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Fashion and sustainable purchasing

Abstract

How can we persuade consumers to adopt more sustainable purchasing practices (e.g. buying less, buying sustainable items, or choosing for sustainable brands) when it comes to fashion products? With the support of 2nd year International Business Management students, we collected data from 1008 respondents, mostly from Millennials and Generation Z. Based on the results, we conclude that concern about the environment motivates consumers to purchase more sustainable fashion products, in particular when reminded of its positive impact. Consumers who are less concerned about the environment can be persuaded to choose the sustainable option when sustainable choices are widely available, when items are competitively priced, and when second-hand garments look like new. This research gives direction to further identification and exploration of the triggers that can persuade consumers to consume more sustainable.

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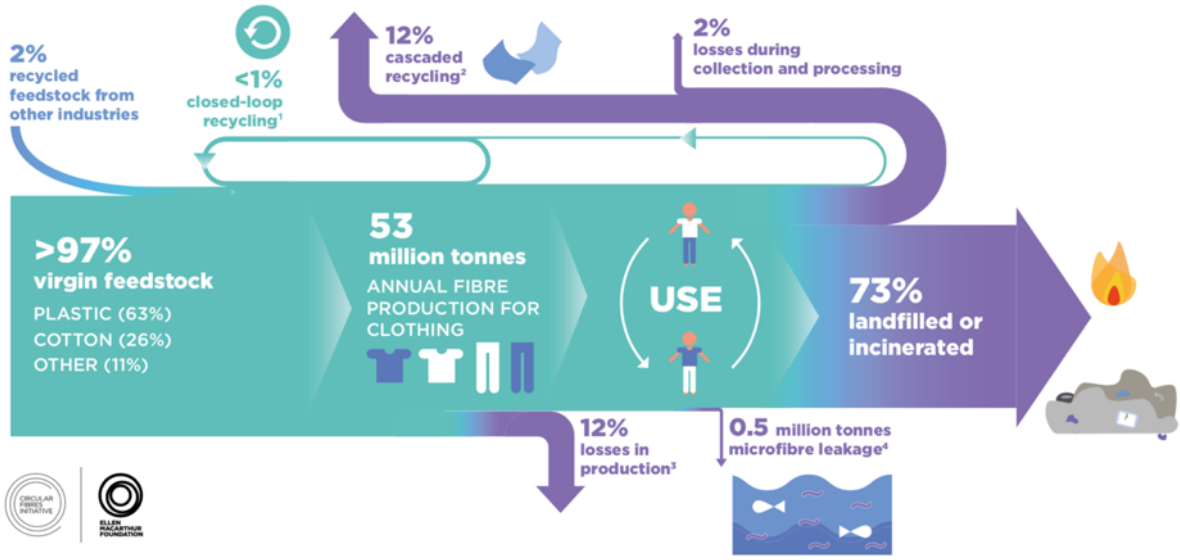
1 Introduction

Maybe not known to all, but the fashion industry is one of the least sustainable industries. In the first place, this industry is the second highest user of water worldwide. To produce a single cotton shirt 2700 litres of water is required, equalling the amount of water a single person consumes in 2.5 years (Chapagain, Hoekstra, Savenije, & Gautam, 2005; Hoekstra & Mekonnen, 2011). The water footprint of human-made fibres such as polyester and viscose outweighs that of cotton and these are therefore not the better choice with regard to water use (Freitas, Zhang, & Mathews, 2017). In addition, based on a study in Bangladesh by the World Bank (2014), the fashion industry is responsible for 20 per cent of global industrial wastewater.

In the second place, with its emission of 1.2 billion tonnes of CO_2 equivalent per year throughout its lifecycle, the fashion industry is regarded as one of the most polluting industries (Ellen MacArthur Foundation, 2017). In the third place, fast fashion, combined with cheap production, has encouraged consumers to dispose of their unwanted (less fashionable) clothes at an ever-increasing rate. Of the materials used to produce clothes, 73% end up in a landfill or incinerator, with only 15% of the clothes being recycled into clothes or downcycled (e.g. cleaning cloths, insulation material) (see figure 1).

Figure 1 Global material flows of clothing in 2015 (Ellen MacArthur Foundation, 2017)



1 Recycling of clothing into the same or similar quality applications
2 Recycling of clothing into other, lower-value applications such as insulation material, wiping cloths, or mattress stuffing
3 Includes factory offcuts and overstock liquidation
4 Plastic microfibres shed through the washing of all textiles released into the ocean

Source: Circular Fibres Initiative analysis – for details see Appendix B

Lastly, the fashion industry is associated with labour, gender and poverty issues, which became widely known to the public as a result of the fire at the Rana Plaza complex in Bangladesh in 2013, where hundreds of garment workers died in a building being used illegally as a 'sweatshop', and other related incidents (Nature Climate Change, 2018).

In other words, the current linear organisation of the industry helps consumers to express their individuality, at the expense of negative social and environmental impacts throughout the lifecycle of a garment. In Europe, annual garment sales are expected to total € 86 billion in 2022, based on an annual growth rate of around 2.5% (MarketLine, 2018). Extrapolating this growth rate to textile

consumption and waste production creates an urgent case for reducing the virgin feedstock of materials and the material that is either landfilled or incinerated.

Consumers influence the environmental impact of the industry through their purchasing behaviour when buying fashion products, their usage and maintenance of clothing items, and their ways of disposing of items at the end of their lifecycle. With the increasing visibility of the impacts of climate change, sourcing executives in the fashion industry expect consumers to become more sensitive to these negative consequences (Andersson et al., 2018). Indeed, 44% of the respondents in a McKinsey study on fashion trends predicted the end of fashion ownership (McKinsey Company, 2019). The industry has not reached that point yet. According to the Ellen MacArthur Foundation (2017), only 1% of the feedstock is recycled into clothes. More items are being purchased, but they are being worn much less. Worldwide, the number of times a garment is worn has decreased by 36% compared to 15 years (Ellen MacArthur Foundation, 2017). In other words, changing consumer behaviour towards greater sustainability is a pre-requisite for improving the sustainability of the fashion industry.

In this research we focus on sustainable purchasing, which is defined as those purchasing decisions that result in a lower environmental impact, for instance by buying less, buying garments made up of a single material (i.e. mono *materials)*, buying ecological brands, buying organic materials, buying second-hand, swapping or borrowing from libraries.

The main question guiding this research is:

How could consumers be persuaded to include sustainability criteria when purchasing clothes?

a) What is the current purchasing pattern of consumers when purchasing clothes?
b) What kind of criteria are important to consumers when purchasing clothes?
c) How are these purchasing criteria related to sustainable consumption practices?

The next chapter describes the research approach.

2 Research approach

2.1 Theoretical background

Sustainable purchasing

Sustainable purchasing has been comprehensively defined in terms of using goods and services that improve the quality of life and minimize the negative effects in terms of resource usage, and emissions of waste over the lifecycle of a product (Kilbourne, McDonagh, & Prothero, 1997), or more generally as in the procurement of products that possess social, economic and environmentally-friendly attributes (De Pelsmacker, Driesen, & Rayp, 2005). Based on these definitions, sustainable purchasing in this study is defined as consumer decisions to purchase environmentally-friendly brands, choose clothes that are produced using environmentally-friendly principles (plant-based materials, recycled material, little or no dye, low washing temperatures), or that lower the consumption of new items (second-hand clothes, less fashionable items, and buying only what is necessary).

Consumer-related factors

On average consumers in the Netherlands spend approximately 5.4% of their income on clothing (EUROSTAT, 2019). Compared with some other European countries, they are the least interested in purchasing second-hand clothing (Gray, 2017), meaning that most purchases are new items. On average consumers in the Netherlands purchase 14 kg of clothing per capita per year, which is higher than a fashion-conscious country such as France, which has an average purchase of 9.2 kg (ECAP, 2018).

Research into consumer related factors with regards to sustainable purchasing show that consumers differ in the importance they attach to sustainable purchasing, their knowledge on climate change, and their willingness to change behaviour.

Using environmental concerns, ideas about sustainable consumption, and past behaviour, McNeil & Moore (2015), developed three different consumer profiles. *'Self'* consumers, who regard fashion as central to their expression and place emphasis on newness and associate sustainable fashion with musty smells and uncomfortable materials. *'Social'* consumers who care about their social image and are willing to adopt sustainable practices, but not at all costs. *'Sacrifice'* consumers, who wish to reduce their ecological footprint and look actively for behaviour that supports this goal. Contrary to what is commonly assumed, environmental knowledge does not necessarily support behavioural change (McNeill & Moore, 2015).

Another study by Hofstede (2018) used the dimensions climate awareness and sustainable behaviour as and found that 8% of respondents were unaware of climate change and did not change their behaviour; 19% were aware but not willing to change; and 58% were aware, and willing to make some changes. Finally, 16% were aware and behaved accordingly. Young respondents (18-29 years old) were typically more unaware and unwilling to change behaviour as compared with older respondents.

Final, Johnstone and Lindh (2018) found evidence that awareness of sustainability issues increases with age.

Factors related to brands

Fast fashion brands have employed aggressive cost-cutting practices and streamlined their supply chains, without paying much attention to sustainability. Brands contribute to fast fashion consumption by increasing the number of new collections per year, while consumers keep up with the

changes and refresh their wardrobes frequently. Zara, for instance, offers 24 new collections per year; H&M is following with 12 to 16 collections (Remy, Speelman, & Swartz, 2016). Furthermore, compared with the prices of other consumer goods, prices of clothing have risen much slower (Kerr & Landry, 2017).

As a result, clothes are thrown away after wearing them on average 7-8 times only (McKinsey Company, 2019).

Models for changing behaviour

The theory of planned behaviour (TPB) proposed by Ajzen (1988) is one of the most frequently used models to investigate behavioural change, including sustainable purchasing decisions concerning fashion items. The theory proposes that behaviour change is brought about by an intention to change, which in turn is influenced by a person's attitude, subjective norms, and perceived behavioural control (see Appendix 1). The subjective norms refer to the individual's perception that the behaviour is endorsed; attitude concerns the individual's evaluation of performing a specific behaviour, while perceived behavioural control reflects the idea of the individual to be able to exert control over that behaviour (Ajzen, 1991, p. 181).

A meta-analysis of this theory involving 187 empirical tests (Armitage & Conner, 2001), supports the efficacy of the model. Attitude, subjective norms and perceived behavioural control can explain 39% of the variance, while intentions explain 22% of the behaviour displayed. Subjective norms appeared to be the weaker component in the model, according to some researchers due to the way they are measured. When operationalized along the lines of social identity, and important reference groups, group norms and intergroup perceptions appeared as important predictors of the intention to engage in sustainability (Fielding, Terry, Masser, & Hogg, 2008; Liobikienė, Mandravickaitė, & Bernatonienė, 2016). Research involving purchase intention found that this is influenced by product knowledge, the extent to which consumers believe that their sustainable behaviour matters, and the perceived personal relevance of sustainability (Kang, Liu, & Kim, 2013). Also the availability of sustainable products and the price of these products influence purchase intentions (Chang & Watchravesringkan, 2018).

Critique of the TPB focuses on three aspects. A major question concerns the predictive value of intentions with regards to the actual behaviour. Secondly, most research uses self-reports, and these results may overrate actual individual behaviour. Finally, the norms in the framework insufficiently address social influence, or the endorsement of behaviour by trusted sources such as friends, family and peers when making purchasing decisions (Terry, Hogg, & White, 1999; White, Smith, Terry, Greenslade, & McKimmie, 2009). Finally, within the context of fashion, it should be noted that fast fashion purchasing tends to be impulsive rather than planned.

A model that addresses social and unplanned behavioural aspects concerns the BJ Fogg model (Fogg, 2009), which was developed within the context of online behaviour. This model is built with three constructs, namely motivator(s), simplicity/ability factor(s), and trigger(s) (see figure 2).

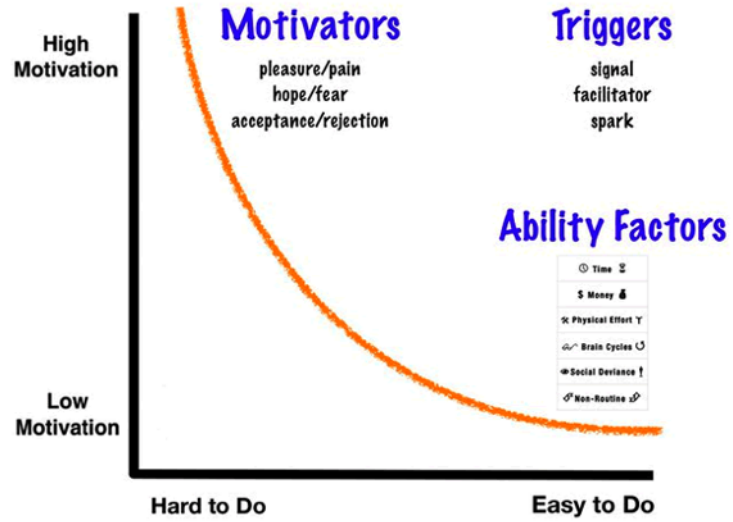
Core motivators include pleasure or pain, hope and fear (with hope being the anticipation of a good outcome), and finally, social acceptance/rejection, which is proposed as the strongest motivator.

The ability factors or simplicity factors might encourage individuals to perform a specific behaviour, and relate to the time taken to perform the behaviour, money, physical effort, brain cycles (the desired target behaviour needs to be easy to grasp), social deviance (by 'going against the grain'), the

target behaviour should feel like a routine, meaning that it does not involve much thought. According to the model, motivation and simplicity factors can be high or low and even compensate each other.

Ultimately, a trigger acts as a prompt for a change in behaviour to occur. There are three types of trigger, namely a spark (a motivator for behaviour), a facilitator (which makes the behaviour appear more effortless), or a signal (a reminder of the desired behaviour). Which type of trigger prompts the desired behaviour depends upon the motivation of each individual. When motivation is lacking, then the trigger needs to be designed in tandem with an element that acts as a motivator. The facilitator is an effective trigger when the individual lacks the ability to perform the behaviour. Finally, the signal works best when the individual is and motivated and able to perform the behaviour.

Figure 2 BJ Fogg Model of persuasive design (Fogg, 2009)



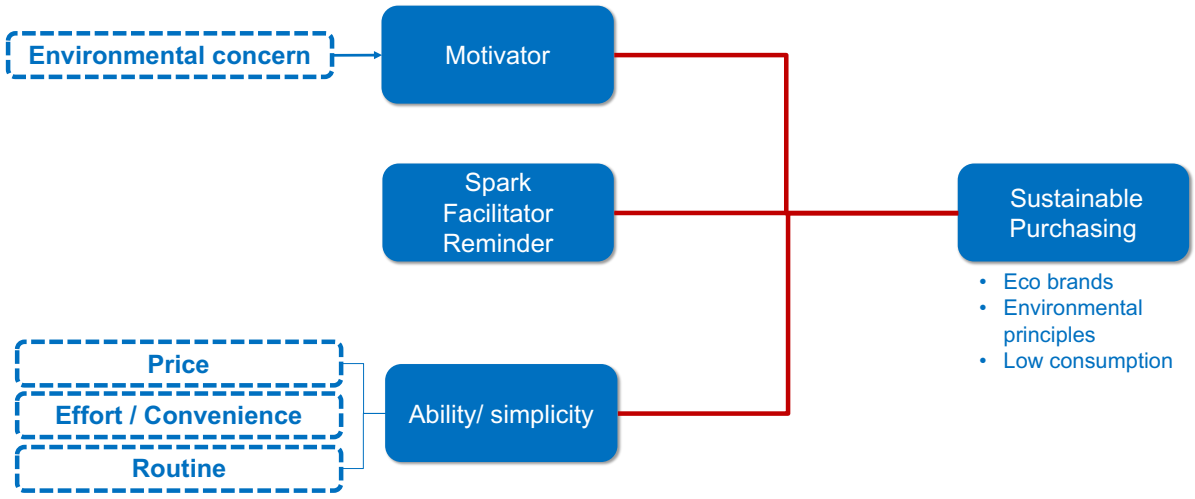
In light of the critique on the theory of planned behaviour, this study adopts the model of BJ Fogg to investigate unplanned behaviour.

In this study, motivators, ability (simplicity) factors and triggers are the independent variables, while sustainable purchasing is the dependent variable.

In this study, motivators are operationalised using hope and fear, or a concern for the environment. The simplicity (ability) factors include price, effort (convenience and accessibility of sustainable products), and aspects that ease purchasing decision-making. Triggers in this research are signals or reminders of the positive environmental impact of the garment, the trigger spark consists of price and the offering of special items, and facilitators as a trigger consists of access, availability of items and the behaviour of friends and family.

Sustainable purchasing consists of purchasing less, purchasing environmental products, or purchasing environmental brands.

Figure 3 Conceptual framework sustainable purchasing



2.2 Data collection

This study is part of a more extensive research programme involving 319 2nd year students of the International Business & Management programme of the Rotterdam University of Applied Sciences, who collected the data as part of a quantitative research methods module for second year students.

In total, the students collected 1130 responses in October 2019. To improve data quality, all cases with missing student numbers, missing email addresses of respondents' email, questionnaires that were administered abroad, or those which had missing data on the verification items, were eliminated. The result was a dataset of 1008 usable responses.

The data was collected via face to face interviews in public places such as department stores, the central station, subways, or busy shopping areas (51,5%), by going from door to door (11,2%) or via the telephone (37,3%). Most of the responses were collected in Rotterdam (45,7%) and the Metropolitan Region of Den Haag and Rotterdam (12,7%), the remainder of the responses were collected elsewhere in the Netherlands. The answers were entered into an online survey program called Evasys©.

Sample description

Information was collected on gender, age, level of education, and household composition or living status. Table 1 describes the sample.

In this sample, 63% of the respondents belong to Generation Z, which is anyone born between 1997 and 2012 (Dimock, 2019), probably because the students mostly recruited respondents within their own cohort. As a result, the conclusions drawn from this research are limited to this sample and cannot be generalised to, for instance, the citizens of the municipality in Rotterdam.

Table 1 Sample composition

Gender	Count	%	Cummulative
- Male	524	47%	47%
- Female	583	52%	99%
- Other	6	1%	100%
Total	**1113**	**100%**	

Agegroup	Count	%	Cumulative
Younger than 18	72	7%	7%
18-22 years	612	56%	63%
23-33 years	204	16%	79%
34-53 years	134	12%	91%
54-64 years	68	6%	97%
Older than 65 years	28	3%	100%
I rather not tell	2	0%	100%
Total	**1120**	**100%**	

Highest level of education attained	Count	%	Cumulative
Primary school	40	4%	4%
Secondary school	486	43%	47%
Vocational studies (MBO)	280	25%	72%
Bachelor studies (HBO, WO)	242	22%	93%
Master studies	55	5%	98%
Post doctoral studies	4	0%	99%
I rather not tell	14	1%	100%
Total	**1121**	**100%**	

Household composition	Count	%	Cumulative
Single	436	39%	39%
Couple without children	154	14%	53%
Single parent with children	37	3%	56%
Couple with children	172	15%	71%
Other	319	29%	100%
Total	**1118**	**100%**	

Data collection instrument

The questionnaire was developed by adapting existing instruments and modifying these to suit the purposes of the study. The main focus was on sustainable purchasing practices. Because students were asked to administer the questionnaire personally, it was important to limit its length to a maximum of ten minutes per interview. Furthermore, because of the nature of the international study programme, and the multicultural context of Rotterdam, the questionnaire was offered in Dutch and in English.

Table 2 presents the different parts of the questionnaire, while the measures are presented in appendix B.

Table 2 Questionnaire construction

Aspect	Variables		Measure
Administrative items	Student identification	2 items	Nominal
	Distribution method	4 items	
	Respondent verification	3 items	
Sample	Gender	1 item	Nominal
	Age group	1 item	
	Level of education	1 item	
	Household composition	1 item	
Consumption patterns	Adapted from Gwodz et al. (2017)	10 items	Nominal
Sustainable purchasing	Consuming less	3 items	Interval
	Consuming sustainable brands	1 item	
	Consuming sustainable items	6 items	
Motivator	Concern for the environment	1 item	Interval
Ability	Price	1 item	Interval
	Effort	5 items	
	Routine	7 items	
Trigger	Spark	2 items	Nominal
	Facilitator	4 items	
	Reminder	1 item	
Association / cover page	Name 3 sustainable brands	3 items	Qualitative

Data analysis

Sustainable purchasing was constructed by averaging the scores obtained on the ten items. The dataset was analysed using SPSS© version 25 software for univariate and bivariate analysis. The characteristics of the sample were used to identify significant patterns in purchase decisions made by the respondents. Furthermore, correlation analysis was used to examine relationships among the variables of the model. Qualitative data from the open-ended questions in the survey were structured and analysed using Excel©.

3 Findings

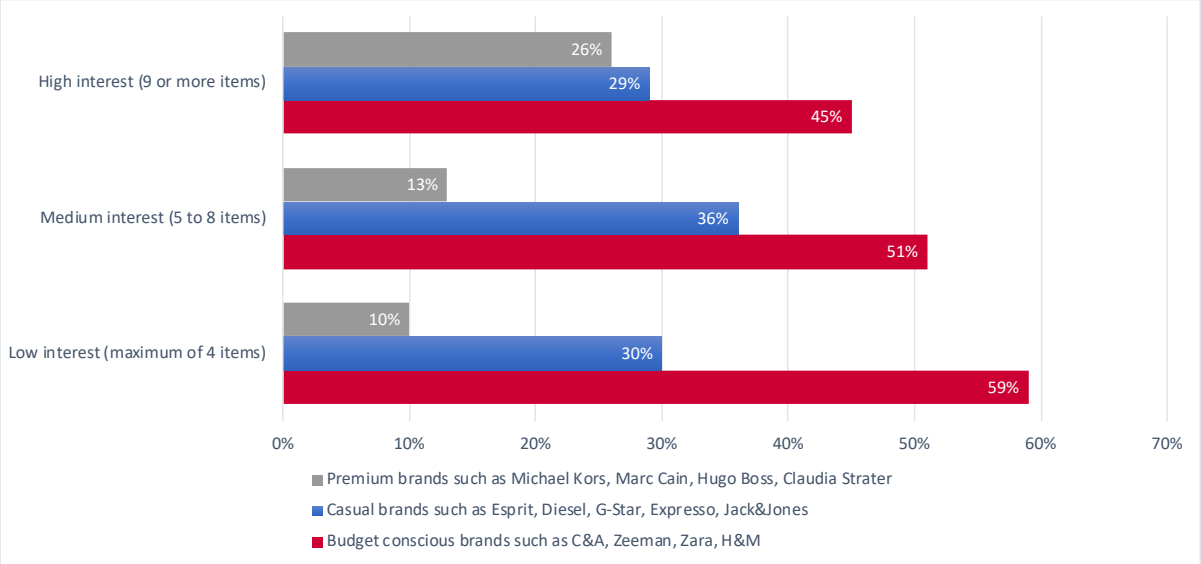
3.1 Current consumption pattern

We examined the current consumption pattern by enquiring about the number of purchases made in the past three months, the type of preferred brands involved, and the purchasing channels used.

In this sample 47% of the respondents purchased 5-8 items over the past three months, 27% purchased fewer than four items, and 26% more than 9 items. However, 52% of the respondents opted for the budget conscious brands, 33% for the casual brands, and 16% for the premium brands.

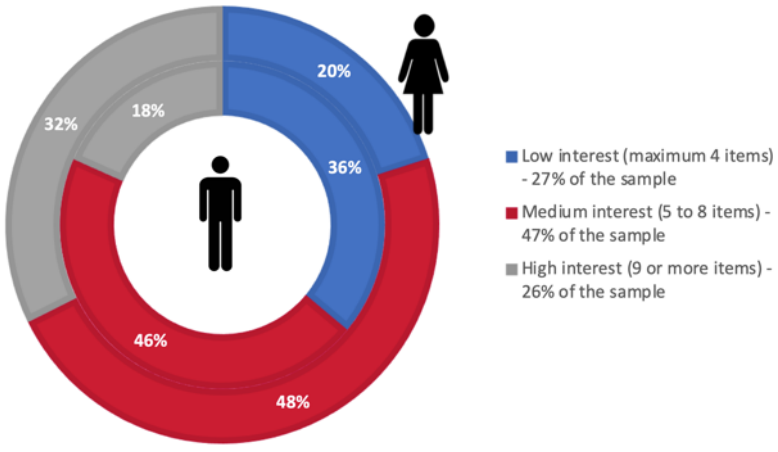
Respondents with a high purchase interest, more often choose premium brands (figure 4) while those with a low interest typically choose the budget conscious brands, perhaps because of budget constraints.

Figure 4 Consumption patterns



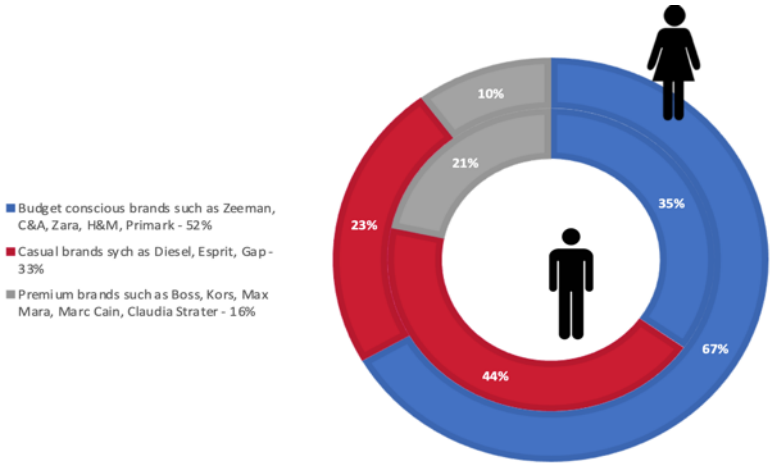
Significant differences in consumption patterns were observed for gender and age (see figures 5 and 6).

Figure 5 Consumption pattern in quantity



Women purchased significantly more clothes than men (X^2 (2, N=1001) = 42.2, p=0.00). Consumption patterns were also significantly different across age groups. Purchasing declined with age, with respondents older than 65 years having the lowest purchasing interest (X^2 (12, N=1000) = 54.84, p=0.00.

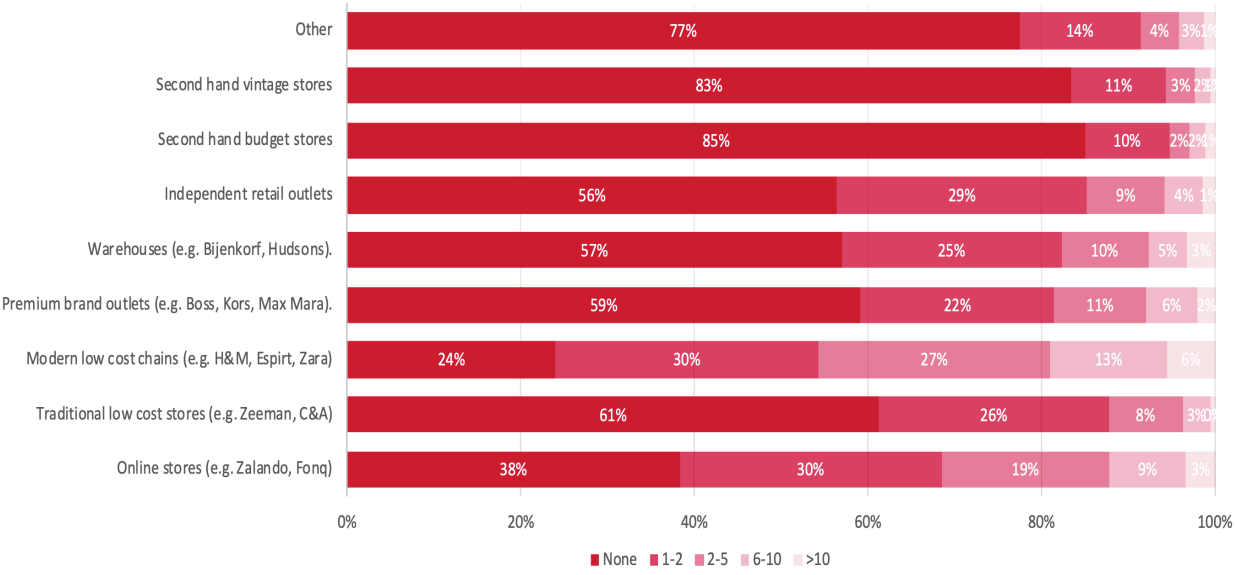
Figure 6 Consumption pattern in quality



Also, with regard to preferred brands, women were significantly more focused on purchasing budget brands, whereas men obtained more items from casual and premium brands (X^2 (2, N=990) = 100.11, p=0.00).

We examined which purchasing channels were most frequently used (see Figure 7). For each of the channels offered, respondents were asked how many items they had purchased there over the past three months using the categories None, 1-2 items, 3-5 items, 6-10 items, or greater than 10 items.

Figure 7 Purchasing channels



Examination of purchases across the different channels shows that the modern low-cost chains are preferred over the traditional low-cost chains. Of the respondents, 64% have not purchased a single item in a store like Zeeman or C&A, versus 24% for the modern low-cost stores.

The second-hand stores, which are regarded as the more sustainable option, are the least preferred choice, regardless of the store being budget-oriented (85%) or being oriented towards special or vintage items (83%). Compared with the findings of a representative study in 2016, in which 91% of the Dutch respondents indicated that they did not consider purchasing items from a second-hand store, this appears to show a slight improvement (Gray, 2017)

Modern low-cost chains such as H&M, Esprit and Zara, followed by online purchases, are the most preferred purchasing channels, whereas second-hand vintage and budget stores are the least used.

Using the centre points of these categories we estimated the total number of purchases (see Table 3), which showed that respondents had purchased an estimated average of 11 clothing items during the past three months.

Table 3 Estimated items purchased across channels

Purchasing channels	Buying consumers	Count	Percentage
Modern low cost chains (e.g. H&M, Espirt, Zara)	757	2.877	25%
Online stores (e.g. Zalando, Fonq)	622	2.093	19%
Premium brand outlets (e.g. Boss, Kors, Max Mara).	405	1.319	12%
Warehouses (e.g. Bijenkorf, Hudsons).	429	1.358	12%
Independent retail outlets	434	1.050	9%
Traditional low cost stores (e.g. Zeeman, C&A)	388	967	9%
Second hand budget stores	150	477	4%
Second hand vintage stores	165	457	4%
Other	220	687	6%
Total		**11.282**	**100%**

To summarise, consumers had purchased an average of 11 items during the past three months, most frequently from modern low-cost chains such as H&M, Esprit and Zara, while traditional low-cost stores (such as Zeeman and C&A), second-hand budget stores and second-hand vintage stores were the least visited. Women buy more than men, and most purchases tend to be low budget. Furthermore, with age, the consumption of fashion items declines.

3.2 Sustainable purchasing

We assessed sustainable purchasing using ten items that are classified based on environmental brands, clothes based on environmental principles, and lower consumption (see Table 4). For each item, we asked to what extent the statement applied when they buy clothes, on a scale from 1 (never) to 7 (always).

Table 4 Description of environmental purchasing criteria

Environmental purchasing criteria		N	Mean	SD
Environmentally friendly brands	Choose clothes from environmentally friendly brands	1006	3.12	1.632
Environmental principles	Buy clothes from recycled materials	1002	2.51	1.502
	Choose clothes with little or no dye processing	1004	2.72	1.523
	Choose clothes from plant based materials	1001	2.97	1.654
	Purposely select fibres that require cooler washing temperatures	998	2.99	1.711
	Choose clothes from animal based materials	1006	3.06	1.671
	Choose clothes made from man-made fibres	1006	3.77	1.516
Lower consumption	Choose second hand clothes	1005	2.25	1.640
	Choose clothes that are not subjected to fashion	1005	3.34	1.647
	Only buy what is necessary	1002	4.06	1.772
	Sustainable purchasing scale	**964**	**3.08**	**.996**
	Cronbach's Alpha	**.814**		

A scale of sustainable purchasing was created using these 10 items (M = 3.08, SD = .996). Excluding user missing and system missing values, this scale has an overall reliability of alpha .814, which is considered excellent.

A mean score of 3.5 serves as the cut-off point between unsustainable and sustainable purchasing.

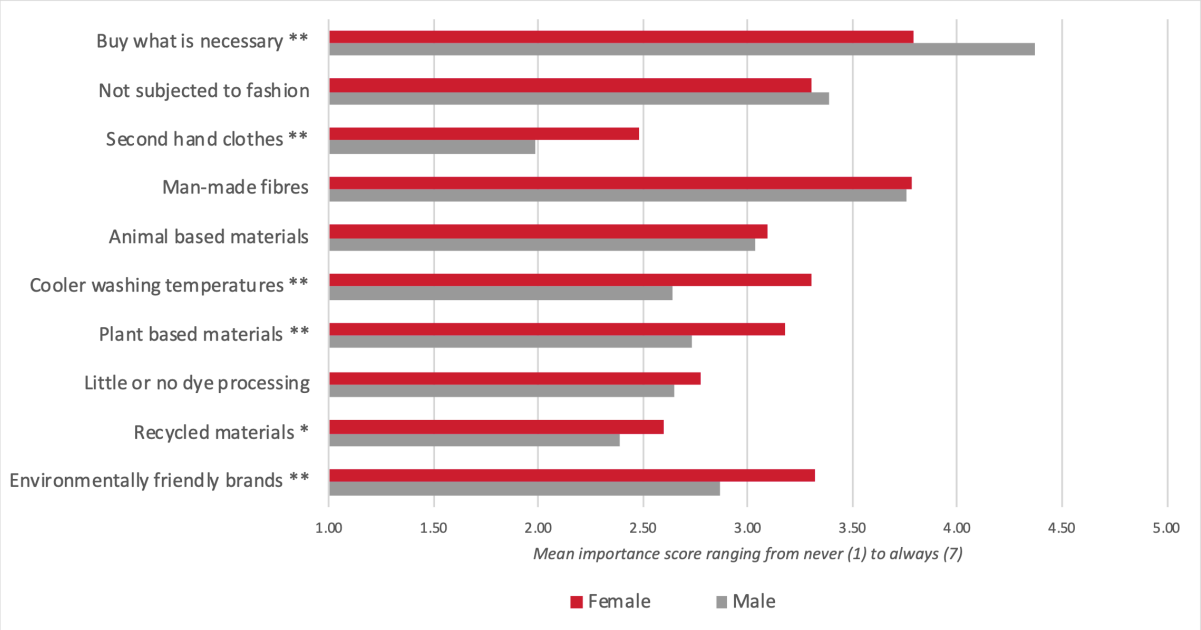
As for applying environmental principles, respondents were least open to buying clothes made from recycled materials, and clothes purchased from second-hand stores, and were keen on the less sustainable option of selecting clothes made from synthetic fibres.

Respondents did consider environmental brands. We explored the knowledge of respondents by asking them which sustainable brands they could remember. These results are presented on the cover page of the report in the word cloud. The names that stand out most are H&M, Patagonia, Zara and Adidas. Indeed, some of the brands mentioned in the word-cloud invest in the sustainable production of their garments, and some others are good in communicating sustainable intentions, although they do not always create the desired impact. According to 'Rank a Brand[1]' an organisation that ranks the sustainable performance of brands from A (very sustainable) to E (better not to buy), only Patagonia is ranked with a B. Zara and H&M are on par with a C indicating that some steps are being taken, while Adidas ranks a D. Sustainable brands such as Vaude and St Basics, which 'Rank a Brand' classifies with the A label, are not mentioned by the respondents.

We examined the individual items in greater detail to determine what sample aspects contributed to the variations and found some significant gender differences (see Figure 8).

Using the scale of sustainable purchasing, a significant gender effect was found, with women taking more environmental purchasing criteria into consideration than men (women $M = 3.39$, SD = .78; men $M = 3.23$, $SD = .82$, $F(1, 958) = 2.16$, $p < .01$).

Figure 8 Sustainable purchasing



Older age groups, also include significantly more sustainability purchasing criteria ($F(6, 952) = 2.160$, $p < .01$). With increasing age, respondents prefer environmentally-friendly brands, clothes made using environmentally friendly principles (plant-based materials), and tend to fewer clothes.

Level of education and household composition does not produce differences across groups for the sustainable purchasing criteria.

[1] www.rankabrand.nl

3.3 Motivators

In our framework, we investigated two core motivators, namely hope/fear which were operationalised using the questions concerning care for the environment and the core motivators of acceptance/rejection which used a single question concerning the group with which the respondent identified.

- Hope and fear – concern for the environment

To assess the role of hope or fear in motivating respondents to make sustainable purchasing decisions, we asked them how concerned they felt about the environment on a scale ranging from 1 (never) to 7 (always).

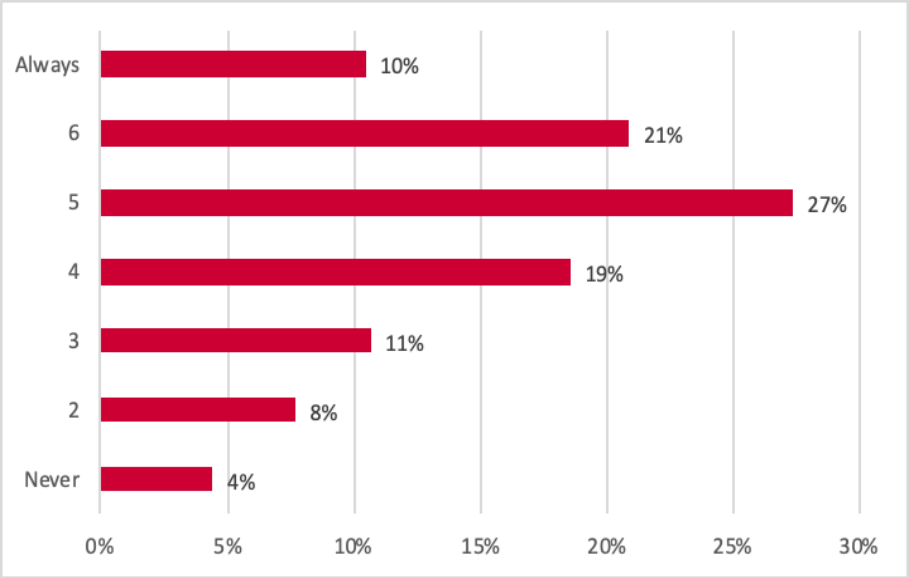
On average respondents were moderately concerned about the environment (*M* = 4.61, *SD* = 1.579).

However, differences do exist with regards to gender, level of education and age.

In the first place, women are more concerned about the environment than men (women *M* = 4.88, *SD* =1.41, men *M* = 4.30, *SD* = 1.71; *t* (899) = 5.75, *p* < .00).

Furthermore, respondents with a bachelor degree indicated the highest concern, whereas those with primary education were the least concerned (bachelor degree *M* = 5.06, SD = 1.41, primary education *M* = 3.45, *SD* = 1.64; *F* (6, 993) = 7.03, *p* <.01).

Figure 9 Hope and fear - environmental concern



Finally, significant differences exist across age-groups. Respondents younger than 18, were least concerned *(M* = 3.49*, SD*= 1.70*)*, whereas those older than 65 were most concerned *(M = 5.04, SD= 0.71)*, *F* (6, 996) = 7.53, *p* <.01.

3.4 Simplicity factors

The BJ Fogg model assumes that it helps to remove obstacles in the decision-making process in support of the desired change. In this research we distinguished between three types of factors, namely price of the product, effort (convenience and availability) and routine (e.g. newness of the product, fashionable, brand, quality, material, working conditions, country of origin). For each item

we asked how important this was in the purchasing process on a scale ranging from 1 (not important) to 7 (very important). Table 5 presents the descriptions at item level and scale level.

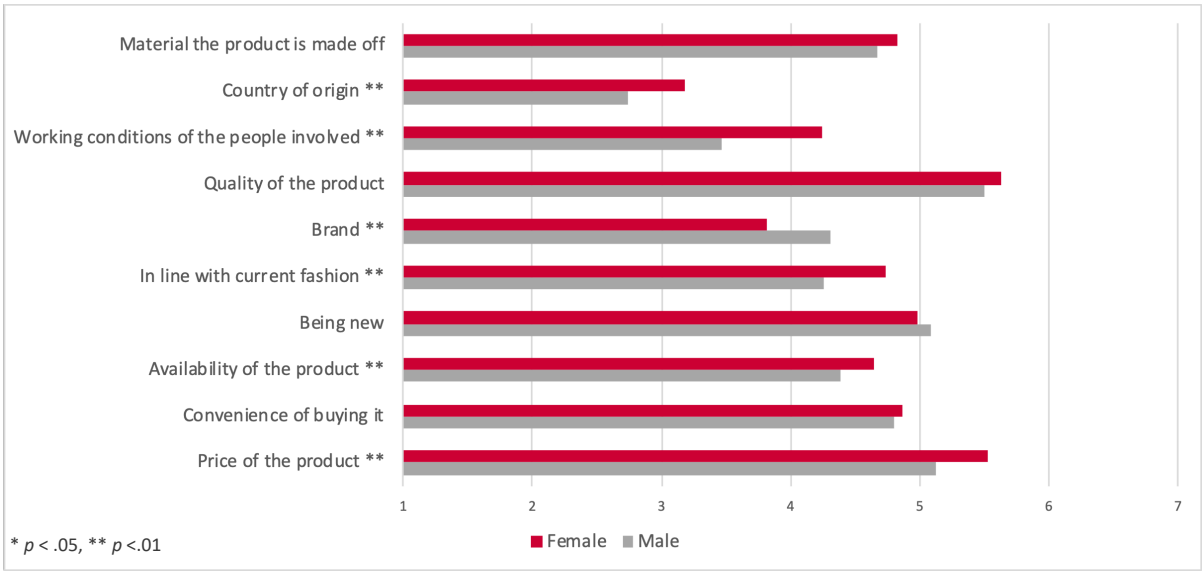
The results reveal that product price and the newness of the items were considered to be the most important decision criteria when buying clothes, whereas the origin of the product was least considered.

Table 5 Description simplicity items

Simplicity factor assessed		Item level			Scale level			Cronbach α
		N	Mean	SD	N	Mean	SD	
Price	Price of the product	1007	5.31	1.48	1007	5.31	1.48	-
Effort	Convenience of buying it	1008	4.89	1.54	1006	4.67	1.38	.475
	Availability of the product	1006	4.52	1.75				
Routine	Being new	1006	5.00	1.91	992	4.40	.93	.616
	In line with current fashion	1007	4.51	1.72				
	Brand	1007	4.05	1.81				
	Quality of the product	1008	5.56	1.31				
	Working conditions of the people involved	1003	3.87	1.67				
	Country of origin	1005	2.97	1.70				
	Material the product is made off	1003	4.74	1.60				
Overall Simplicity					989	4,55	.83	.668

Significant gender effects were found (see Figure 10). Women were significantly more considerate of the social aspects of sustainability, such as the country of origin, and the working conditions of the people involved, than men. They were also more price conscious than men, indicating that lower prices eased buying decisions, and they were more sensitive to the availability of sustainable garments. Overall, routine items simplified purchasing decisions for women more significantly (women $M = 4.50$, $SD = .88$, men $M = 4.29$, $SD = .96$, $t(937) = 3.48$, $p < .01$).

Figure 10 Simplicity factor gender variations



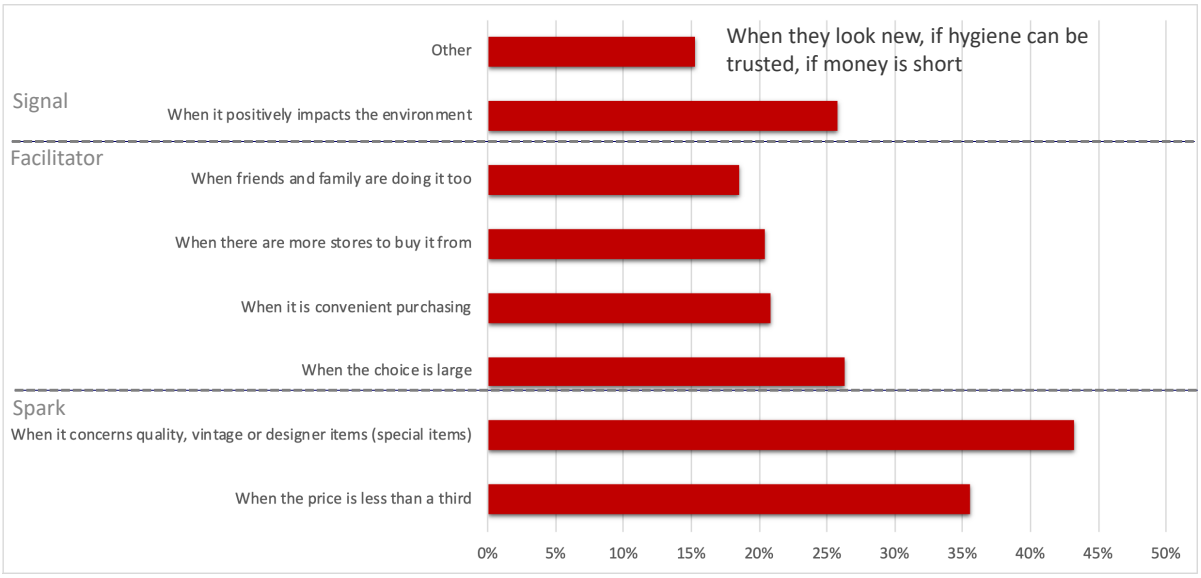
Finally, respondents with higher education levels, placed significantly greater emphasis on effort in terms of convenience and the availability of garments ($F(6, 997) = 2.15$, $p < .05$), while aspects of routine and price seemed to influence them less.

No significant effects were observed for age and household composition.

3.5 Triggers

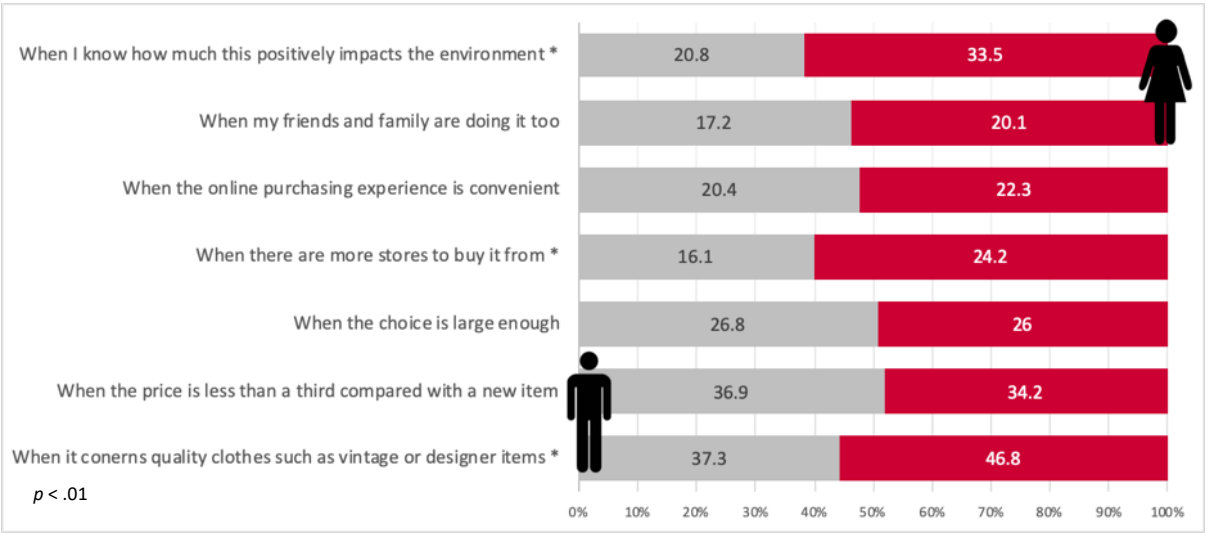
The final component in the Fogg model are the triggers, of which Fogg proposed that for behaviour to change, a trigger is required to persuade the individual to do so. In this research, respondents were asked under what conditions they would consider purchasing second-hand clothes (which lowers the consumption of new items) using six dichotomised items. For each item, respondents indicated if it applied to them or not. Figure 11 presents the percentage of respondents to whom it applied.

Figure 11 Second-hand purchase triggers



The results indicate that second-hand items are an option when it concerns quality items, when the price is less than a third and when it positively impacts the environment. Other reasons for purchasing second-hand items are lacking money to buy new clothes, when clothes look like new, when consumers trust that the clothes are clean, and when the purchase is for charity. The findings imply that for individuals who are motivated, and who are enabled, only a reminder of the positive impact of the purchase will suffice. Consumers who are motivated but are low on ability, offering ample access might promote the choice for second-hand clothes. For those without motivation, a low price might promote a purchase, or the fact that it concerns special vintage or designer items.

Figure 12 Gender effects on purchase triggers



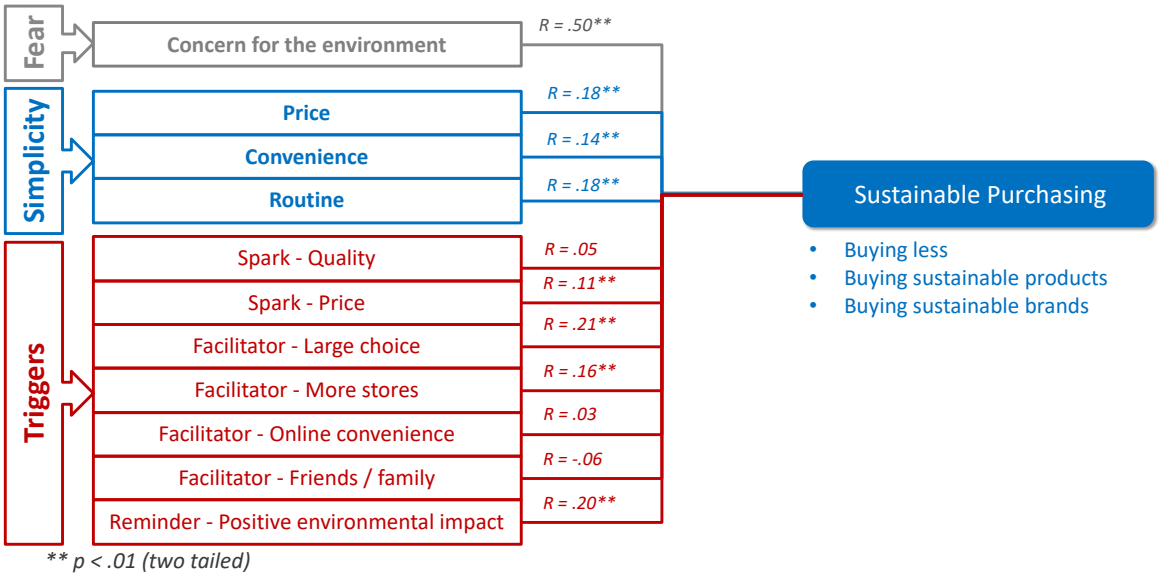
Some gender effects are present (see Figure 12). Compared with men, women are more triggered by vintage or designer items, when there are more stores where items can be purchased, and when they know how much it positively impacts the environment.

3.6 Persuading consumers

To examine the relationships in the BJ Fogg Model, we employed correlation analysis. The variables involved in sustainable purchasing, fear, and simplicity are all measured on a 7-point Likert scale; the triggers are dichotomous variables.

The Correlation Table is included in Appendix C. Figure 12 visualises the most important outcomes.

Figure 13 Findings sustainable purchasing



A large, positive relationship in this model concerns the effect of 'hope and fear', which was operationalised with a concern for the environment, and sustainable purchasing, $r = .50$, $p < .01$. In other words, individuals who worry about climate change are more open to sustainable purchasing of garments by either buying less, by buying sustainable items or by choosing sustainable brands.

The effect of the individual simplicity factors of price, convenience and routine is relatively small, even though significant. Combined, the effect of simplicity on sustainable purchasing is small to modest, r=.22, p < .01 (see appendix 6.3). The results show that respondents are most encouraged by access and much less by friends and family. This outcome contradicts findings from other research involving students (Ciasullo, Maione, Torre, & Troisi, 2017; Hiller Connell & Kozar, 2012), that identified social influence, as in other people with whom they usually interact, as an important factor in consumer's purchasing decisions.

The most impactful triggers concern the choice of items r = .21, p < .01 and the fact that the purchase positively impacts the environment r = .20, p < .01. The facilitating role of friends and family, or online convenience and the quality of the garment is negligible.

Following Fogg's theory of changing behaviour, the findings suggest that environmentally- motivated consumers only need a reminder of the positive environmental impact of second-hand purchasing to come into action. Furthermore, consumers who are not environmentally concerned require the trigger to be aligned with another motivator, such as low prices, or garments looking like new.

4 Conclusions and discussion

This study employed the Fogg model to examine the factors that would help to persuade consumers to adopt more sustainable purchasing practices.

We examined current consumption and the criteria that consumers consider when purchasing clothes, and determined what factors would persuade consumers to make more decisions that would promote sustainability when purchasing clothes.

The consumers in our sample purchased, on average, 11 items during the past three months. Most of these items were bought from modern low-cost chains such as H&M, Esprit and Zara, while fewer purchases were made from traditional low-cost stores (such as Zeeman and C&A), second-hand budget stores, and second-hand vintage stores. Women bought more than men, and most of the purchases tended to be from modern low budget chains. It was also found that with age, respondents tend to consume fewer items. Overall, the respondents in our sample were not very open to sustainable purchasing, even though they are worried about the environment. More particularly, respondents found the quality of a product, its price and its newness to be the most important purchasing criteria, whereas they were least interested in the country in which it is made. There is little interest in purchasing second-hand clothes, which tend to be associated with musty smells, quality issues, and the purchaser being poor.

The most important motivator for making purchases that promote sustainability is a concern for the environment, whereas simplicity factors such as price, convenient buying process and routine influence the decision-making process at a low to moderate extent. Respondents are triggered by choice and knowledge of the positive environmental impact of the garment.

What does this mean for persuading consumers to adopt more sustainable habits?

In the first place, sustainable practices that reduce the consumption of new items are to be preferred, for example, by buying fewer new clothes, and by investing in quality clothes so that they last longer and are worthwhile to repair. However, contrary to the eagerness with which the slow food movement was embraced, consumers are not very keen on adopting slow fashion behaviours such as swapping garments or buying second-hand clothing (Sajn, 2019). In summary, except for purchasing second-hand vintage items, reducing consumption is not viewed as a positive choice. Reframing these second-hand alternatives, increasing second-hand garment selections and offering reassurances that address concerns with regards to hygiene, might help convince consumers of this alternative.

Secondly, 'consuming better', which means choosing garments that are created using sustainability principles, requires more product knowledge. With present technology, successful recycling of mixed or synthetic fibres is an elusive target, while consumers prefer garments made of synthetic or mixed fibres over organic options. It seems most likely that consumers experience difficulties in establishing the sustainable properties of clothing, yet they need this information in order to make purchases which promote sustainability (Kang et al., 2013). The information needs to be correct and easy to comprehend. Currently, there are over 300 general sustainability labels in use, of which the majority is not known by consumers (Austgulen & STo, 2013). Some labels are mandatory because of European Union (EU) regulations, others rely upon third party certification (e.g. EU Flower, the Blue Angel). Some are based on self-certification by retailers, and others rely upon quantitative environmental product declarations (ISO 14025:2006). The fact that labels focus on a wide range of environmental and social aspects can add to the confusion. Consumers in a European study indicated that eco-labels would help them make better choices when the information is clear, making a case for harmonisation

of eco-labels and further standardisation of the information communicated (Austgulen & STo, 2013). This form of branding is most effective when large brands agree on a sustainability standard.

As shown in Chapter Two, consumers differ in their awareness of and willingness to adopt purchasing practices that promote sustainability. In addition, in this research gender, age and educational effects were also identified. This makes a case for aligning persuasion strategies more precisely with target audiences. For instance, younger consumers (18-29 years old) were found to be more unaware and unwilling to change behaviour *per se* (Hofstede, 2018). This group can be made more aware by educating them about social and environmental impacts of buying behaviour, and how they could lower their impact by taking purchasing criteria that promote sustainability into account. Older consumers with greater awareness about the environmental impact of clothing consumption, could be triggered by having more choice and more stores to buy it from. The relatively small group of sustainable front-runners, could be helped by having clear sustainability labels. Finally, the marketing strategy for consumers who care less about sustainability, should focus on aligning with the two other motivators in the model, namely pleasure or pain, and acceptance or rejection. A pleasurable motivator could be the garment price or if it concerns a designer item. The social concept of acceptance or rejection as a motivator requires further research. In this sample, the effect of friends and family on sustainable purchasing was rather low. It is not clear to what extent this is caused by the phrasing of the question whereby friends and family are combined as a reference group, whereas the effect of family and friends on buying clothes differs. We did not investigate the role of influencers as a role model, while some research shows that they do act as a role model when buying fashion items (Sudha & Sheena, 2017).

Limitations of this study can be defined as follows.

Students conveniently sampled respondents from their own age groups, resulting in a skewed sample towards generation Z and Millennials. As a consequence, it is not possible to generalise findings beyond the sample examined. Future research could focus on the specific generations, while also including disposable income to be spent on clothing as a variable rather than household composition. Because the city of Rotterdam harbours different nationalities, the inclusion of citizenship as a variable could be used to control for this effect.

The theory of the Fogg model assumes that a simultaneous application of motivator, simplicity factor and trigger will produce behavioural change. Because the findings in this research rely on self-reports, it is not clear to what extent the three factors act together. There appears to be some overlap in constructs. For instance, what makes a variable a trigger or a simplicity factor? A low price, for example, could trigger an impulse purchase. However, it could also simplify the decision process of purchasing. The scale employed for the enablers or simplicity factors in the model has relatively low reliability. More precise definitions are required for the constructs, to support the operationalisation of the model and increase its application outside the realm of online shopping behaviour.

The construct of sustainable purchasing excluded swapping and the clothing libraries as an option, while there are several somewhat successful examples of these applications to reduce consumption. Future research would benefit from a more comprehensive conceptualisation of sustainable purchasing.

Finally, the relationships between the variables were analysed with correlation analysis. However, the Fogg model assumes that the triggers interact with motivation and simplicity factors, which could be examined using multiple regression analysis.

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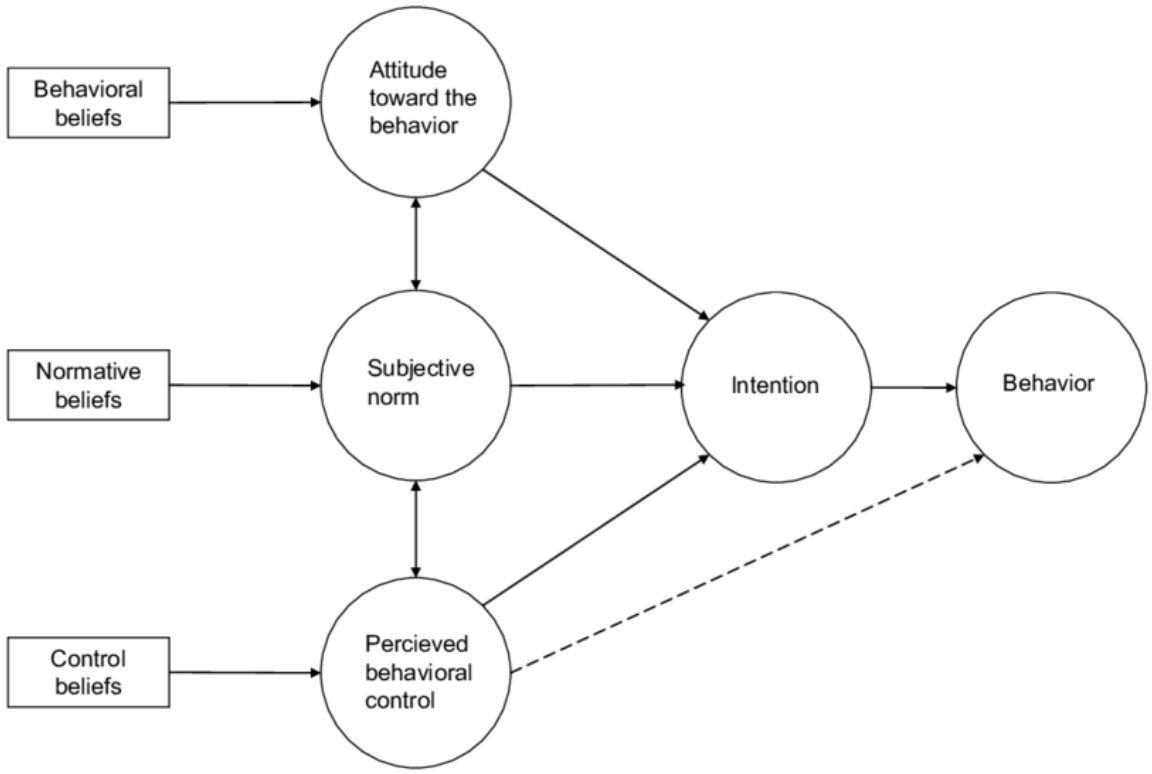
Appendices

A Theory of planned behaviour

Figure 14 Theory of planned behaviour (Ajzen, 1991)



B Measures

Construct		Item	Question	Answer categories
Current consumption		5.1	How would you typify your clothing consumption pattern	Low interest, medium interest, high interest
		5.2	How would you typify your clothing consumption pattern	Budget conscious brands, casual brands, premium brands
			Number of items bought via the following channels	None, 1-2, 3-5, 6-10, 11-15, >15
		5.3	Online stores such as Zalando, Fonq etc.	None, 1-2, 3-5, 6-10, 11-15, >15
		5.4	Traditional low cost stores such as Zeeman, C&A	None, 1-2, 3-5, 6-10, 11-15, >15
		5.5	Modern low cost chains such as H&M, Esprit, Zara	None, 1-2, 3-5, 6-10, 11-15, >15
		5.6	Premium brand outlets (Boss, Kors, M. Mara, Marc Cain, C. Strater	None, 1-2, 3-5, 6-10, 11-15, >15
		5.7	Warehouses such as Bijenkorf, Hudson's Bay	None, 1-2, 3-5, 6-10, 11-15, >15
		5.8	Independent retail stores	None, 1-2, 3-5, 6-10, 11-15, >15
		5.9	Second hand budget stores	None, 1-2, 3-5, 6-10, 11-15, >15
		5.10	Second hand vintage stores	None, 1-2, 3-5, 6-10, 11-15, >15
		5.11	Other	None, 1-2, 3-5, 6-10, 11-15, >15
Sustainable purchasing	Environmentally friendly brand	6.1	Choose clothes from environmentally friendly brands	Never (1) Always (7)
	Environmental principles	6.2	Choose clothes from plant based materials	Never (1) Always (7)
		6.3	Choose clothes from animal based materials	Never (1) Always (7)
		6.4	Choose clothes made from man-made fibers	Never (1) Always (7)
		6.6	Choose clothes with little or no dye processing	Never (1) Always (7)
		6.8	Purposely select fibers that require cooler washing temperatures	Never (1) Always (7)
	Consume less	6.7	Choose clothes that are not subjected to fashion	Never (1) Always (7)
		6.5	Choose second hand clothes	Never (1) Always (7)
		6.9	Only buy what is necessary	Never (1) Always (7)
		6.10	Buy clothes from recycled materials	Never (1) Always (7)
Motivators	Hope/ fear	4.5	I worry about the environment and climate change	Never (1) Always (7)
Ability / simplicity	Price	5.15	The price of the product	Not (1) to very important (7)
	Effort / convenience	5.16	Availability of the product	Not (1) to very important (7)
		5.19	Convenience of buying it	Not (1) to very important (7)
	Brain cycles / (non)routine	5.12	Quality of the product	Not (1) to very important (7)
		5.13	Brand	Not (1) to very important (7)
		5.14	In line with current fashion	Not (1) to very important (7)
		5.16	Material product is made from	Not (1) to very important (7)
		5.17	Being new	Not (1) to very important (7)
		5.20	Working conditions	Not (1) to very important (7)
		5.21	Country of origin	Not (1) to very important (7)
		5.22	How important is the environmental impact of the product	Not (1) to very important (7)
Trigger	Spark	6.11	When the price is les than a third compared to a new item	0= does not apply / 1 = applies
	Spark	6.11	When it concerns vintage or special designer items	0= does not apply / 1 = applies
	Facilitator	6.11	When there are more stores to buy it from	0= does not apply / 1 = applies
	Facilitator	6.11	When the online purchasing experience is convenient	0= does not apply / 1 = applies
	Facilitator	6.11	When the choice is large enough	0= does not apply / 1 = applies
	Facilitator	6.11	When my friends and family are doing it too	0= does not apply / 1 = applies
	Reminder	6.11	When I know how much this positively impacts the environment	0= does not apply / 1 = applies
Association / coverpage		6.12	What 3 clothing brands do you associate with sustainability?	Qualitative

C Correlations sustainable purchasing

Variables	M	SD	N	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Sustainable purchasing	3.32	.80	964	1.00												
2. Hope and fear	4.17	1.40	1000	.50**	1.00											
3. Product price	5.34	1.46	1007	.18**	.16**	1.00										
4. Effort	4.67	1.34	1006	.14**	.13**	.31**	1.00									
5. Routine	4.40	.93	992	.18**	.34**	.11**	.38**	1.00								
6. Overall simplicity	4.55	.83	989	.22**	.34**	.36**	.67**	.92**	1.00							
7. Spark - Quality items	.42	.49	1008	-.05	.05	.07*	.05	.09**	.10**	1.00						
8. Spark - Price	.36	.48	1008	.11**	.09**	.21**	.03	-.10**	-.03	.10**	1.00					
9. Facilitator - Choice	.26	.44	1008	.21**	.14**	.09**	.05	.04	.06	.12**	.24**	1.00				
10. Facilitator - More stores	.21	.40	1008	.16**	.09**	.10**	.09**	.05	.09**	.17**	.16**	.32**	1.00			
11. Facilitator - Online convenience	.21	.41	1008	.03	.06*	.09**	.11**	-.02	.04	.10**	.13**	.22**	.21**	1.00		
12. Facilitator - Friends / family	.19	.39	1008	-.06	-.06	.06	.02	.07*	.07*	.01	.11**	.08**	.12**	.10**	1.00	
13. Reminder - Positive impact	.27	.48	1008	.20**	.28**	.07*	-.01	.01	.02	.06	.13**	.12**	.16**	.16**	.10**	1.00

** p < .05 (2-tailed) ; ** p < .01 (2-tailed)*