The influence of pro-environmental motivation and intent on female consumers' apparel disposal behaviour

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M Consumer Science (Clothing Retail Management)

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Die invloed van omgewings vriendelike motivering en bedoeling op vroulike verbruikers se kledings beskikkings gedrag

Deur

Maria Jacoba Stols

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September 2016

DECLARATION

I, **Marisa Stols**, declare that this dissertation, which I hereby submit for the degree of **M in Consumer Science: Clothing Retail Management** at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution. I also confirm that all reference material in the dissertation has been duly acknowledged.

MARIA JACOBA (MARISA) STOLS

September 2016

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"I can do all things through
Christ which strengthens me":
Philippians 4:13

SUMMARY

The influence of pro-environmental motivation and intent on female consumers' apparel disposal behaviour

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Department: Consumer Science

Degree: Masters in Consumer Science (Clothing Retail Management)

Keywords: Pro-environmental behaviour, sustainability, apparel industry, apparel disposal, Theory of Planned Behaviour, Norm Activation Theory, eco-friendly clothing, South African consumers.

The apparel and textile industry plays an enormous role in the depletion of natural resources, pollution and other environmental problems. Pro-environmental efforts should thus be encouraged in all stages of the apparel supply chain, but also more specifically at the disposal stage during which consumers should be encouraged to adopt eco-friendly options such as donating, recycling and/ or reselling apparel. The aim of this study was to explore and describe female consumers' pro-environmental disposal motivation and intent regarding apparel in the South African context. The hypothesis and conceptual framework for this study was based on a combination of the Theory of Planned Behaviour (TPB) and the Norm Activation Theory's (NAT) constructs as the underlying motivational factors that contribute to pro-environmental disposal intent. The research was carried out in

the Gauteng province, South Africa. The sample comprised of 315 female consumers; female consumers were of particular interest since they tend to engage in pro-environmental behaviour to a larger extent than males. This quantitative study used a cross-sectional survey design for which a Qualtrics web-based questionnaire was developed. Data was captured and coded to be further subjected to descriptive and inferential analyses.

The findings indicated that most respondents are aware of environmental consequences related to the disposal of apparel. Social norms influenced respondents' personal norms, as well as their behavioural intent to make pro-environmental decisions regarding the disposal of apparel. It seems that consumers' attitudes also influence their pro-environmental behavioural intent significantly. In contrast, perceived behavioural control had a weaker influence on pro-environmental intent. The theoretical contribution of this study relates to the relevance of TPB and NAT constructs in the local context. In so far as practical implications are concerned, it was concluded that government and businesses should get involved in promoting pro-environmental apparel disposal options and educating consumers about the benefits of disposing apparel in a pro-environmental manner.

OPSOMMING

Die invloed van omgewings vriendelike motivering en bedoeling op vroulike verbruikers se kledings beskikkings gedrag

Deur

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Graad: Meesters graad in Verbruikerswetenskap (Kleding Kleinhandel Bestuur)

Sleutelwoorde: Pro-omgewings gedrag, volhoubaarheid, klerebedryf, klerebeskikking, Teorie van Beplande Gedrag, Norm Aktiverings Teorie, omgewings vriendelike klere, Suid Afrikaanse verbruikers.

Die klere en tekstiel bedryf speel 'n noodsaaklike rol in die vermindering van natuurlike bronne, besoedeling en ander omgewingsprobleme. Pro-omgewings pogings moet dus aangemoedig word in alle stadiums van die klere voorsienings kettings, maar meer spesifiek ook in die wegdoen fase waarin verbruikers aangemoedig moet word om omgewings vriendelike opsies te oorweeg soos skenking, herwinning en herverkoping. Die doel van hierdie studie was vroulike verbruikers se pro-omgewings klere beskikkings motivering en bedoeling te verken en beskryf in 'n Suid Afrikaanse konteks. Die hipotese en konseptuele raamwerk vir hierdie studie is gebaseer op 'n kombinasie van die Teorie van Beplande Gedrag (TPB) en die Norm Aktiverings Teorie (NAT) se konsepte as die

onderliggende motiverende faktore wat bydra tot verbruikers se pro-omgewings wegdoen voorneme. Die navorsing was uitgevoer in Gauteng provinsie, Suid Afrika. Die steekproef het uit 315 vroulike verbruikers bestaan; vroulike verbruikers was van besondere belang aangesien hulle geneig is om betrokke te raak in pro-omgewings gedrag tot 'n groter mate as mans. Hierdie kwantitatiewe studie het 'n deursnit opname-ontwerp gebruik waarvoor 'n Qualtrics web-gebaseerde vraelys ontwikkel is. Die data was ingevoer en verder gekodeer om beskrywende en inferentiële statistiek ontledings te ontwikkel.

Die bevindings het aangedui dat die meeste respondente bewus is van hoe die wegdoen van klere die omgewing beïnvloed. Sosiale norme het die respondente se persoonlike norme beïnvloed, asook hul gedragspatrone intensie om pro-omgewings besluite te maak ten opsigte van die wegdoen van klere. Dit blyk dat die houdings van verbruikers hul pro-omgewings gedrags intensie ook aansienlik beïnvloed. In teenstelling hiermee, het waargeneemde gedrags beheer 'n swakker invloed op pro-omgewings voorneme. Die teoretiese bydrae van hierdie studie het betrekking tot die toepaslikheid van TPB en NAT konsepte in 'n plaaslike konteks. In terme van praktiese implikasies, was die gevolgtrekking dat die regering en besighede betrokke moet raak in die bevordering van pro-omgewings wegdoen opsies en die opvoeding van verbruikers oor die voordele van die afhandeling van klere op 'n pro-omgewings wyse.

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CHAPTER 1   RESEARCH PROSPECTIVE

This chapter provides a general introduction to the research. The theoretical background is briefly explained and the research problem is introduced. The justification for this study, as well as the overall objectives, methodology and main concepts will be explained. The dissertation's outline is also included at the end of this chapter.

1.1   BACKGROUND OF THE STUDY

Environmental problems such as poor waste management, pollution, and the overconsumption of natural resources are becoming increasingly pronounced (Intergovernmental Panel on Climate Change (IPCC), 2014:60; World Wide Fund (WWF), 2015). It has now reached a point where environmental problems such as a lack of fresh water, and poor sanitation cause more deaths in a year than HIV/AIDS in South Africa (WaterAid, 2015). The lack of fresh water has reached critical levels and contributes to millions of fatalities each year (Hardoy, Mitlin & Satterthwaite, 2013:9). One in ten women around the world do not have access to water, while almost 800 000 die every year due to the lack of clean water and poor sanitation facilities (WaterAid, 2015). In 2012, almost 400 million people living in Africa's 36 largest river basins experienced water scarcity for at least one month on a yearly basis (WWF, 2012:6).

It is generally accepted that developing countries and disadvantaged communities, such as those in Africa, are more negatively affected and deprived by environmental changes (IPCC, 2014). Certain areas in Africa rank among the most severe and unhealthy environments to live in (Hardoy *et al.*, 2013) with ecosystems that are rapidly changing due to global and local pressure for economic advancement (WWF, 2015). Increased consumption due to escalating population figures has further contributed to Africa's growing ecological footprint, which has already exceeded the available bio capacity (WWF, 2015). Since 1961, the demand for the world's living resources has more than doubled, and humans currently use 50% more resources than the planet can regenerate (WWF, 2012). Similar to the rest of Africa, South Africa has also several environmental issues to

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contend with, and urgent measures are needed to prevent further environmental deterioration (WWF, 2012).

The textile and apparel industry requires specific focus since the manufacturing, sales, distribution, and use of clothing has life-threatening environmental implications. The apparel supply chain is, in fact, recognised as one of the most harmful polluters worldwide (Hu, Chen & Wang, 2014; Kumari, Singh & Rose, 2013) with particular concern related to the excessive amounts of polluted industrial wastewater that is generated as a result of apparel production (Hu *et al.*, 2014; Singare & Dhabarde, 2014). Recent reports state that 208652 to 244940 kilograms of water are required to process 907.18 kg of textiles (Mirjalili, Nazarpoor & Karimi, 2011) i.e. almost three times the amount of water (in kilograms) is used to produce one kg of textiles. The disposal of apparel also pollutes the environment because the resulting waste intensifies the consumption of natural resources (Ganiaris & Okun, 2001).

Fast fashion retailing is a particular cause for concern as it contributes to large amounts of clothing being disposed of or discarded on a regular basis (Bianchi & Birtwistle, 2012). It is estimated that Americans discards approximately 29.48 kg of clothing per year nationwide (Lyday, 2014). Even though this is an indication of global waste, the figures on apparel waste in South Africa are not indicated and thus remains open to debate. However, waste (in general) is putting South Africa at risk by causing various environmental problems, including water contamination, waste to landfill, the decrease of environmental resources, climate change, and the defeat of biodiversity (WWF, 2015; Department of Environmental Affairs, 2012). With the above in mind, it is of the utmost importance that the textile industry establishes improved ways to minimise its environmental footprint from the raw materials, production phase, through to the disposal of products (Armstrong, Niinimäki, Kujala, Karell & Lang, 2015). This is especially necessary as insufficient recycling and inappropriate disposal methods are seen as major obstacles in the reduction of textile waste (Joung & Park-Poaps, 2013).

Waste management in general, and more specifically the disposal of apparel is a significant environmental issue and poses several challenges. The United States

Environmental Protection Agency (US EPA) (2012) reports that Americans generate approximately 22 7703 million kg of trash per year (including items such as packaging, food waste, grass clippings, sofas, computers, tires and refrigerators), of which they recycle 34.5% and discard 53.8%. Although much can be said about the amount of waste that is created in industrialised countries such as the USA, it should be noted that developing countries such as Kenya and, for that matter, South Africa tend to have waste that is heavier, wetter, and more detrimental than is the case elsewhere (Ogwueleka, 2009). The reason for this may be that waste in developing countries is not appraised, and there are no environmental control systems put in place (Wilson, 2007). Representatives of the Waste Management Inception conference in Nairobi, Kenya identified various problems that are associated with dumpsites including poor infrastructure, uncontrolled and indiscriminate dumping, pollution, and health risks (Muniafu & Otiato, 2010). The disposal of apparel contributes to these environmental problems, more specifically because the disintegrating process of apparel contributes to water pollution due to leachate percolation (Mor, Ravindra, Dahiya, & Chandra, 2006:7-8). In Nigeria alone, the apparel and textile industry contributes to 37 727 890 kg emission per year which severely pollutes water resources (Oketola & Osibanjo, 2007). Water pollution has life-threatening consequences such as digestive cancers, which in China (a major exporter of apparel), contributed to a 9.7% increase in the death rate (Ebenstein, 2012). Considering all of the above, the disposal of apparel must be addressed, not only in the more developed countries, but also in developing countries such as South Africa.

A topic that generates much debate in addressing the issue of poor waste management is the behaviour of consumers (Vlek & Steg, 2007). In order to create meaningful progress towards a sustainable livelihood, consumers need to accept and adopt sustainable and environmentally responsible disposal behaviour (Peattie & Peattie, 2009). Disposal behaviour may refer to the act of getting rid of something (Laitala, 2014). There are a variety of options that consumers can choose from in order to dispose of apparel, including the discarding, donating, reselling, reusing, and recycling of apparel (Meyer, 2013). Discarding waste refers to unwanted waste that ends up in landfills (Hawley, 2006). Consumers, in

preferring a faster and more convenient method of disposing their used or unwanted apparel, often choose to discard apparel rather than to use other pro-environmental methods (Joung & Park-Poaps, 2013). Waste that ends up in landfills has an enormous effect on the environment and needs to be reduced (Department of Environmental Affairs, 2012:19). It is therefore important to use apparel to its full advantage by using one of the more pro-environmental disposal methods which includes donation, resell, recycling and reuse (Lyday, 2014). Donating apparel refers to giving unwanted clothing to family and friends, or to the needy (Birtwistle & Moore, 2007) as some consumers donate in order to help others (Bianchi & Birtwistle, 2012). Recycling and reusing refers to using apparel again for the same or a different purpose (Department of Environmental Affairs and Tourism, 2009). Consumers can also resell unwanted apparel as it may help them to save money (Joung & Park-Poaps, 2013).

Without the necessary behavioural changes, environmental damage that is caused by poor waste management, including the emission of greenhouse gases, will intensify (Vlek & Steg, 2007). Based on the aforementioned arguments, the main focus of this research was on consumers' intent to dispose of apparel in a pro-environmental way, including the recycling/reusing, reselling and donation of apparel. In addition to the above, demographic characteristics, such as gender, may impact consumers' disposal behaviour (Babin & Harris, 2013). Scholars have argued that gender may have a significant influence on environmental awareness and pro-environmental motivation and intent (Mobley & Kilbourne, 2013). Studies conducted in Egypt (Mostafa, 2007) and Hong Kong (Lee, 2009), for example, reveal that women tend to have a stronger attitude and set behaviour regarding the environment than males. This may be attributed to the fact that females express their emotions, social standards and care more prominently, whereas males tend to be more self-supporting and competitive in terms of socialisation and values (Lee, 2009). Cho, Gupta and Kim (2015) found that females tend to be more pro-environmental regarding apparel purchase and the disposal of apparel, notwithstanding Gam's (2011) findings, which brought to light that fashion conscious females tend to purchase more apparel and may therefore dispose of clothing more frequently. Due to a limited amount of research, it is not known

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whether female consumers dispose of their apparel based on pro-environmental motivation, especially in South Africa. In order to protect our natural resources and contribute to a more sustainable environment, it is imperative that consumers engage in environmentally responsible disposal behaviour (Joung & Park-Poaps, 2013), especially with regard to the recovery of textiles and apparel waste. To encourage appropriate disposal behaviour it is necessary to understand the underlying factors that may influence female consumers' pro-environmental intent regarding the disposal of apparel in the South African context.

1.2   THEORETICAL BACKGROUND

To date, few studies have explored South African consumers' apparel disposal behaviour. Abroad, more studies have been conducted and several theories have been applied to determine the underlying factors that contribute to pro-environmental motivation and intent. The most prominent models include a combination of Ajzen's (1991) Theory of Planned Behaviour (TPB) and Schwartz's (1977) Norm Activation Theory (NAT), which have been used to predict recycling involvement (Do Valle, Rebelo, Reis & Menezes, 2005) and various other types of pro-environmental behaviour (Bamberg & Möser, 2007; Oreg & Katz-Gerro, 2006). NAT was developed by Schwartz (1977) and underscores a pro-social perspective, whereas TPB is an extension of the original Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980), which describes behaviour as the consequence of self-interest. On the one hand, the TPB model proposes that attitudes, subjective norms and perceived behaviour control are determinants of behavioural intent, which then predicts actual behaviour (Ajzen, 1991). NAT, on the other hand, proposes that personal norms, an awareness of consequences that result from behaviour, and the degree to which a consumer feels responsible for such consequences culminates in a particular course of action (Schwartz, 1977).

Recent studies carried out by Sonnenberg (2014) and Taljaard (2015) have applied a combination of these theories and the associated constructs to explain local consumers' intent to purchase eco-friendly products. However, to date, TPB and NAT have not been used to explain South African consumers' pro-

environmental apparel disposal behaviour. Although some studies have been conducted in South Africa about disposal behaviour, these have mostly focused on plastic, glass, and paper (Department of Environmental Affairs, 2012:9).

1.3 PROBLEM STATEMENT

It is well presented in the literature that general consumer behaviour has serious consequences that result in a multitude of environmental problems (Steg, Bolderdijk, Keiser & Perlaviciute, 2014; Vlek & Steg, 2009). Poor waste management, including pollution, has detrimental environmental effects and has, for these reasons, been the topic of several studies in countries that are more developed such as the United States of America and the United Kingdom (WWF, 2015:18; IPCC, 2014). There is less empirical evidence that focuses on the disposal of apparel in developing countries such as South Africa, despite the fact that disadvantaged communities in these countries are at greater risk and are more negatively influenced by environmental deterioration (International Statistical Institute, 2015; IPCC, 2014).

It is widely acknowledged that the textile and apparel industries contribute to environmental problems. It was noted that in 2010, North America generated 12 million tons of apparel and textile waste per year (Desbarats, 2010). These figures are concerning because the whole textile supply chain continues to be one of the most harmful polluters (Hu *et al.*, 2014:7064; Kumari *et al.*, 2013). However, environmental concern has been expressed by all of the relevant stakeholders, which includes consumers and the South African Clothing Federation (Larney & Van Aardt, 2010). Despite this, it would seem that businesses and consumers in South Africa are disinclined to translate their concern into action by fully participating in eco-friendly initiatives (Smith & Perks, 2010). This emphasises the need for further empirical investigation to understand the underlying motivational factors that contribute to pro-environmental intent and appropriate action. Global research to date has mostly focused on explaining the motivational underpinnings for pro-environmental behaviour by using TPB and NAT (Bamberg & Möser, 2007; Oreg & Katz-Gerro, 2006). Although Meyer (2013) recently explored the relevance of the Value Belief Norm (VBN) Theory to predict consumers' disposal behaviour

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in a local context, there is limited empirical evidence that addresses the application of TPB and NAT in explaining female consumers' apparel disposal behaviour (e.g. re-using, recycling and/or donating) in South Africa. Despite its relevance, the disposal of apparel and clothing remains an understudied topic with most of the effort to date focused on the disposal of plastic, glass, and paper (Department of Environmental Affairs, 2012:9).

For the purposes of this study, female consumers' disposal behaviour is of particular interest because women tend to be the principal role players in households' decisions regarding clothing (Solomon, Russell-Bennett & Previte, 2013), and tend to be more environmentally concerned (Lee, 2009). In addition, there is a large volume of published studies describing the changing role of women in households throughout developed countries such as the United States and Australia, as well as in emerging markets such as India. In many cases, even though many men may still wear the pants in their households, it is their wives who bought these pants in the first place (Solomon *et al.*, 2013). Based on these arguments, this research is focused on explaining the underlying relationship between various motivational factors (including attitude, social norms, perceived behaviour control, personal norms, and an awareness of consequences, as postulated in TPB and NAT) that contribute to female consumers' pro-environmental intent, which may culminate in the eco-friendly disposal of apparel.

1.4   JUSTIFICATION OF THE STUDY

Environmental preservation and pro-environmental consumer behaviour will remain key issues in the quest for a sustainable future (Vlek & Steg, 2007). Without significant changes in everyday consumer practices, environmental damage will intensify and place natural resources at further risk. For these reasons it is important that environmental initiatives are promoted at all levels, from individuals to businesses (Lucas, Brooks, Darnton & Jones, 2008).

From an industrial perspective, the results of this study could be used to put pressure on businesses (e.g. fast fashion retailers) to become more conscious of the impact of their conduct on scarce resources and the wider natural environment

(Smith & Perks, 2010). Yet, the issue at hand may also require intervention initiatives that are implemented by government. A study done in Hong Kong showed that consumers expect more environmental protection initiatives and acts from the Government (Lee, 2009). The results of this research could inform initiatives that are implemented by the government to promote recycling e.g. allowing tax deductions for companies that recycle waste, and/or by enforcing recycling through business procurement legislation (Department of Environmental Affairs and Tourism, 2009:36). As pointed out by Lucas *et al.* (2008), such measures are needed to protect the environment, although government policies that exclusively focus on business practices would not be enough to change consumers' beliefs.

Public involvement and behavioural changes are equally important, which require further empirical investigation that could be used to inform policies and advance practical solutions at every level of society (Lucas *et al.*, 2008). Changes in consumers' behaviour may be encouraged by addressing their knowledge, preferences and beliefs through marketing, policies, advertising and information strategies (Vlek & Steg, 2007), for example, a study done among British school children found that children's behaviour regarding marine litter changed dramatically when they became more informed about the matter (Hartley, Thompson & Pahl, 2015). The findings of this study may have similar benefits in gaining a deeper understanding of female consumers' underlying pro-environmental motivation/ intent and using it to promote more appropriate apparel disposal behaviour.

Studies have indicated that green marketing has often neglected issues regarding product use and disposal behaviour (Peattie & Peattie, 2009). An understanding of the motivational factors that contribute to consumers' environmentally responsible disposal of clothing could therefore benefit the development of policies and marketing initiatives to promote disposal methods that will, in the long run, contribute to environmental preservation (Joung & Park-Poaps, 2013). As previously stated, consumers currently utilise 50% more natural resources than the earth can restore and thus harm the environment for their own benefit (WWF,

2012). If consumers don't change their behaviour, the environmental harm will only intensify.

The findings obtained from this study also provide a theoretical contribution. Several studies in more developed countries have used theories such as TPB and NAT to interpret pro-environmental behaviour (Oreg & Katz-Gerro, 2006; Bamberg, Hunecke & Blöbaum, 2007). However, the empirical verification of these theories in the South African emerging market context remains limited. This study therefore contributes to existing literature, specifically with regard to the relevance of TPB and NAT in explaining female consumers' pro-environmental disposal of apparel within the local emerging market context.

1.5 AIM AND HYPOTHESES

Based on the research problem and the theoretical background, the overarching aim of this research was to investigate the relationship between the motivational factors that contribute to female consumer's pro-environmental intent to engage in eco-friendly apparel disposal behaviour. The combination of TPB and NAT, as proposed by Bamberg and Möser (2007), served as an appropriate theoretical framework for this study. The constructs included in this conceptual framework were as follows: awareness of consequences and personal norms (based on the assumptions of NAT), as well as attitude, subjective norms (also known as social norms), perceived behaviour control and behaviour intent as derived from TPB (Park & Ha, 2014; Bamberg & Möser, 2007; Tonglet, Phillips & Read, 2004; Ajzen, 2002). These constructs will be further discussed in Chapter 2. The conceptual framework is presented in Figure 1.1 below.
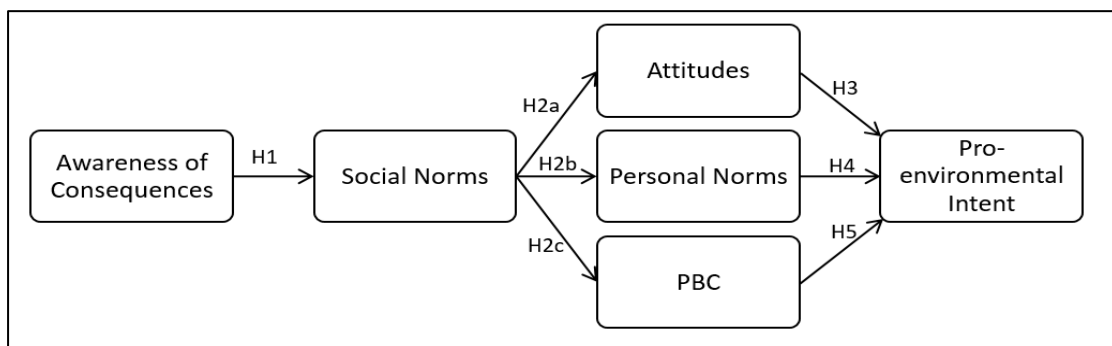
PBC = Perceived Behavioural Control
FIGURE 1.1: CONCEPTUAL FRAMEWORK BASED ON TPB AND NAT (Schwartz, 1977; Ajzen, 1991)

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In order to predict that there would be relationships between every construct, namely, the awareness of consequences, attitudes toward disposal behaviour, personal norms, social norms, and perceived behaviour control, the hypotheses are summarised as follows:

Hypothesis 1:   *Female consumers' awareness of environmental consequences regarding environmental problems is positively associated with social norms.*

Hypothesis 2a*: Social norms are positively associated with female consumers' attitudes toward pro-environmental disposal behaviour.*

Hypothesis 2b*: Social norms are positively associated with female consumers' personal norms.*

Hypothesis 2c*: Social norms are positively associated with female consumers' perceived behavioural control*

Hypothesis 3*:   Female consumers' attitudes towards disposal behaviour are positively related with their pro-environmental intent to dispose of apparel in an eco-friendly manner.*

Hypothesis 4*:   Personal norms are positively associated with female consumers' pro-environmental intent to dispose of apparel in an eco-friendly manner.*

Hypothesis 5:   *Perceived behavioural control is positively associated with female consumers' pro-environmental intent to dispose of apparel in an eco-friendly manner.*

1.6   RESEARCH DESIGN AND METHODOLOGY

In terms of the research design and methodology, the sample included 315 Gauteng female consumers who were all above the age of 18 who made decisions regarding the acquisition, use, and disposal of apparel. Female consumers were of particular interest since they tend to make the major household decisions regarding clothing (Solomon *et al.*, 2013) and tend to be more environmentally concerned (Martinez, Castaneda, Marte & Roxas, 2015; Lang, Armstrong & Brannon, 2013; Zhen & Mansori, 2012; Lee, 2009). The research used a quantitative technique and an explanatory research approach with a cross-

sectional survey design (Fouché, Delport & de Vos, 2014). A non-probability sampling technique was used in adopting a convenience sampling approach (Strydom, 2011a). A self-administrated electronic web-based, structured questionnaire was developed in line with the hypothesis of this study. The questionnaires were distributed via the Qualtrics web-based software in September 2015. At closure, 315 questionnaires were successfully completed. The data were automatically captured and coded by the web-based software, making these available to the primary researcher to determine and present basic descriptive statistics as well as more detailed inferential statistics.

1.7 DEFINITION OF TERMS AND CONCEPTS

Definitions of key terms and concepts used throughout the study are listed in Table 1.1 below for the sake of clarity and to increase the theoretical validity of the study.

TABLE 1.1: DEFINITION OF TERMS AND CONCEPTS

TERMS AND CONCEPTS		
TERM OR CONCEPT	DEFINITION	REFERENCE
Attitude	A favourable or unfavourable feeling that a person has when evaluating a behaviour.	Ajzen, I. 1991. The theory of planned behavior. *Organization Behavior and Human Decision Processes*, 50(2):170-211.
Awareness of consequences	Information used to judge whether acting pro-environmentally is the right thing to do.	Bamberg, S., Hunecke, M. & Blöbaum. 2007. Social context, personal norms and the use of public transportation: Two field studies. *Journal of Environmental Psychology*, 27:190-203.
Behavioural intent	An indication of the amount of effort consumers are planning to put in to behaving in a certain way. A proximal measure of behaviour.	Francis, J.J., Eccles, M.P. Johnston, M., Walker, A., Grimshaw, J., Foy, R., Kaner, E.F.S., Smith, L. & Bonetti, D. 2004. Constructing questionnaires based on the theory of planned behaviour. *Quality of Life and Management of Living Resources*: 1-42.
Consumer behaviour	A value seeking activity that takes place as consumers address their needs.	Babin, B.J. & Harris, E.J. 2013. *Consumer Behaviour*. 4th ed. South Western: Cengage Learning.

TERMS AND CONCEPTS		
TERM OR CONCEPT	DEFINITION	REFERENCE
Controllability	Consumers' perspective that they have control over their behaviour, and that the actual performance of this behaviour is completely up to them.	Ajzen, I. 2002. Perceived behavioural control, self-efficacy, locus of control and the Theory of Planned Behaviour. *Journal of Applied Social Psychology*, 32(4):1-20.
Developed country	High per capita income or gross domestic product (GDP), high level of industrialisation, high general standard of living, and satisfactory infrastructure.	Investopedia. 2015. *Developed economy*. [Online] Available from: http://www.investopedia.com/t erms/d/developed-economy.asp [Accessed: 6-12-2015].
Developing country	Countries with Gross National Income (GNI) per capita of USD 12,735 and less.	The World Bank. 2016. [Online] Available from: http://data.worldbank.org/about /country-and-lending-groups [Accessed: 16-06-2016].
Discard	The disposal of something because it is useless or unwanted.	Ezugwu, C.N. 2015. New Approaches to Solid Waste Management. *Proceedings of the World Congress on Engineering and Computer Science*, 2:21-23.
Disposal	The action or process of getting rid of something.	Jassal, L.K. 2015. Necromobilities: The Multi-sited Geographies of Death and Disposal in a Mobile World. *Mobilities,* 10(3):486-509.
Donation	Something (such as money, food, clothes) that you give in order to help a person or organisation.	Fischer, E. 2010. Sharing. *Journal of Consumer Research*, 715-734.
Environmental awareness	An individual's understanding of the impact of his or her behaviour on the environment.	Kollmuss, A & Agyeman, J. 2002. Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3):239-260.
Landfill	An area where waste is buried under the ground.	Scharff, H. 2014. Landfill reduction experience in The Netherlands. *Waste Management, 34(*11):2218–2224.

TERMS AND CONCEPTS		
TERM OR CONCEPT	DEFINITION	REFERENCE
Moral norms	Consumers' personal beliefs regarding the moral correctness or incorrectness of performing a certain action. This is based on the interplay of cognitive, emotional, and social factors.	Tang, Z., Chen, X. & Luo, J. 2011. Determining Socio-Psychological drivers of rural household recycling behaviour in developing countries: A case study from Wugan, Hunan, China. *Environment and Behaviour*, 43:848-877.
Perceived behavioural control	The presence of factors that may influence or hinder the intent to perform or behave in a specific way.	Ajzen, I. 1991. The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, 50(2):179-211.
Pro-environmentalism	A consumer's efforts to minimise the harmful environmental impact of human activities so as to preserve natural resources.	Kollmuss, A & Agyeman, J. 2002. Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental Education Research*, 8(3):239-260.
Pro-environmental consumer behaviour	Consumers' behaviour that improves social and environmental performances in addition to meeting their needs.	Wang, P., Liu, Q. & Qi, Y. 2014. Factors influencing sustainable consumption behaviours: a survey of the rural residents in China. *Journal of Cleaner Production*, 63:152-165.
Pro-environmental disposal methods	Umbrella concepts for donations, re-selling, reusing and the recycling process itself.	Recycling guide. 2003. *Reduce, reuse, recycle.* [Online] Available http://www.recycling-guide.org.uk/rrr.html [Accessed: 6-12-2015].
Recycling	To make something new from something that has been used before.	Hansen, M.W. and Kristensen, N.H., 2012. The institutional foodscapes as a sensemaking approach towards school food. 2nd Nordic Conference on Consumer Research 2012, 299-312.
Resell	The act of selling again, usually to a new party.	Calzolari, G. & Pavan, A. 2006. Monopoly with resale. *Journal of Economics,* 37(2):362–375.

TERMS AND CONCEPTS		
TERM OR CONCEPT	DEFINITION	REFERENCE
Re-use	To use again, in a different way or after reclaiming or reprocessing.	Bixio, D., Thoeye, C., De Koning, J., Joksimovic, D., Savic, D., Wintgens, T. & Melin, T. 2006. Wastewater reuse in Europe. *Desalination*, 187:89-101.
Self-efficacy	Consumers' confidence in their capabilities to organise and perform a certain course of action that is needed to produce the desired outcomes.	Tang, Z., Chen, X. & Luo, J. 2011. Determining Socio-Psychological drivers for rural household recycling behaviour in developing countries: A case study from Wugan, Hunan, China. *Environment and Behaviour*, 43:848-877.
Social norms	A social phenomenon that provides consumers with information on what is morally correct or not, as well as whether it is beneficial and easy to perform.	Bamberg, S. & Möser, G. 2007. Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology*, 27:14-25.
Sustainable consumption	The utilisation of goods and services as related to basic needs to bring about a better quality of life while minimalising the use of natural resources, toxic materials, emissions of waste, and the contamination of ecosystems so that the needs of future generations can be met.	Department of Environmental Affairs and Tourism. 2004. *Overview of environmental management: Integrated Environmental Management Information Series.* Available from: https://www.environment.gov.za/sites/default/files/docs/series0%20_overview.pdf [Accessed: 7-8-2016].
Waste	Any substance (whether or not that substance can be reduced, re-used, recycled and recovered) that is extra, unwanted, rejected, discarded, or disposed of.	Department of Environmental Affairs. 2012. *National waste information baseline report.* [Online] Available from: http://sawic.environment.gov.za/documents/1880.pdf [Accessed: 6-12-2015].

1.8   PRESENTATION AND OUTLINE OF THIS STUDY

This chapter provided an overview of this study in terms of the problem statement, the theoretical background, the justification and objectives of the research, as well

as the methodology. The succeeding chapters are outlined and summarised as follows:

Chapter 2 conceptualises apparel waste and consumers' pro-environmental behaviour in terms of the disposal of clothing products. It further gives a summary of the supporting theories that explain the underlying motivational factors influencing pro-environmental intent.

Chapter 3 gives an overview of the research design and research methodology. This chapter discusses the sample and sampling procedure. It explains the measurement instrument, the data collection techniques and the data analysis techniques. An operationalisation framework outlines the development of the questionnaire in terms of hypotheses. The validity and reliability of this study are also discussed.

Chapter 4 gives an overview of the results in terms of the demographic information. The demographics are explained using descriptive statistics by means of tables, graphs and numerical summaries, including frequencies and percentages to demonstrate the data. To interpret the results, exploratory factor analysis (EFA), Cronbach's Alpha and confirmatory factor analysis (CFA) were used. This chapter also specifies which motivational constructs influence the pro-environment behavioural intent of female consumers in Gauteng based on a structural equation model.

Chapter 5 provides a brief synopsis of the study in its entirety. It also presents a summarised discussion and conclusion of the findings. The study is then concluded with recommendations for future research, as well as for policy and practice.

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CHAPTER 2   LITERATURE REVIEW

The literature review sets the background for the research investigation and gives insight into the respective constructs of the study and the underlying relationships between these constructs. Two main themes will be introduced, i.e. apparel waste and consumers' pro-environmental behaviour with specific reference to the disposal of apparel products. The supporting theories that explain the underlying motivational factors that contribute to such behaviour will also be explored.

2.1   THE NEED FOR INTERVENTION TO ADRESS CLIMATE CHANGE

Various countries, such as South Africa, are currently threatened by numerous environmental problems such as the decline of natural resources, a loss of biodiversity, and climate change (Midgley, 2007). Bio capacity is necessary to produce a continuing supply of natural resources (Green Facts, 2016) and is fast declining due to the escalating ecological footprint of South Africa, which is 1.5 global hectares per person (WWF, 2012). Ecological footprint refers to the amount of land necessary to maintain an individual's use of natural capital and compares people's consumption and wastage of resources to the earth's capacity to reproduce those diminished resources (WWF, 2016). Climate change is caused by global warming which refers to changes in temperature, precipitation, and wind patterns (US EPA, 2016) and overconsumption by societies (Midgley, 2007). The consumption of natural resources adds carbon emission to the atmosphere, contributing to climate change (US EPA, 2016). In more developed countries, it is estimated that general waste is responsible for approximately 1,4 gigatonnes of equivalent carbon dioxide per year (Stern, 2007). Waste in South Africa also contributes to climate change and thus needs to be addressed (Freemantle, 2009).

Based on the aforementioned facts, it becomes apparent that pro-environmental business and sustainability initiatives are imperative, but perhaps more so on a continent such as Africa that is vulnerable to climate change (Jackson, 2005). Social and political stability, efficiency and labour supply, as well as investment decision making and other macro level disputes are all affected by the repercussions of climate change (Stern, 2007). Reducing consumption may be an

effective way to address climate change as it will reduce carbon emissions (University College London, 2013). Reusing and recycling could also lead to less resources being required to produce new goods and a reduction in associated emissions (Stern, 2007). An industry that warrants specific attention in this regard is the apparel industry and forms the primary focus of discussion in the sections to follow.

2.2 ENVIRONMENTAL IMPLICATIONS OF THE APPAREL INDUSTRY

A considerable amount of literature, for example, papers by Singare and Dhabarde (2014) in India, and Hu *et al.* (2014) in China, has been published on the environmental implications of the apparel and textile industry. The increase of foreign direct investment (toward the manufacturing of chemicals, textiles and other products) to USD 50 billion within 5 years in India is an example of economic expansion and industrialisation that could have severe environmental implications. The reason for this is that industrial wastewater, which pollutes the environment, is one of the main causes of irreversible damage to ecosystems (Singare & Dhabarde, 2014). The pollution of ecosystems due to industrialisation in India also has several repercussions for the local people who depend solely on ecosystem services, and in many cases, this in turn causes further poverty (Singare & Dhabarde, 2014). As mentioned before, the textile industry is recognized internationally as one of the major polluters, from the manufacturing process through to sales, distribution, and the use of clothing (Hu *et al.*, 2014). This emphasises the need for the apparel and textile industry to be more pro-environmental, especially those industries situated in developing countries such as India, China and South Africa where local populations are in some instances more severely affected by its consequences.

The following section provides a brief introduction to the South African apparel and textile industry, before progressing into a discussion of more specific challenges associated with apparel waste in this emerging market context.

2.3   THE SOUTH AFRICAN APPAREL AND TEXTILE INDUSTRY

South Africa's apparel and textile industry is mainly situated in the Western Cape, KwaZulu-Natal and partly in Gauteng (Business Partners Limited, 2014). This industry contributes 2.9% of the total manufacturing divisions in South Africa. It has also had a total growth rate of 1.4% between 2014 and 2015 with a total revenue of approximately R174,89 billion. In 2013, the sales contribution of this industry was R12,6 billion per year (Statistics South Africa, 2015). The clothing industry was considered as South Africa's second largest source of tax revenue and contributed to 14% of manufacturing employment in 2013. Even though the employment of the industry has shown some decreases in recent years, it is still responsible for up to 80 000 jobs and represent 8% of South Africa's Gross Domestic Product (GDP) (Business Partners Limited, 2014). According to the Economic Analysis Unit of South African Retail Market (SRM) (2012) the local clothing industry is considered as one of the most profitable industries with an average profit margin of 10.8%. The key industry players in South Africa include Edcon Pty (Ltd), Mr Price, Truworth's International and the Foschini group (Economic Analysis Unit of SRM. 2012).

Despite its contribution to the local economy, the South African apparel industry is characterised by several complexities including cheap imports and job losses. The domestic manufacturers underwent an extremely difficult time when China became part of the World Trade Organisation in 2001 as South African retail businesses could source cheaper clothing and textile products from China than what they could acquire locally (Business Partners Limited, 2014). Subsequently, employment decreased from about 181 000 in 2002 to 80 000 in 2013. More than 52 clothing factories closed in 2011 alone and thousands of jobs moved to Lesotho where salaries are less than a third than South Africa's (PWC, 2012). The government created a recovery plan in 2009 for the clothing and textile industry named the Clothing and Textiles Competitiveness Programme (CTCP) and helped to recover the industry to some extent (Business Partners Limited, 2014). Yet, in addition to these complexities, there are also environmental implications linked to this industry, not least of which is the issue of waste. It is estimated that the apparel

manufacturing industry in South Africa contributes to 62% of waste in landfills (Larney & Van Aardt, 2010:39-40) and thus require specific attention.

2.4 CHALLENGES ASSOCIATED WITH APPAREL AND TEXTILE WASTE IN THE SOUTH AFRICAN CONTEXT

Waste is a serious issue. The National Environmental Management (NEM) Waste Act of 2008 (Department of Environmental Affairs and Tourism, 2009) defines waste as, "Any substance, whether or not that substance can be reduced, re-used, recycled and recovered". Furthermore, waste may be divided into two categories, namely, general waste and hazardous waste. General waste refers to, "Waste that does not pose an immediate hazard or threat to health or the environment", while hazardous waste means, "any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment" (National Waste Information Baseline Report, 2012). For the most part, apparel waste (including consumers' disposal of apparel waste) forms part of general waste. It may therefore not have immediate negative influences, but is recognised as waste that leads to long term environmental consequences (Chen & Burns, 2006). The problem with waste is that it usually ends up in landfills, which are also related to health problems (Department of Environmental Affairs, 2012:17). Furthermore, decomposing apparel leaches toxic materials into water, which ultimately contributes to global warming (Tock, Lai, Lee, Tan & Bhatia, 2010).

Both consumers and businesses contribute to the creation of waste. In 2013, textile and apparel waste in the United States amounted to 12.4 million tons, of which only 1.8 million tons were recovered (US EPA, 2013). Although limited information is available regarding the amount of textile waste in South Africa, it can be reasoned that there might also be problems relating to such waste in a local context. Larney and Van Aardt (2010) did a study on apparel manufacturing companies in South Africa. They found that 62.1% of the companies' waste ended up in landfills, whereas only 42.4% of the companies recycled their waste. Interestingly, 7.6% sold their waste. The researchers concluded that textile companies are not able to manage their waste in a sustainable manner and should

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therefore give more thought to this matter. Due to the excessive amount of textile waste that is generated on a yearly basis, the apparel and textile industry influences consumers, animals, and the whole eco-system negatively (Bianchi & Birtwistle, 2012)

While South Africa has some waste management policies and strategies in place, there is limited information regarding the creation and essence of the stream of textile waste that is disposed of at landfill sites. Currently, the Department of Environmental Affairs focuses on the recycling of paper, plastic, glass, and tires (Department of Environmental Affairs, 2012). It is crucial that both consumers and businesses address environmental problems such as excessive waste that end up in landfills (Lucas *et al.*, 2008). In particular, it is necessary to transform apparel disposal behaviour so that clothing and other textile products do not find their way into landfills, but rather come to good use in other ways with more positive environmental consequences. The following section will discuss consumers' role in curbing textile and apparel waste, and the different pro-environmental disposal options (i.e. donating, reselling, reusing and recycling). The mitigation of unsustainable behaviour will also be discussed.

2.5 CONSUMERS' ROLE IN CURBING TEXTILE AND APPAREL WASTE

Consumer behaviour relates to the purchase, use and disposal of products (including apparel and textile items), which from an environmental perspective, should have less harmful consequences (Babin & Harris, 2013; Vlek & Steg, 2007). In the past, consumers reused and recycled more because they had fewer items and people had to care for their things, which ultimately prevented waste (Ekström & Salomonson, 2014). These days there are various reasons for disposing of apparel including poor fit, fashion boredom, wear and tear, and a lack of storage space (Laitala, 2014). Fast fashion retailing in particular has led to large amounts of clothing being disposed of or discarded (Bianchi & Birtwistle, 2012:340). Lang *et al.* (2013) conducted online surveys involving more than 500 men and woman in the USA who represented three different generational cohorts. They found that consumers who are fashion conscious shop more frequently and thus dispose of their apparel more frequently than those who are less fashion

conscious (Lang *et al.,* 2013). Designers intentionally produce new designs to persuade consumers to embrace new fashions, and even though the continuous development of new garments is good for business, it does not necessarily benefit the environment (Gwilt, 2015). As stated before, it is estimated that due to fast fashion, the average American discards 29.48 kg of clothing a year, which contributes to wasting energy, water, and landfill space (Lyday, 2014). Without significant consumer behavioural changes in the fashion and apparel industry, environmental damage will intensify and put the environment at further risk. Pro-environment consumer behaviour will thus become an increasingly important key issue in the future (Vlek & Steg, 2007; Bamberg & Möser, 2007).

Pro-environmental behaviour refers to any behaviour that will contribute to environmental preservation by reducing harmful environmental consequences as much as possible (Stern, 2007; Vlek & Steg, 2007). Consumers' behaviour towards the environment is often related to basic human values and beliefs. Previous research has established that people who value environmental quality are also more concerned about the environment (Poortinga, Steg & Vlek, 2004), which could have an impact on their eco-friendly behaviour (Gam, 2011:190). Yet, it also depends on whether it is easy (relating to availability, affordability, and accessibility of facilities) to act pro-environmentally (Joung, 2013). Demographic characteristics may also influence pro-environmental behaviour. As previously mentioned, female consumers tend to be more pro-environmental and also those who have higher levels of education (Martinez *et al.*, 2015; Zhen & Mansori, 2012). In terms of apparel disposal habits, empirical results indicate that younger consumers tend to buy cheaper fashionable apparel, whereas older adults buy more expensive, quality apparel, which, in addition to gender and household income, are directly related to disposal frequency (Lang *et al.*, 2013).

Aschemann-Witzel, de Hooge, Amani, Bech-Larsen and Jenny (2015) maintain that most consumers are pro-environmental, but are often ignorant about the impact of their own behaviour and furthermore lack planning and the relevant knowledge to act in an appropriate manner. With regard to the underlying motivational factors, Joung and Park-Poaps (2013) conducted a survey among 232 college students to investigate disposal methods based on the assumptions

of Ajzen and Fishbein's (1997) Theory of Reasoned Action. They in fact found that respondents were aware of the different disposal options that could reduce the environmental impact of textile waste (i.e. donating, reusing, reselling and recycling), but they chose to discard anyway. It is therefore important to understand consumers' underlying motivation to engage in different apparel disposal methods in order to encourage pro-environmental options (Joung & Park-Poaps, 2013).

At this point it is important to note that the aforementioned empirical findings were mostly derived from populations in more developed countries that may not always be relevant in terms of consumers in South Africa due to the complexity and diversity of the local population (SouthAfrica.Info, 2015). To date, only limited research has addressed South African consumers' pro-environmental disposal behaviour, e.g. Meyer's (2013) study, which focused on the underlying impact of values and beliefs on apparel disposal behaviour. Based on the recommendations of this study, further empirical evidence is needed about local consumers' willingness to engage in pro-environmental methods of apparel disposal such as donating, reselling, reusing and recycling.

2.6   PRO-ENVIRONMENTAL METHODS OF APPAREL DISPOSAL

Abroad, a few studies have already specifically focused on apparel disposal behaviour by engaging in various pro-environmental disposal methods such as reselling or recycling clothing items, a consumer could gain other advantages (e.g. financial gain) in addition to reducing waste and pollution. The following discussion will highlight various apparel disposal methods as identified through the existing literature.

2.6.1   Donate

A study carried out by Bianchi and Birtwistle (2012) in Australia and Chile aimed to explore the donation of clothing items to charities, and giving apparel to family and friends. According to the researchers, donating apparel to charities and/or passing it on to family and friends represents a form of environmentally responsible disposal behaviour (Birtwistle & Moore, 2007) and is a prevailing form

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of apparel disposal in the local context, especially among female consumers with children (Meyer, 2013). It was found that consumers with a positive attitude towards recycling are more likely to dispose of their clothing by giving these to charity than giving these to family and friends (Bianchi & Birtwistle; 2012).

Although donation is recognised as a pro-environmental disposal option (Joung & Park-Poaps, 2013), it may be less influenced by environmental concerns than the underlying motivation to help others (Bianchi & Birtwistle, 2012). There are many organisations and charities that depend on apparel donations. Some of these organisations care for abused women or HIV-positive people, whereas others, for example, provide shelter for the homeless and poor (Cape Town Magazine, 2015). It is suggested that more clothing will be donated instead of discarded if charities set out more collection points or do home collections. Also, the donation of clothing could provide opportunities for fashion retailers to develop strategies (in collaboration with charities) whereby consumers could donate their unwanted clothing and then receive incentives to repurchase from that retailer (Bianchi & Birtwistle, 2012).

In addition to the above, the donation of clothing is significantly influenced by reference groups (Joung & Park-Poaps, 2013) and as Young Lee, Halter and Johnson (2013) established in their qualitative study, young consumers donate clothing because they feel that they can help others by doing so, and it makes them feel good. The underlying reasons for apparel donation may, however, differ from one consumer population to another. Research done by Bianchi and Birtwistle (2012) established that even though consumers in Chile and Australia may have the same level of environmental awareness, Australians are more inclined to donate their clothing than their Chilean counterparts (Bianchi & Birtwistle, 2012). Consumers in Australia who have a higher level of environmental awareness give their clothing to family and friends rather than donating it to charity organisations. Chilean consumers' awareness of the environment does not impact either giving clothing to family and friends or donating to charities (Bianchi & Birtwistle, 2012). For these reasons, it is important to study disposal behaviour from the unique perspective of specific consumer segments.

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2.6.2 Resell

Limited research has been done on the resale behaviour of consumers in terms of apparel, but it would seem that consumers resell unwanted apparel in order to save money (Joung & Park-Poaps, 2013) and make use of resources such as e-bay or second hand shops for these purposes (Birtwistle & Moore, 2007). The underlying reasons for the reselling of apparel may therefore be mostly linked to financial reasons, but this option nevertheless incorporates positive environmental consequences by reducing textile waste. Apart from the study conducted by Meyer (2013) who found that education level influences consumers' resale behaviour in South Africa, very limited empirical evidence exists regarding consumers' resale behaviour in the local context. Overall, it would however seem that the second hand apparel trade in domestic and foreign markets are dominated by non-profit organisations and textile recycling firms (Callan, Street & Underdown, 2013).

Although the second-hand apparel trade has a positive impact on the environment, some drawbacks have been identified. The government of Tanzania, for example, banned the import of used underwear to prevent skin problems and venereal diseases (Eicher & Evenson, 2014, Callan *et al.*, 2013). In a similar vein, Poland has issues regarding hygiene and public health in terms of the import of second-hand apparel and footwear from European countries that are affected by foot-and-mouth diseases. Second-hand apparel was also banned in Indonesia because of the threat it posed to local garment production (Callan *et al.*, 2013). These issues highlight additional complexities that should be considered in the endorsement of reselling as a pro-environmental disposal option.

2.6.3 Reuse and recycle

The South African Waste Information Centre (SAWIC) (2016) defines reuse as "…utilis[ing] the whole, a portion of or a specific part of any [articles] substance, material or object from the waste stream [again] for similar or different purpose without changing the form or properties of such [articles] substance, material or object". For example, glass is collected by collection depots, and containers at individual businesses and landfill sites where it may be cleaned and then reused (Department of Environmental Affairs and Tourism, 2009). Recycling includes the

separation of general and hazardous waste and the methods that are incorporated to reuse such waste (Department of Environmental Affairs and Tourism, 2009). Abroad, Birtwistle and Moore (2007) established that there are consumers who upcycle, by using old apparel to make new items and thus reuse apparel in such a manner. On a broader scale, recycling firms purchase used apparel in bulk from the enormous amount of apparel gathered by charitable organisations and then sort the apparel by garment type, fabric, and quality. The top-quality items are often sent to Japan, the lowest quality apparel to Africa, and the medium-quality to Latin-America. Of the poorest quality and damaged apparel are then also processed into fibres for industrial use (Callan *et al.*, 2013).

Research has been done on the recycling of textiles in the South African context (Meyer, 2013; Department of Environmental Affairs and Tourism, 2009). However, in terms of other product categories, it would seem that the majority of the recyclers are located in Gauteng where schools, churches, and welfare organisations are involved in the recycling of cans, paper, and returnable bottles to collect money for budgets or special needs and to educate consumers about environmental issues. Economic conditions have an effect on consumers' motivation for recycling behaviour. It seems that certain provinces are motivated by economic conditions (e.g. if there is a high need for job creation) rather than the environmental need to engage in recycling activities. Although reports at the time of this study indicate an increased level of recycling paper, plastics, cans, and glass due to such efforts, there is still an enormous amount being disposed of at landfills (Department of Environmental Affairs and Tourism, 2012). The Gauteng Province, in particular, is disadvantaged by the inaccessibility of recycling companies (Department of Environmental Affairs and Tourism, 2012).

Do Valle *et al.* (2005) maintain that perceived convenience and communication influence recycling involvement, and that these two constructs should be targeted through social media. They suggest that collection services should provide information about selective-collection and recycling to encourage consumers to recycle. They further state that the recycling frame can be improved by making it easier for consumers to recycle, for example, by shortening the distance between consumers' houses and recycling collection points. In Sweden, for example, they

have made it easier for consumers to recycle by placing recycling bins close to where consumers live, which has increased recycling activities. Although such initiatives may be expensive to incorporate, it might facilitate a process whereby consumers recycle their unwanted apparel rather than discarding it (Ekström & Salomonson, 2014).

2.7 MITIGATION OF UNSUSTAINABLE DISPOSAL BEHAVIOUR

As pointed out previously, consumers may discard unwanted apparel or textiles because they are damaged, worn-out, do not fit anymore, or have become out-dated (Hawley, 2006). Unfortunately, in several recent studies, including a qualitative study that utilised interviews, participants' responses confirm that consumers dispose of their waste in the trash where it ends up in municipal landfills rather than utilising other pro-environmental means of disposing of their waste. Because this study was based on a qualitative research approach with a limited convenience sample, the generalisability of these results is questionable, but Joung (2013) uncovered a larger sample of college students' post-purchase behaviours in the USA by using survey questionnaires, and found that respondents discarded unwanted clothing, particularly when recycling facilities were unavailable. Joung and Park-Poaps (2013) further found that it is not just a question about the availability of recycling facilities, but that consumers discard their clothing because it is more convenient for them. In other words, consumers are aware of clothing disposal options, but choose to discard textile products anyway due to various factors, of which convenience is the most prominent.

For these reasons, Joung and Park-Poaps (2013) advise that the recycling industry should make it more convenient for consumers to dispose of clothing and suggest drop-off sites or community collection bins in convenient places for easy access. They also emphasise that it is important to develop a culture of recycling from an early age (Joung & Park-Poaps, 2013). From an industry perspective it is vital that business should be influenced to also become aware of the current environmental problems including the repercussions of waste (Smith & Perks, 2010) and develop information strategies that could help to educate consumers about disposal options that may benefit the environment. The government could

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also play a part in conveying what is deemed to be socially acceptable behaviour in terms of the disposal of apparel (Steg & Vlek, 2009). Although such efforts will most probably not be realised in the short-term, and underlying reasons for disposal to landfill may prevail in the near future, the evidence seems to suggest overall that female consumers are more prone to engage in eco-friendly activities than their male counterparts.

2.8 FEMALE CONSUMERS' TENDENCY TO ENGAGE IN PRO-ENVIRONMENTAL BEHAVIOUR

Demographic information includes aspects such as age, gender, and income (Babin & Harris, 2013). These aspects are important when determining marketing segmentations and strategies to influence or change consumer behaviour. Gender may be an important demographic factor as it is known to influence pro-environmental behaviour (Mobley & Kilbourne, 2013). As previously mentioned, female consumers have stronger attitudes and behaviour towards the environment, and also demonstrate more environmental concern as men. Surprisingly though, men have more knowledge about the environment, but are not willing to change their behaviour to act in a more environmentally responsible manner (Brits, 2015; Marx-Pienaar & Erasmus, 2014). The reason for this may be that men are often more critical about information relating to topics such as climate change and thus need to be convinced to a larger extent that mitigating efforts are needed (Brits, 2015).

A study that was conducted in the local context by Rousseau and Venter (2004) did in fact establish that females in particular seem to be more environmentally concerned, which confirms empirical evidence derived from studies carried out abroad (Lee, 2009). Interestingly, Askari, Mohseni and Shahriary (2015), who compared two groups of boys and girls, found that Irian boys showed more pro-environmental behaviour, but Iranian girls understood the seriousness of the environmental degradation better, and had higher perceived personal responsibility towards the environment. This may be attributed to the fact that females tend to be more caring, and are therefore also more expressive in terms of their feelings (Lee, 2009).

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In general, it would seem that compared to men, female consumers tend to engage more frequently in environmentally responsible disposal behaviour (Lang *et al.*, 2013) and are also more likely to buy eco-friendly products (Lee, 2009). It is argued that female consumers (in many cases mothers and wives) are more willing to act in the best interest of their families and future generations (Zhen & Mansori, 2012). In recognising the environmental implications of their actions, which could be detrimental to future generations, women may therefore be more willing to engage in eco-friendly activities (Gam, 2011). Focusing more specifically on eco-friendly apparel, Gam (2011) for example found that fashion conscious female consumers had stronger eco-friendly apparel purchase intentions, but that it was important that the retail shopping environment offered the facilitating opportunities that enabled women to act on their pro-environmental intentions i.e. eco-friendly products and services should be advertised to influence these female consumers' behaviour (Gam, 2011). Nevertheless, it should be noted that pro-environmental behaviour may have various underlying reasons and may differ from one context to the next (Connell, 2010), which emphasises a continued effort and the need for further empirical research to obtain a better understanding of the underlying factors that contribute to pro-environmental disposal behaviour.

2.9 SUPPORTING THEORIES TO INTERPRET CONSUMERS' DISPOSAL BEHAVIOUR

Several theories have been developed to explain consumers' underlying motivation and intent to engage in pro-environment behaviour. In recent years, researchers have started to combine these theories to more accurately predict the determinants of such behaviour (Oreg & Katz-Gerro, 2006). A typical example is the combination of the Theory of Planned Behaviour (TPB) and the Norm Activation theory (NAT) to explain behaviours such as public transport use (Bamberg *et al.*, 2007) and recycling involvement (Do Valle *et al.*, 2005). For the purposes of this study, TPB and NAT seemed particularly appropriate as both theories include various underlying motivational constructs that may explain consumers' intent to dispose apparel in a pro-environmental manner.

2.9.1 Introducing the Norm Activation Theory (NAT) and the Theory of Planned Behaviour (TPB)

NAT, as illustrated in Figure 2.1, was originally developed by Schwartz (1977), and is based on the assumption that personal norms, social norms, awareness of consequences, and ascription of responsibility are determinants of pro-social behaviour such as pro-environmental disposal behaviour (Schwartz, 1977).
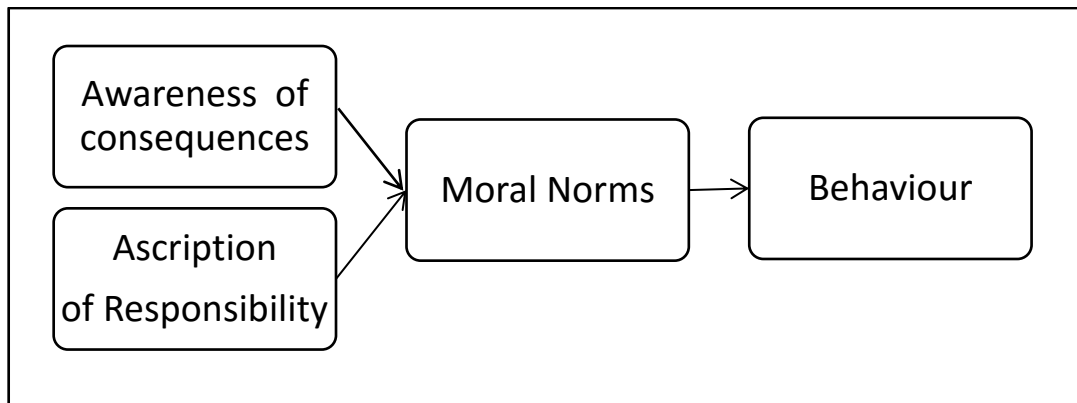
FIGURE 2.1: NORM ACTIVATION THEORY (NAT) (Schwartz, 1977)

TPB is an extension of the original Theory of Reasoned Action (TRA), and is based on the assumption that attitudes toward a behaviour, subjective norms/social norms, and perceived behavioural control (PBC) predict intention and eventual behaviour (Ajzen, 1991). The Theory of Planned Behaviour is presented diagrammatically below (Figure 2.2).
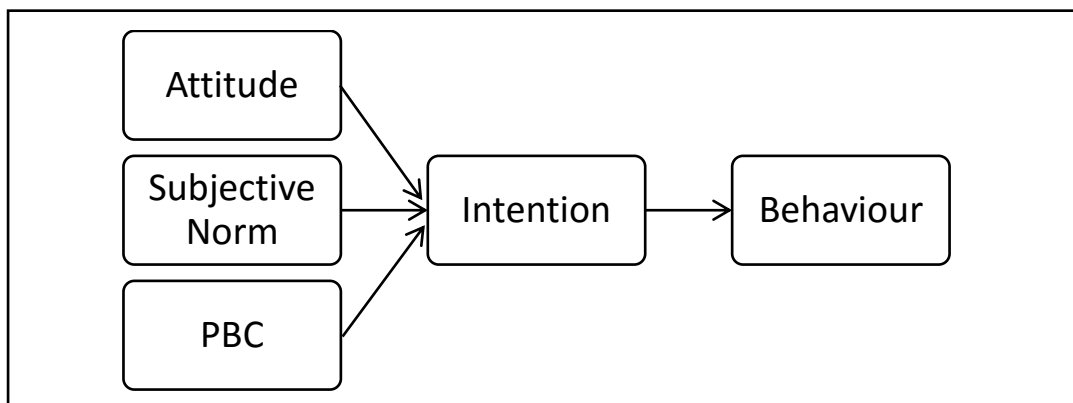
FIGURE 2.2: THEORY OF PLANNED BEHAVIOUR (Ajzen, 2006)

TPB and NAT are widely acknowledged theories in the environmental domain and have often been used in combination to explain various types of pro-environmental actions (Bamberg & Möser, 2007). As explained by Bamberg and Möser (2007) TPB, in isolation, can be used to predict intentions and behaviour, however, when additional normative variables that form part of NAT are added it may increase the predictive ability of the model. This is attributed to the fact that pro-environmental behaviour may include a combination of pro-social motives and self-interest.

It is generally accepted that pro-environmental behaviour has some pro-social facet and therefore researchers have included NAT's constructs to explain such behaviour (Park & Ha, 2014; Wall, Devine-Wright & Mill, 2007; Do Valle *et al.*, 2005). However, it is also assumed that there must be some self-interest reasoning, which may be better explained through TPB's constructs, namely, attitudes towards behaviour, social norms, PBC and intent (Bamberg & Möser, 2007). For these reasons, TPB and NAT have been combined by many researchers to more accurately address the underlying determinants of pro-environmental behaviour (Park & Ha, 2014; Bamberg & Möser, 2007; Do Valle *et al.*, 2005). The constructs and construct associations that form part of a combined model, as postulated by Bamberg and Möser (2007), formed the theoretical basis of this study and will be discussed in the following sections.

2.9.2 Awareness of environmental problems and the ascription of responsibility

When consumers are knowledgeable about environmental concerns, it seems that they tend to care more and are more enthusiastic about engaging in pro-environmental behaviour. Fryxell and Lo (2003) define environmental knowledge as, "…general knowledge of facts, concepts, and relationships concerning the natural environment and its major ecosystem". Such an awareness and knowledge may develop from an early age. Hartley *et al.* (2015) carried out a study on 176 British schoolchildren between the ages of eight and 13 years old to test the impact of an educational intervention. They found that children are more concerned about the environment when they understand the consequences of pollution; and the more concerned they are about the environment, the more likely they are to engage in eco-friendly behaviour. Although this study was carried out

among schoolchildren, it is surmised that adults may also develop a sensitivity towards the environment when they become more aware of environmental issues, which could ultimately motivate them to engage in pro-environmental behaviour (Park & Ha, 2014).

Some empirical research e.g. Kozar and Hiller-Connell (2013) as well as Park and Ha (2014), established that knowledge and an awareness of consequences has a direct influence on consumers' sense of responsibility and pro-environmental behaviour. Yet, on the one hand, the study by Momberg, Jacobs and Sonnenberg (2012) that was conducted in the local context found that a consumer's apparel decision making is not always directly influenced by their broader environmental awareness and knowledge, since there may be other situational factors that mediate and impede their ability to take appropriate action.

Although there might be debates surrounding a *direct* link between knowledge/ awareness and actual behaviour, it is broadly acknowledged that an awareness of consequences does *indirectly* impact pro-environmental behaviour through its influence on other underlying socio-psychological constructs such as attitudes, personal norms and social norms (Wall *et al.*, 2007; Do Valle *et al.*, 2005). More specifically, people use their general awareness of the causes and consequences of environmental problems as additional information to judge whether acting pro-environmentally is the right thing to do (Bamberg *et al.*, 2007), and whether acting in a pro-environmental manner is good, wise and/ or beneficial (De Groot & Steg, 2010). Kozar and Hiller-Connell (2013) explain that when consumers become more aware of eco-friendly issues, they develop a sense of responsibility to prevent negative environment consequences and are then more likely to engage in eco-friendly behaviour. For these reasons ascription of responsibility is strongly related to an awareness of consequences and may even refer to one single concept and measure. Discriminant validity could not be established between an ascription of responsibility and an awareness of consequences in Sonnenberg's (2014) study and was furthermore, treated as a single concept in Taljaard's (2015) study.

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Regardless, whether it represents one or two underlying dimensions, ascription of responsibility in conjunction with the awareness of environmental consequences are seen as direct predictors of social norms in a combined NAT and TPB model (Bamberg & Schmidt, 2003). This is because a consumer's awareness of environmental problems (in conjunction with the underlying ascription of responsibility) may influence the particular social norms he/ she ascribes to (Wall *et al.*, 2007; Do Valle *et al.*, 2005) in conforming to the pressure and expectations of social reference groups' to act in pro-environmental manner (Park & Ha, 2014). Following the examples of Taljaard (2015) and Sonnenberg (2014), awareness of consequences and the ascription of responsibility was treated as a single measure in formulating the following hypothesis:

Hypothesis 1:   *Female consumers' awareness of environmental consequences regarding environmental problems is positively associated with social norms.*

2.9.3   The influence of social norms on attitudes, personal norms and PBC

In a combined NAT and TPB model, social norms are viewed as indirect determinants of pro-environmental intent (Sonnenberg, 2014; Bamberg & Möser, 2007). Social norms refer to the social pressure consumers experience when their friends or family expect them to behave in a certain way (Francis, Eccles, Johnston, Walker, Grimshaw, Foy, Kaner, Smith & Bonetti, 2004). If a person feels that their significant others endorse a behaviour, the person is more likely to perform the behaviour (Armitage & Conner, 2001). Lapinski and Rimal (2005) classify social norms into two categories, namely, injunctive and descriptive norms. Injunctive norms refer to the social pressure to perform or not to perform, and include normative beliefs and the motivation to comply (Ajzen, 1991). Normative beliefs refer to whether family and friends believe that the person should act in a certain way. Motivation to comply refers to the extent to which a person considers family and friends' beliefs before acting in a certain way (Joung & Park-Poaps, 2013; Ajzen & Fishbein, 1977). Descriptive norms, on the other hand, refer to what a person believes their family and friends actually do and thus serve as an example for what is considered appropriate behaviour (Lapinski &

Rimal, 2005:130). According to Cialdini and Kallgren (1991), consumers engage in pro-environmental behaviour when descriptive norms support such behaviour. Kim, Jeong and Hwang (2012) find that social norms could be a better way to implement environmental practices than providing, for example, monetary incentives such as tax discounts.

It is further postulated that social groups influence consumers' attitudes since they are encouraged to have a certain perspective on what is acceptable within their social reference groups. Reference groups may influence a consumer's beliefs and attitudes regarding several topics (Du Plessis & Rousseau, 2007). Attitude is defined as the extent to which a consumer has a favourable or unfavourable feeling towards a particular topic (Tang, Chen & Luo, 2011). In general, consumers' attitudes are influenced by their family and friends (i.e. social reference groups) and it therefore makes sense that social norms would also induce consumers' attitude toward pro-environmental disposal behaviour such as recycling or donating unwanted apparel for the sake of the environment (Park & Ha, 2014). The following hypothesis was thus formulated:

Hypothesis 2a: *Social norms are positively associated with female consumers' attitudes toward pro-environmental disposal behaviour.*

In addition to its influence on attitudes, social norms also have a direct impact on personal norms. Social norms are based on the fear of social restrictions, whereas personal norms refer to a person's judgement as to whether acting in a certain way is right or wrong (Bamberg *et al.*, 2007). According to Bamberg and Möser (2007), personal norms are directly influenced by social norms since consumers feel obligated to behave in a way that is acceptable within their social groups. Emotional and social factors influence personal norms since these are related to a consumer's belief of what is morally right and wrong (Tang *et al.,* 2011; Steg & Vlek, 2009). Social norms, which are specified by a consumer's family, friends and other reference groups, may serve as a source of information on what may be considered as acceptable behaviour and therefore, social norms influence personal norms (Bamberg *et al.*, 2007). Social norms may be significant inspirations in developing countries such as South Africa as consumers tend to be

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less individualistic than their counterparts in more developed economies (Burgess & Steenkamp, 2006). Taljaard (2015) and Sonnenberg's (2014) studies that were conducted in the local context, established that social norms have a significant positive influence on personal norms. It was thus hypothesised that:

Hypothesis 2b: *Social norms are positively associated with female consumers' personal norms.*

Social norms also influence PBC directly (Bamberg & Möser, 2007). PBC is related to whether a consumer believes that they have control over a behaviour (Bamberg, 2003; Ajzen, 1991; Ajzen & Fishbein, 1977) and how easy or difficult it is to perform the behaviour e.g. pro-environmental behaviour (Chen & Tung, 2014; Tang *et al.*, 2011; Ajzen, 1991). Consumers' social groups influence their perception as to whether it is possible to enact pro-environmental behaviour such as disposing of apparel in an eco-friendly manner (Park & Ha, 2014). The following hypothesis was formulated based on the aforementioned arguments:

Hypothesis 2c: *Social norms are positively associated with female consumers' perceived behavioural control.*

2.9.4 The influence of attitudes on consumers' pro-environmental intent

Attitude towards a certain behaviour is a person's overall evaluation of this behaviour (Francis *et al.*, 2004). In terms of the environment, this refers to the respect that a person has for the environment, thus including their environmental concern. It also refers to a favourable or unfavourable feeling that a person has when evaluating a particular behaviour (Bamberg *et al.*, 2007). Attitude has an important impact on a person's motivation to behave in a certain way (Ajzen & Madden, 1986). According to Ajzen and Driver (1992), attitudes can be classified into two categories, namely, affective and instrumental evaluations towards behaviour. Affective evaluation refers to whether consumers enjoy the behaviour, and instrumental evaluation, on the other hand, refers to whether consumers perceive the behaviour as beneficial. From a somewhat different perspective, Francis *et al.* (2004) explain that attitudes include two aspects that work together, namely the beliefs about the consequences of the behaviour (for example,

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recycling apparel will have positive environmental consequences); and positive or negative judgements about the behaviour (i.e. outcome evaluation, for example, recycling is desirable/undesirable for the environment). This relates to the earlier discussion surrounding the concept of "an awareness of consequences".

In following the classification suggested by Ajzen and Driver (1992), this study treated affective evaluation as the extent to which a consumer enjoys acting in a pro-environmental manner by donating, reselling and/ or recycling/ reusing apparel; and instrumental evaluation was treated as a consumer's perception of the pro-environmental benefits of such behaviour (Taljaard, 2015; Joung & Park-Poaps, 2013; Tang *et al.*, 2011). As postulated in TPB, attitudes influence behavioural intent directly, and actual behaviour indirectly through behavioural intent (Bamberg & Möser, 2007; Armitage & Conner, 2001; Ajzen, 1991). Therefore, Hypothesis 3 was formulated as follows:

Hypothesis 3*:   Female consumers' attitudes towards disposal behaviour are positively related with their pro-environmental intent to dispose of apparel in an eco-friendly manner.*

2.9.5   The influence of personal norms on consumers' pro-environmental intent

As pointed out earlier, social norms are based on the fear of social restrictions, whereas personal norms refer to a person's judgement pertaining to whether acting in a certain way is right or wrong (Bamberg *et al.*, 2007). Bamberg *et al.* (2007) clarifies that personal norms mediate the link between social norms and pro-environmental intent that may lead to eventual behaviour such as recycling. Several factors may contribute to the formation of personal norms including an awareness of consequences (in addition to an ascription of responsibility and feelings of guilt) which is in turn mediated by social norms to form personal norms (Bamberg *et al.*, 2007) e.g. an awareness that discarding clothes in the trash has a negative impact on the environment, with the subsequent ascription of responsibility for such consequences, may lead to feelings of guilt, which in turn contribute to a moral obligation (i.e. personal norm) to rather donate or recycle the clothing. In this context, guilt is a feeling of regret that a consumer may feel when

they influence the environment negatively and is thus closely related to personal norms (Bamberg & Möser, 2007). In summary, personal (moral) norms are considered to be direct unmediated determinants of pro-environmental intent, whereas social norms, an awareness of consequences (in addition to the underlying ascription of responsibility) are viewed as indirect determinants of intent (Bamberg & Möser, 2007). The following hypothesis was therefore postulated:

Hypothesis 4:   *Personal norms are positively associated with female consumers' pro-environmental intent to dispose of apparel in an eco-friendly manner.*

2.9.6   The influence of PBC on pro-environmental intent

The initial Theory of Reasoned Action was extended to include measures of PBC and thus formed what is now known as TPB (Kalafatis, Pollard, East & Tsogas, 1999). Generally speaking, PBC refers to a person's belief regarding how easy or difficult the performance of a behaviour is and may be the underlying reason for consumers choosing to discard their apparel in the trash, despite being aware of different eco-friendly disposal options (Joung & Park-Poaps, 2013). In terms of the various types of pro-environmental disposal options, PBC may depend on a person's beliefs regarding how easy or difficult it is to find a charity for old clothes, selling these on eBay, or a second hand shop, using the clothing to make new items, or passing them on to family and friends (Joung & Park-Poaps, 2013; Meyer, 2013).

PBC is said to have two dimensions, namely, controllability and self-efficacy (Bamberg & Möser, 2007; Ajzen, 2002). Controllability refers to how much control a person believes he/she has over a behaviour, while self-efficacy refers to how confident a person is in performing the behaviour (Tang *et al.*, 2011; Ajzen, 2002). This is determined by control beliefs about the power of both situational and internal factors to facilitate the performance of the behaviour (Ajzen, 2002). Thus, the more situational opportunities there are to engage in the behaviour and the easier the person anticipates it to be, the greater their perceived control over the behaviour should be (Ajzen & Madden, 1986). A recent study by Taljaard (2015), however, found that the controllability dimension of PBC may be more related to

behaviour rather than to behavioural intent, which confirms the conclusions derived from a meta-analysis of TPB constructs that was carried out by Armitage and Conner (2001). In terms of self-efficacy, Taljaard's (2015) results indicate that consumers feel confident to engage in pro-environmental initiatives, whereas the results were inconsistent in terms of controllability. For the purposes of this study, greater emphasis was placed on the self-efficacy dimension of PBC. The following hypothesis was therefore formulated:

Hypothesis 5: *Perceived behavioural control is positively associated with female consumers' pro-environmental intent to dispose of apparel in an eco-friendly manner.*

2.9.7 Pro-environmental intent to dispose of apparel in an eco-friendly manner

According to Ajzen's (1991) TPB, consumers' behavioural intent is influenced by all of the aspects discussed in the sections above, including attitude, subjective/ social norms, and PBC. In combining TPB and NAT, empirical evidence suggests that subjective/social norms are indirect determinants of pro-environmental intent, whereas personal norms influence consumers' pro-environmental intent directly (Bamberg & Möser, 2007). Furthermore, an awareness of consequences also seems to influence consumers' pro-environmental intent, but in a more indirect manner (Park & Ha, 2014).

There are a variety of pro-environmental disposal behaviours, including the donation, resale, reuse and recycling of apparel, as discussed in this chapter. It should be noted that behavioural intent does not always influence actual behaviour directly, but it may be used as a proximal measure of behaviour (Francis *et al.,* 2004). Whether a consumer will engage in a specific behaviour depends on how strong their intention is (Ajzen, 1991). For the scope of this research it was decided to mainly focus on behavioural intent. Future research may also want to consider other underlying reasons that influence the intention-behaviour relationship, for example, consumers donate because they want to help others and not because they are concerned about the environment (Birtwistle, 2012). For these reasons, it is important that each of the specified motivational constructs must eventually

be considered in relation to consumers' intent and their actual behaviour. This will enable the reader to fully grasp what factors may contribute to more environmentally responsible disposal behaviour.

2.10 CONCEPTUAL FRAMEWORK

Based on the theoretical background presented in the review of the literature, this study used a combination of TPB and NAT to better understand and explain female consumers' pro-environmental intent to engage in apparel disposal behaviour that would have positive environmental consequences. The conceptual framework depicted in Figure 2.3 provides an indication of the underlying construct associations and the hypotheses formulated for this study. An awareness of consequences is seen as an indirect determinant of pro-environment behavioural intent, but has a direct influence on social norms (Park & Hu, 2014; Bamberg & Möser, 2007). According to Bamberg *et al.* (2007), social norms do not influence intentions, but only indirectly via their impact on attitude, PBC, and personal norms. Attitudes, personal norms, and PBC in turn influence pro-environmental intent. This intent is then viewed as a proximal measure of pro-environmental disposal behaviour and may according to the assumptions of TPB lead to eventual behaviour (Ajzen, 2002).
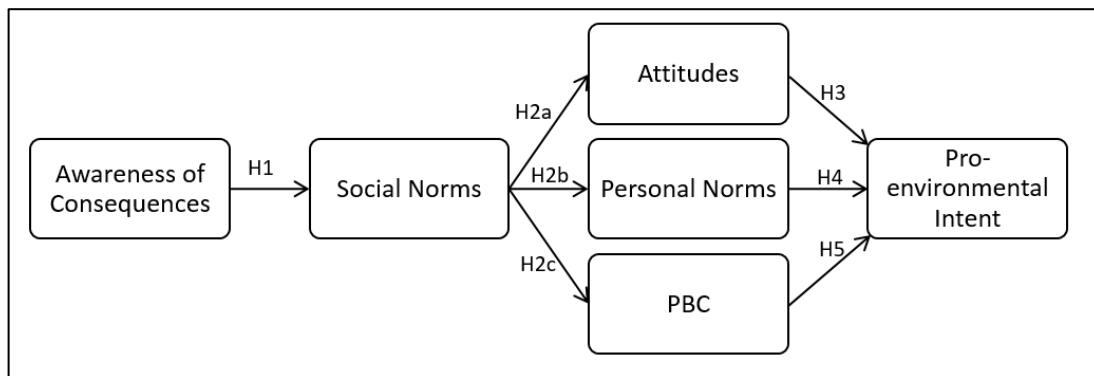
PBC = Perceived Behavioural Control

FIGURE 2.3: CONCEPTUAL FRAMEWORK BASED ON TPB AND NAT (Schwartz, 1977; Ajzen, 1991)

2.11 CONCLUSION

This chapter provided a review of the literature in terms of the need to address climate change and the environmental implications that is linked to the apparel industry. Further emphasis was directed toward the South African textile and apparel industry, its contribution to the local economy and the challenges associated with apparel and textile waste in the South Africa context. Specific focus was drawn to female consumers' tendency to engage in environmentally friendly clothing disposal (i.e. donating, reselling, reusing and/or recycling) and the importance of encouraging such pro-environmental disposal methods. Supporting theories including TPB and NAT, as well as various concepts associated with these theories were discussed, followed by the conceptual framework that guided this study. Chapter 3 presents a discussion of the research methodology that was followed in this study.

CHAPTER 3   RESEARCH METHODOLOGY

This chapter explains the research design and describes the research methodology including relevant data collection techniques that were used to gather the data in order to achieve the anticipated outcomes of the study. Firstly, the research design and approach will be presented. Secondly, the sample and sampling procedure that were followed will be discussed. Thirdly, the development of the measuring instrument (questionnaire), as well as the data collection and analysis techniques are outlined. Finally, the efforts to enhance validity and reliability in this study are highlighted and the ethical procedures that were followed throughout this study are explained.

3.1   INTRODUCTION

The principal aim of this study was to explain the relationship between the motivational factors (including an awareness of consequences, attitudes toward disposal behaviour, personal norms, social norms, and PBC) that influence female consumers' pro-environmental intent to dispose of apparel in an eco-friendly manner. Explanatory research was used to estimate the strength of the relationships between these variables and to accept or reject the hypotheses that were formulated. A web-based survey questionnaire was developed to deliver quantitative data that could be translated into a statistical analysis (Berndt & Petzer, 2011). The resulting data was used to substantiate the research hypothesis by means of numerical measurements and statistical analysis. Descriptive and inferential statistics were used to analyse the data. Descriptive statistics were used to describe the subject more accurately, whereas the purpose of the inferential analyses was used to find possible statistical relationships between variables and the importance of these relationships (Fouché & de Vos, 2014).

3.2   RESEARCH DESIGN

It is important to note that this study was non-experimental, and therefore excluded the manipulation of variables. No effort was made to change the behaviour or conditions of the participants, they were measured as they were (Hopkins, 2000). Furthermore, a cross-sectional design was used for this study as it examined a

group of people at one point in time (Fouché *et al.*, 2014). Although a cross-sectional design does not account for factors that influence consumers' behaviour over an extended period of time, it was deemed appropriate for the purposes of this study due to financial and time constraints.

3.3 SAMPLE AND SAMPLING PROCEDURE

The unit of analysis for this study was female consumers in Gauteng who were 18 years and older, and who were the primary decision makers regarding the acquisition, use and disposal of the apparel that they wear. In general, females not only make decisions regarding their own apparel but they are also usually responsible for the rest of their household's decisions regarding apparel (Solomon *et al.*, 2013). Female consumers also tend to engage more frequently in pro-environmental disposal behaviour (Lang *et al.,* 2013). An effort was made to send the questionnaire link through social media to a diverse group of females in terms of age, occupation, income, and population group in an attempt to reflect some of the diversity that is found in the larger female population in Gauteng. It is acknowledged that access to social media would curb the demographic profile of the sample to some extent, but an increasing number of consumers are gaining access to social media, especially in urban sectors such as Gauteng (Mashaba, 2016). Gauteng is one of the major metropolitan centres in South Africa (SouthAfrica.Info. 2015), and it was therefore deemed an appropriate geographical scope for this study. To participate it was mandatory for the respondents to live in Gauteng. Time and financial constraints also had an influence on the sampling process since the researcher was based at the University of Pretoria, which is located in the Gauteng Province.

It was argued that everyone at some point or another has to make some decisions about how they would go about disposing of apparel, as long as they make these decisions for themselves. This resulted in specifying gender, age (18 years and older) and area of residence as demographic requirements, while population group, level of education, and approximate household income per month were unrestricted. This contributed to a larger research sample with a variety of subgroups, in terms of age, population group, and monthly income. However, it

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should be noted that a non-probability purposive, convenience based sampling technique was used due to financial and time constraints. In using such techniques, each member of the population did not have an equal chance of being selected to participate in the study (Strydom, 2011a). The results of this study can therefore not be generalised to the larger female population of Gauteng (Berndt & Petzer, 2011).

Time, money, administrative support, and the number of researchers and resources available also influenced the sample size (Cohen *et al*., 2007). Although 386 respondents were recruited through the survey link, only 315 female respondents (N = 315) completed all of the questions on the questionnaire. A final sample size of 315 was considered adequate to ensure content validity, and to appropriately interpret the data.

3.4   DATA COLLECTION

Structured, self-administered electronic questionnaires were used to collect quantifiable data (Delport & Roestenburg, 2014). A cover letter accompanied each questionnaire, which included important information relating to the purpose of the study, the importance of the respondents' contribution, the time it took to complete the questionnaire, privacy rights, and confidentiality (Salkind, 2012). The researcher's contact information was also available to provide any assistance and/or answer questions regarding the purpose of the study.

Access to technology was important since the questionnaire was distributed through a web-based software system namely Qualtrics. This took place in September 2015. The advantages of electronic questionnaires are that it is easy to collect data through the internet; the data is immediately available for analysis; and errors can be eliminated immediately through computerised capturing. However, not all consumers have internet access, and electronic questionnaires may be difficult to complete due to internet connectivity issues (Delport & Roestenburg, 2011). This may cause low response rates and restrict a sample to those who have internet access. Compared to paper-based questionnaires, electronic data capturing is also at a disadvantage in terms of the assistance that fieldworkers offer when respondents struggle to understand questions and/or

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neglect to complete and return questionnaires. The advantages of paper-based questionnaires are that the fieldworkers can assist respondents and response rates are usually higher. However, the cost is also higher and the geographical scope of the area that can be covered with paper-based questionnaires is more limited (Delport & Roestenburg, 2011). It was therefore decided to opt for an electronic, web-based questionnaire.

3.4.1 Measuring Instrument

According to Cohen *et al.* (2007) the larger the sample size, the more structured, closed, and numerical the questionnaire should be. For the purposes of this study, a structured questionnaire was developed (included in Addendum A) that mainly consisted of closed-ended questions. These questions gave the respondents a range of responses that they could choose from (Cohen *et al.*, 2007). It is important that a questionnaire should be brief and easy to interpret, yet also contain all of the relevant information (Delport & Roestenburg, 2011). For these reasons, care was taken in the formulation of the question wording. A pilot study was carried out on 12 female participants prior to the data collection. Potential errors (such as incorrect or complex wording) were then eliminated and the questions were adapted to make them more understandable (Delport & Roesenburg, 2011).

The questions were then divided into three sections as follows:

Section A: This section included questions relating to respondent's demographic characteristics which included information pertaining to the respondents' age, population group, education level, residential status, and monthly income. Nominal data was used to classify the demographic characteristics into categories, while ordinal data was used to classify observations and place them in a ranking order, and to display a greater-than or smaller-than relationship to each other (Delport & Roestenburg, 2014).

Section B: This section included scale items that measured the motivational constructs that are included in TPB and NAT (i.e. awareness of consequences, social norms, attitude, personal norms, PBC, and pro-environmental intent). The items were based on existing scales that were used in previous research by

Taljaard (2015) and Sonnenberg (2014). These items were originally derived from empirical research carried out by Bamberg *et al.* (2007); Wall *et al.* (2007)*;* Do Valle *et al.* (2005) and Tonglet *et al.* (2004) and were further refined for the South African context. Personal norms were the only construct that was based on Meyer's (2013) research, since it was more relevant to apparel disposal behaviour. The scale items were originally developed by Shim (1995) and adapted by Meyer (2013) to measure female consumers' apparel disposal behaviour in the South African context. The guidelines for the development of questionnaires that measure TPB constructs, as specified by Francis *et al.* (2004), as well as Park and Ha (2014), were taken into account. A 5 point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used.

Section C: This section included questions pertaining to the respondents' apparel disposal behaviour. The respondents were asked to rank the order from 1 to 5 in which way they would prefer to get rid of their old clothes.

Table 3.1 provides an overview of the operationalisation, specifically in terms of sections B of the questionnaire.

TABLE 3.1: OPERATIONALISATION

CONSTRUCT	DIMENSIONS	MEASUREMENT AND SCALE ITEMS	VARIABLE NUMBER	DATA ANALYSIS
Awareness of consequences	Environmental Judgement	Scale items adapted from the studies of Sonnenberg (2014) and Taljaard (2015) Cronbach α reported for the original scales were 0.82 and 0.84		Descriptive statistics (e.g. frequencies, means and standard deviation). Exploratory factor analysis. Confirmatory factor analysis.
		I know that …		
		The environment is damaged due to people's irresponsible clothing disposal.	Q8_1	
		Textile dyeing causes water pollution.	Q8_2	
		Throwing your clothes away has environmental implications.	Q8_3	
		Clothing that ends up in landfills increases greenhouse gases.	Q8_4	
Social Norms	Injunctive norms Descriptive norms	Scale items adapted from the studies of Sonnenberg (2014) and Taljaard (2015) Cronbach α reported for the original scales were 0.80 and 0.86		
		People who are important to me…		
		Expect me to dispose of my clothing in an eco-friendly manner.	Q9_1	

CONSTRUCT	DIMENSIONS	MEASUREMENT AND SCALE ITEMS	VARIABLE NUMBER	DATA ANALYSIS
		Think that I should consider the environmental impact of throwing clothes in the dustbin.	Q9_2	Descriptive statistics (e.g. frequencies, means and standard deviation). Exploratory factor analysis. Confirmatory factor analysis.
		Expect me to get rid of old clothes in a way that will save the environment.	Q9_3	
		Would approve of how I get rid of old clothing, in a way that will have positive environment consequences.	Q9_4	
Attitudes	Affective & Instrumental Evaluations.	Scale items adapted from the studies of Sonnenberg (2014) and Taljaard (2015) Cronbach α reported for the original scales were 0.82 and 0.89		
		For me, throwing clothes away in a pro-environmental manner is …		
		Wise.	Q10_1	
		Good.	Q10_2	
		Responsible.	Q10_3	
		Beneficial.	Q10_4	
Personal norms	Moral obligation; Feelings of guilt.	Scale items derived from Meyer's (2013) study. Cronbach α reported for the original scales were 0.79		
		I feel obligated to consider the environment in the manner in which I dispose of old clothing.	Q11_1	
		I feel obligated to recycle clothes, regardless of what others do.	Q11_2	
		My involvement in environmentally responsible disposal activities is important.	Q11_3	
		When I get rid of old clothing, I feel morally obligated to recycle some of it.	Q11_4	
		I feel morally obligated to dispose old clothes in an environmental friendly manner.	Q11_5	
		Scale items adapted from the studies of Sonnenberg (2014) and Taljaard (2015) Cronbach α reported for the original scales were 0.66 and 0.66		
PBC	Self-efficacy	For me, to get rid of old clothes in an environmental friendly manner is easy.	Q12_1	
		By recycling old clothes, I can be environmental friendly.	Q12_2	
		Recycling clothes is easy.	Q12_3	
		I have a lot of options to get rid of old clothes in an environmental friendly manner.	Q12_4	
		I am confident that I would be able to recycle my old clothes.	Q12_5	
		I know what to do to get rid of clothes in an environmental friendly manner.	Q12_6	
		Scale items derived from the studies of Sonnenberg (2014) and Taljaard (2015) Cronbach α reported for the original scales were 0.85 and 0.87		
		I would be willing to …		

CONSTRUCT	DIMENSIONS	MEASUREMENT AND SCALE ITEMS	VARIABLE NUMBER	DATA ANALYSIS
Pro-environmental disposal intent	Behavioural Intent: Donate	Donate old clothing to be more pro-environmental.	Q13_1	Descriptive statistics (e.g. frequencies, means and standard deviation). Exploratory factor analysis. Confirmatory factor analysis.
		Donate old clothing to reduce environmental consequences.	Q13_2	
		Donate old clothing to be more sustainable.	Q13_3	
		Donate old clothing to reduce waste.	Q13_4	
Pro-environmental disposal intent	Behavioural Intent: Resell.	Resell old clothing to be more pro-environmental.	Q14_1	
		Resell old clothing next time I want to get rid of it.	Q14_2	
		Resell old clothing to be more sustainable.	Q14_3	
		Resell old clothing to waste less.	Q14_4	
	Behavioural Intent: Reuse/Recycle.	Reuse/recycle old clothing to be more pro-environmental.	Q15_1	
		Reuse/recycle old clothing next time I want to get rid of it.	Q15_2	
		Reuse/recycle old clothing to be more sustainable.	Q15_3	
		Reuse/recycle old clothing to waste less.	Q15_4	

3.4.2 Data Analysis

The data was captured and coded electronically in order to assist in interpreting and understanding the results more easily (Zikmund, Babin, Carr & Griff, 2013). Each questionnaire was numbered and this number was transferred to the computerised database to keep track of the data source once it was transferred (Delport & Roestenburg, 2014). The coded data was transferred to statistical software. The initial data analysis involved descriptive statistics including means, percentages, and frequencies that were presented in graphs, tables and figure formats in order to describe basic elements pertaining to the sample of the study (Salkind, 2012). An exploratory factor analysis was performed on items that measured the motivational constructs (i.e. awareness of consequences, social norms, attitude, personal norms, PBC, and pro-environmental intent). Factors that were retained from the initial exploratory factor analysis were further subjected to a confirmatory factor analysis to establish a measurement model with satisfactory model fit indices (Blunch, 2008).

As a final step in the data analysis, a structural equation model was established and tested. Structural Equation Models (SEM) are statistical methods that are

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used to test theoretical models (Mazzocchi, 2008:319; Brown, 2006), such as the conceptual framework presented in Chapter 2. This conceptual framework was patterned after Bamberg and Möser's (2007) meta-analytic structural equation model that specified relations between various psycho-social variables (including an awareness of environmental consequences, attitudes, moral and social norms as well as PBC and behavioural intention) and pro-environmental behaviour. The SEM that was specified for this study provides further evidence relating to the aforementioned constructs and construct associations in the local context.

3.5   VALIDITY

Validity implies that the particular instrument measures what it is supposed to measure (Cohen *et al.*, 2007). Various types of validity include construct validity, content validity, face validity, and internal validity (Cohen *et al.*, 2007). Content and face validity may be set up prior to data collection, whereas criterion and construct validity are established once the instrument has been used to collect data (Delport & Roesenburg, 2011).

Content validity focusses on whether the instrument really measured what it intended to measure. Thus, a valid measure would provide an adequate sample of items that represent the concept being measured and covered all the objectives of the study (Delport & Roesenburg, 2011). Content validity was ensured by examining and pilot testing the questionnaire prior to the main data collection process to eliminate potential errors (Delport & Roesenburg, 2011). The questionnaire was scrutinized and refined by the researcher and study supervisors based on information obtained from previous research endeavours that relate to clothing disposal and eco-friendly behaviour in the local context (Taljaard, 2015; Sonnenberg, 2014; Meyer, 2013).

Face validity refers to whether the measurement technique appears to measure the variable that it claims to measure (Delport & Roesenburg, 2011). Comprehensible language and appropriate questions were used to ensure face validity (Leedy & Ormrod, 2005). The data was also coded and analysed to ensure

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that the questions measured what they were supposed to measure (Delport & Roestenburg, 2011).

Construct validity means that the categories of the measuring instrument and codes for analysis must be meaningful to the respondents and must correspond with the literature (Cohen *et al.*, 2007). A thorough review of the literature was conducted to ensure that all TPB and NAT constructs were adequately conceptualised. The questionnaire was based on scale items used in previous research (Taljaard, 2015; Sonnenberg, 2014; Meyer, 2013, Bamberg *et al.,* 2007; Wall *et al.,* 2007; Do Valle *et al.,* 2005; Tonglet *et al.,* 2004). Furthermore, a pilot study was conducted to ensure that the questionnaire was professional and relative (Delport & Roesenburg, 2011).

Internal validity was met since the findings of the study accurately describe what the research intended to investigate (Cohen *et al.*, 2007).

3.6 RELIABILITY

Reliability implies that a measuring instrument is free from error, and is accurate and consistent, i.e. if the study was carried out on a similar group of respondents in a similar context, then similar results would be established (Cohen *et al.*, 2007). As a first step towards ensuring reliability, a pilot study was conducted to ensure that the questionnaire wording was appropriate and that the questionnaire was easy to complete. By using existing measures that have proven reliable in previous studies, and multiple indicators for each variable (i.e. three or more questions to measure the same construct/variable) (Delport & Roestenburg, 2011), it was hoped that the reliability of the measuring instrument could be achieved. Once the data was collected, Cronbach's Alpha, which is a correlation coefficient, was used to evaluate the internal consistency of items that were intended to measure specific constructs (Salkind, 2012; Delport & Roestenburg, 2011).

3.7 ETHICAL ISSUES

Ethical issues were attended to throughout the completion of the study. Participation occurred on a voluntarily basis only and the participants were given

the option to withdraw from the study at any point in time. The nature of the study, as well as the procedures involved were explained from the onset so that the participants could know what to expect, including the time it would take to complete the questionnaire. The researcher was available telephonically throughout the data collection process to provide clarity and additional information in an effort to alleviate any possible tension, resistance and insecurities that the participants may have encountered before and during the completion of the questionnaire (Strydom, 2011b). Furthermore, the participants remained anonymous and were assured of their privacy, which compelled the researcher to treat all personal information that the participants divulged in the completion of the questionnaire as confidential (Strydom, 2011b).

The researcher (under supervision) interpreted the results honestly and openly (Babbie, 2007). A declaration of originality is submitted with this dissertation (see page iii) whereby the researcher declares her understanding of what plagiarism is and complies with the University's policy to duly acknowledge and reference other people's work, and likewise not to allow anyone to copy the outputs of this study with the intention of using it as their own. As a pre-requisite for the further commencement of the study, ethical approval (Addendum B) was sought and obtained from the University of Pretoria's internal ethics review committee (Reference Number: EC150717-017).

3.8   CONCLUSION

This chapter dealt with the methodological aspect of this study. The study was based on a non-experimental, cross-sectional research design that focused on female consumers in Gauteng, aged 18 years and older. No restrictions were implemented regarding the population group, level of education, and household income. A structured questionnaire was developed based on scale items used in prior empirical research. The questionnaire was pre-tested and included mostly close ended questions pertaining to demographics and the motivation constructs that were specified in the theoretical framework.   Descriptive and inferential statistics were used, including CFA, EFA and SEM. Ethical issues were attended

by making the study voluntary and anonymous. The following chapter presents the results obtained from the questionnaire that was used in this study.

CHAPTER 4   RESULTS AND DISCUSSION

This chapter provides an overview of the results of the study. In addition to basic descriptive statistics, further inferential analysis was performed including Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM). The results are presented in accordance with the main objectives and hypotheses of the study, and are discussed in relation to the problem statement with the conclusions supported by existing literature.

4.1   INTRODUCTION

To address the objectives of this study, responses were obtained from 386 females who resided in the surrounding areas of Gauteng, South Africa. Unfortunately, 20% of the responses had to be eliminated because they were incomplete and/or the participants did not comply with the prerequisites for participation. The final sample (N = 315) was, however, deemed appropriate to address the overarching aim of the study, namely, to investigate the relationship between motivational factors that contribute to female consumers' pro-environmental intent to dispose of apparel in an eco-friendly manner. The first section of this chapter highlights the demographic profile of the sample. Demographic characteristics are important since they could influence pro-environmental behaviour (Martinez *et al.*, 2015) and are often used when determining market segmentations for promotional campaigns and intervention strategies (Mobley & Kilbourne, 2013; Kollmuss & Agyeman, 2002; Zelezny *et al.*, 2000).

4.2   DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

Demographics include several aspects such as age, gender, and income (Babin & Harris, 2013). Demographic information was addressed in Section 1 of the questionnaire with gender, age, population group, education level, residential area, monthly household income, and household size as the main topics. The first question included in the questionnaire asked respondents to indicate their gender to ensure that the specified prerequisite for participation was met. The online system only allowed female consumers to further participate and complete the

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questionnaire; this study exclusively focused on female consumers' pro-environmental intent regarding the disposal of apparel. The following section provides an overview of the other demographic characteristics of the sample, which are explained by means of descriptive statistics, including frequencies and percentages. These are depicted in tables, graphs and other numerical summaries.

4.2.1   Age

The female respondents who participated in this study were within the range of 18 to 65 years old. For the purposes of this study, it was important to include an age group that was able to make independent decisions regarding the disposal of their apparel and their general pro-environmental behaviour (Tymula, Belmaker, Ruderman, Glimcher & Levy, 2013). The respondents indicated their age according to their last birthdays in an open question, which was then afterwards grouped into age categories for the purpose of statistical analysis (as summarised in Table 4.1 below).

TABLE 4.1: AGE CATEGORIES OF RESPONDENTS (N = 315)

Age	Frequency (n)	Percentage (%)
18 – 20 years	49	16
21 – 25 years	188	60
26 – 30 years	27	9
> 30 years	51	16
TOTAL:	**315**	**100**

Most of the female respondents were in the age category of 21 to 25 years (60% / n = 188) as indicated in Figure 4.1. These respondents were born between 1991 and 1995, and as such, they formed part of the Y Generation, who tend to be familiar with the use of technology to network and build community relationships (Babin & Harris, 2013). They are also known as a generation that is pro-environmental (Cant, Brink & Brijball, 2006). Only a few respondents were between the ages of 26 and 30 (9% / n = 27), with a slightly larger segment over 30 years of age (16% / n = 51). The predominantly young profile of the sample

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may be attributed to the fact that the research was conducted through snowball and convenience sampling techniques with the use of social media, including Facebook and e-mail. The initial respondents recruited for this study were younger, who then forwarded it to their friends and peers, which may have led to the predominantly young cohort of female respondents. Although this may reflect a skewed representation of the different age groups in the larger population, it is important to note that South Africa is mostly a young nation since more than half of its citizens are 24 years old and younger (National Statistic Offices of the BRICS Group, 2013). To specify, there are 1 172 115 females between the ages of 20 and 29 in Gauteng, which constitutes 11.8% of the population in South Africa (Statistics South Africa, 2015) and it was thus important to explore the opinions of younger females in order to understand their pro-environmental intent in terms of clothing disposal. The results of this study can however not be generalised due to the non-probability sampling procedure that was used for this research.
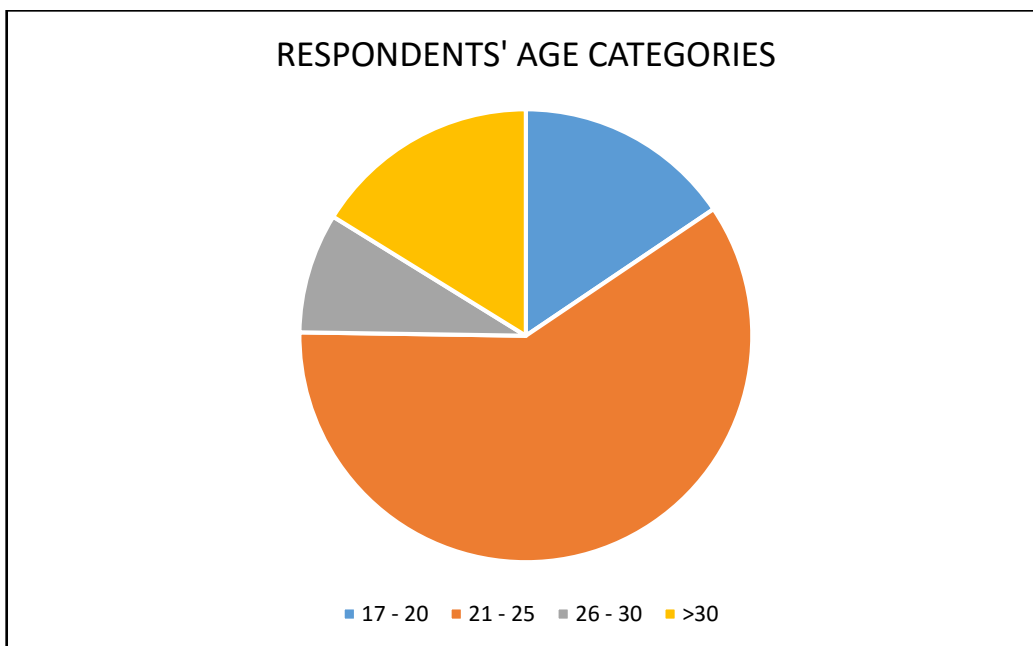

FIGURE 4.1: RESPONDENTS' AGE CATEGORIES

4.2.2 Population group

South Africa is a country with a diverse population (SouthAfrica.Info, 2015) and an effort should therefore be made to include respondents from a variety of population groups as part of this study. The respondents were asked to indicate their race based on the South African Employment Equity Act, namely, White, Black, Coloured, Indian and "other". The majority of the respondents were White (72% / n = 226). All the other population groups were combined under 'Black and other' (28% / n = 72) for the purpose of statistical analysis, as indicated in Table 4.2. The reason for the low frequencies of Black, Coloured and Indian respondents may be attributed to the fact that the questionnaire was distributed through social media and based on convenience and snowball sampling techniques. Most of the initial respondents were White, and they forwarded the survey to their referral groups, who shared the same population group characteristics. This draws attention to the disadvantages of convenience and snowball sampling techniques, and as such, the results of this research cannot be generalised to the larger South African population (Strydom, 2011a; Berndt & Petzer, 2011).

TABLE 4.2: RESPONDENTS' POPULATION GROUP (N = 315)

Categories in Questionnaire	n	%	Categories of Analysis	n	%
White	226	72	White	226	72
Black	74	23	Black and other	89	28
Coloured	3	1			
Indian	12	4			
Other	0	0			
TOTAL	315	100	TOTAL	315	100

4.2.3 Education level

Education level may have an influence on consumers' participation in pro-environmental activities (Zhen & Mansori, 2012). Previous research seems to indicate that a higher level of education is associated with more environmental awareness and concern (Fisher, Bashyal & Bachman, 2012; Hassan, Noordin & Sulaiman, 2010). Three categories were originally specified in the questionnaire,

namely: Lower than Grade 12, Grade 12, and Tertiary education. These were regrouped into Grade 12 and lower, and Tertiary education.

TABLE 4.3: RESPONDENTS' LEVEL OF EDUCATION (N = 315)

Categories in Questionnaire	n	%	Categories of Analysis	n	%
< Grade 12	6	2	≤ Grade 12	109	35
Grade 12	103	33			
Tertiary education	206	65	Tertiary	206	65
TOTAL	**315**	**100**	**TOTAL**	**315**	**100**

As indicated in Table 4.3, the majority of the respondents (65% / n = 206) indicated that they had tertiary education. The reason for this may be that the website link was distributed among consumers with a higher education level and further distributed among their friends with similar characteristics. Reports published at the time of this study indicate that the Gauteng population have become more educated, as over four million consumers have a higher education level in Johannesburg alone (Statistics South Africa, 2011). In terms of the larger Gauteng region, it is estimated that over 52% of the population has Grade 12 as a minimum education level, and most residents live in highly populated urban areas and therefore have access to technology on a daily basis (Basic Education: Republic of South Africa, 2015). Access to technology was important in this study since the questionnaire was distributed through social media. Once again it is important to note that due to the convenience snowball sampling technique used, the results of this study cannot be generalised and are not necessarily a reflection of the larger Gauteng population (Strydom, 2011a; Mazzocchi, 2008).

4.2.4 Residential area

Gauteng is known as the economic hub of South Africa since its financial and business services, logistics, and mining contributes to more than 34% of the

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national economy (South Africa Info, 2015). Based on various factors, including the above, it was considered an appropriate geographical scope for this study.

Gauteng can be divided into three main regions, namely, the City of Tshwane, the City of Johannesburg, and the Ekurhuleni Metropolitan Municipalities (The Local Government Handbook, 2016). The respondents were required to indicate on a map that was included in the questionnaire in what city/town in Gauteng they resided (Figure 4.2). They could choose from the following cities/towns: Bronkhorstspruit, Kempton Park, Bedfortview, Benoni, Springs, Boksburg, Johannesburg, Soweto, Heidelberg, Vereeniging, Vanderbijlpark, Sasolburg, Pretoria, Midrand, Sandton, Randburg, Cullinan, Centurion, Magaliesburg, Muldersdrift, Roodepoort, Carletonville and Krugersdorp.
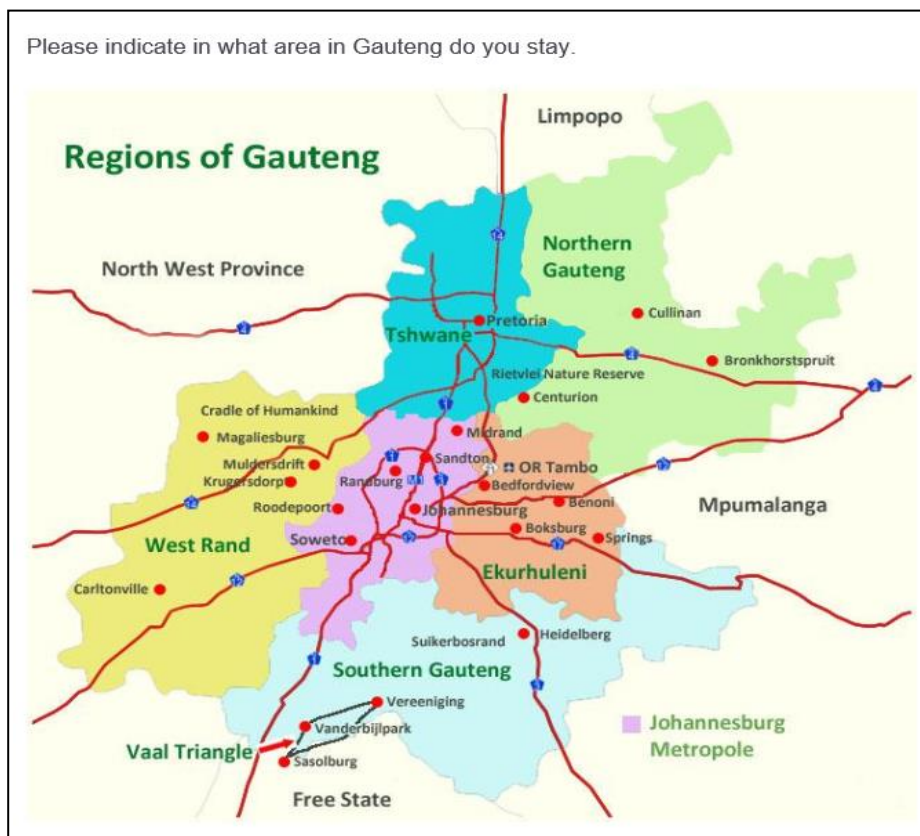

FIGURE 4.2: REGIONS OF GAUTENG (Show Me South Africa, 2013)

The geographical locations of the respondents were grouped into four categories, viz. the City of Tshwane, the City of Johannesburg, the Ekurhuleni Metropolitan

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Municipalities, and "other". Responses that could not be exactly pinpointed to one of three main regions, but nevertheless fell within the surrounding areas of Gauteng, were categorized as "other". As indicated in Table 4.4 below, the majority of the respondents indicated that they lived in Tshwane (71% / n = 223), which again may be attributed to the snowball and convenience sampling techniques. The remaining responses were as follows: 13% (n = 42) indicated that they lived in Johannesburg, 7% (n = 22) indicated that they lived in Ekurhuleni and the surrounding areas (9% / n = 28). In essence, all of the respondents were located in Gauteng, as specified in the sampling plan.

TABLE 4.4: AREA OF RESIDENCE (N = 315)

Area of Residence	n	%
Tshwane	223	71
Johannesburg	42	13
Ekurhuleni	22	7
Other	28	9
TOTAL	**315**	**100**

4.2.5 Monthly household income of respondents

Previous studies have indicated that consumers' level of income influenced their pro-environmental behaviour (Lang *et al.*, 2013; Kozar & Connell, 2015; Bamberg, 2003). An open-ended question regarding consumers' household income per month was included in the questionnaire. The household income was grouped for statistical purposes into three categories, namely, < R 5 000, ≥R5 000 to <R 25 000 and ≥R 25 000, as indicated in Table 4.5.

TABLE 4.5: RESPONDENTS' HOUSEHOLD INCOME PER MONTH (N = 315)

Household income per month	n	%
<R 5 000	56	18
≥R5 000 - <R 25 000	169	54
≥R 25 000	90	29
TOTAL	**315**	**100**

The majority of respondents (54% / n = 169) indicated that their household income was between R5000 and R25 000. It should be noted that the majority of the respondents were young, and may therefore not yet earn dual incomes with spouses/ partners and /or only recently entered the job market. According to Statistics South Africa (2010), consumers living in Gauteng currently earn an average income of R570 – R17 000 per month. Currently, South Africa is characterised by a low elasticity between economic and employment growth (Van Aardt & Coetzee, 2010), meaning that the economy does not generate enough employment opportunities in terms of its growth. As pointed out previously, employment and income may influence consumers' disposal behaviour e.g. the more people earn, the more they consume and the more frequent their disposal behaviour may become. A relatively low income and underlying financial motivations may also influence whether consumers would rather reuse/recycle their clothes instead of donating or discarding their apparel or alternatively they may also choose to rather resell their apparel to save money (Joung & Park-Poaps, 2013). Figure 4.3 provides an overview of the respondents' household income per month.
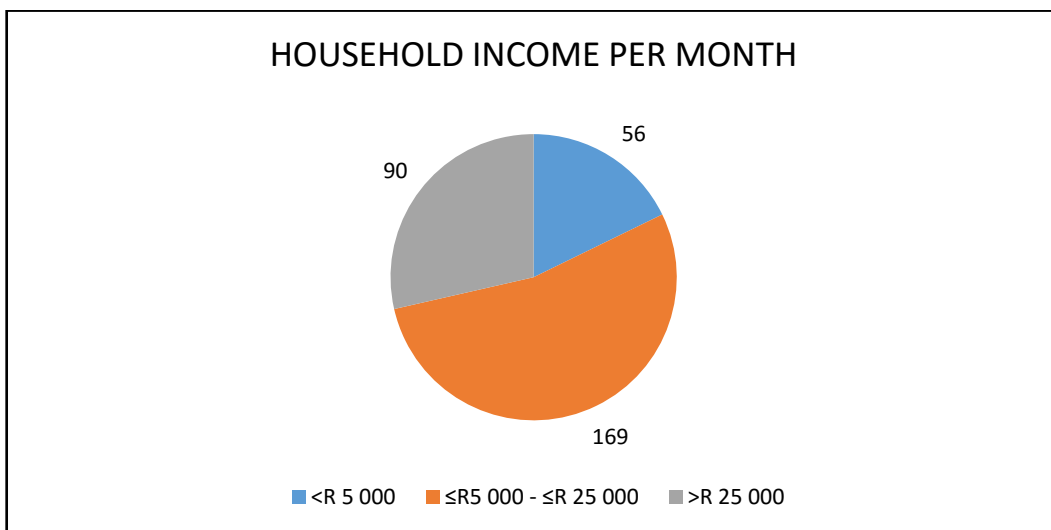

HOUSEHOLD INCOME PER MONTH

56
90
169

■ <R 5 000   ■ ≤R5 000 - ≤R 25 000   ■ >R 25 000

FIGURE 4.3: RESPONDENTS' HOUSEHOLD INCOME PER MONTH

4.2.6 Marital and children status

The questionnaire included a question pertaining to the respondents' marital status and whether they had children. The response options included: "Single", "Married/couple", "Married/couple with children" and "Single with children". The respondents' marital status and whether they had children or not was relevant as this could have influenced their disposal behaviour, for example, households with children may hand down old apparel from one sibling to the next rather than discarding it. The majority of the respondents (59% / n = 217) indicated that they were single, which may be attributed to the snowball and convenience sampling techniques. As mentioned before, the majority of the respondents who were initially recruited for the study were younger and might not yet have entered into the more mature lifecycle stages including long term committed relationships/ partnerships with children. The remaining 30% (n = 110) indicated that they were married/couple, while 34% (n = 9) indicated they were married/couple with children and 8% (n = 2) indicated that they were single with children. The marital and children status was regrouped into three categories for statistical purposes, as indicated in Table 4.6.

TABLE 4.6: RESPONDENTS' MARITAL AND CHILDREN STATUS (N = 315)

Categories in Questionnaire	n	%	Categories of analysis	n	%
Single	59	59	Single/Married/couple without children	280	89
Married/couple	30	30			
Married/couple with children	9	9	Single/Married/couple with Children	35	11
Single with Children	2	2			
TOTAL	315	100	TOTAL	315	100

4.2.7 Household size

Respondents were asked to indicate their household size in an open-ended question. Respondents' household size was initially grouped into seven categories (namely: '1 member', '2 members', '3 members', '4 members', '5 members', '6

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members' and '7 members and more'); but were then later regrouped for analysis purposes into '1 – 2 members', 3 – 4 members' and '5 and more members', as indicated in Table 4.7. The majority of the respondents' household size was 2 members (29% / n = 91). It is reported that the average household in Gauteng consists of 2.8 members (Statistics South Africa, 2011). A longitudinal survey conducted by Abanokova and Lokshin (2014) that covered the two recent economic recessions of 1998 and 2008 in Russia, found that consumers focused on adjusting their household size to cope with economic shock. They assumed that the underlying reason was to save costs and to possibly live with others. It may be further argued that household size may influence consumers' disposal behaviour, particularly in times of economic recession as they may reuse their apparel more often, or donate it to family members in order to save costs.

TABLE 4.7: RESPONDENTS' HOUSEHOLD SIZE (N = 315)

Household Size	n	%	Categories of Analysis	n	%
1 member	79	25	1 -2 members	170	54
2 members	91	29			
3 members	37	12	3 – 4 members	84	27
4 members	47	15			
5 members	29	9	≥ 5 members	61	19
6 members	16	5			
7 members and more	16	5			
TOTAL	315	100	TOTAL	315	100

In summary, the respondents of this study were females between the ages of 18 and 65. The majority of the participants were White with a tertiary education level. Most of the respondents resided in Tshwane with a household size consisting of two members. The results cannot be generalised since non-probability sampling, (including convenience and snowball sampling), was used to collect the data for this study (Strydom, 2011a:231). However, for the purposes of this study, the

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sample was deemed appropriate in terms of establishing preliminary insight into the influence of various motivational factors (as postulated in NAT and TPB) on female consumers' intent to dispose of apparel in an eco-friendly manner. These insights can be further validated in future studies that encompass larger and more representative samples. The next section reports further statistical analysis pertaining to Section B of the questionnaire that focused on the TPB and NAT constructs.

4.3 RESPONDENTS' PRO-ENVIRONMENTAL MOTIVATION AND INTENT REGARDING THE DISPOSAL OF APPAREL

Pro-environment behavioural intent is an important factor since it can be used in marketing campaigns and for assessments carried out by environmental interest groups to formulate appropriate intervention programmes in the textile and apparel industry in South Africa (Steg & Vlek, 2009; Bator & Cialdini, 2000). As previously mentioned, green marketing has often neglected issues regarding product use and disposal behaviour (Peattie & Peattie, 2009:262). It is therefore important that marketers, the government, and other stakeholders gain an understanding of the motivational factors contributing to pro-environmental disposal behaviour. This could then also assist in developing initiatives and policies to promote disposal methods that will protect the environment (Joung & Park-Poaps, 2013).

This study was focused on female consumers' pro-environmental motivation and intent, and therefore the conceptual framework of the study included the underlying motivational concepts of NAT (i.e. awareness of consequences, personal norms) (Schwartz, 1977), as well as the concepts of TPB (i.e. social norms, attitudes, PBC and behaviour intent) (Sonnenberg, 2014; Bamberg & Möser, 2007). The scale items were obtained from previous studies (Taljaard, 2015; Sonnenberg, 2014; Meyer, 2013). These were adapted for the purpose of this study, which was to investigate the motivational factors that influence female consumers' intent to dispose their apparel in a pro-environmental manner within the South African context. A five point Likert scale was used in the web-based questionnaire with options ranging from "strongly disagree" to "strongly agree". A

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mean above three indicated a positive association with the relevant motivational constructs and behavioural intent.

4.3.1 EXPLORATORY FACTOR ANALYSIS

As an initial step, an Exploratory Factor Analysis (EFA) was conducted in order to distinguish the relevant constructs and concepts in the dataset. The EFA was executed with SPSS software, and a Varimax rotation with Kaiser Normalization. The original unregulated EFA produced eleven factors. This was done while considering Kaiser's criteria that all the factors that are above the eigenvalue of 1 are to be kept. The original eleven factor analysis appeared to be comprehensive, but included factors with one variable, which was not as desirable (Yong & Pierce, 2013). For this study's data, the point of inflexion on the scree plot gave an eight factor solution. Items that were in a cross loading situation (complex variables) and items that did not reach a higher loading than 0.32 for any of the factors were removed in order to obtain an appropriate solution for a data matrix (Yong & Pierce, 2013). The results of the EFA are reported in Table 4.8

TABLE 4. 8: RESULTS OF THE EXPLORATORY FACTOR ANALYS

ITEM	FACTOR							
	1	2	3	4	5	6	7	8
	AW	SN	ATT	PN	PBC	BI: DON	BI: RES	BI: REU
I know that the environment is damaged due to people's irresponsible clothing disposal.	.775	.072	.074	.195	.166	.152	.045	.121
I know that textile dyeing causes water pollution.	.785	.092	.097	.142	.142	.083	.138	.048
I know that throwing your clothes away has environmental implications.	.786	.105	.127	.209	1.62	.122	.051	.099
I know that clothing that end up in landfills increases greenhouse gases.	.847	.078	.122	.096	.077	.076	.086	.061
People who are important to me expect me to dispose of my clothing in an eco-friendly manner.	.114	.832	.027	.247	.201	.077	-.034	.103
People who are important to me think that I should consider the environmental impact of throwing clothes in the dustbin.	.195	.766	.011	.155	.194	.107	.107	.110
People who are important to me expect me to get rid of old clothes in a way that will save the environment.	.077	.797	.117	.292	.215	.095	-.004	.123
People who are important to me would approve of how I get rid of old clothing, in a way that will have positive environment consequences.	-.018	.631	.203	.318	.172	.259	.077	.081
For me, throwing clothes away in a pro-environmental manner is wise.	.078	.089	.872	.184	.020	.182	.133	.117
For me, throwing clothes away in a pro-environmental manner is good.	.105	.078	.909	.117	.-016..	.160	.102	.157
For me, throwing clothes away in a pro-environmental manner is responsible.	.085	.056	.899	.094	.035	.152	.145	.164
For me, throwing clothes away in a pro-environmental manner is beneficial.	.170	.060	.876	.104	.060	.119	.060	.134

ITEM	FACTOR							
	1	2	3	4	5	6	7	8
	AW	SN	ATT	PN	PBC	BI: DON	BI: RES	BI: REU
I feel obligated to consider the environment in the manner in which I dispose of old clothing.	.247	.204	.078	.721	.144	.215	.066	.096
I feel obligated to recycle clothes, regardless of what others do.	.130	.232	.182	.721	.161	.188	.062	.139
My involvement in environmentally responsible disposal activities are important.	.201	.278	.198	.650	.122	.115	.063	.139
When I get rid of old clothing, I feel morally obligated to recycle some of it.	.115	.145	.047	.707	.313	-.007	.031	.188
I feel morally obligated to dispose old clothes in an environmental friendly manner.	.173	.216	.138	.771	.218	.078	.041	.140
For me, to get rid of old clothes in an environmental friendly manner is easy.	.042	.071	.137	.226	.727	.100	-.053	.099
By recycling old clothes, I can be environmental friendly.	.120	.246	.189	.196	.451	.297	.111	.211
Recycling clothes is easy.	.115	.092	-.032	.095	.832	.020	.067	.142
I have a lot of options to get rid of old clothes in an environmental friendly manner.	.143	.194	-.035	.095	.803	.032	-.030	.086
I am confident that I would be able to recycle my old clothes.	.026	.180	.086	.140	.771	.135	.115	.071
I know what to do to get rid of clothes in an environmental friendly manner.	.212	.101	-.080	.148	.794	.057	-.032	-.019
I would be willing to donate old clothing to be more pro-environmental.	.076	.133	.153	.130	.163	.826	.136	.213
I would be willing to donate old clothing to reduce environmental consequences.	.149	.148	.234	.160	.079	.836	.120	.220
I would be willing to donate old clothing to be more sustainable.	.126	.120	.160	.087	.104	.848	.127	.239
I would be willing to donate old clothing to reduce waste.	.158	.069	.142	.124	.069	.767	.233	.240
I would be willing to resell old clothing to be more pro-environmental.	.051	.004	.118	.040	.026	.104	.925	.135
I would be willing to resell old clothing next time I want to get rid of it.	.082	.051	.080	.050	.058	.142	.920	.124
I would be willing to resell old clothing to be more sustainable.	.061	.022	.121	.040	.003	.128	.912	.073
I would be willing to resell old clothing to waste less.	.123	.045	.086	.061	-.002	.126	.906	.075
I would be willing to reuse/recycle old clothing to be more pro-environmental.	.058	.125	.138	.138	.165	.164	.135	.846
I would be willing to reuse/recycle old clothing next time I want to get rid of it.	.044	.086	.169	.162	.140	.237	.121	.845
I would be willing to reuse/recycle old clothing to be more sustainable.	.141	.094	.177	.137	.112	.213	.096	.852
I would be willing to reuse/recycle old clothing to waste less.	.121	.104	.134	.161	.048	.264	.117	.809
n	315	315	315	315	315	315	315	315
Mean	3.62	3.57	4.07	3.68	3.46	4.36	3.84	4.05
Standard deviation	1.019	1.037	1.016	0.998	1.076	0.813	1.059	0.825
Variance explained	1.038	1.081	1.033	0.996	1.174	0.661	1.123	0.680
Cronbach Alpha	0.879	0.883	0.956	0.889	0.879	0.935	0.959	0.941

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A thorough investigation of the items within the eight factors that were extracted through the EFA allowed the allocation of suitable factor labels. The eight factors were identified as follows:

Factor 1:   An awareness of consequences.

Factor 2:   Social norms.

Factor 3:   Attitudes.

Factor 4:   Personal norms.

Factor 5:   Perceived Behaviour Control.

Factor 6:   Intentions to donate

Factor 7:   Intentions to resell

Factor 8:   Intentions to reuse

In addition to Table 4.8, Figure 4.4 indicates the factors' content and presents their relevant descriptive statistics. The factor means indicate that the respondents mostly agreed with items regarding awareness of consequences (M = 3.62), social norms (M = 3.57), attitude (M = 4.07), personal norms (M = 3.68), Perceived Behavioural Control (M = 3.46), as well as intent to donate (M = 4.36), resell (M = 3.84) and reuse (M = 4.05). Behavioural intent to donate (M = 4.36) achieved the highest mean, which may indicate consumers' strong association with their willingness to donate apparel.
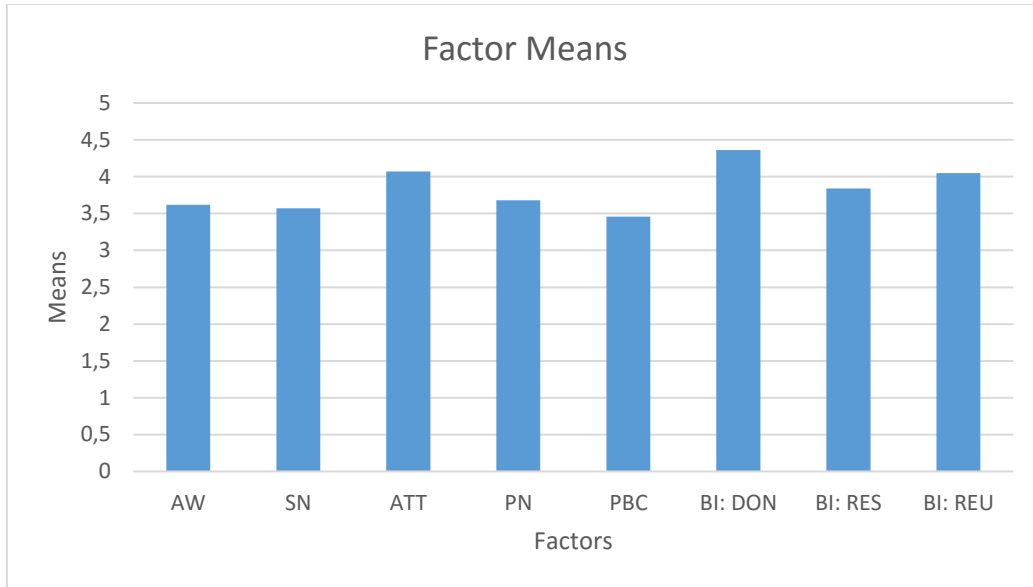
FIGURE 4.4: FACTOR MEANS

This study's theoretical basis involved a combination of Schwartz's (1977) NAT and Ajzen's (1991) TPB. Schwartz's (1977) NAT includes concepts relating to an awareness of consequences and personal norms. There were four original scale items that were used to measure awareness of consequences. All four items were confirmed and loaded onto Factor 1, and labelled as 'Awareness of consequences'. Personal Norms originally had 5 scale items, which were confirmed and loaded onto Factor 4 and labelled as 'Personal Norms'.

The concepts of TPB include social norms, attitudes, PB C, and behaviour intent. The scale items used in this study were confirmed and loaded onto the relevant constructs. Four items were loaded onto Factor 2 (i.e. Social Norms), four items were loaded onto Factor 3 (i.e. Attitude), six items were loaded onto Factor 5 (i.e. PBC), and four items were loaded onto Factor 6 (i.e. Intentions to donate), Factor 7 (Intentions to donate) and Factor 8 (Intentions to reuse).

As illustrated in Figure 4.4 the eight factors' means were between 3.62 and 4.07, which indicated that the majority of the consumers demonstrated the underlying motivational factors to engage in pro-environmental intent. The standard deviation was between 0.825 and 1.059, which shows that the factors were in value to the

means. The factors therefore support the quality control standards in terms of this study. A cumulative percentage of 77.89 was seen, which could explain the variance in the data.

Internal Consistency of the Measurement Instrument

When a measurement instrument is free from error and provides consistent results, it can be accepted as reliable (Cooper & Schindler, 2006). The reliability in this study was determined by every factor's Cronbach's Alpha. This determined whether the item in the scale correlated with the total measure of the scale, and determined whether it achieved the acceptable range of 0.7 to 0.95 (Delport & Roestenburg, 2014; Tavakol & Dennick, 2011). The Cronbach's Alpha showed that the consumers' responses to the items were consistent (Table 4.8). All of the factors had a good Cronbach's Alpha threshold of above 0.879.

Factor 1: Awareness of consequences (AW)

Awareness of consequences was measured with four items, which assessed whether the respondents understood the environmental consequences of the textile and apparel industry. This factor had a Cronbach's Alpha of 0.879, which indicated a consistent response to the items. This factor's mean of 3.62 indicates that relations in terms of the respondents' agreement regarding environmental and, more specifically, pro-environmental concerns were high. Prior empirical evidence has shown that consumers' awareness of consequences may motivate more pro-environmental lifestyles, intent and behaviour (Park & Ha, 2014; Bamberg & Möser, 2007). Previous studies indicate that consumers' awareness of consequences could lead to a more positive attitude towards the environment and ultimately impact on their pro-environmental intent and behaviour (Kozar & Hiller-Connell, 2013; Brosdahl & Carpenter, 2010).

Factor 2: Social norms (SN)

The social norms factor referred to whether consumers were influenced by others (e.g. friends and family) to dispose of apparel in an environmentally responsible manner (Bamberg *et al.,* 2007). All of the items included in the questionnaire as a measure of social norms had an acceptable factor loading of 0.631 – 0.832. These items had a Cronbach's Alpha of 0.883, which shows internal consistency in the responses to the items. Social norms had a mean of 3.57, which is close from the midpoint of 3.00. The majority of the respondents did however lean towards the 'agree' option, indicating that they related to social norms to some extent.

Factor 3: Attitudes (ATT)

This factor's items had a Cronbach's Alpha of 0.956, which indicated an internal consistency in terms of the consumers' responses. The mean was 4.07, which indicated consumers' strong association with pro-environmental disposal behaviour. Attitudes refer to the degree to which one has a favourable or unfavourable feeling toward something (Tang *et al.,* 2011). It can therefore be assumed that the participating females had a favourable feeling towards pro-environmental disposal behaviour. Most of the respondents agreed with the statements in the questionnaire that disposal of clothing in a pro-environment manner is good, wise, beneficial, and responsible.

Factor 4: Personal Norms (PN)

Personal norms refer to the consumers' feelings of moral obligation to engage in pro-environmental behaviour (Bamberg & Möser, 2007). The personal norm items had an acceptable Cronbach's Alpha of 0.889, confirming consistent responses to these items. The mean for personal norms was calculated as 3.68, which is close to the 'agree' option. It seems that consumers agreed to have a moral obligation to engage in pro-environmental disposal behaviour.

Factor 5: Perceived Behaviour Control (PBC)

Recommendations derived from Taljaard's (2015) study indicated that self-efficacy may be a more relevant measure of PBC. For the purposes of this study, six items were included in the questionnaire that tapped into the concept of self-efficacy, which relates to how confident the respondents were in performing the behaviour. The items had a Cronbach's alpha of 0.879, indicating the internal consistency of the responses. The mean was 3.46, which indicated consumers' adequate association with self-efficacy.

Factor 6-8:   Behavioural intentions to donate, resell and reuse (BI: DON; BI: RES and BI: REU)

Behavioural intentions was included in the questionnaire to measure the respondents' willingness to choose disposal options that have pro-environmental consequences. Four items were included to measure each of the disposal options including donation, reselling and reusing, all of which were retained and loaded onto to their expected constructs. Donating had a Cronbach's Alpha of 0.935, and indicated the lowest Cronbach's Alpha in terms of disposal intention, however, it is still deemed as excellent. Reselling had the highest Cronbach's Alpha of 0.959, indicating that the measuring instrument was reliable. Lastly, reusing had a Cronbach's Alpha of 0.941. Overall, the results in terms of disposal behaviour intention had a good internal consistency and were reliable. Furthermore, the mean for intent to donate (M = 4.36) was higher than the means for the other options. This may be attributed to the fact that South Africa is a developing country with a large proportion of disadvantaged and less fortunate consumer segments. In general, South Africans may therefore feel obligated to donate to charities to help the less fortunate. At this point it is important to note that consumers do not necessarily donate apparel for pro-environmental reasons, but to help others instead (Bianchi & Birtwistle, 2012).

Despite the fact that respondents seem mostly willing to dispose of their apparel in a pro-environmental manner (whether it be for the sake of the environment or

other underlying reasons), most researchers agree that pro-environmental intent does not always imply that the consumer will engage in environmentally responsible behaviour (Steg & Vlek, 2009). Yet it is acknowledged that the strength of their intention determines whether they will act according to this behaviour (Ajzen, 1991). Thus this research focused on behavioural intent, and the statistical analysis was only applied to intent. More specifically, for the purposes of confirmatory factor analysis and structural equation modelling, (which is reported in the sections to follow) it was decided to use the behavioural intent to donate, since this option achieved the highest overall mean.

4.3.2   CONFIRMATORY FACTOR ANALYSIS (CFA)

Confirmatory Factor Analysis (CFA) is different from EFA since CFA is driven by a hypothesis and is based on existing theories. There is usually an expectation based on theory as to how each item will load onto the hypothesised factors (Brown, 2015). For the purposes of this study, the latent items and variables that were retained from the EFA were specified as a measurement model and were evaluated by means of the CFA. The measurement model was therefore influenced by existing theory and the theoretical framework, as presented in Chapter 2, in addition to the results of the EFA.

Factor loadings refer to the relationship of every original variable to the underlying factor, and it depends on the absolute value and the size of the sample. Wolf, Harrington, Clark and Miller (2013:926) suggest that the sample size should be between 40 and 240. However, O'Rourke and Hatcher (2013) suggest that a minimum sample of 200 respondents must be used and that a minimum statistical power of 0.80 is held, meaning that the probability is high that the hypothesis will be either accepted or rejected. The sample size of this research was N = 315 and was therefore considered adequate to specify a measurement model.

At this point it should be noted that the measurement model was specifically focused on the various underlying motivational constructs (i.e. awareness of consequences, social and personal norms as well as attitudes and perceived behavioural control) and the intention to donate as an appropriate pro-

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environmental option. Indicator variables were further reduced to only retain those with the highest overall factor loadings to ultimately ensure a measurement model with acceptable model fit indices. As per the recommendations of Iacobucci (2010), each construct would ideally be measured by three indicator variables or even less– four or more indicator variables per construct may become excessive. In this case, four indicator variables were retained for personal norms, perceived behavioural control and the intention to donate, as the resulting measurement model still achieved very good fit indices with no further need for modifications and/ or reduction of indicator variables. Table 4.9 summarises the factor loadings for each latent variable item with loadings ranging from 0.727 – 0.966.

TABLE 4.9: STANDARDIZED FACTOR LOADINGS/REGRESSION WEIGHTS

Latent variable items	Factor loadings
Awareness of consequences (AW1)	0.779
Awareness of consequences (AW2)	0.841
Awareness of consequences (AW3)	0.815
Social norm (SN1)	0.892
Social norm (SN2)	0.730
Social norm (SN3)	0.925
Attitude (ATT1)	0.929
Attitude (ATT2)	0.966
Attitude (ATT3)	0.852
Personal norm (PN1)	0.830
Personal norm (PN2)	0.815
Personal norm (PN3)	0.754
Personal norm (PN4)	0.816
Perceived behavioural control (PBC1)	0.727
Perceived behavioural control (PBC2)	0.799
Perceived behavioural control (PBC3)	0.797
Perceived behavioural control (PBC4)	0.776
Behavioural intention (BI_DONATE1)	0.868
Behavioural intention (BI_DONATE2)	0.946
Behavioural intention (BI_DONATE3)	0.907
Behavioural intention (BI_DONATE4)	0.828

The developed measurement model fit the data well with the following fit indices: CMIN = 299.584, DF = 174, P < 0.05, CMIN/DF = 1.722, GFI = 0.919, AGFI = 0.893, RMSEA = 0.048, NFI = 0.939, AGFI = 0.893 AND CFI = 0.973.

The minimum sample discrepancy (CMIN) tested whether the model fitted the data correctly. This occurrence may be unlikely, which is why this is not always a useful test (Mazzocchi, 2008). The Chi-square test was obtained to calculate the CMIN/DF. There is no clear guidance of what the ratio of the CMIN/DF threshold should be, however, it has been suggested that an acceptable range is between one and two (Byrne, 2013; Arbuckle, 2003). The acceptable CMIN/DF ratio for this measurement model is 1.722.

The goodness-of-fit index (GFI) of this research was calculated at 0.919, which is close to a good fit of one (Arbuckle, 2003 & Byrne, 2001).

The root means square error of approximation (RMSEA) had values calculated at 0.048. This is acceptable since an acceptable threshold includes values less than 0.07 (Hooper, Coughlan & Mullen, 2008; Steiger, 2007). This shows that the model fit the population covariance matrix well.

In terms of the normal fit index (NFI) and the comparative fit index (CFI), it is recommended that the value should be as close as possible to one in order to be a good fit (Mazzocchi, 2008). Hooper *et al*. (2008), however, suggest that the value should be greater than 0.9. In terms of this research, the NFI was calculated as 0.939, which is greater than 0.9 and very close to one. The CFI had an acceptable value of 0.973.

4.3.3   STRUCTURAL EQUATION MODELLING

Following the CFA and the specification of a measurement model, the final stage of data analysis for this study involved Structural Equation Modelling (SEM). SEM is used to describe the statistical methods used to test a conceptual or theoretical model, which in this case involved identifying the weight of the constructs of TPB and NAT, namely, an awareness of the environment, attitudes, personal beliefs,

social norms, PBC, and behavioural intention to donate. Figure 4.5 represents the structural model that estimates the construct connotations, which approximates those stipulated in Bamberg and Möser's (2007) meta-analytic structural equation model. The model's overall fit (incorporating maximum likelihood estimation with raw data as input), was good (CMIN = 389.426, DF = 182, p < 0.000, CMIN/DF = 2.140, GFI = 0.895, AGFI = 0.895, RMSEA = 0.060, NFI = 0.921 and CFI = 0.956).

As indicated in Figure 4.5, collectively, PBC, personal norms and attitudes explained 30% of the behavioural intention's variance, which was higher than the variance reported for behavioural intent in Bamberg and Möser's (2007) model (27%). In this regard it is important to note that these models focused on different types of behavioural intentions (e.g. the intention to make use of public transport and the intention to donate clothing for pro-environmental reasons), which may point to the fact that the relevance of underlying motivational constructs as determinants of intentions may differ depending on the type of behaviour and context in question. Furthermore, the variance explained for attitudes (8%) and, personal norms (44%) was lower than the variance reported for the corresponding constructs in Bamberg and Möser's (2007) model. PBC's variance (26%) was slightly higher, whereas the variance explained for social norms (13%) was somewhat lower than the variance reported in Bamberg and Möser's (2007) model. Overall it would seem that social norms do influence the formation of perceived behavioural control and personal norms, more so than its influence on people's attitudes about the environmental benefits of donating unwanted apparel. An awareness of environmental consequences also seems to have less of an impact on social norms than what was reported in Bamberg and Möser's (2007) model. As pointed out previously, people may donate clothing for other reasons (e.g. to help the needy) rather than for the sake of the environment.
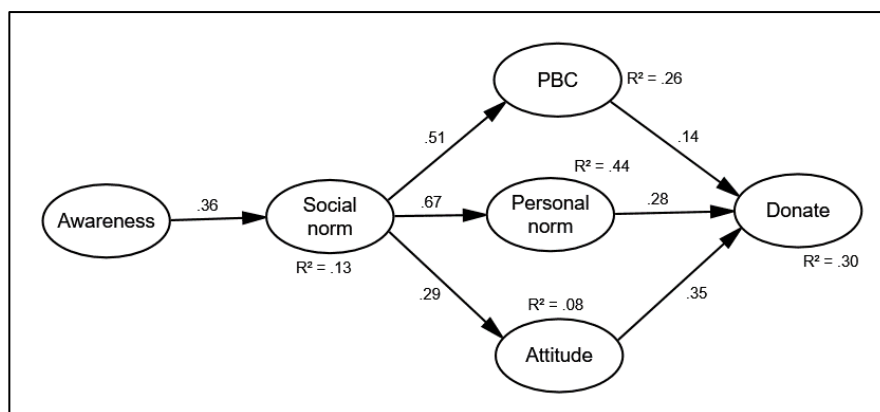

FIGURE 4.5: FINAL STRUCTURAL EQUATION MODEL

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In conclusion, the data supported all of the hypotheses put forward in this study (Table 4.10). However, PBC (Hypothesis 5) was the weakest predictor of intent (β = 0.14, $p < 0.01$). Interestingly, PBC also emerged as the weakest predictor of intent in Taljaard's (2015) and Sonnenberg's (2014) studies. Both these studies were conducted in the local context, which may point to the fact that the influence of PBC may relate differently to behaviour in emerging market contexts such as South Africa than in more developed economies. This study specifically focused on self-efficacy as a dimension of PBC and excluded the controllability sub-dimension, since Taljaard's (2015) results pointed to the fact that controllability might be more directly associated to behaviour than intent as initially postulated in the meta-analysis of Armitage and Conner (2001). This study indicated that self-efficiency alone is not a strong predictor of intent either. Empirical research carried out abroad, has mostly revealed that PBC and intent are significant predictors of behaviour. Such behaviour included pro-environmental actions such as public transport choice, the acquisition of eco-friendly products and other relevant pro-environmental deeds, but not specifically pro-environmental disposal of apparel. In this regard one might speculate that consumers do not concur with the idea that disposing of their apparel by means of donation is an easy way of achieving pro-environmental consequences. Perhaps they are more inclined to think that performing this behaviour has other worthwhile consequences e.g. to help others.

TABLE 4.10: RESULTS OF THE SEM ANALYSIS

Hypotheses		Standardized β (SE)	Supported
H1	Awareness → Social Norms	.358*** (.072)	Yes
H2a	Social Norms → Attitudes	.286***(.060)	Yes
H2b	Social Norms → Personal Norms	.666***(.053)	Yes
H2c	Social Norms → PBC	.510***(.059)	Yes
H3	Attitudes → BI:Donate	.351***(.043)	Yes
H4	Personal Norms → BI:Donate	.280***(.057)	Yes
H5	PBC → BI:Donate	.138** (.054)	Yes

Notes. ***$p < .001$; **$p < .01$. PBC = perceived behavioural control, BI = Behavioural Intent

All of the other path coefficients revealed stronger associations and were all statistically significant (p < .001). Attitudes (Hypothesis 3) were the strongest predictors of intent (β = .351, p < .001) which confirms previous studies that attitude influences behavioural intent directly (Bamberg & Möser, 2007; Armitage & Conner, 2001; Ajzen,1991) i.e. consumers who have a positive evaluation of the benefits of engaging in pro-environmental disposal behaviour (such as donating) would be more intent to engage in such behaviour (Francis *et al.,* 2004).

Overall, it would seem that consumers value the environment and that there is an association (as postulated in Hypothesis 1) between their awareness of environmental consequences and the social norms they ascribe to (β = .358, p < .001). This corresponds to prior empirical findings (Bamberg *et al.,* 2007:191; Wall *et al.,* 2007; Do Valle *et al.*, 2005), which explain that consumers are more likely to engage in pro-environmental behaviour when they are aware of environmental problems and their social groups expect them to behave in an appropriate pro-environmental manner (Park & Ha, 2014).

Furthermore, the results indicated that social norms have a positive influence on attitudes (β = .286, p < .001) and that consumers are thus influenced by their social reference groups to have a favourable viewpoint towards pro-environmental disposal behaviour (Park & Ha, 2014; Tang *et al*., 2011). Apart for the association between social norms and attitudes (Hypothesis 2a), social norms also have a positive influence on personal norms (β = .666, p < .001), which support prior empirical findings of Taljaard (2015) and Sonnenberg (2014). Social reference groups thus influence consumers' judgement about whether engaging in pro-environmental behaviour is the right thing to do (Bamberg *et al.*, 2007, Du Plessis & Rousseau, 2007). Social norms also appear to have a positive influence on PBC (β = .510, p < .001) as postulated in Hypothesis 2c. Apparently, social norms influence consumers' beliefs about the ease/ difficulty of engaging in pro-environmental disposal behaviour such as donating (Park & Ha, 2014; Chen & Tung, 2014; Tang *et al.*, 2011; Ajzen, 1992). Hypotheses 2a, 2b and 2c are therefore supported.

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4.4 CONCLUSION

This chapter explored the results of the study using descriptive statistics, EFA, CFA and SEM tests. The demographic results were discussed in terms of age, population group, education level, location, household income and size. The majority of the respondents were white females in the age category between 21 and 25 years with a tertiary education. The EFA identified eight factors namely Awareness of consequences, Social norms, Attitudes, Personal Norms, PBC, Intention to donate, Intention to resell, and Intention to reuse. The means of each factor were calculated, which revealed that behavioural intent to donate achieved the highest mean. The internal consistency of the measuring instrument was assessed and each factor's Cronbach Alpha was discussed. CFA was applied to indicate how each item will load on the hypothesised factors. SEM was used to test the conceptual/ theoretical model. The next chapter presents the conclusions, implications, contribution and limitations of this study, as well as recommendations for further research, as based on the findings presented in this chapter.

CHAPTER 5   CONCLUSIONS

This chapter summarises this study and also provides conclusions in terms of the problem statement and hypothesis. It also includes a description of the implications for the industry and policy formulations as well as theoretical contributions. Limitations and recommendations for future research is presented at the end of the chapter.

5.1   REFLECTION ON THE STUDY

South Africa's growing population has contributed to an increase of consumption, which has an effect on the larger Africa continent's escalating ecological footprint. This footprint has already exceeded the available bio capacity (WWF, 2015). The more developed countries have focused their research on poor waste management and pollution since these have enormous environmental effects (Dos Santos, 2011; IPCC, 2014; WWF, 2015). Similar effort is needed in the local context, especially with regard to the textile and apparel sector. The textile and apparel industry is known to contribute to these environmental problems, because the textile supply chain is one of the most damaging polluters (Hu *et al.*, 2014; Kumari *et al.*, 2013). It is thus necessary for consumers to participate in environmentally responsible disposal behaviour in order to have a more sustainable environment and to protect our natural resources (Joung & Park-Poaps, 2013), and also to recover textile and apparel waste. This study set out to present empirical evidence that could assist in influencing consumers to choose apparel disposal methods that would have more pro-environmental consequences.

Abroad it was found that consumers may be aware of different pro-environmental textile waste disposal options including donating, reusing, reselling and recycling, but it seems that they choose to discard anyway (Joung & Park-Poaps, 2013). There are various underlining motivational factors influencing behaviour. Several research projects conducted abroad focused on these pro-environmental motivational factors, which include consumer's attitudes, personal norms, social norms, PBC, and intention (Bamberg & Möser, 2007). These motivational factors

remain understudied topics in developing countries. Sadly, developing countries, such as South Africa, are more influenced by environmental corrosion, and consequently, more empirical research should focus on developing countries (IPCC, 2014; International Statistical Institution). Therefore, this research focused on the underlying relationship between the various motivational factors (including attitude, social norms, PBC, personal norms and an awareness of consequences, as proposed in TPB and NAT) that contributed to female consumers' pro-environmental intentions to dispose of apparel disposal in an eco-friendly manner (e.g. donation, resale, reuse, and recycling of apparel).

To achieve this, a quantitative, cross-sectional research approach was used for explanatory purposes. The sample comprised 315 females in Gauteng. The disposal behaviour of these female consumers was of specific interest because females play a major role in their household decisions in terms of apparel (Solomon *et al*, 2013). Studies done in South Africa have focused mainly on plastic, glass and paper (Department of Environmental Affairs, 2012), while limited empirical research has focused on South African consumers' apparel disposal behaviour. The data was collected from female consumers and was then analysed in terms of the research hypotheses using descriptive and inferential statistics.

Bamberg and Möser's (2007) meta-analysis study combined constructs and construct associations from the Norm Activation Theory (NAT) (Bamberg *et al.*, 2007; Schwartz, 1977) and the Theory of Planned Behaviour (TPB) (Ajzen, 1991). These two theories are known to explain pro-environmental behaviour (Park & Ha, 2014) and were therefore applied in this research in addressing the gap in current literature pertaining to female consumers' apparel disposal in the South African context. The following section provides a summary of the findings that were presented in Chapter 4.

5.2 SUMMARY OF FINDINGS

The aim of this study was to investigate the relationship between motivational factors and female consumers' intent to dispose of apparel by donating, reselling, reusing and/or recycling it. A prerequisite for participation was that the participants had to be female consumers who made their own independent choices. The demographic characteristic results of this study indicated that the respondents were between the ages of 18 and 65. The respondents were predominantly White, with a Tertiary Education level. The majority of the respondents (54% / n = 169) lived in Tshwane and earned a household income of between R5 000 and R25 000 per month.

An EFA was done to distinguish the relevant constructs and concepts in the dataset. The factor means between 4.36 and 3.46 indicate that the respondents mostly agreed to the pro-environmental motivational constructs. Behavioural intent to donate (M = 4.36) had a particularly high mean indicating that consumers were more willing and intent to donate over the other pro-environmental disposal options. The EFA illustrated the principle dimensions of the constructs within the variables, and were labelled accordingly (William, Brown & Onsman, 2010). The EFA extracted the same components as initially anticipated. The factors were labelled as Awareness (Factor 1), Social norms (Factor 2), Attitudes (Factor 3), Personal Norms (Factor 4), PBC (Factor 5), Intention to donate (Factor 6), Intention to resell (Factor 7), and Intention to reuse (Factor 8). The EFA indicated that the respondents' preferred method of disposing of apparel was to donate it. All of the factors reached Cronbach's Alphas of above 0.879, which indicated an internal consistency in the responses (Field & Miles, 2010:583).

The factors were further validated by means of a CFA. The CFA indicated that the fit indices (CMIN/DF, RMSEA, GFI, NFI, and CFI) had acceptable thresholds. The CFA test indicated that the items loaded onto the hypothesised factors were as expected, based on theory. Since the CFA's results were appropriate, a structural equation model was further established to explain the underlying motivational constructs and the participants' pro-environmental intent in terms of donating apparel.

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All the hypotheses were supported with the path coefficients being statistically significant (p < .001) and positive. The strongest predictor of intent were attitudes (β = .351, p < .001) indicating consumer's positive general evaluation of pro-environmental intent. The weakest predictor of intent was PBC (β = 0.14, p < 0.01). Consumers may find it difficult to donate apparel in a pro-environmental manner in South Africa. Awareness and social norms were positively related (β = .358, p < .001) which indicates that the social norms consumers' ascribe to are influenced by their awareness of environmental consequences. SEM also revealed that social norms had a positive influence on attitudes (β = .286, p < .001), personal norms (β = .666, p < .001) and PBC (β = .510, p < .001). Consumer's social groups thus influence whether they have a favourable feeling towards pro-environmental behaviour, whether consumers think they are morally obligated to engage in pro-environmental behaviour and whether they have control over that particular behaviour.

5.3   CONCLUSIONS

The purpose for this study was to investigate female consumer's pro-environmental motivation and intent regarding their apparel disposal behaviour in Gauteng, South Africa. A conceptual framework (Figure 5.1) was developed in line with the hypotheses and the literature regarding the combination of TPB and NAT, as proposed in Bamberg and Möser's (2007) meta-analysis. It included concepts of TPB (i.e. social norms, attitudes, PBC and behavioural intent) (Tonglet *et al.*, 2004; Ajzen, 1991) and NAT (i.e. awareness of consequences and moral norms) (Schwartz, 1977). These concepts were adapted to investigate the pro-environmental motivation and intent regarding the disposal of apparel specifically.
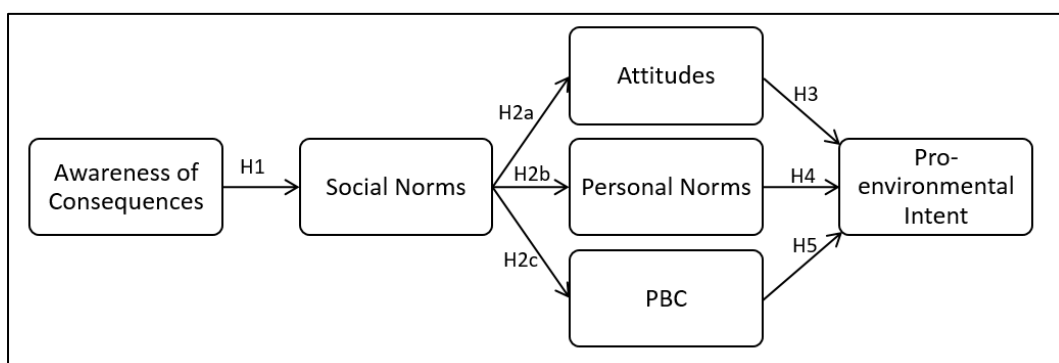

FIGURE 5.1 PROPOSED CONCEPTUAL FRAMEWORK

In terms of this study, the respondents seemed to be aware of the consequences of apparel waste and the effect it has on the environment. Awareness of environmental consequences influenced social norms (i.e. Hypothesis 1) in this research, which was also confirmed by previous research studies (Bamberg & Möser, 2007), however the association in Sonnenberg's (2014) study was stronger. This might imply that the strength of particular construct associations may differ depending on the type of behavioural intent that is investigated. Sonnenberg's (2014) study was more specifically focused on eco-friendly purchase behaviour and therefore it may be assumed that consumers who are more aware of the environment tend to care more about what other people do regarding the purchase of pro-environmental products and not necessarily when donating it.

Overall it would seem that social norms influence the formation of PBC (Hypothesis 2c) and personal norms (Hypothesis 2b), more than it influences people's attitudes (Hypothesis 2a) regarding environmental benefits of donating unwanted apparel. Social norms were as strongly associated with PBC and personal norms as established in previous studies (Sonnenberg, 2014; Bamberg & Möser, 2007) but it does not influence the development of attitude as strongly as the other constructs. In contrast with Sonnenberg's (2014) research study that was also conducted in the local context, consumers' attitudes may not be influenced by their friends and family in terms of disposing of apparel in a pro-environmental manner. It seems that consumers rely more on their own opinion to determine whether the donating of apparel is good, beneficial and/or wise. On the other hand, social norms influence the development of personal norms significantly, even more so compared to Bamberg and Möser's (2007) research study that was conducted abroad. The strong association between social and personal norms was also evident in Sonnenberg's (2014) study. Within the South African context, it would thus seem that consumer's social groups exert a strong influence whether they feel morally obligated to engage in pro-environmental disposal behaviour.

Furthermore, it was found that consumers' social reference groups influence their perception as to the ease/ difficulty of performing the pro-environmental behaviour, which was also confirmed by Sonnenberg's (2014) study. Bamberg and Möser's (2007) model on the other hand found that social norms does not influence consumer's PBC as strongly. Since these studies focused on different types of behaviours, it would perhaps again depend on the type of behavioural intent that is investigated. This emphasises the fact that each type of behavioural intent would potentially reflect different strengths among the underlying TPB and NAT construct associations.

Personal norms and attitude influence behavioural intention (i.e. Hypotheses 3 and 4) more so than it did in Bamberg and Möser's (2007) study. Even though PBC had a strong influence on intention in Bamberg and Möser's (2007) study, it had a weaker influence on behavioural intention (Hypothesis 5) in this research study. This result was also reflected Taljaard's (2015) and Sonnenberg's (2014) findings. This may be attributed to the fact that consumers in South Africa may feel that it is difficult to behave in pro-environmental manner. Various reasons may be attributed to this that could relate to specific contextual circumstances such as the limited facilities and opportunities available to engage in pro-environmental behaviour. As pointed out previously, people may also donate apparel for other reasons (e.g. to help the needy) rather than for the sake of the environment.

Overall, the findings indicated that female consumers may have positive underlying motivation and intent to donate apparel, but seem less confident and in control in terms of disposing of apparel in such a pro-environmental manner and/ or that it would have positive consequences for the environment. In this regard much can be done to convince consumers that donating apparel can have beneficial consequences for the environment. The implications of these motivational factors for industry and policy formulation will be discussed in the following section.

5.4 IMPLICATIONS FOR INDUSTRY AND POLICY FORMULATION

As previously mentioned, the damage to the environment will worsen without a significant change in consumer behaviour. Stakeholders in the South African apparel industry, and governmental organisations that focus on policy formulation could benefit from the findings of this study. This research found that awareness influences social norms and may therefore have an indirect influence on behavioural intent. As previously mentioned, marketing, policies, advertising, and information strategies should focus on consumers' awareness in order to change their behaviour (Vlek & Steg, 2007). Even though prior research has pointed out that information strategies could influence consumer behaviour (Steg & Vlek, 2009), consumer awareness alone may not be enough motivation to positively influence disposal behaviour. Consumers would possibly dispose of their apparel in a more pro-environmental manner if they were better informed, therefore the government could, for example, inform consumers as to where to donate their apparel. A study done in the Netherlands's suggest that information strategies is most effective when the information is personalised to the specific target market (Vlek & Steg, 2009). They could also educate the public about the environmental impact that apparel waste has on the environment. Businesses should be forced to be more aware of the environment (Smith & Perks, 2010) and assist in facilitating pro-environmental disposal of apparel and textile products. The government could therefore put business procurement legislation into place to influence recycling behaviour by allowing tax deductions for companies that recycle waste, and/or by enforcing recycling (Department of Environmental Affairs and Tourism, 2009).

Social norms had a particular strong influence on personal norms and PBC in this study. It is thus essential to make consumers feel obligated to care for the environment (Bamberg & Möser, 2007). It is important for the government to notably communicate with the public to show consumers what the socially expected behaviour is in terms of disposal. This can be done by providing social support and using role models within communities to promote pro-environmental disposal behaviour. These role models could for example steer campaigns that

inform consumers about the importance of appropriate methods of disposal and in so doing, instigate behavioural change (Steg & Vlek, 2009).

Since the whole apparel supply chain influences the environment negatively, the government could develop environmental management programmes in both public and private businesses (Mastamet-Mason, 2013). The government has the capability to control consumers and businesses through regulations and specifications, for example, recyclable standards of products, merchandising standards, such as pro-environmental consumption, and advertising guidelines to encourage pro-environmental behaviour (Steg & Vlek, 2009). Moreover, more effort could be devoted toward facilitating appropriate disposal methods by for example sponsoring bins for donation and/ or recycling (Ekström & Salomonson, 2014).

As pointed out in the conclusions, female consumers might not be overtly confident in their efforts to donate. PBC, as an underlying motivational construct thus warrants further attention to appropriately influence female consumers in terms of the pro-environmental disposal of apparel. Consumers should be encouraged to feel confident that their effort will have the desired effect and that such efforts are easy to perform. Textile recycling/donation bins may be difficult to reach or simply unavailable in rural and urban areas. It is therefore important to make it convenient for consumers so as to make the distance between the consumer and the pro-environmental disposal option shorter (Blackbur, 2015; Ekström & Salomonson, 2014). Charity organisations could for example place bins more prominently in areas where consumers live and work.

Consumers had a stronger association with donating compared to the other pro-environmental disposal options (reuse/recycle and resell). This may be attributed to the fact that consumers tend to care for disadvantaged people and show their concern for them (De Groot & Steg, 2010) especially in a developing country such as South Africa (Meyer, 2013). Personal norms and especially attitude influence consumer's donating behaviour. Marketing and information strategies may thus influence consumer's donating behaviour when they inform consumers about both

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the pro-environmental and altruistic advantages of donating (Hartley *et al.*, 2015; Vlek & Steg, 2007).

The other disposal options may also be used. Resell second hand apparel can be a great option in a developing country since it may help consumers to save money (Joung & Park-Poaps, 2013). Second hand shops can be established to resell clothing and existing online shops such as e-bay can also be used to resell apparel (Birtwistle & Moore, 2007). Further initiatives could include the endorsement of recycling methods by larger retailers such as Woolworths, to influence consumers' perception about more appropriate clothing disposal methods (Woolworths, 2016).

5.5   THEORETICAL CONTRIBUTION

Until now, limited research has been done on female consumers' behavioural intent regarding the pro-environmental disposal of apparel in South Africa. This research could serve as a platform for future research in the Consumer Science field in a similar topic since it provides theoretical evidence about the underlying motivational factors of South African females when disposing of clothing. Also, limited research has been done on the Theory of Planned Behaviour (TPB) and the Norm Activation Theory (NAT) to investigate the underlying motivational factors regarding pro-environmental disposal behaviour in developing countries.

This research study further progressed empirical findings derived from Taljaard's (2015) study by also using a combination of the TPB and NAT, but instead of focusing on the pro-environmental acquisition of apparel among male consumers, this research study focused on pro-environmental disposal behaviour of female consumers. EFA, CFA and SEM was used to confirm the different constructs namely, an awareness of consequences (Factor 1), Social norms (Factor 2), Attitudes (Factor 3), Personal norms (Factor 4), PBC (Factor 5), Intentions to donate (Factor 6). PBC provided various challenges in both Taljaard's (2015) and Sonnenberg's (2014) studies. This research study therefore specifically focused only on the self-efficiency dimension of PBC, which still proved to be problematic in terms of its influence on behavioural intent. Similar to the conclusion drawn from the prior studies in the local context, PBC may potentially influence behaviour

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rather than behavioural intent because it encompasses further underlying dimensions that is closer related to actual behaviour i.e. a person might be willing/ intent to perform pro-environmental behaviour, but the reality of doing it is influenced by various situational factors. In terms of disposal, situational factors might include the availability of facilities to recycle, reuse, resell and/or donate

This research study also extended empirical findings derived from Meyer's (2013) study by focusing on disposal options. However, this study used TPB and NAT instead of Value Belief Norm (VBN). Donating was the preferred method of disposing apparel in both this and Meyer's (2013) study which confirms that environmental and altruistic influences in a developing country such as South Africa may be equally important and thus differ from developed countries where consumers tend to have a much more individualistic inclination (Burgess & Steenkamp, 2006).

5.6 LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Developing countries, such as South Africa, have a diverse culture and complicated circumstances. As a result, this research could serve as a platform for future exploration of an expansion of TPB, as illustrated in the proposed conceptual framework, which contains constructs from TPB (Park & Ha, 2014; Ajzen, 1991) and NAT (Bamberg *et al.*, 2007; Schwartz, 1977) regarding the disposal of apparel in a pro-environmental manner in South Africa. In analysing the motivational constructs that influence consumers' pro-environment behavioural intent regarding the disposal of apparel, concerns were addressed that have not yet been significantly investigated in the South African context and could influence further improvement and an understanding of pro-environmental endeavours in emerging markets such as South Africa. However, despite its theoretical and practical implications this study had several limitations that should be addressed in future research.

Firstly, the results of this study cannot be generalised since it was based on non-probability sampling. A convenience sampling strategy was used in Gauteng. The majority of the respondents were young White consumers with a tertiary education,

residing in Tshwane. Most of the respondents' marital status was single without any children, and over half of the respondents had a household size of one to two members. Considering the limited scope and non-probability sampling approach of this study, it is important that future research should focus on a wider geographical scope and a more encompassing sample. Future studies can for example also focus on male consumer's pro-environmental disposal behaviour.

This study was limited in that it only measured the pro-environment behavioural intent in terms of disposal behaviour and not the behaviour itself. Further research is needed to measure pro-environmental behaviour more specifically, especially in terms of South African consumers' apparel disposal behaviour. Various research techniques such as multiple regression, path analysis and SEM can be used to analyse the relationship among variables and to predict how much the constructs relate to each other to influence the behaviour. Yet, qualitative approaches can be used in addition to these quantitative techniques to gain a more in-depth understanding of consumers' reasons for disposing (i.e. donating, reselling, and reusing) of apparel. This would ultimately work towards influencing the environment in a positive manner.

The investigation of the scale items supported the clarification of the underlying motivational factors influencing female consumers' pro-environmental intent to dispose of apparel in South Africa. Researchers in other developing countries may find the scale items useful in exploring the relationship between motivational factors and consumers' pro-environment behavioural intent and/or behaviour with regard to other product categories besides textiles and apparel. The quest for environmental preservation and sustainability is important and span across various types of consumer behaviour and products. In this regard, scientific efforts should be ongoing and relentless in its pursuit of gaining deeper and broader understanding of not only motivational aspects, but also other contextual factors that may ultimately influence consumers' pro-environmental behaviour.

5.7 FINAL CONCLUSION

This chapter included a reflection on the study, a summary of the findings from the data analysis, the conclusions based on these findings in terms of the hypotheses, the implications for industry and policy formation, theoretical contributions, as well as limitations and future research recommendations. As mentioned before, humans currently use 50% more resources than the earth can provide, and are busy endangering various living creatures for their own benefit (WWF, 2012). Unless we change our lifestyles by disposing our apparel in a pro-environmental manner, the environmental damage will become so significant that the whole world and all of the people in it will be affected negatively, which could even lead to the extinction of various resources and living creatures.

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ADDENDUM A: QUESTIONNAIRE

© University of Pretoria

Please indicate your gender

○ Male

○ Female

Dear respondent
- I am enrolled for my master's degree in Consumer Science (Clothing Retail Management) at the University of Pretoria under the supervision of Dr. Nadine Sonnenberg and Dr. Nedene Marx-Pienaar.
- The topic of my research dissertation is: The influence of pro-environmental motivation and intent on female consumer's clothing disposal behaviour.
- You would be a great assistance to me if you could complete the following questionnaire.
- At no time will any attempt be made to identify you.
- Your answers will be bulked with those obtained from other respondents and appropriate statistical analysis will be performed on the bulk data.
- We will attempt to collect data for descriptive and exploratory purposes through which your clothing disposal behaviour will be determined.
- By answering the questionnaire I will assume that you have consented to participate in this research endeavour.
- **Please answer the questions honestly and with sincerity.**
- Thank you very much for your time and cooperation. If you have any questions or concerns, please do not hesitate to contact me.

_____
Researcher: Ms MJ Stols
Cell no: 076 477 3794

What was your age at your last birthday?

According to the Employment Equity Act, how would you classify yourself?

○ Black

○ White

○ Coloured

○ Indian

○ Other, please specify

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Please indicate in what area in Gauteng do you stay.
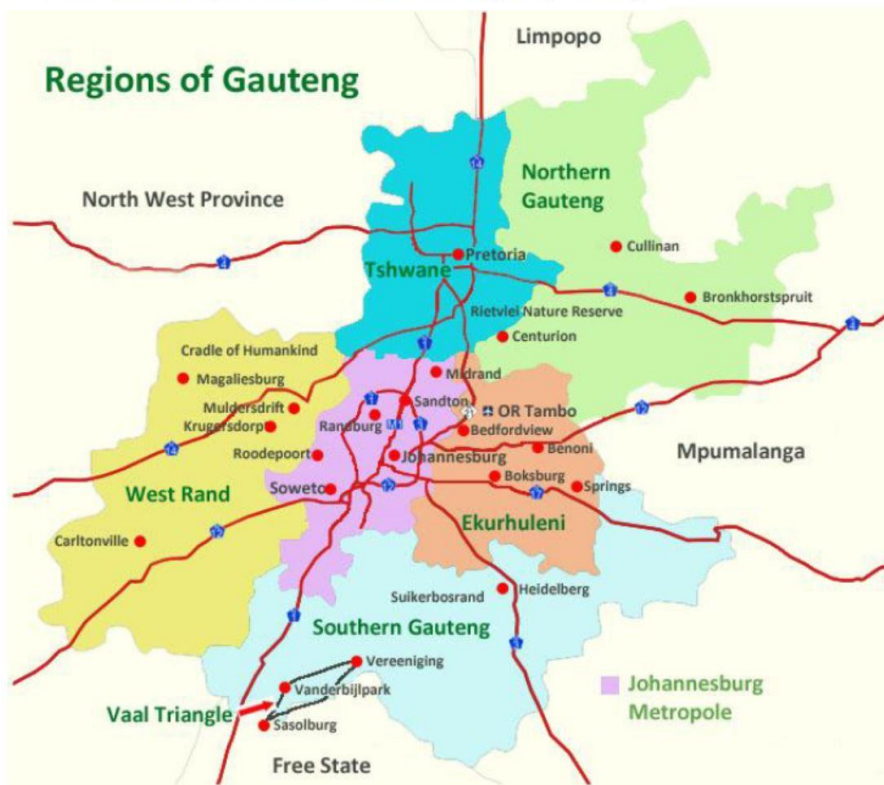
What was your age at your last birthday?

According to the Employment Equity Act, how would you classify yourself?

○ Black

○ White

○ Coloured

○ Indian

○ Other, please specify

What is your highest level of **education**?

○ Lower than grade 12

○ Grade 12

○ Tertiary education

What is your approximate **monthly household income**?

What is your current **household size** (total of family members living in your house)?

Indicate your **marital** status.

○ Single

○ Married/couple

○ Married/couple with children

○ Single with children

Please read the statement below and for each tick a dot appropriate to your answer.

I know that....

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
the environment is damaged due to people's irresponsible clothing disposal.	○	○	○	○	○
textile dyeing causes water pollution.	○	○	○	○	○
throwing your clothes away has environmental implications.	○	○	○	○	○
clothing that end up in landfills increases greenhouse gases.	○	○	○	○	○

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Please read the statement below and for each tick a dot appropriate to your answer.

People who are important to me ...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
expect me to dispose some of my clothing in an eco-friendly manner.	○	○	○	○	○
think that I should consider the environmental impact of throwing clothes in the dustbin.	○	○	○	○	○
expect me to get rid of old clothes in a way that will save the environment.	○	○	○	○	○
would approve if I get rid of old clothing, in a way that will have positive environment consequences.	○	○	○	○	○

Please read the statement below and for each tick a dot appropriate to your answer.

For me, throwing clothes away in a pro-environmental manner is ...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
wise.	○	○	○	○	○
good.	○	○	○	○	○
responsible.	○	○	○	○	○
benificial.	○	○	○	○	○

Please read the statement below and for each tick a dot appropriate to your answer.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I feel obligated to consider the environment in the manner in which I dispose of old clothing.	○	○	○	○	○
I feel obligated to recycle clothes, regardless of what others do.	○	○	○	○	○
My involvement in eco-friendly disposal activities are important..	○	○	○	○	○
When I get rid of old clothes, I feel morally obligated to recycle some of it.	○	○	○	○	○
I feel morally obligated to dispose old clothes in an environmental friendly manner.	○	○	○	○	○

Please read the statement below and for each tick a dot appropriate to your answer.

I would be willing to ...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
donate old clothing to be more pro-environmental.	○	○	○	○	○
donate old clothing to reduce environmental consequences.	○	○	○	○	○
donate old clothing to be more sustainable.	○	○	○	○	○
donate old clothing to reduce waste.	○	○	○	○	○

Please read the statement below and for each tick a dot appropriate to your answer.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
For me, to get rid of old clothes in an environmental friendly manner is easy.	○	○	○	○	○
I think I can be environmental friendly, by recycling old clothes.	○	○	○	○	○
Recycling clothes is easy.	○	○	○	○	○
I have a lot of options to get rid of old clothes in an environmental friendly manner.	○	○	○	○	○
I am confident that I would be able to recycle my old clothes.	○	○	○	○	○
I know what to do to get rid of clothes in an environmental friendly manner.	○	○	○	○	○

Please read the statement below and for each tick a dot appropriate to your answer.

I would be willing to ...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
resell old clothing to be more pro-environmental.	○	○	○	○	○
resell old clothing to reduce environmental consequences.	○	○	○	○	○
resell old clothing to be more sustainable.	○	○	○	○	○
resell old clothing to reduce waste.	○	○	○	○	○

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Please read the statement below and for each tick a dot appropriate to your answer.

I would be willing to ...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
reuse/recycle old clothing to be more pro-environmental.	○	○	○	○	○
reuse/recycle old clothing to reduce environmental consequences.	○	○	○	○	○
reuse/recycle old clothing to be more sustainable.	○	○	○	○	○
reuse/recycle old clothing to reduce waste.	○	○	○	○	○

ADDENDUM B: ETHICAL APPROVAL

Reference Number: EC150717-017

20-Aug-2015

MMJ Stols
Natural and Agricultural Sciences Dean's Office
UNIVERSITY OF PRETORIA

Dear Stols,

FACULTY OF NATURAL AND AGRICULTURE SCIENCES COMMITTEE FOR RESEARCH

Your recent application to the > Faculty Of Natural And Agriculture Sciences Committee refers.

1. I hereby wish to inform you that the research project titled *"The influence of pro-environmental motivation and intent on female consumers' apparel disposal behaviour."* has been approved by the Committee.

   This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Codes of Research Ethics of the University of Pretoria, if action is taken beyond the approved proposal.

2. According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of any member of the Faculty Committee who will deal with the matter.

3. The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.

Prof. Norman Casey
Chair: Faculty of Natural and Agriculture Sciences Committee for Research Ethics
FACULTY OF NATURAL AND AGRICULTURAL SCIENCES

ADDENDUM C: PLAGIARISM POLICY AGREEMENT

UNIVERSITY OF PRETORIA: PLAGIARISM POLICY AGREEMENT

The University of Pretoria places great emphasis upon integrity and ethical conduct in the preparation of all written work submitted for academic evaluation.

While academic staff teaches you about referencing techniques and how to avoid plagiarism, you too have a responsibility in this regard. If you are at any stage uncertain as to what is required, you should speak to your lecturer before any written work is submitted.

You are guilty of plagiarism if you copy something from another author's work (eg a book, an article or a website) without acknowledging the source and pass it off as your own. In effect you are stealing something that belongs to someone else. This is not only the case when you copy work word-for-word (verbatim), but also when you submit someone else's work in a slightly altered form (paraphrase) or use a line of argument without acknowledging it. You are not allowed to use work previously produced by another student. You are also not allowed to let anybody copy your work with the intention of passing if off as his/her work.

Students who commit plagiarism will not be given any credit for plagiarised work. The matter may also be referred to the Student Disciplinary Committee for a ruling. Plagiarism is regarded as a serious contravention of the University's rules and can lead to expulsion from the University.

The declaration which follows must accompany all written work submitted while you are a student of the University of Pretoria. No written work will be accepted unless the declaration has been completed and attached.

Full names of candidate: **MARIA JACOBA STOLS**

Student number: **11039932**

Date: **15/09/2016**

Declaration

1. I understand what plagiarism is and am aware of the University's policy in this regard.

SIGNATURE OF CANDIDATE:

SIGNATURE OF-SUPERVISOR:

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