confounding factors, unmodelled, unisex grey T-shirts were used as the base of the experimental manipulations. The symbols added were dark grey (in contrast to the light background), consistent in size, and placed in the centre of the T-shirt image (see Table 7).

Table 7. *Mock advertisements for sustainable T-shirts used in Study 2*

[Manipulation 1: Used plastic bottles (Logo)]	[Manipulation 2: Pre-worn polyester (Logo)]
[Manipulation 3: Used plastic bottles (No logo)]	[Manipulation 4: Pre-worn polyester (No logo)]

Note: Words surrounded by [] are not shown to participants

3.4.3 Research Procedure

After consenting to participate in the research project by reading the statement of informed consent (see Section 3.7), participants were invited to complete an online

survey that showed one of the four mock advertisements and asked to respond to a series of questions. Before the survey began, participants were introduced to the product context: '*Imagine the T-shirt below is a new product being developed by a clothing company that specialises in making textiles from recycled waste. The company is seeking feedback from consumers on this new product*'. This introduction aimed to highlight the use of recycled waste as clothing material. Subsequently, participants were randomly assigned to view one of the four mock advertisements.

The subsequent survey comprised four sections. First, participants were asked to indicate the perceived environmental consciousness, perceived attractiveness and perceived contamination of the T-shirt using seven-point Likert scales. Next, participants were asked to evaluate the fitness for purpose of the recycled waste that they were presented with. This was followed by two attention checks, asking participants to select the material that was used to make the T-shirt they were presented with, as well as which symbol appeared on the T-shirt. These attention check questions were used to screen out inattentive participants in order to increase the quality of data collected. A realism check was also included to ensure that the mock advertisements and their manipulations were realistic. The survey concluded with a series of demographic and individual difference questions: age, gender, employment status, level of education, status consumption, fashion consciousness, environmental concern, and disgust sensitivity. Participants completed the survey using the Qualtrics platform and each survey took approximately 10-15 minutes. All measurement scales and sampling methods will be discussed in the following section.

3.4.4 Survey Measures

Study 2 collected data on the perception of signalling environmental consciousness, product contamination and attractiveness, perceived fitness for purpose of types of recycled waste, respondents' demographics, status consumption, fashion consciousness, environmental concern, and disgust sensitivity. Manipulation checks and realism checks were also conducted to ensure the success of the experimental manipulation designs. Where possible, the measures were identical to Study 1. The additional measures included in Study 2 are as follows:

Attention was measured using two self-developed, single-item scales. The first item asked, "*What material was the t-shirt primarily made from?*" and participants selected the option that matched their manipulation. The second item asked, "*The logo on the t-shirt you viewed included:*" and participants selected the option that matched their manipulation.

Environmental consciousness refers to the symbolic and self-presentational significance of environmental conservation behaviours and whether the individual is concerned about the environment (Sekhon & Armstrong Soule, 2019). The original measures were adapted from Sadalla and Krull (1995) research on self-presentation, which was used to estimate the degree to which the observer's attribute influences the performer's decision-making process and the social meaning of a conservationist action. The original scale in 1995 comprised different specific self-presentational goals (e.g., convey high status, high attractiveness, a conservationist ethic, etc.), and subjects were rated using eight self-presentational contexts on 9-point scales anchored by 'extremely inappropriate' and 'extremely appropriate'. The appropriateness ratings for

conservation-relevant behaviours in the high-status goal was then later adapted by Sekhon and Armstrong Soule (2019) by narrowing down the self-presentational behaviours to specifically signalling environmental consciousness using two contexts on 7-point scales as shown in Table 8. This study employed the Sekhon and Armstrong Soule (2019) scale as it is based on a meta-review of the self-presentational scale and was adapted for the research purpose of conspicuous consumption.

Table 8. *Measurement scale for signalling environmental consciousness*

Construct	Environmental Consciousness
Source	Sekhon and Armstrong Soule (2019)
Summated Scale	7-point Likert scale (1 = not at all, 7 = very much)
Items	1. People would think that I care about the environment if they saw me wearing the t-shirt. 2. People would think that I buy environmentally friendly products if they saw me wearing the t-shirt.

3.4.5 Sample

As a replication-extension study, Study 2 employed the same sampling method used in the first study. The target population was identified as English-speaking Australian adults aged between 18 and 85. This study employed a non-probability convenience sampling strategy as all participants were recruited through market research company Dynata (formerly Research Now and Survey Sampling International; SSI). A total of 274 participants (approximately 50 per cell on average) were recruited to the study and randomly assigned to one of the experimental conditions, as random assignment increases internal validity by evenly distributing the incidence of potentially confounding variables across all of the conditions (Salkind, 2010).

3.5   ETHIC CONSIDERATIONS

Ethical clearance for this research was obtained from the QUT Office of Research Ethics and Integrity (OREI) prior to collection data (Ethical Approval Number **2000000916**). The review process classified the research project as low risk and identified that the study conformed with the requirements of the National Statement on Ethical Conduct in Human Research. Prior to the surveys of Study 1 and Study 2, participants were invited to read through the survey information and consent form, which introduced the main research team with relevant contact details, the research title and purpose, the expected benefits and potential risks of the project, the types of measures used in the survey (refer to Appendix A for the information sheet). Upon participant's request, a summary of the outcomes of the study was delivered.

Several ethical considerations were considered when designing the study. First, participation in the research was entirely voluntary and any decision to respond (or not) did not impact any relationships with the research team or QUT. Also, participants could withdraw from the research project during their participation at any time without comment or penalty, and partially completed surveys were not included in the analysis. Finally, no identifying information (e.g., full names, photos) was requested in the survey to ensure anonymity. Age was collected as an ethical requirement to rule out responses from minors. To further ensure the confidentiality and privacy of participants, any collected data as part of this project will be stored securely as per QUT's Management of research data policy. The submission of a completed survey was accepted as an indication of the participant's consent to be involved in this research.

Chapter 4: Results

This chapter presents the research analyses conducted for Study 1 and 2. All the analyses were performed using the IBM SPSS 26 data analysis package. In this chapter, for each study, the data screening and cleaning process will be presented, followed by the descriptive analysis and reliability tests, manipulation checks, and finally, the results of the hypothesis testing (Section 4.1.5). A brief conclusion will be presented at the end.

4.1   STUDY 1 RESULTS

4.1.1 Data Cleaning and Preparation

Prior to testing the hypotheses, the data required preparation and cleaning. A total of 283 responses were recorded. The data from the online survey was downloaded and transferred to IBM SPSS 26 for analysis. Four individuals who are under 18 years old were deleted, as well as incomplete surveys. Hence, the final sample consisted of 216 individuals, with 114 males (52.8%), 101 females (46.8%) and one person who identified as 'other' (0.5%). It satisfies the lower-bound preferred sample size for quantitative analyses ($n > 50$) to ensure reliability (Cohen, 1988). Any items requiring reverse coding (e.g., "*The status of a product is irrelevant to me*" in the "Status Consumption" scale) were computed.

4.1.2 Scale Reliability and Validity

As shown in Table 9, Cronbach's Alpha reliability coefficient ranges from .77 to .94, suggesting that the items showed a good level of internal consistency, in accordance with Cohen (1988), who recommends an α of greater than .70. Scales with smaller numbers of items (e.g., fewer than 10), however, may have less accurate Cronbach alpha values. Hence, the mean inter-item correlation values were also examined to ensure reliability. In Study 1, all scales show appropriate mean inter-item correlations (Cohen, 1988). Composite variables were thus created for each construct except naturalness of material and perceived fitness for purpose, which are single-item measures.

Table 9. *Scale Validity of the Focal Variables for Study 1*

Variable	Cronbach's Alpha	Mean Inter-Item Correlations:
Perceived Attractiveness	.95	.77
Perceived Contamination	.87	.64
Status Consumption	.95	.52
Fashion Consciousness	.95	.85
Environmental Concern	.91	.77
Disgust Sensitivity	.77	.30

4.1.3 Preliminary Descriptive Analysis

Descriptive analysis (means and standard deviations) was conducted, and the results are presented in the following table. All variables showed small standard deviations, indicating a relatively precise data set. All predictor and criterion variables

were assessed for normality. Exploration of the data was carried out to examine the 95% confidence interval of the mean, the 5% trimmed mean as well as skewness and kurtosis. The Shapiro-Wilks test of normality suggested that all variables were within the threshold suggested of ≤ 2.00 for skewness and ≤ 7.00 for kurtosis ($p < .01$) (Pallant, 2020).

As shown in Table 10, measures of central tendency and Pearson's 2-tailed bivariate correlation coefficients were obtained. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. The analysis revealed weak ($r = -.14$) to strong ($r = .74$) correlations, indicating that multicollinearity is not a significant issue (Tabachnick & Fidell, 2001). The independent variables, naturalness of the material ($r = -.31, p < .01$) and perceived fitness for purpose ($r = -.48, p < .01$), exhibited significantly negative, moderate correlations with the dependent variable perceived attractiveness. This indicates that an increase of the naturalness of material and perceived fitness for purpose of the recycled material from which the sustainable clothing is made is associated with a decrease in the clothing's perceived attractiveness. Interestingly, the control variables included in the analysis, specifically status consumption ($r = -.26, p < .01$), fashion consciousness ($r = -.29, p < .01$) and environmental concern ($r = -.38, p < .01$), all have statistically weak but negative correlations with perceived attractiveness of sustainable clothing (see Table 10). Table 11 presents the means and standard deviations for the seven focal variables shown for each manipulation in Study 1.

Table 10. *Descriptive data for focal variables in Study 1.*

Variables	Means	SD	1	2	3	4	5	6
1 Naturalness of material	4.41	1.74						
2 Perceived fitness for purpose	4.88	1.43	.51**					
3 Perceived attractiveness	3.74	1.40	-.31**	-.48**				
4 Status consumption	3.03	1.38	.23**	.14*	-.26**			
5 Fashion consciousness	3.11	1.61	.25**	.12	-.29**	.74**		
6 Environmental concern	3.92	1.36	.21**	.27**	-.38**	.45**	.47**	
7 Disgust sensitivity	2.65	.65	-.08	-.14*	.15*	.21**	.26**	.06

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

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

Table 11. *Descriptive data of focal variables for each manipulation in Study 1.*

Variables	Manipulations Means (SD)			
	1 Used coffee grounds	2 Pre-worn cotton	3 Plastic bottles	4 Pre-worn polyester
1 Naturalness of material	4.89 (1.20)	5.33 (1.23)	3.35 (1.94)	4.00 (1.72)
2 Perceived fitness for purpose	5.00 (1.25)	5.14 (1.33)	4.43 (1.77)	5.05 (1.29)
3 Perceived attractiveness	3.64 (1.29)	3.61 (1.37)	4.00 (1.58)	3.71 (1.33)
4 Status consumption	3.27 (1.27)	2.89 (1.37)	3.00 (1.35)	2.95 (1.51)
5 Fashion consciousness	3.21 (1.57)	3.03 (1.55)	2.94 (1.57)	3.25 (1.76)
6 Environmental concern	3.99 (1.32)	4.00 (1.38)	3.73 (1.26)	3.94 (1.50)
7 Disgust sensitivity	2.76 (.65)	2.57 (.66)	2.66 (.66)	2.61 (.62)

4.1.4 Manipulation Check

Two manipulation checks were completed. First, the manipulations presenting sustainable clothing made from organic waste (i.e., used coffee grounds: M1 and pre-worn cotton: M2) were randomly assigned to 106 participants, while manipulations presenting sustainable clothing made from inorganic waste (i.e., used plastic bottles: M3 and pre-worn polyester: M4) were randomly assigned to 110 participants. The composition of the material was examined by asking the following question: (1) "How natural is the material that the t-shirt is made from?" (1 = organic, 0 = inorganic). An independent-samples t-test was conducted to compare means. There was a significant difference in a material's composition for "organic" ($M = 5.16$, $SD = 1.24$) and "inorganic" recycled waste ($M = 3.68$, $SD = 1.85$; $t (214) = 6.86$, $p = .00$, two-tailed).

Second, the fit-for-purpose manipulations (i.e., pre-worn cotton: M2, pre-worn polyester: M4) were randomly assigned to 107 participants, and the non-fit-for-purpose manipulations (i.e., used coffee grounds: M1, used plastic bottles: M3) were randomly assigned to 109 participants. The experimental condition of perceived fitness for purpose was assessed by using the following question: (2) "How fit-for-purpose is the material that the t-shirt is made from?" (1 = fit for textile, 0 = not fit for textile). There was also a significant difference in perceived fitness for purpose of different types of recycled waste, specifically, those that are "fit for textile" ($M = 5.09$, $SD = 1.30$) and "not fit for textile" ($M = 4.66$, $SD = 1.52$; $t(214) = 2.25$, $p = .03$, two-tailed).

Table 12. *Independent-Samples T-tests Comparing Manipulation Check Questions.*

Materials	n	Mean (SD)	Mean Difference	95% CI	t	df	p
Organic	106	5.16 (1.24)	1.48	1.05 1.90	6.86	214	.00
Inorganic	110	3.68 (1.85)					
Fit for textile	107	5.09 (1.30)	.43	.05 .81	2.25	214	.03
Not fit for textile	109	4.66 (1.52)					

4.1.5 Realism Check

The results of the realism check question for each stimulus, "How realistic is it that the t-shirt is primarily made from this material?", are presented in the table below. Mean scores for each of the five manipulations suggest that participants considered the stimuli realistic.

Table 13. *Descriptive statistics for realism check in Study 2.*

Realism check: recycled waste		
Manipulations	**Mean**	**Standard Deviation**
1 Used coffee grounds	4.38	1.48
2 Pre-worn cotton	4.98	1.62
3 Used plastic bottles	4.28	2.12
4 Pre-worn polyester	5.02	1.27

4.1.6 Hypothesis Testing

A multiple linear regression was used to test H_1.

H_1: Perceived contamination of sustainable clothing varies depending on the properties of the recycled waste from which it is made, such that the more organic and fit-for-purpose the recycled waste is perceived to be, the less contaminated.

The multiple linear regression examined whether perceived contamination of sustainable clothing was associated with the composition of recycle waste

(organic/inorganic) and perceived fitness for purpose of the recycled waste from which it was made. This causal relationship is presented in Figure 2.

Figure 2. Linear Regression Model in Study 1.

The two-predictor model was able to account for 27% of the variance in perceived contamination (*Adj. R^2* = .27, f (2, 213) = 41.02, *p* < .05). As seen in Table 14, the composition of the recycled waste (β = -.23, *p* < .00) and perceived fitness for purpose (β = -.37, *p* < .05) have a significant negative relationship with contamination. It indicates that participants perceived recycled waste that was more organic and fit for being used as a textile to be less contaminated. Also, fitness for purpose demonstrated a stronger negative relationship with perceived contamination. This result supports **H₁:** perceived contamination of sustainable clothing does vary depending on the properties of recycled waste. If the type of recycled waste used in sustainable clothing was perceived to be more natural and a better fit for being used in textiles, the perceived contamination of the sustainable clothing is reduced. Moreover, perceived fitness-for-purpose had a stronger negative association with perceived contamination of sustainable clothing than whether the recycled waste was organic or inorganic.

Table 14. *Standard Multiple Regression Analysis Summary Predicting Perceived Contamination with Composition of the Recycled Waste and Perceived Fitness for Purpose.*

Predictors (Standardised)	Perceived Contamination				
	Beta	r	sr	t	p
Composition of the recycled waste	-.23	-.42	-.23	-3.39	.51
Perceived fitness for purpose	-.37	-.49	-.35	-5.50	.00
R	.53				.00
R^2	.28				.00
Adj R^2	.27				.00

Hierarchical multiple regression was conducted to test **H₂** and **H₃**:

> **H₂**: When considering sustainable clothing, the extent to which the recycled waste is perceived to be organic will be positively related to the perceived attractiveness of that clothing, such that clothing made from more organic recycled waste is perceived to be more attractive than inorganic recycled waste.
>
> **H₃**: When considering sustainable clothing, the extent to which whether the recycled waste is perceived to be organic predicts the perceived attractiveness of that clothing is moderated by the perceived fitness for purpose of the recycled waste, such that better fitness for purpose will strengthen the positive relationship between the extent to which the recycled waste is perceived to be organic and the perceived attractiveness of the clothing.

When using hierarchical multiple regression, it is useful to assess the overall moderated model in terms of its ability to predict the dependent measure (Pallant, 2020). Before conducting the moderated regression, the independent variable, the moderator and the control variables were mean-centred, and an interaction term was generated (composition of recycled waste*perceived fitness for purpose). According to Aiken and West (1991), mean-centring IVs can reduce collinearity between those variables and the interaction. In the analysis, mean-centred control variables were entered in Step1, the main effects at Step 2, and the interaction term at Step 3 (Byrne, 2010). The relative contribution of each block of variables is reported. As the sample size of this study is not large (n = 216), the adjusted R^2 is reported to correct for sample size and number of predictors in the model (Tabachnick & Fidell, 2001). The moderating relationship is visualised in Figure 3.
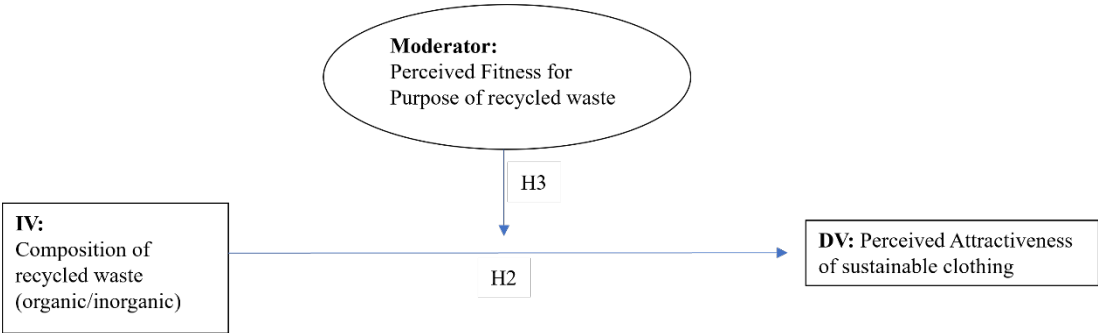
Figure 3. Moderated Regression Model in Study 1.

First, the control variables of status consumption, fashion consciousness, environmental concern and disgust sensitivity explain a statistically significant 18% of variance in perceived attractiveness ($Adj.\ R^2$ = .18, $F(4, 211)$ = 12.81, p < .05). Second, the mean-centred main effects for composition and perceived fitness for purpose of the recycled waste explained 31% of the total variance ($Adj.\ R^2.$ = .31, $F(2, 209)$ = 20.24, p < .05). In the final model, the interaction between composition of recycled waste and its perceived fitness for purpose was not significant ($R^2\ Ch.$ = .01, $F(1, 208)$ = 4.25, p = .06), indicating that fitness for purpose did not moderate the relationship between the composition of the recycled waste and perceived attractiveness of the sustainable clothing. Interestingly, the composition of the recycled material did not make a unique contribution to predicting the perceived attractiveness of sustainable clothing (β = -.02, p > .05), while perceived fitness for purpose does have a significant but negative relationship with perceived attractiveness (β = -.40, p < .05) (see Table 15).

On this basis, both **H₂** and **H₃** are not supported by the results. The composition of the recycled waste (organic/inorganic) does not impact perceived attractiveness (β = -.05, p > .05), and perceived fitness for purpose of the recycled waste does not moderate this relationship ($R^2\ Ch.$ = .01, $F(1, 208)$ = 4.25, p = .06). Moreover, the results show that perceived fitness for purpose of the recycled waste was negatively related to the perceived attractiveness of the sustainable clothing (β = -.40, p < .05), meaning that as perceptions of the fitness for purpose of the recycled waste increases, the perceived attractiveness of the sustainable clothing made from that recycled waste decreases. These results align with the previous correlation results (see Section 4.1.3).

Table 15. *Hierarchical multiple regression showing the moderating effect of Perceived Fitness for Purpose of the Recycled Waste on the relationship between Composition of Recycled Waste and Perceived Attractiveness.*

Predictors (Standardised)	Perceived Attractiveness		
	Beta	t	p
Step 1 – Control variables			
Status concern	-.17	-1.78	.08
Fashion consciousness	.01	.12	.90
Environmental concern	-.32	-4.56	.00
Disgust sensitivity	.20	3.18	.00
Adj. R²	.18		.00
Step 2 – Main Effects			
Composition of the recycled waste	-.05	-.66	.51
Perceived fitness for purpose	-.36	-5.25	.00
R² Ch.	.13		.00
Step 3 – Interaction Term			
Composition x Perceived fitness for purpose of the Recycled Waste	-.11	-1.89	.06
R² Ch.	.01		.06

4.2 STUDY 2 RESULTS

This section presents the research analysis conducted for Study 2. All the analyses were performed in the IBM SPSS 26 data analysis package. The following sections will cover the data screening and cleaning process, descriptive analysis and reliability test results, pre-test results, as well as a discussion of the main effects.

4.2.1 Data Cleaning and Preparation

Before conducting the hypothesis testing, the data was cleaned and edited. The initial sample size for Study 2 was 274 participants. Incomplete and low-quality responses were deleted, resulting in a final sample size of 201, with 98 males (48.8%) and 103 females (51.25%). The sample method is similar to that in Study 1. Any items requiring reverse coding (e.g., "The status of a product is irrelevant to me" in the "Status Consumption" scale) were computed.

4.2.2 Scale Validity

Cronbach's Alpha reliability coefficient of this study ranges from .77 to .95, suggesting that items showed a high level of internal consistency, in accordance with Cohen (1988), who recommends an α of greater than .70. In Study 2, all scales possess appropriate mean inter-item correlations (Cohen, 1988). Scale reliability of the remaining variables was consistent with those reported in Study 1 (see Section 4.1). Composite variables were then created for each construct except perceived fitness for purpose, which is a single-item measure.

Table 16. *Scale Validity of the Focal Variables for Study 2*

Variable	Cronbach's Alpha	Mean Inter-Item Correlations:
Perceived Attractiveness	.95	.77
Environmental Consciousness	.95	.89
Status Consumption	.84	.52
Fashion Consciousness	.95	.85
Environmental Concern	.91	.77
Disgust Sensitivity	.77	.30

4.2.3 Preliminary Descriptive Analysis

Descriptive analysis was then conducted, and the results are presented in the following table. All variables show small standard deviations, suggesting a relatively precise data set. All constructs were assessed for normality. Pearson's 2-tailed bivariate correlation analysis reveals weak ($r = .24$) to strong ($r = .73$) correlations between variables, and it is within the suggested limit of 0.8, which suggests that multicollinearity is not a threat in this study (Tabachnick & Fidell, 2001). Normality was assessed and multiple analyses were performed, using the same procedure as outlined in Study 1 results.

Measures for perceived fitness for purpose of the recycled waste ($r = -.59$, $p < .00$) and the extent to which wearing the sustainable clothing would signal environmental consciousness ($r = -.59$, $p < .00$), used to measure altruistic signalling, show significant negative correlations with perceived attractiveness of the sustainable clothing. Hence, an increase in recycled waste's perceived fitness for purpose to be textile is associated with a reduction in sustainable clothing's perceived attractiveness.

Moreover, most of the control variables included in the analysis, which are status consumption ($r = -.39$, $p < .01$), fashion consciousness ($r = -.30$, $p < .01$), and environmental concern ($r = -.50$, $p < .01$), all have statistically weak to moderate but negative correlations with perceived attractiveness of sustainable clothing. The exception is disgust sensitivity which shows no significant correlation with perceived attractiveness ($p > .05$) (see Table 17). Table 18 presents the means and standard deviations for the seven focal variables shown for each manipulation in Study 2.

Table 17. *Descriptive data for focal variables in Study 2.*

Variables	Means	SD	1	2	3	4	5	6
1 Perceived Attractiveness	3.71	1.44						
2 Perceived fitness for purpose	4.74	1.57	-.59**					
3 Environmental Consciousness	4.54	1.74	-.59**	.51**				
4 Status Consumption	3.12	1.41	-.39**	.29**	.29**			
5 Fashion Consciousness	3.30	1.72	-.30**	.28**	.31**	.73**		
6 Environmental Concern	3.76	1.54	-.50**	.33**	.44**	.54**	.54**	
7 Disgust Sensitivity	2.62	.65	-.10	.07	.23**	.34**	.42**	.24**

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

Table 18. *Descriptive data of focal variables for each manipulation in Study 2.*

Variables	Manipulations Means (SD)			
	1 Used plastic bottles (Logo)	2 Pre-worn polyester (Logo)	3 Used plastic bottles (No logo)	4 Pre-worn polyester (No logo)
1 Naturalness of material	3.98 (1.86)	4.30 (1.90)	3.10 (1.88)	3.90 (1.93)
2 Perceived fitness for purpose	4.64 (1.61)	5.10 (1.57)	4.27 (1.52)	4.96 (1.47)
3 Perceived attractiveness	3.75 (1.51)	3.31 (1.29)	4.18 (1.48)	3.59 (1.39)
4 Status consumption	3.19 (1.60)	3.26 (1.28)	2.96 (1.37)	3.07 (1.41)
5 Fashion consciousness	3.43 (1.88)	3.36 (1.71)	3.20 (1.60)	3.21 (1.71)
6 Environmental concern	3.86 (1.53)	3.83 (1.61)	3.60 (1.48)	3.76 (1.59)
7 Disgust sensitivity	2.57 (.72)	2.72 (.62)	2.70 (.56)	2.47 (.67)

4.2.4 Manipulation Check

The fit-for-purpose manipulations (i.e., pre-worn polyester: M2 and M4) were assigned to 99 participants and the non-fit-for-purpose manipulations (i.e., used plastic bottles: M1 and M3) were assigned to 102 participants. An independent samples t-test showed a significant difference between the stimuli where the recycled waste was fit for purpose as a textile ($M = 5.03$, $SD = 1.52$) and not fit for purpose as a textile ($M = 4.45$, $SD = 1.57$; $t(199) = -2.70$, $p = .01$, two-tailed). These results, therefore, demonstrated the success in the experimental manipulation.

Table 19. *T-test results Comparing Material Fitness for Textiles on Manipulations*

Materials	n	Mean (SD)	Mean Difference	95% CI	t	df	p
Fit for textile	99	5.03 (1.52)	-.58	-1.01-.15	-2.66	199	.01
Not fit for textile	102	4.45 (1.57)					

4.2.5 Realism Check

The results for the realism check question for each stimulus, "How realistic is it that the t-shirt is primarily made from this material?", are presented in the table below. Mean scores for each of the five manipulations suggest that participants considered the stimuli realistic.

Table 20. *Descriptive statistics for realism check in Study 2.*

Realism check: recycled waste

Manipulations	Mean	Standard Deviation
1 Used plastic bottles (Logo)	4.72	1.80
2 Pre-worn polyester (Logo)	4.94	1.63
3 Used plastic bottles (No logo)	4.23	1.92
4 Pre-worn polyester (No logo)	5.02	1.39

4.2.6 Hypothesis Testing

Study 2 provided the opportunity to replicate the findings of Study 1 with regards to the relationship between perceived fitness for purpose of the recycled waste and the perceived attractiveness of sustainable clothing while introducing the same control variables. It was also used to test Hypothesis 4.

> **H4:** When considering sustainable clothing, visually signalling environmental consciousness moderates the relationship between perceived fitness for purpose and the perceived attractiveness of sustainable clothing made from that recycled waste, such that signalling of environmental consciousness will strengthen the positive relationship between fitness for purpose and perceived attractiveness of sustainable clothing.

This hypothesis was tested using hierarchical multiple regression, assessing the moderating effect of altruistic signalling on the relationship between perceived fitness for purpose of recycled waste and the perceived attractiveness of sustainable clothing. The moderating relationship is visualised in Figure 4. Signalling of environmental consciousness was measured using an environmental consciousness scale.
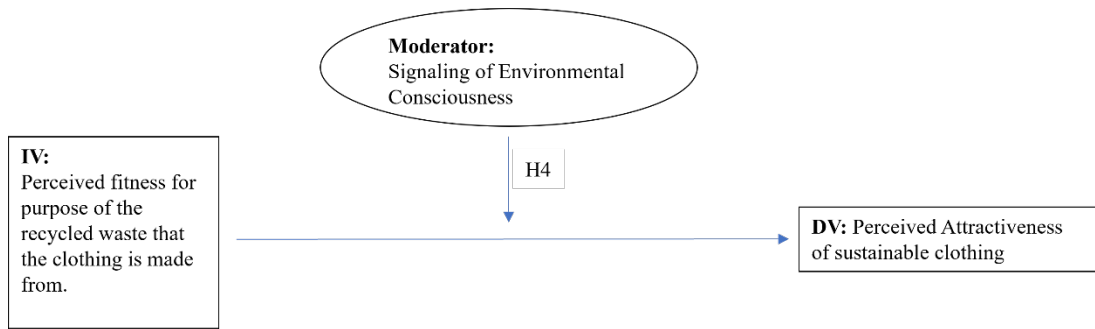
Figure 4. Moderated Regression Model in Study 2.

Before conducting the moderated regression analysis, mean-centred control variables were entered at Step 1, the main effects at Step 2, and the interaction term at Step 3.

The entry of the control variables in Model 1 explained a significant amount of variance in perceived attractiveness (*Adj* R^2 = .26, $F(4, 196)$ = 18.73, p < .00). The addition of mean-centered main effects for perceived fitness for purpose and environmental consciousness explained a further 25% variance in perceived attractiveness (R^2 *Ch.* = .25, $F(2, 194)$ = 50.17, p < .00). Yet, the interaction term (perceived fitness for purpose*environmental consciousness) was not statistically significant (p = .76). It indicates that signalling environmental consciousness through a symbol on sustainable clothing did not moderate the relationship between perceived fitness for purpose of the recycled waste and the perceived attractiveness of sustainable clothing. It means that **H4** was not supported, when altruistic signalling of the recycled nature of the clothing occurs, it does not influence the relationship between perceived fitness for purpose of the recycled waste, representing the effect of negative contamination, and perceived attractiveness of sustainable clothing.

However, both perceived fitness for purpose of the recycled waste ($\beta = -.33$, $p < .00$) and signalling of environmental consciousness ($\beta = -.31$, $p < .00$) showed a significant, negative relationship with the perceived attractiveness of sustainable clothing. This result aligns with those in Study 1, which is that when the perceptions of fitness for purpose of recycled waste increase, the perceived attractiveness of sustainable clothing decreases. Moreover, interestingly, the presence of the signalling of environmental consciousness also decreases the perceived attractiveness of sustainable clothing.

Table 21. *Hierarchical multiple regression showing the moderating effect of Environmental Consciousness on the relationship between Perceived Fitness for Purpose and Perceived Attractiveness.*

Predictors (Standardised)	Perceived Attractiveness		
	Beta	**t**	**p**
Step 1 – Control variables			
Status concern	-.22	-2.42	.02
Fashion consciousness	.08	.83	.41
Environmental concern	-.44	-5.84	.00
Disgust sensitivity	.05	.72	.47
Adj. R²	.26		.00
Step 2 – Main Effects			
Environmental consciousness	-.31	-4.92	.00
Perceived fitness for purpose	-.33	-5.71	.00
R² Ch.	.25		.00
Step 3 – Interaction Term			
Environmental consciousness x Perceived fitness for purpose	.02	.31	.76
R² Ch.	.00		.09

4.3 CONCLUSION

Chapter 4 has covered data analysis and results for both Study 1 and Study 2 that were conducted. Data cleaning and preparation, manipulation checks and hypothesis testing were completed, and interpretations of data were presented. It was found that the composition of the recycled waste (organic/inorganic) did not influence the perceived attractiveness of sustainable clothing, and perceived fitness for purpose of recycled waste significantly but negatively affects the perceived attractiveness of sustainable clothing. Moreover, the moderating effect of the signalling of environmental consciousness was not supported by the results, instead, it significantly reduces the perceived attractiveness of sustainable clothing. Further discussions and implications of the results are presented in Chapter 5.

Chapter 5: Discussion

5.1 INTRODUCTION

Chapter 1 introduced the research questions, and the relevant literature was reviewed to outline the research focus in Chapter 2. Chapter 3 presented the overall research design for both Study 1 and Study 2, and the quantitative methodology used in the studies. Chapter 4 then presented the analysis results of Study 1 and Study 2. Whilst Chapter 4 presents the findings of each of the two studies, this chapter outlines how these studies jointly address the research questions of this thesis. It firstly summarises, and then discusses and evaluates the findings relative to extant literature. Following this, this chapter also presents the theoretical and practical implications of this research, as well as the limitations of the overall research design. Finally, suggestions for future research directions are provided.

5.2 OVERALL RESEARCH PURPOSE

This research examines consumers' responses to sustainable clothing made from recycled waste. Specifically, it investigates the effects of the properties of the recycled waste from which sustainable clothing is made, including whether it is organic/inorganic and fit-for-purpose/not fit-for-purpose, and the signalling of environmental consciousness on the perceived attractiveness of such sustainable clothing. The three research questions that guided the study were:

RQ1: Are different types of recycled waste perceived to be contaminated to the same degree?

RQ2: Does the type of recycled waste affect the perceived attractiveness of sustainable clothing?

RQ3: Does the signalling of environmental consciousness moderate the relationship between the type of recycled waste and the perceived attractiveness of sustainable clothing?

The objective of this thesis was to contribute to our current theoretical understanding of consumer responses to sustainable clothing made from recycled waste. What follows is a summary of findings of each of the research questions.

5.2.1 Discussion of Research Question 1

The first research question, *Are different types of recycled waste perceived to be contaminated to the same degree?,* was addressed and supported by testing **H₁**. The results indicated that perceived contamination of sustainable clothing does vary depending on the properties of recycled waste. Specifically, if the types of recycled waste used in sustainable clothing are perceived to be 'more natural', specifically organic and more fit-for-purpose for use as a textile, it reduces the perceived contamination of sustainable clothing. This supports previous research on natural preference (Rozin et al., 2004). Specifically, ideational bias is proposed to lead to natural preference based on the belief that natural entities are inherently better, suggesting that consumers will perceive sustainable clothing made from organic as opposed to inorganic waste to be less contaminated. Instrumental bias is proposed to lead to natural preference on the basis that human intervention damages nature, suggesting that consumers will consider clothing made from more fit-for-purpose waste to be less contaminated based on the perception that such waste requires less human intervention in order to be recycled into sustainable clothing. This is consistent

with existing research that instrumental and ideational biases are inter-related and they both can trigger consumers' preference for natural products to those which have been produced with chemical transformation (Li & Chapman, 2012; Raimi et al., 2020; Rozin, 2005; Rozin et al., 2004). Furthermore, based on the theory of perceived contamination, negative contamination is the primarily result of past contact with others or objects and the subsequent transfer of properties, so that a product being touched acts as a contamination cue (Argo et al., 2006). Study 1 results suggest that consumers' natural preference lessens the salience of potential contact (i.e., any chemical or physical transformation during the recycling process of turning the recycled waste into a textile) between other people and a product. Hence, the product is perceived to be less contaminated.

Interestingly, Study 1 also found that the type of recycled waste that is perceived to be fit for purpose as a textile reduces consumers' contamination perception of sustainable clothing more than the type of recycled waste that is perceived to be organic. Accordingly, this finding is consistent with existing research. Rozin (2005, 2006) suggested that the history of an entity's processing is more important in determining the overall naturalness than the composition of the entity's contents. Whether instrumental or ideational bias contributes more to the judgement of naturalness needs further explication (Raimi et al., 2020; Rozin, 2006). Nonetheless, this explanation still supports Hypothesis 1 findings. Overall, this gives strength to the conclusions that perceived contamination of sustainable clothing *does* vary depending on the properties (i.e., the composition) of the recycled waste from which it is made.

5.2.2 Discussion of Research Question 2

The second research question, *'Does the type of recycled waste affect the perceived attractiveness of sustainable clothing?'*, was addressed by H_2 and H_3 and was not supported by the results. Study 1 showed that sustainable clothing made from recycled waste that is composed of organic, as opposed to inorganic material, is not perceived to be more attractive. In fact, whether the recycled waste is organic or inorganic does not impact the overall perceived attractiveness of sustainable clothing. Moreover, perceived fitness for purpose of the recycled waste for use as a textile does not significantly moderate the relationship between the composition of the recycled waste and the perceived attractiveness of sustainable clothing that is made from such waste. However, it was found that as the perceived fitness for purpose of the recycled waste to be a textile increases, the perceived attractiveness of sustainable clothing made from such waste is decreased.

In summary, the results showed that there was no significant relationship between whether the recycled waste is organic or inorganic and the perceived attractiveness of sustainable clothing made from this type of waste, and the perceived fitness of purpose of the recycled waste did not moderate this relationship. Although the concept of natural preference suggests that consumers have a strong desire for natural entities (Rozin et al., 2004), the findings suggest that while more natural (i.e., organic and fit-for-purpose) recycled waste reduces perceived contamination of sustainable clothing made from such waste (**RQ1**), it does not directly impact the perceived attractiveness of that sustainable clothing (**RQ2**). Interestingly, the results showed a negative direct relationship between perceived fitness for purpose of the recycled waste to be a textile and perceived attractiveness of sustainable clothing that is made from such recycled waste. This contrasts with the core assumption of natural

preference, where consumers employ a 'natural is better' heuristic, and this heuristic leads to a preference for products that have been subject to less human intervention (Li & Chapman, 2012; Rozin, 2006; Rozin et al., 2004).

Taken together with results of testing H_1, this suggests that the fitness for purpose of recycled waste has a negative relationship with the perceived contamination of sustainable clothing made from that waste, in that, more fit-for-purpose recycled waste lowers the perceived contamination of sustainable clothing made from such waste. However, it also has a negative relationship with perceived attractiveness, in that, sustainable clothing made from more fit-for-purpose recycled waste is perceived to be less attractive. It is surprising, given that past research has found that perceived contamination of sustainable products made from recycled waste reduces consumers' purchase intention and willingness to pay (Magnier et al., 2019; Meng & Leary, 2019). It suggests that contamination perception may not be a key driver of product attractiveness (as opposed to purchasing intention and willingness to pay) in the context of sustainable clothing, although this proposition should be confirmed by future research.

One possible explanation for this unexpected finding stems from research that has found past identity salience induces narrative thoughts about a product's biographies, which in turn allows customers to feel special (Kamleitner et al., 2019). In other words, consumers may find sustainable clothing made from recycled waste that is perceived to be less fit-for-purpose for use as a textile (e.g., plastic bottles) more attractive based on the transformational (recycling) journey that has to occur for that product to be manufactured. Kamleitner et al. (2019) found that the transformation from an old past identity to a new product identity (e.g., turning used coffee grounds into new apparel) creates a transformational story, which allows customers'

engagement in narrative thinking, enables them to feel special with the product and eventually find the product to be more appealing and desirable. As another example, consumers may imagine the plastic bottles being removed from the ocean, potentially saving sea life, and this narrative may be driving product attractiveness. The past identity salience draws attention to the product's special story (e.g., transforming used coffee grounds that would end up in a landfill into storied new activewear (Pinnock, 2019) and increases the product's attractiveness. An alternative explanation is that customers find the novelty of using less fit-for-purpose recycled waste in clothing, such as plastic bottles and coffee grounds, to be attractive, compared to the common materials such as pre-worn cotton and polyester. Future research is recommended to investigate these possible explanations.

5.2.3 Discussion of Research Question 3

The final research question, *'Does signalling of environmental consciousness moderate the relationship between the type of recycled waste and the perceived attractiveness of sustainable clothing?'*, was addressed by **H₄**. The analysis, however, did not provide support for the moderation hypothesis. Instead, Study 2 provides additional evidence to support the negative relationship between perceived fitness for purpose of the recycled waste and the perceived attractiveness of sustainable clothing. Study 2 also found that signalling of environmental consciousness further decreases sustainable clothing's perceived attractiveness. It is a surprising finding that signalling environmental consciousness does not moderate the relationship between perceived fitness for purpose (i.e., a property of recycled waste) and the perceived attractiveness of sustainable clothing made from that waste.

Moreover, it is found that the presence of environmental consciousness signalling further decreases the perceived attractiveness of clothing. One possible explanation may be related to the rising trend of subtle signs in conspicuous consumption. Logo signalling on products is a form of outward communication, and Berger and Ward (2010) found that insiders with domain-specific cultural capital (e.g., environmental conservation) prefer subtle signals instead (versus explicitly marked, large brand logos) as they separate them from the mainstream. It also aligns with the trend of inconspicuous consumption – the use of subtle signals that are only observable to people with the requisite knowledge to decode their meaning (Berger & Ward, 2010; Eckhardt et al., 2014). It provides an alternative explanation of the findings as the symbol used in manipulations to signal environmental consciousness was large and obvious, and placed in the middle of the T-shirts, and such, not considered subtle and may have lowered the perceived attractiveness of the products. This can be addressed in future research (see Section 5.5 for further explanation).

5.3 THEORETICAL IMPLICATIONS

These findings contribute to extending knowledge and theory in several ways within its broad contribution to the improved understanding of factors influencing consumers' responses to sustainable fashion. They are presented in the following section.

5.3.1 Contamination Perception

The first theoretical contribution of the study is to provide a more in-depth understanding of how the properties of the recycled waste from which sustainable clothing use influence consumers' contamination perception. Previous research has shown that consumers perceived products made from recyclables to be contaminated (Magnier et al., 2019; Meng & Leary, 2019), yet, limited research has examined the influence of different properties of the recycled waste on contamination perception with existing studies focusing exclusively on products made from recycled plastic waste (Bleicher, 2020; Magnier et al., 2019; Meng & Leary, 2019; Nayak, 2020). This study extends previous research by finding that sustainable clothing made from recycled waste that is organic and fit-for-purpose is perceived to be less contaminated than clothing made from inorganic and less fit-for-purpose recycled waste. As such, the findings contribute to the current knowledge that the properties of the recycled waste of sustainable clothing *do* impact the product's perceived contamination. Moreover, with the existing evidence supporting the relationship between low contamination perception and higher purchase intention and willingness to pay (Magnier et al., 2019; Meng & Leary, 2019), this study presents an interesting departure from this trend in that it was found that contamination perception does not

seem to be a primary determinant of consumers' evaluations of product's perceived attractiveness; although future research should confirm this proposition.

5.3.2 Natural Preference

This research provides insights on how the recycled nature of a product influences consumer responses to such a product by examining the role of natural preference. Past research on natural preference has typically focused on appetitive items such as food and medicine (Rozin et al., 2005; Rudski et al., 2011), while little research has examined whether natural preference extends towards textiles, especially material that is processed from recycled waste. This study then builds upon existing research and suggests that natural preference does affect how consumers perceive different types of recycled waste, and essentially, more 'natural' recycled waste reduces negative contamination perception in sustainable clothing. Interestingly, however, past findings suggest that consumers desire more natural entities compared to entities that have been subjected to more human intervention (Rozin, 2005, 2006; Rozin et al., 2005; Rozin et al., 2004). In the context of this study, natural preference did not drive the attractiveness of sustainable clothing. In other words, whether the sustainable clothing was made from organic or inorganic recycled waste did not influence the product's attractiveness, whereas sustainable clothing made from more fit for purpose recycled waste was perceived to be less attractive by consumers.

5.3.3 Signalling of environmental consciousness

The final theoretical contribution of this study relates the effect of signalling environmental consciousness on the relationship between the properties of recycled waste and the perceived attractiveness of sustainable clothing made from the waste. It is an important extension on the work of Meng and Leary (2019) and Magnier et al.

(2019), whose works had not explored the impact of consumers' environmental values on consumer responses to recycled products, which consumers view to be contaminated, specifically in the textile industry. As suggested by Griskevicius et al. (2010)'s 'Going Green To Be Seen' article, preferences for pro-environmental 'green' products can be explained by the desire to signal something about a person's underlying quality and status. It highlights the potential utility of signals that denote environmental consciousness for increasing the acceptance of sustainable products. Although Study 2 showed that signalling environmental consciousness did not enhance the attractiveness of sustainable clothing made from recycled waste, it provides a basis for future research in this domain that may focus on less conspicuous signalling (see Section 5.5).

5.4   PRACTICAL IMPLICATIONS

Based on the findings in both studies, some managerial implications were identified, which are relevant for both the marketers and manufacturers in the fashion industry. The following section will discuss the implications in detail.

5.4.1 Different properties of recycled waste from which sustainable clothing is made

The findings of this study may assist sustainable fashion businesses to determine which types of waste are more suitable to be recycled into clothing such that the clothing is perceived to be less contaminated and more attractive to customers. However, the findings of this research point to the complex relationships between the properties of recycled waste, and the perceived contamination and attractiveness of sustainable clothing made from such waste. It suggests that further research may be necessary to enhance confidence in the conclusions that can be drawn from these studies for managers.

This research revealed that organic and more fit-for-purpose recycled waste is perceived to be less contaminated than inorganic and less fit-for-purpose recycled waste. However, whether the recycled waste is perceived to be more (e.g., coffee grounds) or less organic (e.g., plastic bottles) does not impact product attractiveness, whereas recycled waste that is perceived to be more fit-for-purpose for use as a textile (e.g., recycled polyester) is less attractive than recycling waste that is less fit-for-purpose for use as a textile (e.g., plastic bottles). It suggests that using less fit-for-purpose recycled waste (e.g., used plastic bottles and coffee grounds) in the manufacture of sustainable clothing could enhance product attractiveness. Although

caution should be exercised by managers as sustainable clothing made from less fit-for-purpose recycled waste was perceived to be more contaminated by consumers.

More conservatively, building upon Meng and Leary (2019)'s study which finds that products close to the skin (e.g., T-shirts) are impacted more significantly by contamination perception, one recommendation would be to use organic and more fit-for-purpose recycled waste, such as pre-worn cotton, as the main material for sustainable *T-shirts* to reduce consumers' contamination perception of these products. Contrarily, items that are not in constant contact with the skin are less impacted by contamination (Meng & Leary, 2019) and to further increase these products' attractiveness, managers could consider the use of less fit-for-purpose recycled waste, such as coffee grounds and plastic bottles, as the main material for *bags or accessories*. Thus, this research provides direction to marketers and manufacturers for the use of recycled waste with different properties in the manufacture of sustainable clothing to reduce the impact of negative contamination and increase products attractiveness. Potentially, this direction could contribute to promoting the purchase of sustainable fashion and reduce the use of raw materials in the fashion industry.

5.4.2 Insights on sustainable product design and communication

The research results show that signalling environmental consciousness using a visual symbol on sustainable clothing did not moderate the relationship between perceived fitness for purpose and perceived attractiveness of sustainable clothing. Instead, it was found that signalling environmental consciousness in this manner negatively affected sustainable clothing's perceived attractiveness. As discussed in Section 5.3, the visual symbol employed in this study was large and centred, and thus not considered a 'subtle signal' to provide differentiation for consumers who share the

same cultural capital (i.e., environmental consciousness) (Berger & Ward, 2010). Thus, for companies that wish to promote sustainable clothing, the strategy of signalling environmental consciousness should be undertaken with caution. While this approach is supported in promoting pro-environmental consumption (Griskevicius et al., 2010), it is not recommended as a strategy to promote sustainable clothing using big and 'showy' symbols on sustainable clothing. Exploration of other potential ways to signal environmental consciousness is indicated in Section 5.5 – Limitations and Future Research Directions.

5.5   LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Despite these theoretical and practical contributions, this research possesses several limitations which may provide future research opportunities. The following section will assess these limitations and propose areas of future research potential.

The first limitation is methodological. The design of the symbol used to signal environmental consciousness may have impacted the results. The symbol was large and designed to signal environmental consciousness explicitly. However, the perceived attractiveness of the symbol was not tested. Consequently, while participants understood the intended meaning of the symbol, they may have found the design unattractive, impacting the perceived attractiveness of sustainable clothing. Therefore, if consumers perceive the symbol to be less attractive, this may have affected consumers' perception of the product's attractiveness as the visual element is part of product evaluation. Future research should test the perceived attractiveness of visual signals. Moreover, it is not an existing symbol with obvious message associations (e.g., the recycling symbol). A signal can be more or less reliable depending on the strength of the net benefit of the signalling and how much it reflects the sender's qualities (Przepiorka & Berger, 2017). It shows that although the best symbol was selected according to the pre-test results, the signalling may not have had the environmental associations for all participants, and the strength of the signalling might be then reduced. Similarly, the selection of recycled material categories may also have impacted the results, although the effect of this selection is unclear as the recycled material categories for the products were not pre-tested. That is, in Study 1, no pre-testing was undertaken of the materials selected (used coffee grounds, plastic bottles, pre-worn polyester and pre-worn cotton) on whether they would be the most effective examples for the experimental manipulations. Although the manipulation

checks (section 4.1.4) provide confidence in the experimental design, future research should examine other categories in recycled materials.

The second limitation has been the investigation of the perceived attractiveness of online graphical representations of sustainable clothing, rather than actual samples of the T-shirts. Moreover, using consumers' actual purchasing data is the most ideal to eliminate self-report bias (Sarti et al., 2018), yet, this study only investigated consumers perceptions (i.e., attractiveness perception) of sustainable clothing owing to the limited availability of sustainable clothing made of organic or inorganic waste (Magnier et al., 2019). Future research should assess how the concept of perceived attractiveness is related to actual purchase behaviours in sustainable clothing. Also, in alignment with the suggestion by Meng and Leary (2019), future research should test the contamination effects with actual apparel, which will allow for more robust conclusions. To further extend the studies on contamination perception by Magnier et al. (2019); Meng and Leary (2019), it is suggested that future research should examine the effect of the properties of recycled waste on consumers' purchase intention and willingness to pay as well.

The third limitation of this study is the limited investigation of the source of contamination perception on sustainable clothing specifically. The current study investigated both physical and symbolic negative contamination perceptions of sustainable clothing and focused on exploring possible ways to help to overcome such perceptions. However, it is also necessary to understand which types of contamination is the main contributor to product contagion in sustainable clothing. Past research suggests that physical product contagion (e.g., closeness to the skin, previous contact with other consumers) impacts consumers' contamination the most (Argo et al., 2006; Meng & Leary, 2019), and this research assumed both types of contagion contribute

the contamination to the same degree. Very few studies have been done in the past to study the key source of consumer contamination, specifically in sustainable clothing, and this represents a significant domain for future research.

There remains scope to further exploration of the sources of contamination that are relevant to consumers in the fashion context. It is advantageous for future research to further establish the influence of specific contaminants on consumers' desire to purchase sustainable clothing.

Another limitation of this study is the limited interpretation of the concept of fitness for purpose. Although it has been conceptualised for the purpose of this research in the literature review, this term has not been fully discussed or associated with previous literature in other contexts. As it was discussed above, the conceptualisation of fitness for purpose implies the instrumental attribute of natural preference (Rozin et al., 2004), also implies 'least human intervention' in the manufacturing process of a sustainable product using recycled waste. Given that the notion of 'fit-for-purpose' is one of the main predictors of the experimental design, and this concept has been proven to be closely related to consumers' contamination perception in this study, it is suggested that future research should also explore and further refine the fitness for purpose concept from a consumer perspective.

The final limitation of this study relates to the measures used. Although the measures have been carefully selected, only one operationalisation of the broader concept of contamination, as an example, has been identified in the literature review. For instance, there was the use of one scale from Meng & Leary (2019) to measure the consumers' overall contamination perception of the product in both studies. Hence, it

is crucial to acknowledge that any focal measure will not have the capacity to measure

the breadth of any concept.

5.6 CONCLUSION

In summary, even though recycling waste into sustainable clothing is an increasing trend, research examining consumer responses to such clothing is nascent. Emerging studies highlight that consumers' perceived sustainable apparel made from recycled plastic bottles to be contaminated, reducing purchase likelihood and willingness to pay for such products. However, the extent to which the properties of recycled waste influences contamination perception and other consumer responses to sustainable clothing has not been previously investigated. This research revealed that the composition of the recycled waste (organic versus inorganic) and the extent to which it is perceived to be fit-for-purpose for use as a textile can reduce perceived contamination on the basis of consumers' natural preference. If the type of recycled waste is organic and more fit-for-purpose, it was perceived to be less contaminated. However, whether the recycled waste was organic or not had no impact on the resultant sustainable clothing's attractiveness, whereas if the recycled waste was perceived to be more fit-for-purpose for use as a textile, it reduced the resultant sustainable clothing's attractiveness. Similarly, overt signalling of environmental consciousness in the form of a large symbol on the sustainable clothing also decreased the sustainable clothing's attractiveness.

Overall, these findings suggest highly complex relationships between the properties of recycled waste and the sustainable clothing that is made from such waste, highlighting the significant need for additional research in this domain. As the second-largest industrial polluter after aviation (Land, 2020), this research, and subsequent research in this domain, are crucial because the fashion industry is under pressure to reduce its environmental impact. Sustainable fashion has also gradually gained ground as consumers, brands, designers, retailers, and manufacturers become more aware of

the devastating effect of fast fashion on the environment (Cataldi et al., 2017;

Khandual & Pradhan, 2019).

Reference List

Abrahamse, W., & Steg, L. (2013). Social influence approaches to encourage resource conservation: A meta-analysis. *Global Environmental Change, 23*(6), 1773-1785. https://doi.org/10.1016/j.gloenvcha.2013.07.029

Aiken, L. S., & West, S. G. (1991). *Multiple regression : testing and interpreting interactions*. Sage Publications.

Alkhalidi, A., Khawaja, M. K., & Al Kelany, A. G. (2019). Investigation of Repurposed Material Utilization for Environmental Protection and Reduction of Overheat Power Losses in PV Panels. *International Journal of Photoenergy, 2019*, 1-9. https://doi.org/10.1155/2019/2181967

Anderson, C., Brion, S., Moore, D. A., & Kennedy, J. A. (2012). A status-enhancement account of overconfidence. *Journal of Personality and Social Psychology, 103*(4), 718-735. https://doi.org/10.1037/a0029395

Argo, J. J., Dahl, D. W., & Morales, A. C. (2006, Apr). Consumer contamination: How consumers react to products touched by others. *Journal of Marketing, 70*(2), 81-94. https://doi.org/DOI 10.1509/jmkg.70.2.81

Argo, J. J., Dahl, D. W., & Morales, A. C. (2008, Dec). Positive Consumer Contagion:

      Responses to Attractive Others in a Retail Context. *Journal of Marketing*

      Research, 45(6), 690-701. https://doi.org/DOI 10.1509/jmkr.45.6.690

Basarir, A., & Gheblawi, M. S. (2012). Analyzing demand and consumers' willingness

      to pay for organic fruits and vegetables. *Journal of Food, Agriculture &*

      Environment, 10(3/4), 86-91 %@ 1459-0255.

Berger, J. (2019). Signaling can increase consumers' willingness to pay for green

      products. Theoretical model and experimental evidence. *Journal of Consumer*

      Behaviour, 18(3), 233-246. https://doi.org/10.1002/cb.1760

Berger, J., & Ward, M. (2010). Subtle Signals of Inconspicuous Consumption. *Journal*

      of Consumer Research, 37(4), 555-569. https://doi.org/10.1086/655445

Bhardwaj, V., & Fairhurst, A. (2010). Fast fashion: response to changes in the fashion

      industry. *The International Review of Retail, Distribution and Consumer*

      Research, 20(1), 165-173. https://doi.org/10.1080/09593960903498300

Birtwistle, G., & Moore, C. M. (2007). Fashion clothing – where does it all end up?

      International Journal of Retail & Distribution Management, 35(3), 210-216.

      https://doi.org/10.1108/09590550710735068

Black, S. (2008). *Eco-chic: The fashion paradox*. Black Dog.

Bleicher, A. (2020). Why are recycled waste materials used reluctantly?—Enriching research in recycling with social scientific perspectives. *Resources, Conservation and Recycling, 152*. https://doi.org/10.1016/j.resconrec.2019.104543

Bonett, D. G. (2012). Replication-extension studies. *Current Directions in Psychological Science, 21*(6), 409-412.

Boscio, C. D. (2016). Can Recycled Plastic Clothing Do More Harm than Good? *Eluxe Magazine*.

Bryman, A. (2008). Why do researchers integrate/combine/mesh/blend/mix/merge/fuse quantitative and qualitative research. *Advances in mixed methods research, 21*(8), 87-100.

Byrne, B. M. (2010). *Structural equation modeling with AMOS : basic concepts, applications, and programming* (2 ed.). Routledge.

Cassidy, T. D., & Han, S. L.-C. (2017). Upcycling fashion for mass production. In M. Á. Gardetti (Ed.), *Sustainability in Fashion and Textiles: Values, Design, Production and Consumption* (pp. 148-163).

Cataldi, C., Dickson, M., & Grover, C. (2017). Slow fashion: tailoring a strategic approach for sustainability. In *Sustainability in fashion and textiles* (pp. 22-46). Routledge.

Cheah, I., & Phau, I. (2011). Attitudes towards environmentally friendly products: The influence of ecoliteracy, interpersonal influence and value orientation. *Marketing Intelligence & Planning*.

Chen, H., Jiang, W., Yang, Y., Yang, Y., & Man, X. (2017). State of the art on food waste research: a bibliometrics study from 1997 to 2014. *Journal of Cleaner Production, 140*, 840-846. https://doi.org/10.1016/j.jclepro.2015.11.085

Claudio, L. (2007, Sep). Waste couture: environmental impact of the clothing industry. *Environ Health Perspect, 115*(9), A448-454. https://doi.org/10.1289/ehp.115-a449

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2 ed.). Lawrence Erlbaum Associates

Collins, L. M., Dziak, J. J., & Li, R. (2009, Sep). Design of experiments with multiple independent variables: a resource management perspective on complete and reduced factorial designs. *Psychol Methods, 14*(3), 202-224. https://doi.org/10.1037/a0015826

Crotty, M. (2020). *The foundations of social research: Meaning and perspective in the research process*. Routledge.

Debo, L. G., Toktay, L. B., & Van Wassenhove, L. N. (2005, Aug). Market segmentation and product technology selection for remanufacturable products. *Management Science, 51*(8), 1193-1205. https://doi.org/10.1287/mnsc.1050.0369

Dorothy, L.-B. (1981). Voluntary Simplicity Lifestyles and Energy Conservation. *The Journal of consumer research, 8*(3), 243-252. https://doi.org/10.1086/208861

Eckhardt, G. M., Belk, R. W., & Wilson, J. A. J. (2014). The rise of inconspicuous consumption. *Journal of Marketing Management, 31*(7-8), 807-826. https://doi.org/10.1080/0267257x.2014.989890

Fletcher, K. (2010). Slow Fashion: An Invitation for Systems Change. *Fashion practice, 2*(2), 259-265. https://doi.org/10.2752/175693810X12774625387594

Frazer, S. J. G. (1890). *The golden bough: studies in magic and religion*. Macmillan.

Gambetta, D. (2009). Signaling. *The Oxford handbook of analytical sociology*, 168-194.

Goodman, J. K., Cryder, C. E., & Cheema, A. (2013). Data Collection in a Flat World: The Strengths and Weaknesses of Mechanical Turk Samples: Data Collection in a Flat World. *Journal of behavioral decision making, 26*(3), 213-224. https://doi.org/10.1002/bdm.1753

Griskevicius, V. (2008). Conspicuous conservation: pro-environmental consumption and status competition.

Griskevicius, V., & Kenrick, D. T. (2013). Fundamental motives: How evolutionary needs influence consumer behavior. *Journal of Consumer Psychology, 23*(3), 372-386. https://doi.org/10.1016/j.jcps.2013.03.003

Griskevicius, V., Tybur, J. M., & Van den Bergh, B. (2010, Mar). Going green to be seen: status, reputation, and conspicuous conservation. *Journal of Personality and Social Psychology, 98*(3), 392-404. https://doi.org/10.1037/a0017346

Grunert, S. C., & Juhl, H. J. (1995). Values, environmental attitudes, and buying of organic foods. *Journal of economic psychology, 16*(1), 39-62.

Hair, J. F., Anderson, R. E., Black, B., Babin, B. J., & Black, W. C. (2013). *Multivariate Data Analysis*. Pearson Education, Limited.

Hamzaoui-Essoussi, L., & Linton, J. D. (2014). Offering branded remanufactured/recycled products: at what price? *Journal of Remanufacturing, 4*(1). https://doi.org/10.1186/s13243-014-0009-9

Hardy, C. L., & Van Vugt, M. (2006). Nice Guys Finish First: The Competitive Altruism Hypothesis. *Personality & social psychology bulletin, 32*(10), 1402-1413. https://doi.org/10.1177/0146167206291006

Haug, A., & Busch, J. (2016). Towards an ethical fashion framework. *Fashion Theory, 20*(3), 317-339.

Hazée, S., & Van Vaerenbergh, Y. (2020). Customers' contamination concerns: an integrative framework and future prospects for service management. *Journal of Service Management, ahead-of-print*(ahead-of-print). https://doi.org/10.1108/josm-04-2020-0129

Hazée, S., Van Vaerenbergh, Y., Delcourt, C., & Warlop, L. (2019). Sharing Goods? Yuck, No! An Investigation of Consumers' Contamination Concerns About Access-Based Services. *Journal of Service Research, 22*(3), 256-271. https://doi.org/10.1177/1094670519838622

Hill, J., & Lee, H. H. (2012). Young Generation Y consumers' perceptions of sustainability in the apparel industry. *Journal of Fashion Marketing and Management: An International Journal*.

Hopper, J. R., & Nielsen, J. M. (1991). Recycling as Altruistic Behavior: Normative and Behavioral Strategies to Expand Participation in a Community Recycling Program. *Environment and Behavior, 23*(2), 195-220. https://doi.org/10.1177/0013916591232004

Huang, C. L., & Kung, F. H. (2011). Environmental consciousness and intellectual capital management: Evidence from Taiwan's manufacturing industry. *Management decision*.

Huang, J. Y., Ackerman, J. M., & Sedlovskaya, A. (2017). (De)contaminating product preferences: A multi-method investigation into pathogen threat's influence on used product preferences. *Journal of Experimental Social Psychology, 70*, 143-152. https://doi.org/10.1016/j.jesp.2017.01.001

IBISWorld. (2021). *Fast Fashion in Australia* https://doi.org/https://my.ibisworld.com/au/en/industry-specialized/od4172/

Iredale, W. v. V., M. (2012). Altruism as showing off: A signalling perspective on promoting green behaviour and acts of kindness. In S. C. Roberts (Ed.), *Applied Evolutionary Psychology*. https://doi.org/10.1093/acprof:oso/9780199586073.001.0001

Jastram, S. M., & Schneider-Di Meo, A. M. (2018). *Sustainable Fashion Governance and New Management Approaches* (1st ed. 2018. ed.). Springer International Publishing. https://doi.org/10.1007/978-3-319-74367-7

Joergens, C. (2006). Ethical fashion: myth or future trend? *Journal of Fashion Marketing and Management: An International Journal*.

Joung, H.-M., & Park-Poaps, H. (2013). Factors motivating and influencing clothing disposal behaviours. *International Journal of Consumer Studies, 37*(1), 105-111. https://doi.org/10.1111/j.1470-6431.2011.01048.x

Kamleitner, B., Thürridl, C., & Martin, B. A. S. (2019). A Cinderella Story: How Past Identity Salience Boosts Demand for Repurposed Products. *Journal of Marketing, 83*(6), 76-92. https://doi.org/10.1177/0022242919872156

Kenrick, D. T., Griskevicius, V., Neuberg, S. L., & Schaller, M. (2010, May). Renovating the Pyramid of Needs: Contemporary Extensions Built Upon Ancient Foundations. *Perspect Psychol Sci, 5*(3), 292-314. https://doi.org/10.1177/1745691610369469

Kenrick, D. T., Neuberg, S. L., Griskevicius, V., Becker, D. V., & Schaller, M. (2010, Feb). Goal-Driven Cognition and Functional Behavior: The Fundamental-Motives Framework. *Curr Dir Psychol Sci, 19*(1), 63-67. https://doi.org/10.1177/0963721409359281

Khandual, A., & Pradhan, S. (2019). Fashion brands and consumers approach towards sustainable fashion. In *Fast fashion, fashion brands and sustainable consumption* (pp. 37-54). Springer.

Kim, Y. (1995). The clothing purchasing behavior of consumer's environmental consciousness. *Unpublished master's thesis, Chung-Ang University, Seoul*.

King, A. M., Burgess, S. C., Ijomah, W., & McMahon, C. A. (2006). Reducing waste: repair, recondition, remanufacture or recycle? *Sustainable Development, 14*(4), 257-267. https://doi.org/10.1002/sd.271

Lane, I. (2020). 'Slow fashion is the future': Study says it's time to scrap polluting 'fast fashion' industry. *The NewDaily*.

Lee, S. (2003). A study on environment-friendly family resource management behaviors, environmental consciousness, knowledge, and education. *Journal of Korean Home Management Association, 21*(1), 91-102.

Li, M., & Chapman, G. B. (2012). Why Do People Like Natural? Instrumental and Ideational Bases for the Naturalness Preference. *Journal of Applied Social Psychology, 42*(12), 2859-2878. https://doi.org/10.1111/j.1559-1816.2012.00964.x

Luchs, M. G., Brower, J., & Chitturi, R. (2012). Product Choice and the Importance of Aesthetic Design Given the Emotion-laden Trade-off between Sustainability and Functional Performance. *The Journal of product innovation management, 29*(6), 903-916. https://doi.org/10.1111/j.1540-5885.2012.00970.x

Magnier, L., Mugge, R., & Schoormans, J. (2019). Turning ocean garbage into products – Consumers' evaluations of products made of recycled ocean plastic. *Journal of Cleaner Production, 215*, 84-98. https://doi.org/10.1016/j.jclepro.2018.12.246

Magnier, L., & Schoormans, J. (2015). Consumer reactions to sustainable packaging: The interplay of visual appearance, verbal claim and environmental concern. *Journal of Environmental Psychology, 44*, 53-62. https://doi.org/10.1016/j.jenvp.2015.09.005

Martin, B. A., pro-, U. o. O. i. a. a., Kwai-Choi Lee, C., & se-, U. o. A. i. a. (2004). The influence of ad model ethnicity and self-referencing on attitudes: Evidence from New Zealand. *Journal of Advertising, 33*(4), 27-37.

McDonald, S., Oates, C. J., Young, C. W., & Hwang, K. (2006). Toward sustainable consumption: Researching voluntary simplifiers. *Psychology & Marketing, 23*(6), 515-534. https://doi.org/10.1002/mar.20132

McDonough, W., & Braungart, M. (2002). *Cradle to cradle : remaking the way we make things*. New York : North Point Press.

Mcfall-Johnsen, M. (2019). The fashion industry emits more carbon than international flights and maritime shipping combined. Here are the biggest ways it impacts the planet. *Business Insider Australia*. https://www.businessinsider.com.au/fast-fashion-environmental-impact-pollution-emissions-waste-water-2019-10?r=US&IR=T

Meng, M. D., & Leary, R. B. (2019). It might be ethical, but I won't buy it: Perceived contamination of, and disgust towards, clothing made from recycled plastic bottles. *Psychology & Marketing*. https://doi.org/10.1002/mar.21323

Miller, S. L., & Maner, J. K. (2011). Sick Body, Vigilant Mind: The Biological Immune System Activates the Behavioral Immune System. *Psychological science, 22*(12), 1467-1471. https://doi.org/10.1177/0956797611420166

Min, H.-S., & Rhee, K.-C. (1999). Consumers' pro-environmental attitude and behavior. *Journal of the Korean Home Economics Association, 37*(1), 29-44.

Mishal, A., Dubey, R., Gupta, O. K., & Luo, Z. (2017). Dynamics of environmental consciousness and green purchase behaviour: an empirical study. *International journal of climate change strategies and management, 9*(5), 682-706. https://doi.org/10.1108/IJCCSM-11-2016-0168

Montgomery, A. A., Peters, T. J., & Little, P. (2003). Design, analysis and presentation of factorial randomised controlled trials. *BMC medical research methodology, 3*(1), 1-5.

Morales, A. C., & Fitzsimons, G. J. (2007, May). Product contagion: Changing consumer evaluations through physical contact with "disgusting" products. *Journal of Marketing Research, 44*(2), 272-283. https://doi.org/DOI 10.1509/jmkr.44.2.272

Morgan, C. (2019). Adidas is turning plastic ocean waste into sneakers and sportswear. *Business Insider Australia*. https://doi.org/https://www.businessinsider.com.au/adidas-sneakers-plastic-bottles-ocean-waste-recycle-pollution-2019-8

Morgan, L. R., & Birtwistle, G. (2009). An investigation of young fashion consumers' disposal habits. *International Journal of Consumer Studies, 33*(2), 190-198. https://doi.org/10.1111/j.1470-6431.2009.00756.x

Mukendi, A., Davies, I., Glozer, S., & McDonagh, P. (2020). Sustainable fashion: current and future research directions. *European Journal of Marketing, ahead-of-print*(ahead-of-print). https://doi.org/10.1108/ejm-02-2019-0132

Nayak, R. (2020). *Sustainable Technologies for Fashion and Textiles*. Duxford : Woodhead Publishing.

Nemeroff, C., & Rozin, P. (1994, Jun). The Contagion Concept in Adult Thinking in the United-States - Transmission of Germs and of Interpersonal Influence. *Ethos, 22*(2), 158-186. https://doi.org/DOI 10.1525/eth.1994.22.2.02a00020

Newman, G. E., Diesendruck, G., & Bloom, P. (2011). Celebrity Contagion and the Value of Objects. *The Journal of consumer research, 38*(2), 215-228. https://doi.org/10.1086/658999

Newman, S. (2016). These clothes are made out of recycled food waste. *1 Million Women*.

Orth, U. R., Bouzdine-Chameeva, T., & Brand, K. (2013). Trust during retail encounters: A touchy proposition. *Journal of Retailing, 89*(3), 301-314. https://doi.org/10.1016/j.jretai.2013.02.002

Pallant, J. (2020). *SPSS survival manual : a step by step guide to data analysis using IBM SPSS* (7 ed.). Crows Nest.

Park, H. H., & Oh, S. D. (2005). The influence of materialism and environment consciousness on recycling attitude and behavior of clothing. *Journal of the Korean Home Economics Association, 43*(10), 167-177.

Park, S. H., Oh, K. W., & Na, Y. K. (2013). The Effects of Environment-conscious Consumer Attitudes towards Eco-friendly Product and Artificial Leather Fashion Product Purchase Intentions. *Fashion & Textile Research Journal, 15*(1), 57-64. https://doi.org/10.5805/sfti.2013.15.1.057

Park, U.-A., & Rhee, K. (1995). A study on environmentally conscious consumer behavior. *Journal of the Korean Home Economics Association, 33*(4), 199-212.

Pieters, R. G. M. (1991). Changing Garbage Disposal Patterns of Consumers: Motivation, Ability, and Performance. *Journal of Public Policy & Marketing,*

10(2), 59-76. https://doi.org/10.1177/074391569101000204 %U
https://journals.sagepub.com/doi/abs/10.1177/074391569101000204

Pinnock, O. (2019). 5 Innovative Fashion Materials Made From Food By-Products.
Forbes.

[Record #218 is using a reference type undefined in this output style.]

Raimi, K. T., Wolske, K. S., Hart, P. S., & Campbell-Arvai, V. (2020, Mar). The
Aversion to Tampering with Nature (ATN) Scale: Individual Differences in
(Dis)comfort with Altering the Natural World. *Risk Anal, 40*(3), 638-656.
https://doi.org/10.1111/risa.13414

Reimers, V., Magnuson, B., & Chao, F. (2016). The academic conceptualisation of
ethical clothing: could it account for the attitude behaviour gap? *Journal of
Fashion Marketing and Management: An International Journal*.

Robson, C., & McCartan, K. (2016). *Real world research : a resource for users of
social research methods in applied settings* (Fourth edition. ed.). Wiley.

Ross, G. (2019). Australia recycles paper and plastics. So why does clothing end up in
landfill. *The Guardian*.

Rozin, P. (2005, Aug). The meaning of "natural" - Process more important than content. *Psychological science, 16*(8), 652-658. https://doi.org/DOI 10.1111/j.1467-9280.2005.01589.x

Rozin, P. (2006, Nov). Naturalness judgments by lay Americans: Process dominates content in judgments of food or water acceptability and naturalness. *Judgment and decision making, 1*(2), 91-97. <Go to ISI>://WOS:000203681700001

Rozin, P., Fischler, C., & Shields, C. (2005). Conceptions of 'natural' in the domain of foods in France, Germany, Italy, UK, and the USA. *Unpublished manuscript, University of Pennsylvania, Philadelphia.*

Rozin, P., Millman, L., & Nemeroff, C. (1986). Operation of the Laws of Sympathetic Magic in Disgust and Other Domains. *Journal of Personality and Social Psychology, 50*(4), 703-712. https://doi.org/10.1037/0022-3514.50.4.703

Rozin, P., & Nemeroff, C. (1990a). The laws of sympathetic magic: A psychological analysis of similarity and contagion. *Cultural psychology: Essays on comparative human development* (Cambridge University Press)

Rozin, P., & Nemeroff, C. (1990b). The laws of sympathetic magic: a psychological analysis of similarity and contagion.

Rozin, P., Spranca, M., Krieger, Z., Neuhaus, R., Surillo, D., Swerdlin, A., & Wood, K. (2004, Oct). Preference for natural: instrumental and ideational/moral

motivations, and the contrast between foods and medicines. *Appetite, 43*(2), 147-154. https://doi.org/10.1016/j.appet.2004.03.005

Rudski, J. M., Osei, W., Jacobson, A. R., & Lynch, C. R. (2011, Jun). Would you rather be injured by lightning or a downed power line? Preference for natural hazards. *Judgment and decision making, 6*(4), 314-322. <Go to ISI>://WOS:000292248100005

Sadalla, E. K., & Krull, J. L. (1995, May). Self-Presentational Barriers to Resource Conservation. *Environment and Behavior, 27*(3), 328-353. https://doi.org/Doi 10.1177/0013916595273004

Salkind, N. J. (2010). *Encyclopedia of research design* (Vol. 1). sage.

Sarti, S., Darnall, N., & Testa, F. (2018, Aug 10). Market segmentation of consumers based on their actual sustainability and health-related purchases. *Journal of Cleaner Production, 192*, 270-280. https://doi.org/10.1016/j.jclepro.2018.04.188

Schaller, M., & Park, J. H. (2011). The Behavioral Immune System (and Why It Matters). *Current Directions in Psychological Science, 20*(2), 99-103. https://doi.org/10.1177/0963721411402596

Schneider, D. R., & Ragossnig, A. M. (2015, Aug). Recycling and incineration, contradiction or coexistence? *Waste Manag Res, 33*(8), 693-695. https://doi.org/10.1177/0734242X15593421

Sekhon, T. S., & Armstrong Soule, C. A. (2019). Conspicuous anticonsumption: When green demarketing brands restore symbolic benefits to anticonsumers. *Psychology & Marketing, 37*(2), 278-290. https://doi.org/10.1002/mar.21299

Setia, M. S. (2016). Methodology series module 5: Sampling strategies. *Indian journal of dermatology, 61*(5), 505.

Sexton, S. E., & Sexton, A. L. (2014). Conspicuous conservation: The Prius halo and willingness to pay for environmental bona fides. *Journal of Environmental Economics and Management, 67*(3), 303-317. https://doi.org/10.1016/j.jeem.2013.11.004

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton Mifflin.

Sherman, G. D., & Clore, G. L. (2009, Aug). The color of sin: white and black are perceptual symbols of moral purity and pollution. *Psychol Sci, 20*(8), 1019-1025. https://doi.org/10.1111/j.1467-9280.2009.02403.x

Singtex. (2021). *Technology: Functional Fabrics*. Singtex.

Spence, M. (1978). Job market signaling. In *Uncertainty in economics* (pp. 281-306). Elsevier.

Stanszus, L., & Iran, S. (2015). Sustainable Fashion: From Production to Alternative Consumption. In S. O. Idowu, N. Capaldi, M. S. Fifka, L. Zu, & R. Schmidpeter (Eds.), *Dictionary of Corporate Social Responsibility CSR, Sustainability, Ethics and Governance* (1st ed. 2015. ed.). Springer International Publishing. https://doi.org/10.1007/978-3-319-10536-9

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (6 ed.). Pearson Education.

Textiles, I. i. (2018, 15th June 2018). Singtex releases new sustainable fabrics. *Innovation in Textiles*.

Thomas, S. (2008). From "Green Blur" to Ecofashion: Fashioning an Eco-lexicon. *Fashion Theory, 12*(4), 525-539. https://doi.org/10.2752/175174108x346977

Trigg, A. B. (2001). Veblen, Bourdieu, and Conspicuous Consumption. *Journal of Economic Issues, 35*(1), 99-115. https://doi.org/10.1080/00213624.2001.11506342

Tylor, E. B. (1871). *Primitive culture: Researches into the development of mythology, philosophy, religion, art and custom* (Vol. 2). J. Murray.

Veblen, T. (1973). *The theory of the leisure class*. Houghton Mifflin Boston.

Vega-Zamora, M., Torres-Ruiz, F. J., Murgado-Armenteros, E. M., & Parras-Rosa, M. (2014). Organic as a Heuristic Cue: What Spanish Consumers Mean by Organic Foods. *Psychology & Marketing, 31*(5), 349-359. https://doi.org/10.1002/mar.20699

Walker, S. (2006). *Sustainable by design explorations in theory and practice*. London ; Sterling, VA : Earthscan.

White, K., Habib, R., & Hardisty, D. J. (2019). How to SHIFT Consumer Behaviors to be More Sustainable: A Literature Review and Guiding Framework. *Journal of Marketing, 83*(3), 22-49. https://doi.org/10.1177/0022242919825649

White, K., Lin, L., Dahl, D. W., & Ritchie, R. J. B. (2016). When Do Consumers Avoid Imperfections? Superficial Packaging Damage as a Contamination Cue. *Journal of Marketing Research, 53*(1), 110-123. https://doi.org/10.1509/jmr.12.0388

White, K., & Simpson, B. (2013). When Do (and Don't) Normative Appeals Influence Sustainable Consumer Behaviors? *Journal of Marketing, 77*(2), 78-95. https://doi.org/10.1509/jm.11.0278

Zelezny, L. C., & Schultz, P. W. (2000). Psychology of Promoting Environmentalism: Promoting Environmentalism. *Journal of social issues, 56*(3), 365-371. https://doi.org/10.1111/0022-4537.00172

Zhong, C.-B., Strejcek, B., & Sivanathan, N. (2010). A clean self can render harsh moral judgment. *Journal of Experimental Social Psychology, 46*(5), 859-862. https://doi.org/10.1016/j.jesp.2010.04.003

Appendices

Appendix A

Demographic and individual differences measures

Demographic measures
Age
How old are you?
- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- 75-84 years old
- 85 + years old
Gender
What is your gender?
- Male
- Female
- Other_____
- Prefer not to say

Employment status

What best describes your employment status?

- Full-time employed

- Part-time employed

- Causally employed

- Studying

- Retired

- Not working

- Home duties

Education level

What best describes the highest level of education you have completed?

- Postgraduate Degree

- Graduate Diploma/Graduate Certificate

- Bachelor Degree

- Advanced Diploma/Diploma

- Certificate III/IV

- Year 12 or equivalent

- Year 11

- Year 10

- Below Year 10

Individual difference measures

Status Consumption

7-point Likert scale (1 = strongly disagree and 7 = strongly agree)

1. I would buy a product just because it has status.

2. I am interested in new products with status.

3. I would pay more for a product if it had status.

4. The status of a product is irrelevant to me.

5. A product is more valuable to me if it has some snob appeal.

Fashion Consciousness

7-point Likert scale (1 = strongly disagree and 7 = strongly agree)

1. I usually have one or more outfits of the newest style.

2. I keep my wardrobe up to date with the changing fashions.

3. Fashionable, attractive styling is very important to me.

Environmental Concern

7-point Likert scale (1 = strongly disagree and 7 = strongly agree)

1. I make a special effort to buy products that are made of sustainable materials.

2. I have changed which products I use because of sustainability reasons.

3. I have avoided buying a product because it had potentially harmful effects to people/or the environment.

Disgust/Contamination Sensitivity

Please indicate how much you agree with each of the following statements, or how true it is about you:

1 = Strongly disagree (very untrue about me) 2 = Mildly disagree (somewhat untrue about me) 3 = Mildly agree (somewhat true about me) 4 = Strongly agree (very true about me)

1. I try to avoid letting any part of my body touch the toilet seat in a public restroom, even when it appears clean.

2. It would make me uncomfortable to hear a couple making love in the next room of a hotel.

3. It would bother me tremendously to touch a dead body.

4. Even if I was hungry, I would not drink a bowl of my favourite soup if it had been stirred by a used but thoroughly washed fly-swatter.

How disgusting would you find each of the following experiences?

(If you think some-thing is bad or unpleasant, but not disgusting, you should indicate "1".)

1 = Not disgusting at all, 2 = Slightly disgusting, 3 = Moderately disgusting, 4 = Very disgusting

1. You take a sip of soda and then realize that you picked up the wrong can, which a stranger had been drinking out of.

2. You hear about a 30-year-old man who seeks sexual relationships with 80-year-old women.

3. While you are walking through a tunnel under a railroad track, you smell urine.

4. You accidentally touch the ashes of a person who has been cremated.

Appendix B

Survey Participant Information and Consent Form

QUT

	PARTICIPANT INFORMATION FOR QUT RESEARCH PROJECT – Survey –

Consumer responses to sustainable clothing

QUT Ethics Approval Number 2000000916

Research team

Principal Researcher:	Miss Tsoi Ying Chau (Trinity)	MPhil Student
Associate Researchers:	Dr Lisa Schuster	Principal Supervisor
	Associate Professor Dominique Greer	Associate Supervisor

School of Advertising, Marketing and Public Relations
QUT Business School
Queensland University of Technology (QUT)

Why is the study being conducted?

This research project is being undertaken as part of a Master of Philosophy degree for Chau Tsoi Ying (Trinity).

The purpose of this research project is to examine what consumers think about, and how they feel about, clothing made of recycled waste. This project also examines whether symbols, specifically a logo, can communicate information about the extent that clothing is environmentally sustainable.

You are invited to participate in this research project because you are over 18 years old.

What does participation involve?

Participation will involve completing an online survey with up to 73 Likert scale type questions (e.g. 1-Completely disagree to 7- Completely agree) that will take up to 10 minutes of your time. There are nine versions of this online survey, but you will be asked to complete only one.

Questions will include:
1. I make a special effort to buy products that are made of sustainable materials.
2. I would buy a product just because it has status.
3. I try to avoid letting any part of my body touch the toilet seat in a public restroom, even when it appears clean.

Your participation in this research project is entirely voluntary. Your decision to participate or not participate will in no way impact upon your current or future relationship with QUT. If you do agree to participate you can withdraw from the research project during your participation without comment or penalty. Partially completed surveys will not be included in the analysis. However, as the survey does not request any personal identifying information once it has been submitted it will not be possible to withdraw.

What are the possible benefits for me if I take part?

It is expected that this research project will not offer direct benefits to you to beyond the compensation you receive for your time from Dynata in accordance with Dynata's policies. The outcomes of the research, however, may benefit sustainable clothing marketers through improved knowledge of sustainable product design and communication around these products. You can request a brief

summary of the outcomes of the study, available by February 2021, by emailing the principal researcher Chau Tsoi Ying (Trinity)(tsoiying.chau@hdr.qut.edu.au).

What are the possible risks for me if I take part?

There is one identified risk associated with your participation in this research project. You may experience discomfort, specifically feel disgust, when answering questions about your perception of clothing made from recycled waste. To minimise discomfort, the survey does not show any images of waste. The images shown will only be of the fully manufactured clothing, with a description provided of the materials from which it is made.

Some participants may feel discomfort when answering questions designed to measure their disgust sensitivity. For example, participants are asked to respond on a scale of Strongly disagree (very untrue about me) to Strongly agree (very true about me) to the statement: 'It would bother me tremendously to touch a dead body'.

QUT provides for limited free psychology, family therapy or counselling services for research participants of QUT research projects who may experience discomfort or distress as a result of their participation in the research. Should you wish to access this service please call the Clinic Receptionist on **07 3138 0999** (Monday–Friday only 9am–5pm), QUT Psychology and Counselling Clinic, 44 Musk Avenue, Kelvin Grove, and indicate that you are a research participant. Alternatively, Lifeline provides access to online, phone or face-to-face support, call **13 11 14** for 24 hour telephone crisis support. If you are aged up to 25, you can also call the Kids Helpline on **1800 551 800**.

What about privacy and confidentiality?

All comments and responses are anonymous i.e. it will not be possible to identify you at any stage of the research, because personal identifying information is not sought in any of the responses.

Any data collected as part of this research project will be stored securely as per QUT's Management of research data policy. Data will be stored for a minimum of 5 years, and can be disclosed if it is to protect you or others from harm, if specifically required by law, or if a regulatory or monitoring body such as the ethics committee requests it.

The research project is funded by the QUT Master of Philosophy program.

How do I give my consent to participate?

The submission or return of the completed survey is accepted as an indication of your consent to participate in this research project.

What if I have questions about the research project?

If you have any questions or require further information, please contact:

Tsoi Ying Chau (Trinity)	tsoiying.chau@hdr.qut.edu.au	
Dr Lisa Schuster	lisa.schuster@qut.edu.au	+ 61 7 3138 2646
Associate Professor Dominique Greer	dominique.greer@qut.edu.au	+ 61 7 3138 2987

What if I have a concern or complaint regarding the conduct of the research project?

QUT is committed to research integrity and the ethical conduct of research projects. If you wish to discuss the study with someone not directly involved, particularly in relation to matters concerning policies, information or complaints about the conduct of the study or your rights as a participant, you may contact the QUT Research Ethics Advisory Team on 3138 5123 or email humanethics@qut.edu.au.

→

<p style="text-align:center">Appendix C</p>

<p style="text-align:center">Template of Study 1 Online Survey</p>

***Note: Words surrounded by [] are not shown to participants

[Page 1]

[Participation information and consent form]

[Page 2]

Imagine the t-shirt below is a new product being developed by a clothing company that specialises in making textiles from recycled waste. The company is seeking feedback from consumers on this new product.

Please take a minute to read the information about this product carefully:

[Participants are shown one of four randomly assigned t-shirts, each made from a different type of recycled waste]

[Page 2 continue.]

Classic T-Shirt

Made with recycled waste:
80% used coffee grounds

Standard sizing
Doubling stitching
Comes in a variety of colors
(shown in Grey)

Classic T-Shirt

Made with recycled waste:
80% pre-worn cotton

Standard sizing
Doubling stitching
Comes in a variety of colors
(shown in Grey)

Classic T-Shirt

Made with recycled waste:
80% used plastic bottles

Standard sizing
Doubling stitching
Comes in a variety of colors
(shown in Grey)

Classic T-Shirt

Made with recycled waste:
80% pre-worn polyester

Standard sizing
Doubling stitching
Comes in a variety of colors
(shown in Grey)

[Page 3]

[Scale: Attractiveness]

Please rate the t-shirt on the following attributes:

7-point semantic-differential scale

1. Attractive/not attractive
2. Beautiful/not beautiful
3. Likable/not likable
4. Interesting/not interesting
5. Pleasing/not pleasing
6. Appealing/not appealing

[Scale: Contamination 2]

Please rate the t-shirt that you saw:

7-point semantic differential scale

7. Contaminated/Pure
8. Dirty/Clean
9. Artificial/Natural
10. Dangerous/Safe

[Attention Check: Material]

What material was the t-shirt primarily made from?

- Pre-worn cotton

- Pre-worn polyester

- Viscose

- Used plastic bottles

- Used coffee grounds

- Used orange peels

- Discarded tires

- No mention of material

[Realism Check: Recycled waste]

How realistic is it that the t-shirt is primarily made from this material?

Unrealistic (1) – Realistic (7)

[Manipulation Check: Organic vs Inorganic]

How natural is the recycled waste that the t-shirt is made from?

Artificial (1) – Natural (7)

[Manipulation Check: Fit for purpose]

How fit for purpose is the recycled waste that the t-shirt is made from?

Not fit for purpose (1) – Fit for purpose (7)

[Page 4]

[Demographic Questions]

Please tell us more about you. Select the option that best describes your situation:

How old are you?

- 18-24 years old

- 25-34 years old

- 35-44 years old

- 45-54 years old

- 55-64 years old

- 65-74 years old

- 75-84 years old

- 85 + years old

What is your gender?

- Male

- Female

- Other_____

- Prefer not to say

What best describes your employment status?

- Full-time employed

- Part-time employed

- Causally employed

- Studying

- Retired

- Not working

- Home duties

What best describes the highest level of education you have completed?

- Postgraduate Degree

- Graduate Diploma/Graduate Certificate

- Bachelor Degree

- Advanced Diploma/Diploma

- Certificate III/IV

- Year 12 or equivalent

- Year 11

- Year 10

- Below Year 10

Please answer the following questions about you:

[Scale: Status Consumption]

7-point Likert scale (Strongly Disagree (1) - Strongly Agree (7))

1. I would buy a product just because it has status.

2. I am interested in new products with status.

3. I would pay more for a product if it had status.

4. The status of a product is irrelevant to me.

5. A product is more valuable to me if it has some snob appeal.

[Scale: Fashion Consciousness]

7-point Likert scale (1 = strongly disagree and 7 = strongly agree)

6. I usually have one or more outfits of the newest style.

7. I keep my wardrobe up to date with the changing fashions.

8. Fashionable, attractive styling is very important to me.

[Scale: Environmental Concern]

7-point Likert scale (1 = strongly disagree and 7 = strongly agree)

9. I make a special effort to buy products that are made of sustainable materials.

10. I have changed which products I use because of sustainability reasons.

11. I have avoided buying a product because it had potentially harmful effects to people/or the environment.

[Scale: Disgust/Contamination Sensitivity]

Please indicate how much you agree with each of the following statements, or how true it is about you:

1 = Strongly disagree (very untrue about me) 2 = Mildly disagree (somewhat untrue about me) 3 = Mildly agree (somewhat true about me) 4 = Strongly agree (very true about me)

1. I try to avoid letting any part of my body touch the toilet seat in a public restroom, even when it appears clean.
2. It would make me uncomfortable to hear a couple making love in the next room of a hotel.
3. It would bother me tremendously to touch a dead body.
4. Even if I was hungry, I would not drink a bowl of my favourite soup if it had been stirred by a used but thoroughly washed fly-swatter.

How disgusting would you find each of the following experiences?

(If you think some-thing is bad or unpleasant, but not disgusting, you should indicate "1".)

1 = Not disgusting at all, 2 = Slightly disgusting, 3 = Moderately disgusting, 4 = Very disgusting

11. You take a sip of soda and then realize that you picked up the wrong can, which a stranger had been drinking out of.
12. You hear about a 30-year-old man who seeks sexual relationships with 80-year-old women.
13. While you are walking through a tunnel under a railroad track, you smell urine.
14. You accidentally touch the ashes of a person who has been cremated.

[Page 6]

Thank you for completing this survey.

Appendix D

Template of Study 2 Online Survey

***Note: Words surrounded by [] are not shown to participants**

[Page 1]

[Participation information and consent form]

[Page 2]

Imagine the t-shirt below is a new product being developed by a clothing company.

The company is seeking feedback from consumers on this new product.

Please take a minute to look at this product carefully:

[Page 2 continue]

Please answer the following questions about the t-shirt you just saw:

[Scale: Environmental Consciousness]

7-point Likert scale (1 = not at all and 7 = very much)

1. People would think that I care about the environment if they saw me wearing this t-shirt.

2. People would think that I buy environmentally friendly products if they saw me wearing this t-shirt.

[Page 3]

[Scale: Attractiveness]

Please rate the t-shirt on the following attributes:

7-point semantic-differential scale

3. Attractive/not attractive
4. Beautiful/not beautiful
5. Likable/not likable
6. Interesting/not interesting
7. Pleasing/not pleasing
8. Appealing/not appealing

[Scale: Contamination 2]

Please rate the t-shirt that you saw:

7-point semantic differential scale

9. Contaminated/Pure
10. Dirty/Clean
11. Artificial/Natural
12. Dangerous/Safe

[Page 4]
[Attention Check: Material]

1. What material was the t-shirt primarily made from?

- Pre-worn cotton

- Pre-worn polyester

- Viscose

- Used plastic bottles

- Used coffee grounds

- Used orange peels

- Discarded tires

- No mention of material

[Attention Check: Logo]

Please check the most appropriate box below:

The logo on the t-shirt you viewed included:

- A flower

- The earth

- A heart

- Circular arrows

- There was no logo on the t-shirt

[Realism Check: Recycled waste]

1. How realistic is it that the t-shirt is primarily made from this material?

   Unrealistic (1) – Realistic (7)

[Manipulation Check: Organic vs Inorganic]

2. How natural is the recycled waste that the t-shirt is made from?

   Artificial (1) – Natural (7)

[Manipulation Check: Fit for purpose]

3. How fit for purpose is the recycled waste that the t-shirt is made from?

   Not fit for purpose (1) – Fit for purpose (7)

Please tell us more about you. Select the option that best describes your situation:

How old are you?

- 18-24 years old

- 25-34 years old

- 35-44 years old

- 45-54 years old

- 55-64 years old

- 65-74 years old

- 75-84 years old

- 85 + years old

What is your gender?

- Male

- Female

- Other_____

- Prefer not to say

What best describes your employment status?

- Full-time employed

- Part-time employed

- Causally employed

- Studying

- Retired

- Not working

- Home duties

What best describes the highest level of education you have completed?

- Postgraduate Degree

- Graduate Diploma/Graduate Certificate

- Bachelor Degree

- Advanced Diploma/Diploma

- Certificate III/IV

- Year 12 or equivalent

- Year 11

- Year 10

- Below Year 10

[Page 5 continue]

Please answer the following questions about you:

[Scale: Status Consumption]

7-point Likert scale (Strongly Disagree (1) - Strongly Agree (7))

1. I would buy a product just because it has status.

2. I am interested in new products with status.

3. I would pay more for a product if it had status.

4. The status of a product is irrelevant to me.

5. A product is more valuable to me if it has some snob appeal.

[Scale: Fashion Consciousness]

7-point Likert scale (1 = strongly disagree and 7 = strongly agree)

6. I usually have one or more outfits of the newest style.

7. I keep my wardrobe up to date with the changing fashions.

8. Fashionable, attractive styling is very important to me.

[Scale: Environmental Concern]

7-point Likert scale (1 = strongly disagree and 7 = strongly agree)

9. I make a special effort to buy products that are made of sustainable materials.

10. I have changed which products I use because of sustainability reasons.

11. I have avoided buying a product because it had potentially harmful effects to people/or the environment.

[Scale: Disgust/Contamination Sensitivity]

Please indicate how much you agree with each of the following statements, or how true it is about you:

1 = Strongly disagree (very untrue about me) 2 = Mildly disagree (somewhat untrue about me) 3 = Mildly agree (somewhat true about me) 4 = Strongly agree (very true about me)

1. I try to avoid letting any part of my body touch the toilet seat in a public restroom, even when it appears clean.
2. It would make me uncomfortable to hear a couple making love in the next room of a hotel.
3. It would bother me tremendously to touch a dead body.
4. Even if I was hungry, I would not drink a bowl of my favourite soup if it had been stirred by a used but thoroughly washed fly-swatter.

How disgusting would you find each of the following experiences?
(If you think some-thing is bad or unpleasant, but not disgusting, you should indicate "1".)

1 = Not disgusting at all, 2 = Slightly disgusting, 3 = Moderately disgusting, 4 = Very disgusting

5. You take a sip of soda and then realize that you picked up the wrong can, which a stranger had been drinking out of.
6. You hear about a 30-year-old man who seeks sexual relationships with 80-year-old women.
7. While you are walking through a tunnel under a railroad track, you smell urine.
8. You accidentally touch the ashes of a person who has been cremated.

[Page 6]

Thank you for completing this survey.

Template of Pilot Study Online Survey

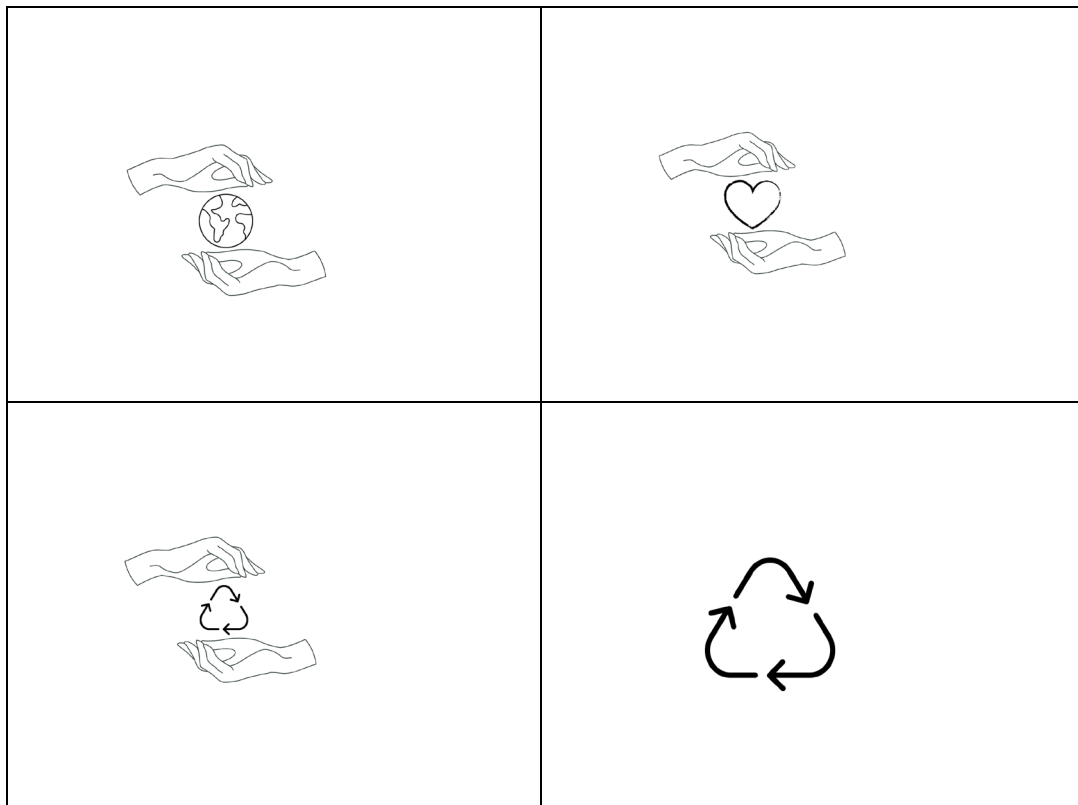*****Note: Words surrounded by [] are not shown to participants**

[Page 1]
[Final Information Sheet]

[Page 2]
Imagine a company is designing a logo for a new product line (shown below) and they want to know what comes to mind when people see it.

[Participants are shown one of the following four randomly assigned symbols]

1. **Please describe what this logo means to you when you see it:**

_____

[Page 3]

Imagine the t-shirt below is a new product being developed by a clothing company.

The company is seeking feedback from consumers on this new product.

Please take a minute to look at this product carefully:

[Participants are shown one of four t-shirts with the same logo viewed above]

Please answer the following questions about the t-shirt you just saw:

[Scale: Prestige of Consuming the Product]

7-point Likert scale (1= Strongly disagree and 7 – strongly agree)

1. By wearing this t-shirt, I would make a good impression.
2. By wearing this t-shirt, I would satisfy the expectations of others.
3. If I wore this t-shirt, I would be valued by others.

[Scale: Socioeconomic status]

7-point Likert scale (1 = not at all and 7 = very much)

4. People would think that I have high status if they saw me wearing this t-shirt.
5. People would respect me if they saw me wearing this t-shirt.
6. People would think that I am rich if they saw me wearing this t-shirt.
7. People would think that I have a lot of money if they saw me wearing this t-shirt.

[Scale: Environmental Consciousness]

7-point Likert scale (1 = not at all and 7 = very much)

8. People would think that I care about the environment if they saw me wearing this t-shirt.
9. People would think that I buy environmentally friendly products if they saw me wearing this t-shirt.

[Scale: Affective Attitude (Social)]

7-point Likert scale (1 = not at all and 7 = very much)

10. Wearing this t-shirt would help me to feel acceptable.
11. Wearing this t-shirt would improve the way I am perceived.
12. Wearing this t-shirt would make a good impression on other people.
13. Wearing this t-shirt would give its owner social approval.

[Attention Check]

Please check the most appropriate box below:

The logo on the t-shirt you viewed included:

- A flower
- The earth
- A heart
- Circular arrows
- There was no logo on the t-shirt

[Page 4]

[Demographic Questions]

Please tell us more about you. Select the option that best describes your situation:

How old are you?

- 18-24 years old

- 25-34 years old

- 35-44 years old

- 45-54 years old

- 55-64 years old

- 65-74 years old

- 75-84 years old

- 85 + years old

What is your gender?

- Male

- Female

- Other_____

- Prefer not to say

What best describes your employment status?

- Full-time employed

- Part-time employed

- Causally employed

- Studying

- Retired

- Not working

- Home duties

What best describes the highest level of education you have completed?

- Postgraduate Degree

- Graduate Diploma/Graduate Certificate

- Bachelor Degree

- Advanced Diploma/Diploma

- Certificate III/IV

- Year 12 or equivalent

- Year 11

- Year 10

- Below Year 10

[Page 5]

Please answer the following questions about you:

[Scale: Status Consumption]

7-point Likert scale (Strongly Disagree (1) - Strongly Agree (7))

1. I would buy a product just because it has status.

2. I am interested in new products with status.

3. I would pay more for a product if it had status.

4. The status of a product is irrelevant to me.

5. A product is more valuable to me if it has some snob appeal.

[Scale: Fashion Consciousness]

7-point Likert scale (1 = strongly disagree and 7 = strongly agree)

1. I usually have one or more outfits of the newest style.

2. I keep my wardrobe up to date with the changing fashions.

3. Fashionable, attractive styling is very important to me.

[Scale: Environmental Concern]

7-point Likert scale (1 = strongly disagree and 7 = strongly agree)

1. I make a special effort to buy products that are made of sustainable materials.

2. I have changed which products I use because of sustainability reasons.

3. I have avoided buying a product because it had potentially harmful effects to people/or the environment.

[Scale: Disgust/Contamination Sensitivity]

Please indicate how much you agree with each of the following statements, or how true it is about you:

1 = Strongly disagree (very untrue about me) 2 = Mildly disagree (somewhat untrue about me) 3 = Mildly agree (somewhat true about me) 4 = Strongly agree (very true about me)

1. I try to avoid letting any part of my body touch the toilet seat in a public restroom, even when it appears clean.
2. It would make me uncomfortable to hear a couple making love in the next room of a hotel.
3. It would bother me tremendously to touch a dead body.
4. Even if I was hungry, I would not drink a bowl of my favourite soup if it had been stirred by a used but thoroughly washed fly-swatter.

How disgusting would you find each of the following experiences?
(If you think some-thing is bad or unpleasant, but not disgusting, you should indicate "1".)

1 = Not disgusting at all, 2 = Slightly disgusting, 3 = Moderately disgusting, 4 = Very disgusting

5. You take a sip of soda and then realize that you picked up the wrong can, which a stranger had been drinking out of.
6. You hear about a 30-year-old man who seeks sexual relationships with 80-year-old women.
7. While you are walking through a tunnel under a railroad track, you smell urine.
8. You accidentally touch the ashes of a person who has been cremated.

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Thank you for completing this survey.