Consumers' understanding and utilisation of textile eco-labels when making a pre-purchase decision

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SUMMARY

Eco-labels impact consumers' likelihood to buy eco-labelled products and serve as a tool during the decision-making process that helps consumers make informed purchase choices. The textile industry is responsible for a large amount of pollution, but has started to follow a more holistic, eco-friendly approach. Information about their eco-friendliness is communicated to consumers via eco-labels. Consumers can influence the textile industry to include more eco-labelled textile products in their desired range of products, by buying and demanding eco-labelled textile products. However, international studies indicate that consumers do not understand textile eco-labels and the information that is found on these labels. A lack of understanding prevents consumers from including such products in their pre-purchase decision-making process. Yet some consumers, from developed and developing countries, are willing to buy eco-labelled products and pay more for such products. Limited research in this regard, within a South African context, is available hence, more research was required in this study field. Therefore, this study aimed to explore consumers' understanding and utilisation of textile eco-labels during pre-purchase decision-making.

The research for the study was done using a convenience and purposive sampling method with a quantitative structured online questionnaire for data collection purposes. Findings suggest that respondents were environmentally conscious, but only to some extent. Most respondents objectively understood textile eco-labelled products, but not textile eco-labels or organic label information regarding cotton production processes. Respondents indicated that they do not use textile eco-labels when making a pre-purchase decision, yet they somewhat recognised the need to buy eco-friendly textile products, because they are aware of environmental implications. Regarding the information on eco-labels, respondents searched for information surrounding the quality of eco-labelled textile products, followed by the care instructions and the credibility of the eco-label on the product. Finally, there was a segment of respondents who buy and utilise textile eco-labelled products, and are willing to pay a higher price for these products. The higher price was the main factor that prevented other respondents from buying eco-labelled textile products.

Consumers can benefit from education regarding environmental issues and how their purchasing choices can make a difference in protecting the environment. Furthermore, educating consumers about eco-labelled textile products might increase their awareness and utilisation of these products. In turn, this awareness about eco-labels might encourage consumers to include these kinds of products in their pre-purchase decision-making process. Additionally the industry can strive towards keeping eco-labelled products' prices relatively

equal to regular product's prices to make it easier for consumers to choose between the different products, based on their environmental attributes and not price. Finally, the textile industry and manufacturers can focus on making textile eco-labels more attractive and attention-grabbing in order to focus consumers' attention on these labels. Furthermore, on these labels, symbols and words should be used together and all elements should correspond to enhance consumers' understanding. If all of these elements of an eco-label convey the same message, consumers might be able to understand the intended message by manufacturers and the industry better.

OPSOMMING

Eko-etikette maak ‘n groot impak op die waarskynlikheid dat verbruikers omgewingsvriendelike produkte sal koop en dien ook as ‘n hulpmiddel om beter ingeligte aankoopbesluite gedurende hulle besluitnemingsproses te neem. Die tekstielindustrie is verantwoordelik vir ‘n groot hoeveelheid besoedeling, maar het begin om ‘n meer holistiese, omgewingsvriendelike benadering te volg. Inligting, rakende tekstiele se eko-vriendelike eienskappe, word aan verbruikers gekommunikeer deur middel van eko-etikette. Deur aan te dring op tekstiel eko-produkte kan verbruikers die tekstielindustrie beïnvloed om meer produkte met eko-etikette in hul tekstielreekse in te sluit. Internasionale studies toon egter aan dat verbuikers nie tekstiel eko-etikette, of die inligting daarop, verstaan nie. ‘n Gebrek aan begrip verhoed hulle om omgewingsvriendelike produkte in die aankoop-besluitnemingsproses in te sluit. Daar is wel verbuikers in ontwikkelde en ontwikkelende lande wat eko-etike produkte koop en bereid is om meer daarvoor te betaal. Daar is egter beperkte navorsing op die gebied, veral in ‘n Suid Afrikaanse konteks wat dus meer navorsing in hierdie studieveld genoodsaak het. Daarom het hierdie studie ten doel gestel, om verbuikers se begrip en gebruik van tekstiel eko-etikette tydens die aankoop- verbruikerbesluitnemingsproses te verken

Die navorsing vir die studie is gedoen deur ‘n gerieflikheids- en doelgerigte steekproefmetode te gebruik, met ‘n kwantitatiewe gestruktureerde aanlyn vraelys vir data-insamelingsdoeleindes. Die bevinding dui daarop dat respondente slegs tot ‘n sekere mate omgewingsbewus was. Die meeste respondente het tekstiel eko-produkte objektief verstaan maar nie tekstiel eko-etikette of inligting op die etikette rakende organiese katoenproduksieprosesse nie. Die respondente het aangedui dat hulle nie eko-etikette tydens die besluitnemingsproses gebruik nie, alhoewel hulle tot ‘n mate die behoefte aan eko-produkte erken het omdat hulle bewus is van omgewingsimplikasies. Met betrekking tot die inligting op eko-etikette, het respondente na die inligting oor die kwaliteit van die eko-tekstielproduk, gevolg deur die versorgingsinstruksies en die vetrouenswaardigheid van die eko-etiket gesoek. Laastens was daar ‘n segment van die respondente wat tekstiel eko-etiket produkte koop en gebruik en bereid is om ‘n hoër prys vir hierdie produkte te betaal. Die hoër prys was die belangrikste faktor wat hulle verhoed het om eko-etiket tekstielprodukte te koop.

Verbruikers kan baat by opleiding met betrekking tot omgewingsvraagstukke en hoe hulle aankoopkeuses ‘n impak op die omgewing kan hê. Verder mag opleiding van verbruikers oor eko-tekstielprodukte hulle bewustheid en gebruik van hierdie produkte verhoog. Op sy beurt kan ‘n bewustheid van eko-etikette verbruikers aanmoedig om hierdie tipe produkte in hulle aankoop-besluitnemingsproses in te sluit. Daarbenewens kan die industrie daarna strewe om

die prys van eko-etiket produkte relatief dieselfde te hou as gewone produkte se pryse om dit sodoende makliker te maak vir verbruikers om keuses te maak tussen die verkillende produkte, op grond van die omgewingsvriendelike eienskappe en nie prys nie. Laastens kan die tekstielindustrie en vervaardigers daarop fokus om tekstiel eko-etikette meer aantreklik en treffend te maak sodat verbruikers se aandag gefokus sal word op die etikette. Verder kan woorde en simbole saam op hierdie etikette gebruik word en al die elemente saamwerk om verbruikers se begrip van eko-etikette te verhoog. As al hierdie elemente van ‘n eko-etiket dieselfde boodskap oordra, mag dit daartoe lei dat verbuikers die boodskap, soos bedoel deur vervaardigers en die industrie, beter verstaan

KEY WORDS

Consumer pre-purchase decision-making process

Eco-labels

Eco-friendly textile product

Understanding

Utilisation

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Chapter 1

Introduction

1.1 INTRODUCTION

Environmentally friendly consumption is a complex and ethical phenomenon within the study field of consumer behaviour, which influence consumers intellectually, morally and in practice (Moisander, 2007:404; Young *et al*., 2010:20). Making green purchasing choices is considered as an important facet of sustainable development (Abeliotis *et al.,* 2010:154). Therefore, eco-label systems were introduced to make it feasible for consumers to choose products that are less detrimental to the environment and consequently reduce the negative environmental implications of consumption (Grankvist & Lekedal, 2007:169; Scheer *et al.*, 2008:5). An eco-label information programme is used as a communication tool to inform consumers about sustainable consumption and communicating product information regarding its environmental impact (Belz & Peattie, 2010:29; Bratt *et al.,* 2011:1631). Consequently, labels are important sources of consumers' information, since labels and packaging influence consumers' first impressions about a specific product (D'Souza *et al*., 2006:163). In addition, eco-labels have the greatest impact on consumers' likelihood to purchase a green product (Cohn & Wolf *et al.,* 2011, Environmental Leader, 2013)**.**

It is evident that consumers use eco-labels as a tool in the decision-making process (D'Souza *et al*., 2006:163; Thøgersen *et al*., 2010:1789). However, there is a certain amount of uncertainty as to whether consumers understand the information provided on labels (D'Souza *et al.,* 2006:163). Several international studies examined this phenomenon (Cohn & Wolf *et al.,* 2011; D'Souza *et al.,* 2006; Thøgersen *et al.,* 2010) but there are limited South African studies on this subject. However, according to Fair Trade Label South Africa (2012) a recent debate on the value of eco-labelling for the local market indicated that 72% of South Africans voted in favour of local ethical labels, which falls under the eco-label category. Nevertheless, Momberg *et al.* (2012:414) are of the opinion that green textiles and clothing have not yet been accepted in the South African market due to a lack of knowledge and availability of such products. The question thus arises as to whether consumers really understand textile eco-labels and how they utilise these labels when making pre-purchase decisions.

1.2 BACKGROUND AND MOTIVATION

Consumers' concern for the environment can sway their decisions related to textile and clothing products they choose to buy (Cervellon & Carey, 2011:122; Yan *et al.,* 2012:163). By buying and demanding eco-labelled textile products, consumers could influence textile industries to introduce greener technology textiles (Kadolph, 2010:518). However, consumers first need to be conscious of and comprehend the intended meaning of eco-labels, in order to make an informed purchase decision (Thøgersen *et al.,* 2010:1788). Therefore, they need background knowledge about environmental challenges, or environmental consciousness, to purposefully consume greener products and to be classified as green consumers (D'Souza *et al.,* 2006:164; Haron *et al.,* 2005:428). Hence, it is important to highlight the relationship between environmental issues and how these resulted in the development of eco-labels.

1.2.1 The relationship between environmental issues and the origin of eco-labels

There is a definite link between human behaviour and global warming (IPCC, 2007) where global warming is increasingly being blamed for weather-related disasters (Below *et al.,* 2011:22). The textile industry is also known for its contribution to pollution (International Centre for Creativity Innovation Sustainability, 2011; Quinn, 2010:109), which influences global warming and poses a risk to individuals' health and the environment (Scheer *et al.,* 2008:25; Walters *et al.,* 2005:7). Since green issues have an effect at all stages of the textile production and supply process, the textile industry increasingly considers a more eco-friendly approach (International Centre for Creativity Innovation Sustainability, 2011; Quinn, 2010:9), which considers the impact of the complete life cycle of a textile on the environment (Kadolph, 2010:50). This information is communicated to consumers by means of eco-labels. Eco-labels can be defined as an environmental label or seal of approval that can be added to a product label or packaging that communicates the product's environmentally-friendly attributes and characteristics and aims to help consumers to make more informed purchase choices through improved knowledge and understanding (Bratt *et* al., 2011:1631; Grundey & Zaharia, 2008:138). A detailed description of the degradation of the environment (as an external influence in the decision-making process), the textile industry, the link to eco-labels as well as the definition of eco-labels is discussed in Chapter 2.

1.2.2 Previous research on consumers' understanding of and decision-making regarding eco-labels

Extensive research has been done, on different aspects of eco-labels internationally. Most research focuses on topics such as: the barriers eco-labels can create in international trade and Fair-trade (Heidkamp *et al.,* 2008; Howard & Allen, 2010; Klintman, 2009), eco-label certification (Melo & Wolf, 2005; Robertson, 2007), certification on wood products (Perera *et al.,* 2008; Vlosky *et al.,* 1999) and eco-labels on food products (Czarnezki, 2011; Hjelmar, 2011) to name a few. Research was also done on consumers' knowledge of eco-labels and how different factors such as ethnocentrism, willingness to buy, age, demographics and identity influence their buying behaviour in countries such as Greece, Hungary, Sweden, Mexico, Chile, Canada, Korea, India, France and Australia (Cleveland *et al.,* 2011; Hervé & Mullet, 2009; Josiassen *et al.,* 2011). Furthermore, numerous studies have been published on the characteristics of green consumers, categorising them according to their knowledge, attitudes and behaviours (Diamantopoulos *et al.,* 2003; D'Souza, 2004; Leonidou *et al.,* 2010).

There is a growing interest and demand for green products and it is likely that eco-labels will become a reference for green consumers (Grundey & Zaharia, 2008:139). Research shows that 93% of consumers in the USA have some degree of sustainability perception and 75% trust that what they buy has an impact on the environment and society as a whole (Palmer, 2008:2). However, recent international studies indicated that there is a certain amount of uncertainty as to whether consumers have the appropriate knowledge of the content of environmental labels (MCL Global, 2012:9) and that information on eco-labels might confuse consumers, because they do not understand it (D'Souza, 2004:179; Hanks *et al.,* 2002; Thøgersen *et al.,* 2010:1788). Contrary to this, other international studies indicated that labels and packaging have the greatest impact on consumers' likelihood to purchase a green product (Bratt *et al*., 2011:1632; Cervellon & Carey, 2011:134; Cohn & Wolf *et al.,* 2011).

Research indicates that consumers worldwide are aware of eco-labels and utilise them when making purchasing choices (D'Souza *et al*., 2007:375). However, a recent survey in Stockholm indicated that a lack of clear information and difficulty to distinguish between various eco-labelled textiles and clothes hinder consumers to fully understand the information on the labels, preventing them to purchase sustainable textiles (MCL Global, 2012:9). These tendencies should be established and confirmed in South Africa therefore, there is a conceptual weakness in the canon (Maree & Van der Westhuizen, 2007:26).

1.2.3 Developed countries versus developing countries and the importance of eco-labels

Previous research indicates that consumers in developed countries are willing to pay higher prices for eco-labelled products (Leire & Thidell, 2005:1065; Naumann, 2001:6). The annual Image Power Green Brands survey confirmed these outcomes since more than 60% of respondents preferred to buy from environmentally responsible companies of whom 70% of respondents were from developing countries and 30% from developed countries (Cohn & Wolf *et al.,* 2010). These results indicate that a significant proportion of respondents from this study, in developed and developing countries were willing to buy from environmentally-friendly and responsible companies and pay more for those kinds of products. In addition, consumers from developing countries, such as China, India and Brazil scored the highest in the National Geographic/GlobeScan international Greendex survey, which indicates that they were most concerned about environmental issues, portray more sustainable behaviour and consume more green products than consumers in countries that scored lower in the same survey (National Geographic, 2013). However, these tendencies have not yet been investigated and confirmed in South Africa, which is also a developing country (Naumann, 2001:6). Therefore, a contextual weakness also arises in the literature (Maree & Van der Westhuizen, 2007:26).

1.3 PROBLEM STATEMENT, AIM AND OBJECTIVES

From the literature, it is evident that most research on eco-labels was done in countries other than South Africa. In addition, little literature is available regarding South African consumers' awareness and understanding of eco-labels and their utilisation of eco-labels when making pre-purchase decisions, especially eco-labels on textile products. Contrary to this, research done by the Target Group Index (TGI) indicates that South African consumers tend to consider the environment and consume green products more than they had in the past. South African consumers are increasingly becoming more aware of the environment and how their purchasing choices can influence the environment (TGI SA, 2009:1). Additionally, the new Eco–Labelling Project that aims to promote eco-labelling in emerging economies such as South Africa was implemented by the United Nations Environment Program (UNEP). UNEP discovered that South African consumers are ready to become part of the environmentally-conscious consumer group and consequently will be introduced to more eco-labelled products (UNEP, 2009). This does not necessarily indicate that South African

consumers truly understand the information on eco-labels in the broader sense or that they include these labels in their pre-purchase decision-making process when shopping for textile products. This supported the necessity for research to be done in this area. This kind of research might help to educate South African consumers to understand and utilise eco-labels in their pre-purchase decision-making process to be able to make fully informed decisions.

1.3.1 Aim

The aim of this study is to explore consumers' understanding and utilisation of textile eco-labels during specific stages of the pre-purchase decision-making process (need recognition/information search/evaluation of alternatives/purchasing choice).

1.3.2 Objectives

In order to achieve the aim of this study, the following objectives were identified:

1. To determine the demographic profile and environmental consciousness of respondents.
2. To explore and describe respondents' subjective and objective understanding of eco-labels.
3. To explore and describe whether and how respondents utilise textile eco-labels during specific stages of the consumer pre-purchase decision-making process, namely need recognition, information search, evaluation of alternatives and when making a purchase decision.
4. To determine the demographic differences with regards to respondents' environmental consciousness, their subjective and objective understanding as well as the pre-purchase decision-making process.

1.4 STRUCTURE OF MINI-DISSERTATION

This mini-dissertation is presented in article format. **Chapter 1** introduces the study and includes background information together with the motivation for the study, problem statement as well as the aims and objectives. **Chapter 2** provides a literature overview of the theoretical framework of the pre-purchase consumer decision-making process of textile eco-labels and how different aspects influence this process. This includes literature regarding consumers in a South African context, textile eco-labels as an external source of information during the consumer pre-purchase decision-making process and understanding

as an internal influence. **Chapter 3** comprises the research article. This article is to be submitted to the Clothing and Textile Research Journal and contains an overview as well as the results of the study. The format and references for this article are done in accordance with the journal's editorial and referencing guidelines. An in depth methodology section is included as an appendix for a more detailed report. **Chapter 4** concludes this mini-dissertation and includes the limitations of the study as well as recommendations for future research. Except for Chapter 4, each chapter contains a reference list, written according the Harvard referencing style, as required by the North-West University. Appendices A (Research Methodology), B (E-mail letter to respondents), C (Research questionnaire), D (Additional tables), E (Author's guidelines for research article) and F (Plagiarism report and letters of consent from the language editors (are attached for comprehensiveness and additional information).

1.5 AUTHORS' CONTRIBUTIONS

The current study presented in the form of a mini-dissertation was planned and executed by a team of researchers. Each researcher had a specific role throughout the duration of the study. Each researcher's contribution will be summarised in the following table:

Table 1.1: Summary of authors' contributions to the study

Name	Contribution in the study
Ms. H. Dreyer	First author, responsible for the literature research, questionnaire design, gathering of data, statistical analysis and interpretation of the data, together with the preparation and writing of the mini-dissertation.
Ms. E. Botha	Supervisor and co-author, supervising the activities of the first author and provided direction and advice for the duration of the study. Supervising the descriptive analysis and interpretations as well the completion of the mini-dissertation. Helped to obtain funds and ethical approval for the study.

Table 1.1 (continued): Summary of authors' contributions to the study

Name	Contribution in the study
Prof. M. van der Merwe	Co-supervisor and co-author of the mini-dissertation. Co-supervised the activities of the first author for the duration of the study. Assisted in acquiring funding for the study by means of NRF bursaries. Assisted in obtaining ethical approval for the study.
Ms. N. le Roux	Co-supervisor and co-author of the mini-dissertation. Co-supervised the activities of the first author for the duration of the study

The following is a statement from the co-authors to confirm their individual roles in the study and also to give their permission that the article may form part of this mini-dissertation.

I proclaim that I have approved the article included in this mini-dissertation, and that my role in this study, as assured above is representative of my actual contribution and that I hereby give my consent that it may be published as part of the Magister in Consumer Sciences' mini-dissertation of Mrs H Dreyer.

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Ms. H. Dreyer **Ms. E. Botha**

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Prof. M. van der Merwe **Ms. N. le Roux**

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Chapter 2

Literature review

2.1 INTRODUCTION

In 1978 David Ehrenfeld said "*Humanity is on the march, earth itself is left behind*" (Ehrenfeld, 1978:54). This is even truer today, since the year 2011 was characterised, by the United Nations Environmental Programme (UNEP), as a year of environmental extremes with record-breaking weather events that killed a large number of people and caused billions of dollars in damage (UNEP, 2012). Furthermore, in 2010 the world endured 385 natural disasters that were responsible for more than 297 000 fatalities worldwide and negatively influenced over 217 million people, as recorded by the Centre for Research on the Epidemiology of Disasters (CRED) (Below *et al*., 2011:1). Of the 385 natural disasters, hydrological and meteorological disasters accounted for 79% and climate disasters for 13% (Below *et al.*, 2011:22). In other words, 92% of these natural disasters were weather-related, and it is argued that global warming is the most likely explanation. Moreover, a recent report by the United Nations places the likelihood of the relation between human actions and global warming at more than 90% and projections suggest that the number of weather-related disasters is to triple by the year 2030 (IPCC, 2007). Global warming is largely caused by pollution (UNEP, 2012) which is a collective word for all activities that contribute to the contamination or pollution of the environment (water, air and soil) with harmful substances (Soanes, 2002:689).

The technological and scientific improvement in the worldwide textile industry has been rapid but also inherently unsustainable. The textile industry is accused of polluting the environment, which in turn has a vast ecological and toxicological impact on the earth (International Centre for Creativity Innovation Sustainability, 2011; SSNC, 2010:3). Moreover, it poses potential risks to human health and the environment (Scheer *et al.,* 2008:25; Walters *et al.,* 2005:7). The cotton industry alone is responsible for 24% to 25% of the world's total pesticide consumption and synthetic fertiliser usage (International Centre for Creativity Innovation Sustainability, 2011; Oecotextiles, 2006). Alongside cotton, wool processing requires solvents and detergents that are manufactured from petro-chemicals that are derived from scarce fossil fuels where the mining and development thereof cause major pollution (Oecotextiles, 2006; Scheer *et al.,* 2008:25). Textile dyes and finishes use toxic chemicals and in totality, the textile industry consumes large quantities of energy and

water resulting in vast amounts of wasted water (SSNC, 2010:3; International Centre for Creativity Innovation Sustainability, 2011).

The world's growing concern for the survival of the environment caused a tendency under consumers, manufacturers, producers and procurement professionals to implement more sustainable procedures and consumption processes (Aichlmayrl, 2010:18; Bratt *et al.*, 2011:1631; Siringi, 2012:19). Environmental problems occur in all the phases of textile and clothing production as well as the supply chain process. Therefore, the textile industry is starting to have a more holistic, cradle-to-grave approach (International Centre for Creativity Innovation Sustainability, 2011; Quinn, 2010:9). This new tendency considers the impact of the entire lifecycle of a textile on the environment (Kadolph, 2010:50), which is communicated to consumers by means of eco-labels. To enable consumers to choose greener textile products and consequently, lessen the negative environmental implications of consumption, eco-label systems or in a broader sense Environmental Product Information Schemes (EPIS) have been introduced (Grankvist & Lekedal, 2007:169; Scheer *et al.*, 2008:5).

A few product ranges with eco-labels are currently available in South Africa such as organic food and textile products, certified wood products, certain fish products, dolphin-friendly products, blue flag beaches and textile products from sustainable fibres. This study however only focuses on eco-labelled textile products. There are many eco-labels pertaining to textile products internationally, but in South Africa, the concept is still relatively new. Only a few internationally awarded eco-labelled textile products are available in this country, such as maternity wear with the Oekotex eco-label. However, many environmentally friendly textile products are available in well-known chain stores, such as 100% organic cotton products, products made from bamboo fibres and recycled plastic polyethylene terephthalate (PET) bottles fibres used for inners of duvets and pillows. Eco-labelled products are therefore available in South Africa and TGI (2009) concluded that South African consumers are becoming more conscious of environmental problems and supportive of green initiatives. However, this does not necessarily indicate that South African consumers truly understand the information on eco-labels in the broader sense and include these labels in their pre-purchase decision-making process when shopping for textile products, which necessitates research in this area.

2.2 THEORETICAL FRAMEWORK OF CONSUMERS' UNDERSTANDING AND UTILISATION OF TEXTILE ECO-LABELS WHEN MAKING A PRE-PURCHASE DECISION

Consumers' concern for the environment influences their decisions regarding textile products (Momberg *et al.,* 2012:409; Yan *et al.,* 2012:163) and by buying and demanding eco-labelled textile products, consumers could influence textile industries to introduce greener technology textiles (Kadolph, 2010:518; Momberg *et al.,* 2012:409). However, consumers first need to be conscious of and comprehend the intentional meaning of eco-labels, in order to make an informed purchase decision (Haron *et al.,* 2005:435; Thøgersen *et al.,* 2010:1788). Consumers need background knowledge about environmental challenges, in other words possess environmental consciousness, to purposefully consume greener products and to be classified as a green consumer (D'Souza *et al.,* 2006:164; Haron *et al.,* 2005:428).

Consumers use eco-labels in their decision-making process as a source of information (Thøgersen *et al.,* 2010:1789) and international studies indicate that labels and packaging have the greatest impact on consumers' likelihood to purchase a green product (Cervellon & Carey, 2011:134; Cohn & Wolf *et al.,* 2011; Environmental leader, 2013). Furthermore, research indicates that factors that usually influence the environmentally friendly behaviour of consumers, are classified as external influences (education, media, family culture), internal influences (attitudes, awareness of environmental issues and green products, knowledge), and situational influences (economic rewards and legislation) (Carrete *et al.,* 2012:471). This hinges on the pre-purchase consumer decision-making process from which the theoretical framework for this study is constructed.

This study's theoretical framework is presented in Figure 2.1. It is constructed from existing literature and adapted from frameworks in Jacobs *et al.* (2010:511) and Schiffman and Kanuk (2010:483) that are based on consumer pre-purchase decision-making processes before making purchasing decisions. The theoretical framework illustrates the decision-making process of consumers and the utilisation of textile eco-labels. The framework consists of consumers in the context of eco-labels and the pre-purchase decision-making process with internal and external influences that affect consumers in the process. Specific attention will be given to learning as an internal influence in the decision-making process since it also implies understanding.

This study focuses on consumer understanding of textile eco-labels where these labels can be regarded as an external influence. Utilisation will form part of external sources under

information search. All other internal and external influencing variables are only discussed to give additional background information to enhance the understanding of the pre-purchase decision-making process. This study focuses on consumers' understanding and utilisation of textile eco-labels during the different phases of the pre-purchase decision-making process. These phases are need recognition, information search, evaluation of alternatives and purchase choice. These phases are also discussed in this order.

With regard to eco-labels, the research framework proposes that consumers are influenced by several factors when they are making their pre-purchase decisions. Consumers want to understand and use the information on eco-labels and products they are exposed to. These influences can be categorised as external or internal factors, where external factors in this study are: environmental suppression, labels as information sources, price, family, informal information sources, social class and social status; and culture and sub-culture. Internal influences include: motivation, personality, perception, learning and attitude (Schiffman & Kanuk, 2010:483). Internal influences are also known as psychological factors inherent to each individual (Hoyer & MacInnis, 2010:10). Internal factors affect how the external factors influence the various stages of the consumer decision-making process namely *need recognition, pre-purchase search for information and evaluation of alternatives and choice* (Schiffman & Kanuk, 2010:483). Psychological/internal factors are the knowledge and information consumers base their decisions upon (Hoyer & MacInnis, 2010:10). It is evident that these factors are also important when intending to explore consumers' understanding of eco-labels (Gilg *et al.,* 2005:502; Thøgersen, 2000).

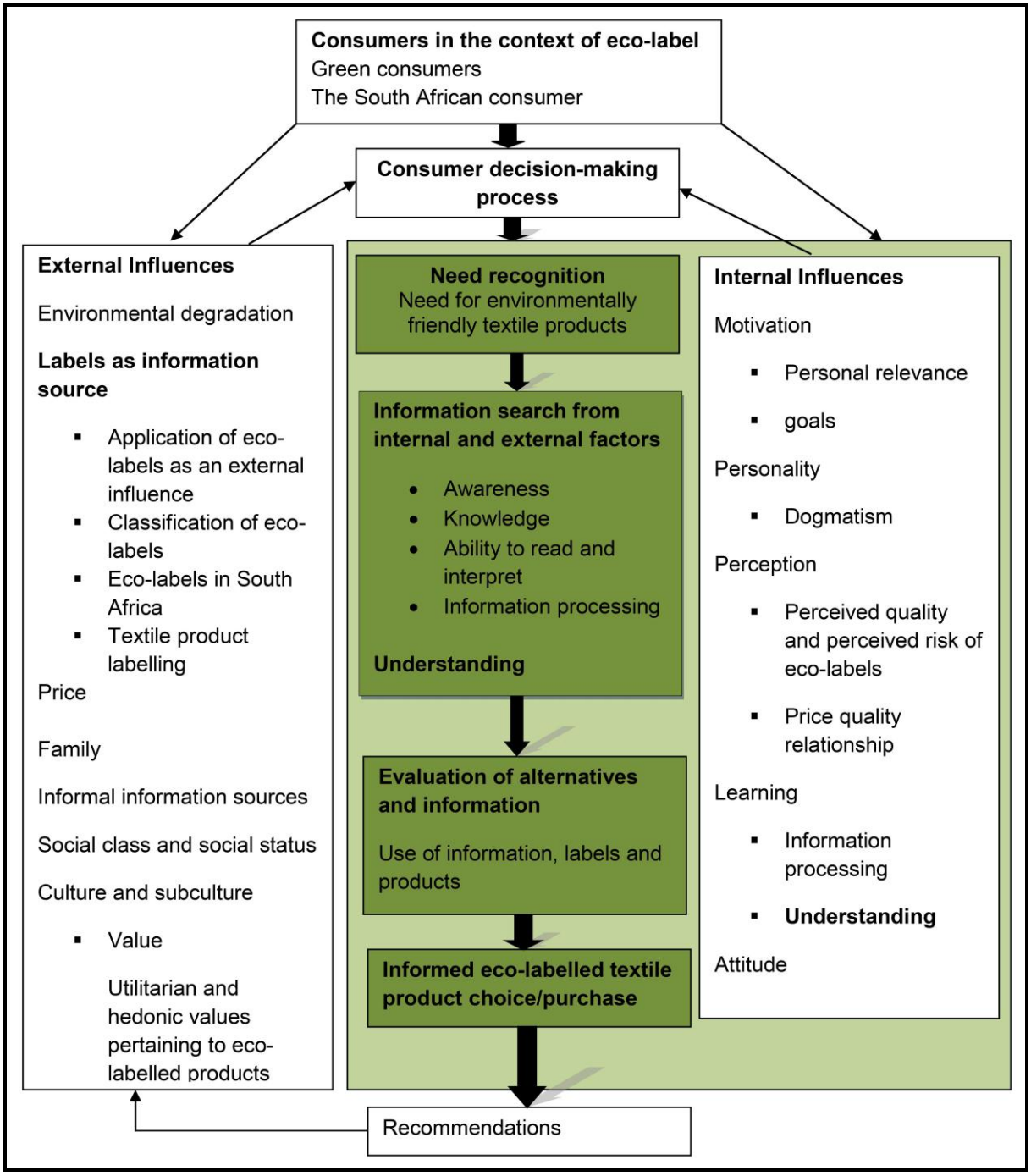


Figure 2.1: Theoretical framework of consumers' understanding and utilisation of textile eco-labels when making a pre-purchase decisions, adapted from Jacobs *et al*. (2010:511) and Schiffman and Kanuk (2010:483).

2.3 CONSUMERS IN THE CONTEXT OF ECO-LABELLING

A consumer is the end user of a product or service (Wright, 2006:489) and they can be divided into organisational consumers and personal consumers (Schiffman & Kanuk, 2010:23). Organisational consumers focus on buying products and services for business purposes and personal consumers purchase for personal and household use (Solomon, 2011:446). The personal consumer is every individual, of every age and background in the role of either buying or using, or both buying and using (Schiffman & Kanuk, 2010:26; Thøgerson, 2002:93). Everyday consumers can encounter problem situations that lead to need recognition of a product or service that will fulfil that need (Hoyer & MacInnis, 2010:12; Moisander, 2007:405). Consumers display distinct behaviour in their search for products and services (Dos Santos, 2012:386) but do not display identical behaviour as a result of differences in their situations and backgrounds (Du Plessis, 2003:49). Moreover, numerous internal and external factors influence consumers' search for products and services (Dos Santos, 2012:386; Schiffman & Kanuk, 2010:483-484). Eco-labels, as an external influence, are a communication tool to assist consumers in their search for green products (D'Souza, 2004:180; Thøgersen *et al.,* 2010:1789). Consumers who search and choose products with environmentally friendly attributes can be defined as green consumers (Moisander, 2007:404; Reijonen, 2011:407).

2.3.1 Green consumers

Different consumers have different needs. Maslow's hierarchy indicates that consumers seek different kinds of product benefits, satisfaction and values at every level (Hoyer & MacInnis, 2010:50; Solomon, 2011:161). It shows that consumers have different needs that motivate them in the pre-purchase decision-making process (Kardes *et al.,* 2011:105; Thøgersen *et al.,* 2010:1789). Recently, a new consumer group emerged, namely the 'green' or ethical consumer (D'Souza *et al.*, 2006:162). Green or ethical consumerism can be seen as purchase and non-purchase decisions that consumers make based on environmental or social criteria due to their apprehension for and familiarity with the environment (Harrison *et al*., 2005:2; Kang & Kim, 2013:268) and can be characterised as a highly intricate form of consumer behaviour (Moisander, 2007:404). Environmentally friendly behaviour can be defined as the encouraging feelings that consumers gain or expect to experience when they are able to contribute towards safeguarding the environment (Abdul–Muhmin, 2007:239). Thus, the green consumer is concerned with the effects that a purchase decision has, on themselves as well as the environment (Harrison *et al.,* 2005:2).

These consumers have the need to make purchase decisions that protect the environment and it can be described as an emotional need (Rahbar & Wahid, 2011:76). Ottman (2011:33) identified five universal needs of 'green' consumers as well as their strategies to address these needs. These needs and strategies can be explained as follows:

- The need for information encourages green consumers to read the labels on products to gain additional information and engage with other search initiatives.
- The need for control, driving consumers to control the influence on the earth's environment and thus take preventative measures with the earth's sustainable future in mind also in addition to reduce climate change.
- The need to make a difference or alleviate guilt, influences consumers to change to a brand or store that includes environmentally friendly products and support environmentally friendly practices.
- The need to maintain their current lifestyles, so consumers search for interchangeable, alternative products that do the same or have the same properties, but without the harmful effect on the environment.
- The need to look smart or to fit a specific image or description. These consumers buy and consume conspicuous green products, because it is a new trend.

Different ethical dimensions can result in changes in a consumer's willingness to purchase or not to purchase products and to incorporate ethical and environmental values in their decision-making process (De Pelsmacker *et al*., 2005:517). Therefore, consumers might not be equally interested, or able, to buy eco-labelled products. One of the factors that might influence consumers' interest and ability to buy such products is demographic characteristics, as derived from many international eco-label studies that have identified specific demographic characteristics within populations of consumers who are generally interested in buying eco-labelled products (Cleveland *et al.,* 2011:245; D'Souza *et al.,* 2007:371). In addition, Gilg *et al.* (2005:494) are of the opinion that environmental and social values, psychological factors and socio-demographic variables are influential in classifying green consumers. Even though some studies indicate that demographic attributes do not appear to have a considerable impact on eco-labelled product buying behaviour (De Pelsmacker *et al.*, 2005:517; Peattie, 2001:188), international research concludes that eco-labelled products are usually consumed by consumers with a higher level of education and income (D'Souza *et al.*, 2007:372; Gilg *et al.,* 2005:491; IISD, 2013b). In addition, women tend to be more concerned about the ecological impact products have on

the environment (Jain & Kaur, 2006:134) whereas men have more knowledge about environmental issues (D'Souza *et al.,* 2007:372).

These environmentally conscious consumers will most likely have satisfied their basic needs such as physiological needs, their need for safety, and a need for belonging since, the prerequisite for moving up in Maslow's needs pyramid is for the lower level needs to be satisfied first (Hoyer & MacInnis, 2010:50; Solomon, 2011:161). According to Cotton Incorporated (2013), consumers' eco-sensitive attitudes and behaviours can be understood and explained as a form of enlightened self-interest. Therefore, these consumers recognise higher level needs such as ego fulfilment and self-actualisation needs. An example of this phenomenon is a study of Prius car owners conducted in 2007. The study indicated that the main reason why consumers buy a Prius car is about who they are (self-concept), rather than better fuel economy or less carbon emissions (Ottman, 2011:41). This ego-need links closely with the fifth universal need of green consumers, namely conspicuous green purchases and the influence that social norms have on green consumer behaviour (Kim *et al*., 2012:14). However, a study done by Cotton Incorporated (2013) indicates that 70% of consumers are willing to be environmentally friendly as long as it has financial benefit for them.

2.3.2 The South African consumer

South African consumers have various qualities based on their diversity, but it proposes unique challenges, especially concerning understanding eco-labels on products and using those (Hanks *et al.,* 2002) during decision-making. The diversity of the South African population includes 11 official languages and 50-59 million inhabitants, of which just over 51% are females, with an array of income groups and living standards (Statistics South Africa, 2011). South African inhabitants are also not homogenous in culture, language or income and 79% comprise black Africans (Schönfeldt *et al.,* 2010:256; Statistics South Africa, 2011:7) of which almost 50% live below the poverty line (Mail & Guardian, 2011). With regard to education, only 26.2% of the population, 20 years and older, have completed grade 12 and only 11.2% have a tertiary education (Stats SA, 2010:3). The abovementioned statistics of South African consumers together with the history of South Africa as a developing country and Environmental education in South Africa, to be discussed in 2.3.2.1 and 2.3.2.2, provides insights into the South African consumer's frame of reference. This might influence their understanding of eco-labels and their decision-making when using them.

2.3.2.1 South Africa as an emerging economy

In 2011, South Africa became a member of the BRICs countries (Brazil, Russia, India, China and South Africa). These are countries that are regarded as Third World countries with rapid emerging economies (Rajagopal, 2010:96). A Third World country can be described as a country that experiences problems such as poor economic growth, high levels of poverty, high inflation rates, rigid trade barriers, political imbalances, sub-standard infrastructure, a lack of education and inadequate access to advanced services, telecommunications, basic retailing, banking services and electronics (Appiah-Adu, 1998:120; Klemz *et al.,* 2005:591). In contrast, an emerging economy can be defined as a country where political or economic systems have undergone change and the country experiences swift economic development (Fan, 2008:354).

It is evident that South Africa started to overcome some Third World country barriers, especially in more industrialised/urban parts of the country (Klemz *et al.,* 2005:591; Molawa, 2009:3). Some examples include running water, electricity and basic appliances in households (Klemz *et al.,* 2005:591). Furthermore, most of the urban parts of South Africa have modern infrastructure, telecommunications, banking and retail outlets as well as running water and electricity. Therefore, South Africa is a developing country with an emerging economy (Molawa, 2009:3; Momberg *et al.,* 2012:409; Scheer *et al.,* 2008:5). Although this study is executed in Pretoria (Tshwane), one of the capital cities of South Africa, it is important to have some background information about South Africa's history, as this will shed light on the South African market and its consumers.

2.3.2.2 Environmental education in South Africa

Since the first democratic election in 1994, the majority of black South African consumers, who were previously disadvantaged, entered the economic environment and most of them, only recently, gained access to basic products and services as well as education, electricity, running water in their homes and even owning homes (Gothan & Erasmus, 2008:640). This implies that, due to the past, these consumers have limited purchasing power, suffer high levels of illiteracy and are uneducated about health and environmental issues. They also might be negative concerning any environmental policies, because they are uneducated about the environment and do not feel the need to protect the environment, when they do not even have their basic needs fulfilled (Latif *et al.,* 2011:108; McDonald, 2002:21). This can result in a barrier towards awareness, understanding and use of eco-labelled

programmes and products (Hanks, 2002; Momberg *et al.,* 2012:409). They might also find it difficult to include eco-labelled products in their decision-making process due to the negative association they have regarding previous environmental policies (from which they were excluded) and might reject such products and information in their decision-making (McDonald, 2002:21; Momberg, 2012:413).

One of the social institutions that can change or transmit different cultural values is education (Schiffman & Kanuk, 2010:375). Education is often seen as the key to changing behaviour (Loubser, 2005:45; Shen *et al.,* 2012:242; Süle, 2012:213). It increases knowledge, but it is worth noting that knowledge is not necessarily a motive for green behaviour (Thøgersen *et al*., 2010:1789). However, the lack of education can be a barrier against green behaviour (Jain & Kaur, 2006:114; Momberg *et al.,* 2012:413; Schultz, 2002:72). For this reason, Environmental education was included in the South African Curriculum of 2005, which prescribes that teachers, in all learning areas, have to focus on environmental topics, thus helping the emerging population of South Africa to become more aware of environmental issues and sustainable development (Loubser, 2005:53).

Alongside environmental challenges, there are other crisis situations in the world of which an important one is the recession and economic downturn (Andersson, 2009:9; Momberg *et al.,* 2012:413). In 2009 it was announced that South Africa's economy was officially in a recession (South Africa Info, 2009) and although it might not be the case currently, the recession still has far reaching effects on South African consumers' spendable income. In developing countries (such as South Africa) the food and fuel crisis has increased the cost of living to the extent that having any food at all can be as a luxury in some regions. (Andersson, 2009:9; Barrow, 2006:24; Selvanathan & Selvanathan, 2004:2331). Furthermore, a large proportion of South African consumers still have limited purchasing power, especially when it comes to luxury or non-essential products (not necessary basic needs), a benefit more typically associated with eco-labelled products (Hanks *et al*., 2002:55). Thus, a price-premium on an eco-labelled product might contribute to most South African consumers not having a choice whether to buy it or not. In this case, the cost factor might outweigh the environmental attributes of the product (Naumann, 2001). In developed countries, the financial calamity made real estate and consumer products' prices tumble down, consequently influencing consumers' spendable income (Andersson, 2009:9). With the world economy on the brink of another recession, consumers are highly price sensitive, which will add a new level of complexity to decision-making (MCL Global, 2012:25; Parago Incorporated, 2013).

2.3.2.3 Green consumers in a South African context

Several factors can limit South African consumers' ability and willingness to engage in green consumption due to the background and history of South Africa (Hanks *et al*., 2002). However, a recent study by TGI South Africa indicates that South African consumers are becoming more environmentally conscious and increasingly incorporate environmentally friendly and ethical values and attitudes into their lifestyles (TGI SA, 2009:1). Furthermore, this study indicates that engaged green consumers are typically consumers in the higher socio-economic group with a tertiary education (TGI SA, 2009:1). These outcomes were strengthened by a previous study, which gave insight into the South African consumer's profile with regard to organic food products and consumption (Barrow, 2006:15). The characteristics of consumers buying organic food products are: education and awareness can be seen as important precursors for seeking and buying certified products; consumers will typically seek quality products and engage in more intensive pre-purchase searches at more "upmarket" outlets; consumers tend to be from younger generations, but not exclusively; consumers with medical conditions, such as cancer, actively seek organic produce and parents with younger children are becoming more aware of the harmful effects and associated health risks of non-organic or certified products (Barrow, 2006:15). These characteristics might be true of South African consumers seeking and using organic textile products and even eco-labelled textile products in general.

2.4 THE CONSUMER PRE-PURCHASE DECISION-MAKING PROCESS

Consumer pre-purchase decision-making can be explained as a multi-faceted process that automatically includes highly structured problem solving, depending on the product/service purchased (Kardes *et al.,* 2011:181). The consumer pre-purchase decision-making process proposed in Figure 2.1 is used as the theoretical framework in this study. The process includes internal and external factors that influence the different stages of the consumer decision-making process. Internal influences are also known as psychological factors inherent to each individual (Hoyer & MacInnis, 2010:10). These factors affect how the external influences impact the stages of the consumer decision-making process. These stages are: *need recognition, pre-purchase search for information, evaluation of alternatives; purchasing choice* (Schiffman & Kanuk, 2010:483). The external and internal influences are discussed first, followed by the phases of the decision-making process (need recognition, information search, evaluation of alternatives and choice). All of these components interact and influence one another within the decision-making process (Schiffman & Kanuk,

2010:37). As mentioned previously this study focuses on consumer understanding and utilisation of textile eco-labels where textile eco-labels can be regarded as an external influence. All other internal and external influencing variables are only discussed to give background information to enhance the understanding of the pre-purchase decision-making process.

2.4.1 External influences that affect consumers' understanding and utilisation of textile eco-labels when making a purchase decision

External factors affect consumers' awareness, recognition and need for a product as well as their understanding and utilisation of a product (Schiffmann & Kanuk, 2010:37). Thus these external factors can influence individuals in the pre-purchase decision-making process (Rahbar, 2010:256), which is also applicable to the pre-purchase decision-making process where eco-labelled products are considered (Pedersen & Neergaard, 2006:22; Thøgersen, 2010:1789). The external influences relevant to the current study as presented in Figure 2.1 are: environmental degradation, labels as information source, price, family, informal information sources, social class and social status, culture and subculture. Environmental degradation is discussed briefly in the introduction (2.1) and therefore the discussion of external influences commences with labels as information sources.

2.4.1.1 Labels as information sources

Labels serve as an external source of information and communicate product characteristics, attributes, care instructions, price and value (Kadolph, 2010:508; Sammer & Wüstenhagen, 2006:186). This information contributes to consumers' former information of different products as well as to their pre-purchase search activities (D'Souza *et al.,* 2006:163; Hoyer & MacInnis, 2010:205; Silayoi & Speece, 2004:619).

Labels on products are presented in different formats and are provided on clothing and textile products in the form of an extra piece of fabric sewn onto a textile product (Thiry, 2008:22). The label can also be a separate hang tag attached to the clothing or textile product (Chowdhary, 2003:244; Kadolph, 2010:508) or it can be part of the packaging of products (Kadolph, 2010:508). Labels on textile products usually provide important information about the product to consumers (Sammer & Wüstenhagen, 2006:186). Permanent labels provide information such as country of origin, fibre content, care instructions and who the manufacturer is (Davis, 1987:8). Temporary labels, such as hang

tags or packaging can include the above mentioned information and also information such as price, brand name, store name and other additional product information (Davis, 1987:8; Kadolph, 2010:508). Clothing companies have more recently started to use hang tags to accentuate that they are social responsible (SR) businesses, and to lay emphasis on their commitment to the environment, fair labour, education, and other social causes (Jana, 2007). In the context of the current study, the term label refers to permanent attached and temporarily attached labels such as hang tags or packaging.

The effectiveness of a label is influenced by the way the information is displayed and the ability of consumers to absorb and understand the information and make informed purchase decisions based on that information (D'Souza *et al.,* 2006:164; Maqalika-Mokobori, 2005:53; Teisl *et al*., 2002:67). Labels consist of visual elements and most often visual images and their composition have symbolic connotations (Qing *et al.,* 2012:151; Van Rompan *et al.,* 2009:19) that consumers need to decode in order to understand the message. Socio-cultural influences such as economic, cultural, and demographic differences (Schiffman & Kanuk, 2010:36), may have a considerable impact on label utilisation and complicate the understanding thereof (Kempen *et al.,* 2011:70).

2.4.1.2 Eco-labels

Eco-label information programmes have become a prevalent tool that aims to fulfil the need of successful market communication pertaining to sustainable consumption (Naumann, 2001; Scheer *et al.,* 2008:5). According to the Global Eco-labelling Network (GEN) there are three core objectives of eco-label information programmes namely: to safeguard the environment, support environmentally sound innovation and leadership and enhance and build consumers' consciousness of environmental issues (GEN, 2004:5). A trustworthy eco-label programme supplies an independent 'seal of approval' for products that meet high environmental standards for example: eco-labels on textiles and clothing indicate that the most dangerous chemicals with the worst environmental impact are removed from the factory production process and the textiles' raw materials are grown ecologically (Dauvergne & Lister, 2010:134; SSNC, 2010:5). Eco-labels on products play a vital communication function, assuring the quality of such products and providing information regarding the environmental impact to consumers (Belz & Peattie, 2010:29; Bonsi *et al.*, 2008:407).

Most available eco-label designs rely extensively on visual communication in the form of pictures and symbols (Tang *et al*., 2004:92) in the form of a seal of approval (D'Souza, 2004:182). This seal of approval consists of symbols or graphics, or short phrases or

abbreviations about the product that are added to the usual label, such as a textile label, of the product. These labels communicate all conventional or agreed standards that are relevant to that organisation (Tang *et al*., 2004:87). Most eco-label designs can be explained by semiotic analysis (Krarup & Russel, 2005:11; Pedersen & Neergaard, 2006:19). Semiotics is the field of study that pertains to symbols and signs, their intended meaning and the way that consumers understand them (Nack, 2004:2; Solomon, 2011:109). Symbols are signs that imply or denote a certain meaning (Kardes *et al.,* 2011:273; Morell, 2011:26). A more comprehensive definition of a sign can be explained as a triadic relation where something (a sign) stands for some other thing (an object or idea) in some way (by means of an interpretant) to someone (an interpreter) and thus conveys meaning (Cantor, 2011:251; Roelofse, 1987:29).

For the purpose of this study, an eco-label implies a symbol or seal of approval that is added to existing labels, such as packaging, hang tags or care labels. An eco-label is a communication tool that is added to product labels to provide consumers with an additional message (Belz & Peattie, 2010:29; Bratt *et al.,* 2011:1631). The message can be explained by the semiotic relationship model (Chandler, 2010:30; Solomon, 2011:109). Figure 2.2 represents an adapted example of the semiotic relationship model, where the Oeko-tex 100 standard label is presented and explained by means of this diagram.

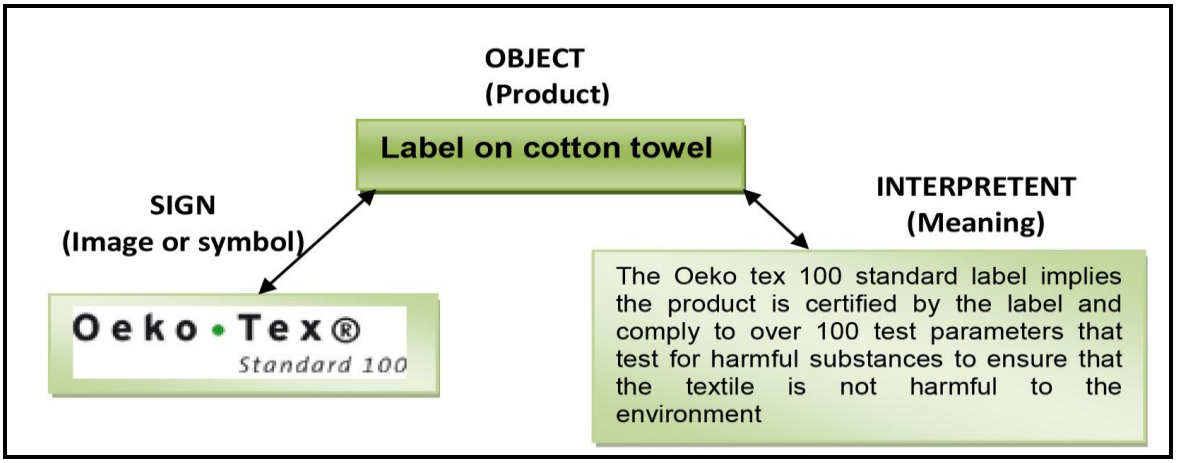


Figure 2.2: The semiotic analysis of a label on a cotton towel with the Oeko-Tex Standard 100 eco-label added to it (Adapted from Solomon, 2011:110).

The message that the label communicates, usually has three components. The *object* that represents the product, the *sign* is the sensory image that represents the intended meaning and characteristics of the product and the *interpretant*, which is the meaning derived from

the sign (Chandler, 2010:30; Solomon, 2011:109). In the above example the *object* is the label of the cotton towel. The *sign* is the Oekotex Standard 100 seal of approval that has been added to the label or hang tag of the cotton towel and can be seen and touched. The *interpretant* is the meaning derived from this symbol. When this symbol is added to a products' packaging, label or hang tag, it implies that the product meets all the requirements of that particular seal of approval.

Classification of eco-labels

In general, eco-labels can be classified and categorised in different ways. Internationally there are two preliminary ways of differentiating between eco-labels. Firstly, the labelling can be mandatory or voluntary and secondly, certification can be executed independently or not (GEN, 2013; Rex & Baumann, 2006:570). Mandatory environmental labelling is approved by legislation and is more widespread for specific performance issues, such as water or energy consumption devices and is implemented by an independent third party (Scheer *et al.,* 2008:5). Voluntary eco-labelling, however, is categorised by the International Standards Organisation (ISO), into three categories and can be first- and third- party labelling (D'Souza *et al.,* 2007:371; GEN, 2011:3; IISD, 2013a).

ISO Type I are third party independent certified labels for certified products and awarded to government or companies approved by international governments (GEN, 2013; Pedersen & Neergaard, 2006:17; Scheer *et al.,* 2008:5). The *Nordic Swan*, the *EU Flower* as well as the *Forest Stewardship Committee* labels belong to this type of certified label category (GEN 2013). The second category, *ISO Type II,* includes third party labels verified by economically reliant companies such as the *Swedish Bra Miljöval* and *German Öekotex* (GEN, 2011:7; IISD, 2013a; Pedersen & Neergaard, 2006:17). These labels are based on self-declarations of different stakeholders and refer to specific attributes of the products (Horne, 2009:176). Consumers are mostly exposed to this type of label with messages such as *"degradable"*, *"environment-friendly",* "*recycled", "ozone friendly"* and *"earth friendly"* (D'Souza, 2006:163; Grundey & Zaharia, 2008:130). The third category is *ISO Type III* voluntary programmes. These provide quantified ecological data of a product, within a set of parameters that are determined by an eligible third party and based on the assessment of the products' lifecycle (IISD, 2013a; Scheer *et al.,* 2008:5).

Various products with environmental declarations such as "*100% natural*", "*eco-friendly*" and "*recyclable*" are available (Grundey & Zaharia, 2008:130). These labels do not provide

information about the environmental attributes of the product and might be seen as attempts of 'greenwashing' (Pedersen & Neergaard, 2006:17). 'Greenwashing' refers to manufacturers that make false claims of environmentally friendliness in order to promote their products (Pedersen & Neergaard, 2006:19). Such claims threaten to confuse consumers and make independent third party labelling schemes less reliable. It is for this reason that third party, independent standards are necessary (D'Souza *et al.,* 2007:372; GEN, 2011:1; Howard & Allen, 2010:249). To provide more insight and a better understanding of eco-labelled schemes a few examples of different eco-labels found on textile products are discussed briefly.

Table 2.1 introduces a few ISO I international eco-labels from different countries that are primarily government-operated and include textiles in their product range, while Table 2.2 provides a few examples of eco-labels, initiated and operated by Non-Governmental Organizations (NGOs) or industry-led initiatives and focus specifically on textiles standards or include textiles in their product range. For the purpose of this study, *ISO Type III* eco-labels are not discussed in-depth, since they are not common on consumer products, but are rather for industrial and large-scale buyers and are therefore not applicable to the current study.

Table 2.1: Examples of ISO I Government operated eco-labels

Eco-label and country of origin	Logo	Description
Blue Angel: Germany		Recognised in 1978, as a voluntary third party scheme (Scheer *et al*, 2008:5), the Blue Angel covers a range of consumer products and services including textiles (Federal Ministry for Environment, 2011; Scheer *et al*, 2008:5). The label specifies that the product or service focus on one of three different defence goals: water, health, resources.
Bra Miljoval: Sweden		Bra Miljoval (Good Environmental Choice) was established in 1988 (SSNC, 2013). With regard to textiles, it focuses more on every day clothing and domestic textiles (Scheer *et al.,* 2008:27).
Ecomark:Japan		The Eco Mark programme of Japan was established in 1989 and aims to encourage environment-friendly lifestyles through sensible product choices made by consumers. The Eco Mark is awarded to products with somewhat less ecological impact in comparison to related products, during their entire life cycle (Japan Environment Association, 2007).
Environmental Choice: Canada		**EcoLogo**™ was established in 1988 by the Government of Canada and entails developing meticulous and scientifically applicable criteria that reflect the entire lifecycle of the product. The Canadian government awards the EcoLogo to those products that are confirmed by an independent third party as complying with the criteria (Polak & Welsh, 2000)
Environmental Choice: New Zealand		The eco-label of New Zealand was established in 1992. The eco-labelling programme runs autonomously from the government but is government approved and is a voluntary, multi-specifications based eco-label programme that uses global standards, values, and criteria that are based on life cycle research (The New Zealand Ecolabelling Trust, 2012).

Table 2.1 (continued): Examples of ISO I Government operated eco-labels

Eco-label and country of origin	Logo	Description
EU Flower: Europe		Established in 1992, the EU Flower includes various product groups (European Commission Environment, 2011; Scheer *et al.,* 2008:5). In terms of textiles, it includes clothing and accessories, interior textiles, fibres, yarns and fabric (Scheer *et al.,* 2008:27). The life-cycle oriented criteria of the EU label bring environmental benefits to the domestic sector (Scheer *et al.,* 2008:23).
Good Environmental Choice: Australia (GECA)		(GECA) is a self-governing, non-profit organisation that governs the Environmental Choice Australia Eco-labelling Programme and was established in 2001. These labels indicate the environmental characteristics of a product and take the complete product life of the product in to account (Good Environmental Choice Australia, 2011).
Nordic/White Swan: Scandinavia		The Nordic Swan was established in 1989 and has a cradle to grave approach on all products (Nordic Eco-labelling organization, 2011a; Nordic Eco-labelling organisation, 2011b:9). It can be awarded to textiles, skin and leather (Scheer *et al.,* 2008:27).

Table 2.2: Eco-labels initiated and operated by Non-Governmental Organisations (NGOs) or industry-led initiatives

Eco-label	Logo	Description
Afrisco Certified Organic		Afrisco promotes organic agriculture based on the International Federation of Organic Agriculture Movements' (IFOAM) Principles of Organic Agriculture. This includes Organic certification of agricultural products, food, beverages and fibres (Afrisco, 2011).
Better cotton Initiative		The Better Cotton Initiative (BCI) was established in 2005 and promotes a vast set of manufacturing principles and criteria for growing cotton in an increasingly sustainable way: both socially and ecologically as well as in a cost-effective way. The initiative can trace the cotton from production to end product. BCI is complementary to other initiatives such as Fairtrade cotton, Cotton made in Africa and Certified Organic Cotton (CmiA) (Mowbray & Davis, 2012:49; BCI, 2009).
Blue sign		The bluesign® standard was established in 2001 and brings the entire textile manufacturing chain together by focusing and analysing all input streams, to mutually lessen the ecological footprint of responsible textile industries. A key aspect of the bluesign® standard is to never compromise on a product's functionality, quality or design and therefore it enforces the use of the Best Available Technology (BAT). It assures that products satisfy the ecological standards without cutting back on performance requirements, along the entire textile chain (Bluesign, 2012; Mowbray & Davis, 2012:9).

Table 2.2 (continued): Eco-labels initiated and operated by Non-Governmental Organisations (NGOs) or industry-led initiatives

Eco-label	Logo	Description
Cotton made in Africa: Africa		Cotton made in Africa (CmiA) is a quality label applied to cotton products form smallholder farmers and the cotton companies that agree to comply with the CmiA standards in the growing and processing of cotton. Compliance is verified regularly by independent organisations. African cotton is grown by smallholder farmers, who use sustainable growing methods in synchronisation with agriculture, the natural environment and individuals. Important exclusions in the standards include slavery, human trafficking, child labour and hazardous pesticides (Atakora, 2012; Mowbray & Davis, 2012:77).
ECOCERT: France		Ecocert is an official recognition body for sustainable agriculture development and was established in 1991. The standard is applied to cosmetics, textiles and food. As from 2009, Ecocert controls and certifies according to the Global Organic Textile Standard (GOTS) (Mowbray & Davis, 2010:50).
Fair-trade		FairTrade International is an institution that coordinates FairTrade labelling at an international level. Their aim is to enforce fairer trade conditions for producers in the Global South and support sustainable development and climate change mitigation and adaptation (Mowbray & Davis, 2010:82; FairTrade Labelling Organizations International, 2010:1).

Table 2.2 (continued): Eco-labels initiated and operated by Non-Governmental Organisations (NGOs) or industry-led initiatives

Eco-label	Logo	Description
Global Organic Textile Standard		The Global Organic Textile Standard (GOTS) was established in 2006 and provides all-inclusive rules for environmental and socially responsible textile manufacturing and production in an aim to unify the various existing standards. This standard also aims to define worldwide-recognised requirements that will ensure the organic status of textiles throughout the entire life cycle. GOTS are awarded to products with 70% - 95% or more of textile fibres (Mowbray & Davis, 2012:23; GOTS, 2010).
NatureTextil		Naturtextil BEST was established in 2000 and values the entire textile production chain. It has the strictest requirements for environmental textile production and includes the utmost technical level available at the moment. This standard is only applicable to products with 100% certified organic fibres. Both Naturtextil BEST and GOTS are quality seals of the International association of Natural Textile industry association (IVN) (Mowbray & Davis, 2010:36; International Association of Natural Textile industry, 2011).
Oeko tex	Oeko • Tex® Standard 100	Oeko Tex was established in 1992 and is widely used for textiles. There are three standards within this eco-label namely, 100, 1000 and 100 plus. The Oeko-Tex Standard 100 is an international standardised testing and certification system for textile fibres, unprocessed materials and end products at all production stages (Oeko-Tex, 2012; Mowbray & Davis, 2012:27).

From the examples provided in Tables 2.1 and 2.2, it is evident that there are various eco-labelling programmes across the globe. The question is whether consumers are aware of these eco-label information programmes, their purpose and if they understand the information provided. One of the major challenges for eco-certification programmes relates to their information and the attentiveness of consumers (Dauvergne & Lister, 2010:134; Hanks *et al.*, 2002; Leire & Thidell, 2005:1062). This challenge entails helping consumers to recognise and understand eco-label initiatives, and convincing them that buying green products is beneficial to themselves, to their health and to environment (Mass, 2008).

Consumers are the key to successful eco-labelling programmes (Department of Agriculture, Forestry and Fisheries, 2011?:22; Hanks *et al.*, 2002). Moreover, properly executed and supported eco-label information programmes allow consumers to make choices that noticeably reveal their environmental preferences (Thøgersen *et al.,* 2010:1787). However, consumers should first notice, believe, understand and utilise the eco-information offered to them in order for these programmes to accomplish their objectives (Leire & Thidell, 2005:1062; Teisl *et al.,* 2008:141). Consumers therefore need to be aware of eco-labels to include such products in their pre-purchase search or adaptation phase during the decision-making process (Thøgersen *et al.,* 2010:1788). Consumers also need to understand the intended meaning of eco-labels in order to make an enlightened purchase decision (Thøgersen *et al.,* 2010:1788). However, it is unclear whether consumers' have appropriate understanding of the content of environmental labels. Furthermore, information on eco-labels might confuse consumers because they do not understand the information (D'Souza, 2004:179; Hanks *et al.,* 2002; Thøgersen *et al.,* 2010:1788) and can even be inaccessible to some consumers due to illiteracy and the lack of formal education, especially in a country such as South Africa (Hanks *et al.*, 2002).

Eco-labels are supposed to be an aid to assist consumers in their decision-making (Thøgersen *et al.,* 2010:1789). Although studies indicate that label information is used and remain important to consumers, it has not yet been determined exactly how labels influence consumers, to what extent they use them and how well consumers understand the information provided on labels (D'Souza *et al.,* 2006:163). Therefore, the need was identified to explore consumers' understanding and utilisation of textile eco-labels when making a purchase decision in a South African context.

Eco-labels in South Africa

Currently, South Africa does not have an accredited eco-label of its own (Hanks *et al.,* 2002), therefore most eco-labelled products found in South Africa are internationally produced products. However, the Proudly South African label initiative (Figure 2.3), established in 2001, proved to be a step in this direction and may be developed to include the additional function of an eco-label (Van Zyl, 2004:2). The main aim of this initiative is to encourage the demand for South African products and services that attain standards of good and accountable manufacturing practice (Hanks *et al.,* 2002). It is a programme of the National Economic Development and Labour Council (NEDLAC) and the criteria include fair labour and employment practices as well as high quality and environmentally sound standards (Hanks *et al*., 2002).

Figure 2.3: The Proudly South African logo.

Although eco-labelled products are scarce in South Africa, the food industry is one sector where eco-labels are more prevalent. Consumers are also more aware of the eco-label for organic produce (Barrow, 2006:15). Examples of food products include Fair trade certified chocolate as well as Fair trade and organic coffee, dolphin-friendly tuna and Marine Stewardship Council (MSC) certified sustainable seafood. Other sectors in South Africa where eco-labels on products are found include wood-related products with the Forest Stewardship Council® (FSC) eco-label and Blue Flag beaches label (Foundation for Environmental Education, 2011). Although these kinds of products have eco-labels, the focus of this study is on eco-labelled textile products that are available in South Africa and consumers' understanding and utilisation of these labels and products when making a purchasing choice. Some of the green and sustainable textile products that are available in South Africa (especially from certain retail stores and groups) are: organic grown cotton products, products from sustainable biodegradable fibres such as, soya, bamboo and organic wool and textile products made from recycled PET bottle fibres (Woolworths

Holdings Limited, 2010). The following section offers a brief introduction and explanation of some of these sustainable fibres and products that are currently available in South Africa.

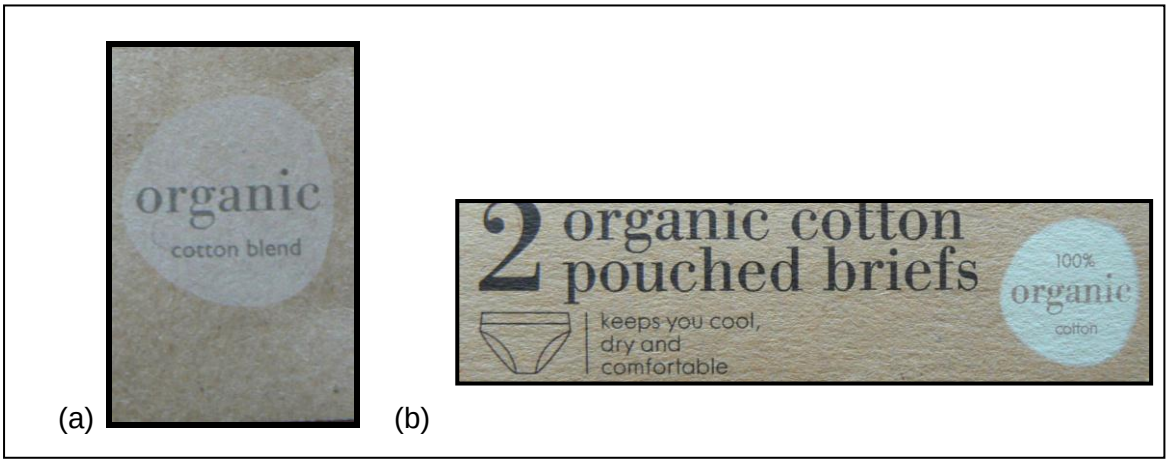
The organic sector in the textile industry of South Africa

South Africa does not have a certified assessment and certification programme for organic products and industries such as the textile and agricultural industries using organic agricultural commodities in their production. Therefore, certification is driven by international standards and accreditation systems because certified organic farming in South Africa is still relatively small (Department of Agriculture, Forestry and Fisheries South Africa, 2011?:7). Notwithstanding, the draft discussion paper on the National policy on organic production does explain organic farming as the type of farming that does not use chemicals such as fertilizers, pesticides, insecticides fungicides or genetically-modified seeds (Department of Agriculture, Forestry and Fisheries, 2011?:3).

Some of the international standards and accreditation systems used to certify organic products in South Africa are Ecocert-Afrisco, Certified Organic, Biodynamic Agriculture Association of South Africa, Green Growers Association, Organic Agribusiness CC – Organic Farms Group, Participatory Guarantee System (PGS) South Africa and Rainman Landcare Foundation (IFOAM, 2009). These accreditation programmes are part of the International Federation of Organic Agriculture Movement (IFOAM), which is the international all-inclusive organisation for organic practices (IFOAM, 2013:8). Although IFOAM has several members in South Africa, the lack of available certified organically grown cotton and organic cotton products is evident and most organic cotton is imported (Woolworths Holdings Limited, 2011). This is changing thanks to a well-known retail group in South Africa, together with Cotton South Africa, the ComMark Trust and the Organic Exchange, who have set up an explorative and first of its kind, programme where numerous farms in the Eastern Cape and Limpopo provinces are growing organic cotton, under the guidance of the Institute for Industrial Crops and Agricultural Research Council (Taylor, 2009; South Africa Info, 2008). This retail group introduced South Africa's first range of 100% cotton clothing and announced that they are the third largest consumer of organic cotton in the world (South Africa Info, 2008; Woolworths Holdings Limited, 2011). This group is also in the process to adapt the Oeko Tex Standard 100 for their textile products (CSIR, 2007) and buy textile products from Viyellatex who also comply with the OekoTex 100 standard (Viyellatex, 2012:9).

Conventional cotton production uses chemicals such as chlorine, hydrogen peroxide, Alkylphenoloxylate (APEO), a hormone disrupter, Ethylenediamine Tetra-acetate (EDTA)

(which binds with heavy metals in rivers and streams and activates them), and volatile organic compounds (VOCs) that react with sunlight to form ground-level ozone (Berman, 2001). Some of the hazardous pesticides used in conventional cotton production are Aldicarb, Endosulfan, Methyl parathion, Monocrotophos, Methamidophos, Deltamethrin (EJF, 2007:32-34). Organically produced cotton does not include these harmful chemicals, requires less water, is safer for people and animals and is a more environmentally friendly and feasible option (Berman, 2001; Kadolph, 2010:67; Oecotextiles, 2006:4). Unfortunately, organically produced cotton does not necessarily translate into organic cotton products, since the entire production process should be organic before a product can be certified as an organic product, made from organic cotton (Oecotextiles, 2006:3). It should be noted that many products that are available in South Africa only contain a percentage of organic cotton in their fibre composition. Examples of organic cotton products in South Africa include towels, bedding, men and women t-shirts, sleepwear, underwear, outerwear, socks and some ranges of children and baby clothing (WHL, 2011). Examples of some of the labels attached to these products can be seen in Figure 2.4.



(a) (b)

Figure 2.4: Examples of (a) an organic cotton blend label and (b) an 100% organic product label.

Textile products made from bamboo fibres

Bamboo is one of the most renewable sources available and is a versatile textile to use for clothing and household products (Mass, 2009; Waite & Platts, 2009:362; WHL, 2010). The fibre has microscopically small areas that allow better moisture absorption and ventilation (Janssen, 2000:10; Kyllo, 2010:9). Bamboo textile products have a few unique characteristics. It is very comfortable (often described as “ultra softness of cashmere” and the “sheen of silk”), anti-static, naturally hypoallergenic and antibacterial (thanks to the bio-

agent ‘kun’ that resists the growth of bacteria on the fibre). It also has thermal regulation abilities, superior wicking capabilities and is wrinkle resistant and is colourfast (bamboo accepts natural and organic dyes more swiftly and meticulously) (Erdumlo & Ozipek, 2008:45; Mass, 2009). Bamboo is also an easy care, and energy efficient textile since it requires cool water wash only and fabric softeners are not necessary (Kyllo, 2010:9; Mass, 2009; WHL, 2010).

Bamboo is described as an eco-friendly crop due to its sustainable properties. Bamboo seldom needs chemical pesticides or synthetic fertilisers, it has relative low water needs when compared to cotton and produces 30% to 35% more oxygen than trees (Mass, 2009; Kyllo, 2010:9). The bamboo plant is never harvested completely and re-growth occurs naturally and fast (it is known as one of the most rapidly restoring and growing plants earth) and it is biodegradable (Mass, 2009; Waite & Platts, 2009:362). Although bamboo, as a crop, is sustainable and beneficial, the production of fabrics from bamboo fibres can cause environmental and health concerns (Oecotextiles, 2009). One of two processing methods is used when bamboo is manufactured into textiles. Textiles are manufactured either by a mechanical process, which is labour-intensive and costly, or a chemical process (Janssen, 2000:56). The chemical process can be more environmentally friendly when the chemicals are captured and re-used or when non-toxic chemicals are used (Mass, 2009). Examples of bamboo products and labels available in South Africa can be seen in Figure 2.5.

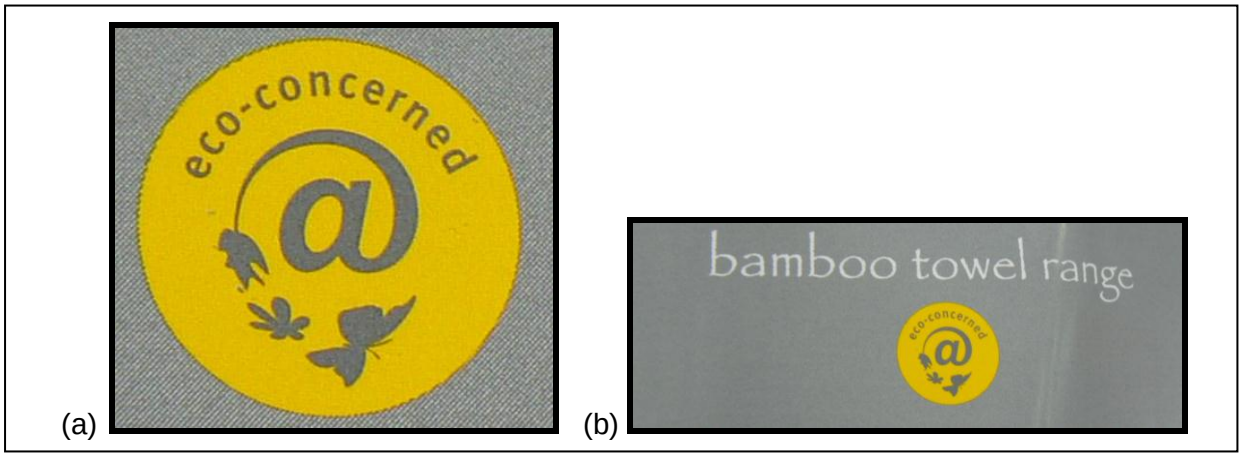


Figure 2.5: Examples of (a) the eco-sign used on a retailer's bamboo products and (b) a label of a product made from bamboo fibres.

Textile products made from recycled plastic polyethylene terephthalate bottle fibres

Plastic polyethylene terephthalate (PET) bottles in their original form are used for a variety of product packaging, including water, soft drinks, detergents and other household products (Plastics Federation of South Africa, 2011). Greenhouse gas emissions are reduced by almost 55%, when they are manufactured, as compared to glass and the net energy consumption is also halved due to manufacturing (PETCO, 2011; Plastics Federation of South Africa, 2011). To put the impact of PET bottle recycling into perspective, the following facts are important: 1 million recycled plastic bottles save 250 barrels of oil and the recycling of PET bottles consume eight times less energy, than producing the equivalent amount of new ones (Kyllo, 2010:9). A well known retail group in South Africa has innovatively utilised PET bottles, by processing the recycled bottles into fibres and using them for inners of duvets and pillows. By doing so, approximately 500 000 plastic bottles are recycled and do not go to landfills (WHL, 2010). Figure 2.6 provides an example of the logo that is found on PET bottles that indicates that they are recyclable. Figure 2.7 is an example of products (a duvet inner and pillow inner) made from recycled PET bottle fibres

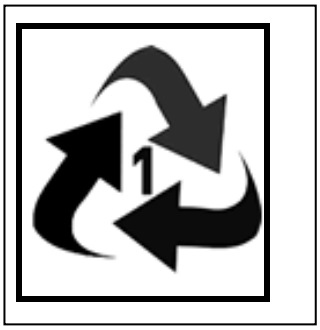


Figure 2.6: An example of the symbol on PET Polymer 1 bottles which refers to their recycling properties (Plastics Federation of South Africa, 2011).

Figure 2.7: Example of textile products (cushions and duvet inners) made from recycled PET bottle fibres.

Textile product labelling

The purpose of legislation and regulations of textile labels is to inform the consumer and to produce safe textile products. Many countries have similar legislation and regulations that only differ regarding specific details (Kadolph, 2010:506). In general, textile labelling information consists of mandatory and voluntary information (Steyn, 2010:15) and should be in English (Kadolph, 2010:508). Mandatory labelling should be attached to the textile product for the product's lifespan and should include mandatory information such as country of origin, fibre content, manufacturer name, care instructions and size (Collier & Tortora 2001:503; Cooklin, 1997:117; Kadolph, 2010:508). Care labels on textile products should contain regular-care information and instructions about washing, drying, ironing, bleaching, dry cleaning as well as specific warnings about the garment, if for example, it is prone to melting or flammable (Kadolph, 2010:509). Although care labels are not mandatory for interior textiles, there are voluntary care labels on most sheets, towels and other interior textile items (Kadolph, 2010:510).

Voluntary information on labels include colour, price, the type of labour used, style number and brand name of the textile product (Glock & Kunz, 1995:545; Stevens, 1993:1) as well as licensing, certification and warranty programmes (Kadolph, 2010:514). Eco-label certification can voluntary appear on a textile label if the garment and textile fibre production complies with the specific eco-label standards, which informs the consumer about the environmentally friendly attributes and characteristics of the product (D'Souza *et al*., 2006:163). As previously discussed, eco-label certification is usually provided in the form of a symbol, or a symbol/logo combined with abbreviations and text. Although Kyllo (2003:9) argues that symbols are globally recognisable and need no translation (in the case of care instructions on textile labels), Tang *et al.* (2004:93) are of the opinion that a combination of symbols and text is more universally understandable. Nevertheless, since most international label information, regardless of whether symbols or a combination of methods are used, should only be in English (Kadolph, 2010:508), it may be difficult for some South African consumers to fully understand the intended meaning of eco-labels on textile products (Hanks *et al.,* 2002). An example of a product made of 100% organic cotton from a well-known retail store in South Africa is provided (Figure 2.8) to illustrate the different labels found on a product with the relevant information (a) as well as an example of a label with all the appropriate care instruments (b).

Figure 2.8: Examples of (a) a textile label on a product and (b) care instructions.

Textile product label information as legislated in South Africa

South Africa has strict labelling requirements with regard to textile goods (International Trade Centre, 2010:14). The definition of "textile goods" includes all textiles, clothing, shoes and leather goods (Spoor & Fisher, 2007). The regulation of the Merchandising Act 17 of 1941 states that all merchandise that falls under this Act are required to have a label that is clearly visible, easy to read and indicates the following: the country of origin, whether imported textiles where used to manufacture the item, fibre content and care instructions (iFashion, 2010; OTEXA, 2011; Spoor & Fisher, 2007). Furthermore, this regulation prohibits retailers to claim that merchandise is "Made in South Africa" if the merchandise has only undergone reconstruction in South Africa. Such a label should state "Made in South Africa from imported materials". When un-dyed or unfinished fabrics were used to produce the dyed, printed or finished fabric in South Africa, the fabric must be labelled "dyed, printed or finished in South Africa from imported fabric" (OTEXA, 2011; Spoor & Fisher 2007). These regulations also require textile merchandise to conform to South African National Standards (SANS), previously known as SABS (OTEXA, 2011; Spoor & Fisher, 2007). These standards include: South African Bureau of Standards (SABS) 011 - 1990, "Care labelling of textile & clothing" and SABS 0235 – 2003, Edition 1.5, "Fibre-content labelling of textiles & textile products"(SABS, 2012).

South Africa has a progressive Constitution and complimentary legislation that protect consumer rights (NCPC, 2008; SANCU, s.a). Some of these rights include: the right of the consumer to satisfy basic needs, the right to be informed, the right to choose and the right to consumer education (Rousseau, 2003:454; South African Government Info, 2009:1255). Consumers therefore have the right to truthful, understandable and complete textile label information, because this would lead consumers in their pre-purchase search for information about different products (Mastamet Mason *et al*., 2008:276).

Labelling legislation pertaining to eco-labels in South Africa

South Africa does not have specific legislation on eco-labelling and the regulation thereof (Van Zyl, 2004:12), but the National Environmental Management Act (NEMA) is applicable, which provides principles of co-operative, environmental governance (South Africa Government Info, 1998:2). This is done by setting principles for decision-making on matters that affect the surroundings, institutions that promotes supportive authority and measures to synchronise environmental functions (South African Government Info, 1998:2). The environment is defined as the natural environment and the chemical, physical, aesthetic and cultural properties that affect individuals' health and well-being (Environmental Resource Management, 2012). With regard to human rights, the constitution states that everyone has the right to the fortification of the environment in the course of reasonable legislative and other measures (South African Government Info, 2009:1251-1252). Hence, there is a constitutional mandate for the creation of legislative measures for eco-labelling (Van Zyl, 2004:12).

Accreditation, certification and the establishment of standards are some of the most important aspects of an eco-labelling scheme (Van Zyl, 2004:16) and in South Africa this responsibility falls directly within the scope of the South African standards, quality assurance, accreditation and metrology (SQAM) infrastructure (Hanks *et al.,* 2002). Subdivisions of SQAM are the South African Bureau of Standards (SABS), also known as South African National Standards (SANS) and South African National Accreditation Standards (SANAS). SANS already work with ISO 14000 series, which are also the standards that international eco-labelling programmes use (IISD, 2013a).

2.4.1.3 Price

Ethical or green consumerism does not ignore price (Pedersen & Neergaard, 2006:21) or quality when eco-labelled products are purchased. Price is a factor that influences the value created by the eco-labelled product (Harrison *et al.,* 2005:2). With regard to the basic

economic law of supply and demand, when the price of a product rises, the demand for the product will fall. Consequently, the norm is that consumers will choose the less-expensive product, unless the more expensive product has a differentiating factor that the consumer values more, such as an eco-label indicating the products' health and environmentally friendly attributes. Unfortunately, eco-labelled products are usually sold at a premium price and because the price factor can outweigh the environmental attributes of a product, price can be a major barrier when considering alternative products are (Ottman, 2011:40; Solomon, 2011:180; Pedersen & Neergaard, 2006:21).

Although, the premium price that usually accompanies eco-labelled products can be a barrier when compared to alternative products, especially in a third world country such as South Africa, studies have found that in developed countries, consumers are willing to pay higher prices for products that are more environmental friendly and even more so if such claims are independently verifiable by a certified eco-label programme (Cohn & Wolf *et al.,* 2011:30; Leire & Thidell*.,* 2005:1065; Naumann, 2001:6). In addition, research indicates that consumers will pay more for products that contribute to their health, such as organic products, products that claim to be natural and products free of Polyvinyl chloride (PVC) and Bisphenol A (BPA) (Ottman, 2011:41). These claims were strengthened by the annual Image Power Green Brands survey that was conducted in eight countries (Cohn & Wolf *et al.,* 2010). Three of these countries that were part of this survey are developing countries (Brazil, China and India) and five countries are developed countries (Australia, France, Germany, USA and UK). This survey indicates that more than 60% of respondents preferred to buy from environmentally responsible companies. It also shows that more than 70% of respondents from developing countries are willing to spend 11-30% more money on green products as in comparison to 30% of respondents from developed countries who are willing to spend an extra 10% (Cohn & Wolf *et al.,* 2010). These results indicate that a significant proportion of respondents in this study, in developed and developing countries, where environmental awareness is generally greater (Hanks *et al*., 2002:50), are willing to buy from environmentally friendly and responsible companies and would pay more for their products. These findings might be true in more industrialised/developed countries, where environmental awareness is generally greater (Hanks *et al*., 2002:50), but this tendency has not been established in South Africa (Naumann, 2001:6).

2.4.1.4 Family

Families are sometimes referred to as households, but not all households are families (Schiffman & Kanuk, 2010:320). However, with regard to consumer behaviour, families and households are treated as a unit and can be defined as the central institution that provides for the welfare of its members and they are the main household consumer (Solomon, 2011:452). Within families or households, members influence each other in the pre-purchase decision-making process (Hjelmar, 2011:339) for example, product loyalties or preferences that can be transferred from one generation to the next, for example buying a certain brand of coffee (Schiffman & Kanuk, 2010:326). This can also be true of eco-labelled products, such as the preference for organic cotton clothes instead of conventional cotton clothes. Children may also significantly influence family pre-purchase decision-making (Hjelmar, 2011:339; Schiffman & Kanuk, 2010:329). For example, mothers who increasingly consider organic food choices, because of the assumption that organic food is healthier products (Barrow, 2006:15; Hjelmar, 2011:340). Similar trends can be expected with regard to eco-labelled textile products.

2.4.1.5 Informal information sources

Consumers often use informal communication sources to search for information to help them make decisions because it is assumed that these sources have nothing to gain from the resulting decision (Hoyer & MacInnis, 2010:390). Informal sources of information include persons that know the message receiver personally, such as friends and family. Informal information can also be obtained through social networks such as web forums and blogs where the consumers; decision-making is easily influenced (Schifman & Kanuk, 2010:281). For example, a friend who urges another friend to purchase organic milk because informal sources indicated that it could prevent breast cancer (Hjelmar, 2011:339). Similarly, a blogger can influence the buyer to rather buy organic cotton clothing since they explained that it does not contain as much harmful substances as conventional cotton products.

2.4.1.6 Social class and social status

Social class describes a variety of social circumstances that consumers identify with in society (Hoyer & MacInnis, 2010:326). Within a social class or lifestyle, members usually share some of the same values, attitudes, behavioural patterns and preferences for the same products (Hoyer & MacInnis, 2010:328; Pedersen & Neergaard, 2006:20). Social class can be measured in terms of the status a consumer has within a specific social class in

comparison to other members of the same social class and it is usually measured in terms of material possessions (Schiffman & Kanuk, 2010:338). Thus, with regard to eco-labels, consumers can belong to a certain social class, because of their shared values and attitudes towards the environment, which influences them to buy and use green products (Hjelmar, 2011:339; Pedersen & Neergaard, 2006:20). The consumption of green products puts the consumer in a "green social class" and provides the consumer with a green social status or identity (Haanpää, 2007:479). Consumers may however, have different intentions when buying green products. They might wish to belong to a certain social class, for example a consumer that buys green products merely because of the image attached to it and not at all for the green benefits of the product (Kang & Kim, 2013:280; Kim *et* al., 201214; Ottman, 2011:33), as previously discussed. This is also known as conspicuous consumption and is closely related to consuming consumer goods as a status symbol (Hoyer & MacInnis, 2010:335) or to conform to social norms (Kim *et al*., 2012:14). Social class is closely related to self image (perception of own social class membership) and consequently influences where consumers shop and what they shop for (Schiffman & Kanuk, 2010:358). Therefore, it becomes an important socio-demographic characteristic of green consumers (Jain & Kaur, 2006:111).

2.4.1.7 Culture, sub-culture and values

Culture can be seen as a society's personality (Kardes *et al.,* 2011:261) and can be defined as the sum of consumers' learned viewpoint, principles and habits that direct the behaviour of members of a particular civilisation (Schiffman & Kanuk, 2010:366). Values and beliefs influence and guide consumers' thoughts and thereby influence their decisions (Babin & Harris, 2011:146). Values are discussed in-depth as part of culture and sub-culture. Customs and norms are acceptable behaviour within specific situations and consist of daily routine behaviour (Kardes *et al.,* 2011:275). Culture influences how consumers adopt different products and within a cultural context, consumers understand verbal and non-verbal communication in a certain way (Kardes *et al.,* 2011:268; Ogilvie & Mizerski, 2011:654).

Since eco-labels are usually presented in the form of a symbol on labels (Tang *et al*., 2004:870) eco-labels in a South African context will only be understood if consumers can relate to and understand the symbols and symbolic meaning of the labels throughout all cultures. Through a shared language and culture, individuals might already know what the image means and can make an association without actively analysing it (Babin & Harris, 2011:164; Chandler, 2010:61). Symbols are known as signs that have implied meaning (Kardes *et al.,* 2011:273; Schiffman & Kanuk, 2010:372). Signs are any visual, textual,

tactile or auditory form that conveys meaning (Amare & Manning, 2007:58). Signs are also often defined as bi-contextual metaphors (Roelofse, 1987:50), for example a green leaf on a product label can be a sign of the environmentally friendliness of the product. A metaphor compares two objects using analogy by signifying that one object is figuratively like the other, even though they can also be very different from one another (Lattman, 2012:539; Phillips & McQuarrie, 2004:117). Symbols may have several and even contradicting meanings (Babin & Harris, 2011:164; Voordouw *et al*., 2009:97) e.g. price and distribution channels, where price often implies quality to potential buyers as well as the type of store from where the product is bought (Schiffman & Kanuk, 2010:373).

Certain well-known retail stores in South Africa are known by consumers for their environmental awareness and efforts to be a 'green' operated store while offering green products. Thereby consumers may perceive most products that are sold in the retail store as green products, since they perceive the retail store outlet as a symbol of environmental sustainable practices. Buying at those particular retail stores may also fit in with their social status and culture. Culture can be transmitted within social institutions such as family, educational institutions and houses of worship (Schiffman & Kanuk, 2010:375). Thus, a culture of sustainable consumption patterns can be initiated and learned by providing education (Süle, 2012:213).

Sub-culture can be defined as a certain cultural group that exists as a particular segment within a larger, more intricate civilisation (Kardes *et al.,* 2011:261). Sub-cultures can be divided in terms of their ethnic origin, customs, ways of behaviour, religion, geographic location, race, age and gender (Schiffman & Kanuk, 2010:390-417). Ethnicity and culture are important factors that may have an influence on consumer behaviour and perceptions. Individuals from different ethnic backgrounds perceive environmental problems in different ways and behave uniquely from one another to solve the problem, therefore sub-culture divisions are used as a segmentation tool in research studies (Rahbar, 2010:256). For example, the study by Rahbar (2010) used ethno-cultural differences as a segmentation tool to research Malaysians' understanding of eco-labels. Jain and Kaur (2006), focused on the influence that socio-demographics (age, gender, income, education, occupation and type of school attended) have on profiling the green consumer and McEachern and Warnaby (2008), used geographic location as a differentiating factor in their study, regarding the link between consumer knowledge and purchase behaviour of value-based labels. It is evident from the literature that sub-cultures are important segmentation tools with regard to eco-labels and green consumer studies.

Values motivate a foremost and significant part of human cognition and behaviour, thus it can be assumed that values influence attitudes, motivation and consumers' purchasing behaviours (Chryssohoidis & Krystallis, 2005:587; Hustvedt *et al*., 2008:437). Values and attitudes are part of the psychological field of the consumer-decision-making process and are crucial for understanding pro-environmental behaviour, since values and beliefs are the underpin the evaluation of eco-labels (Pedersen & Neergaard, 2005:23; Reijonen, 2011:405). Values can also influence consumers' attitudes towards eco-labelled products. Consumers' values are related to his/her' use of values-based labels during their pre-purchase decision-making process (Hustvedt *et al.*, 2008:437).

When information or products are *relevant* to a consumer's *values* (beliefs that direct what people regard as important), they will be more motivated to pay attention to it (Carrete *et al.,* 2012:474; Hustvedt *et al*., 2008:437). Moreover, it is not likely that consumers will pay attention to an environmental label and perceive the information on the label as useful, unless their values include protecting the environment (Hustvedt *et al*., 2008:437; Thøgersen, 2000:305). Unfortunately, even when consumers have increased environmental concerns they do not always show environmentally responsible behaviour (Solomon, 2011:293). Nevertheless, values and fundamental assumptions lead consumers' behaviour and assist them to achieve their desired goals and satisfy their needs by making a green purchase choice (Pedersen & Neergaard, 2005:24; Rajagopal, 2010:19). As consumers' values are proven to be of immense importance to guide their behaviour, investigating the environmental values of consumers in a South African context, will be important to help describe their understanding and utilisation of textile eco-labels when making a pre-purchase decision.

Consumers often use hedonic and utilitarian values that they associate with products as criteria to evaluate alternative products. Both utilitarian and hedonic values are associated with consumers' pre-purchase decision-making (Babin & Harris, 2011:233). An eco-labelled textile product such as a percale, organic cotton, duvet cover set is, in itself a means to an end. In other words, the duvet cover serves the basic purpose of keeping one warm at night or to cover a bed. In this way, the duvet cover set delivers utilitarian value. Hedonic values relate to conspicuous consumption and describe consumers that spend money to display their wealth and social status (Volsky, 2009:8). A large portion of the percale, organic cotton, eco-labelled duvet cover experience, can be ascribed to hedonic values, since hedonic values are mostly based on the feelings involved in the consumption process (Babin & Harris, 2011:215). The feelings of this experience can be described as the satisfaction of

sleeping under percale linen and owning organic, percale, eco-labelled linen. This provides consumers with emotional value, the satisfaction that they support the environment by buying an eco-labelled product as well as experiencing self-fulfilment and enrichment as explained in Maslow's hierarchy under self-actualisation (Babin & Harris, 2011: 233).

2.4.2 Internal influences affecting consumers' understanding and decision-making of eco-labels

Consumers need a source of information or knowledge to guide their decisions (Hoyer & MacInnis, 2010:10). This source of information is the psychological core (Hoyer & MacInnis, 2010:11) or internal influences of a consumer and affects how the external influences guide the pre-purchase decision-making process (Schiffman & Kanuk, 2010: 37). Internal influences such as motivation, perception, learning, personality and attitudes (Schiffman & Kanuk, 2010:37) could relate to how consumers make decisions with regards to eco-labelled products (Gilg *et al.,* 2005:502; Pedersen & Neergaard, 2006:22).

2.4.2.1 Motivation, personal relevance and goals

Motivation affects how consumers process information in order to make certain decisions. A consumer's motivation has two important components, namely the intensity/strength of the motivation and the way consumers choose to behave including reasons for this subsequent behaviour (Moisander, 2007:404). Highly motivated consumers will invest more time and effort into reaching their goals and to understand goal-relevant information than less motivated consumers (Kardes *et al.*, 2011:102; Moisander, 2007:404). For example, consumers who are in the process to adopt a new eco-labelled product will invest time and effort in searching for information about the eco-label before they will buy and adopt the product (Carrete *et al.,* 2012:474; Thøgersen *et al.,* 2010:1789). Eco-friendly behaviours are stimulated by extrinsically determined motivation such as social pressure and intrinsically determined motivation such as environmental standards (Kim *et al*., 2012:13).

A final outcome of motivation is involvement where high involvement is often associated with emotional outcomes (Babin & Harris, 2011:87; Rahbar & Wahid, 2011:76). Peattie (2001:194) argues that green purchasing is most often regarded as being ruled by emotion and psychology. These consumers view a brand or label as an extension of themselves and are passionate about the label they see on products (Hoyer & Macinnis, 2010:48). With regard to eco-labels, pro-environmental attitudes, beliefs in environmentally friendly purchases and trust in certifying companies, may all be motivating factors influencing the

intensity of consumers' search for eco-labels (Thøgersen, 2000:292). Constraining factors to motivation, such as financial resources (Hoyer & MacInnis, 2010:64) might influence this study as eco-labelled products are usually associated with a premium price (Hanks *et al.,* 2002).

Personal relevance can influence motivation as well. The extent to which something is relevant to consumers' beliefs has potentially significant consequences or implications on their lives (Babin & Harris, 2011:86; Schiffman & Kanuk, 2010:229) and elicit higher levels of interest and concern when searching for information (Carrete *et* al., 2012:474; Kardes *et al.,* 2011:182). This relevance influences consumers' motivation to process information about a product and base their decisions on this information (Hoyer & MacInnis, 2010:49). For example, if consumers value the environment, eco-labelled products will have personal relevance to them (Pedersen & Neergaard, 2006:21) because an eco-label on a product implies that the product is manufactured under environmentally sound practices and offers benefits for consumers and the environment (Belz & Peattie, 2010:29; Bratt *et al.,* 2011:1631).

Eco-labels on products help consumers to accomplish the goal of purchasing environmentally friendly products and in that way realise their needs reflected in ecological concern (Thøgersen *et al.,* 2010:1801). The importance of environmental goals is referred to as pro-environmental attitudes (Thøgersen, 2000:289) which as discussed above, are part of the factors which motivate and influence the intensity of consumers' search for eco-labels (Thøgersen, 2000:292).

2.4.2.2 Personality

Personality encompasses the inner psychological attributes that verify and reflect how consumers respond to the environment in a distinct manner that differentiate one individual from another (Hoyer & MacInnis, 2010:371). Personality has three distinct properties. It reflects individual differences, it is lasting and enduring and it can change (Schiffman & Kanuk, 2010:136). Personality is defined by personal character traits such as consumer innovativeness, which is linked to the need for stimulation, novelty seeking and a need for uniqueness and openness to experience (Hoyer & MacInnis, 2010:376; McEachern & Warnaby, 2008:415). Innovative behaviour refers to consumers who are first to buy new and different products (Schiffman & Kanuk, 2010:143) and because eco-labelled products are

viewed as new innovative products (Thøgersen *et al.,* 2010:1789), consumers who buy them can be seen as innovators.

Dogmatism is a personality trait that measures consumers' openness to new, unfamiliar products and information that are contrary to their own beliefs (Hoyer & MacInnis, 2010:375). The way consumers view themselves is referred to as self-concept, which helps to define and motivate them in their pre-purchase decision-making process and form part of their personalities (Babin & Harris, 2011:116). Consumers' purchases often serves as a statement of who they are (Hoyer & MacInnis, 2010:50; Rajagopal, 2010:45) and is an extension of their self-image (Schiffman & Kanuk, 2010:166). Therefore, it can be assumed that green consumers who want to act consistently with their self-concept will look for, and purchase green products.

2.4.2.3 Perception

Perception is the platform upon which consumers base their actions and reactions (Schiffman & Kanuk, 2010:172). It refers to consumers' awareness and interpretations of reality (Babin & Harris, 2011:42) when selecting, organising and interpreting sensations such as sight, hearing, touch, smell and taste (Hoyer & MacInnis, 2010:80; Solomon, 2011:83). A stimulus is any input to the senses and examples include products, packaging, labels, brand names and advertisements (Hoyer & MacInnis, 2010:70; Schiffman & Kanuk, 2010:175).

In the present study, the stimulus is the label on the textile product that consumers can see, touch, and sometimes smell (Figure 2.9). Sometimes textile labels have a distinct smell, to differentiate the product from others (Louw, 2012). As consumers gather information from the stimulus (label) they are exposed to when they see and touch the label, a perception is formed regarding the label and the information presented (D'Souza *et al.,* 2006:163; Solomon, 2011:83).

Consumers sub-consciously exercise selective perception because of information overload, which occurs when consumers are presented with too much information, thereby they encounter difficulty to encode and store the information (Stanton & Paolo, 2012:474). Selective perception can be influenced by consumers' previous experience, as it affects their expectations, and their motivations at that point in time (Schiffman & Kanuk, 2010:179). In the context of food labels, the label as a stimulus, that consumers are exposed to, is often ambiguous (Voordouw *et al.,* 2009:97) and therefore consumers engage into the perceptual process where they determine the meaning of the stimulus, based on past experiences,

expectations, motivations, attitudes and needs (Solomon, 2011:108). An example is consumers who may observe a product label with a pine tree or water drop as an environmentally acceptable choice, although it actually may be an attempt of 'greenwashing' (Pedersen & Neerdaard, 2006:19). Consumers' perceptions of green products often result from advertising, promotion and label information (D'Souza, 2004:181).

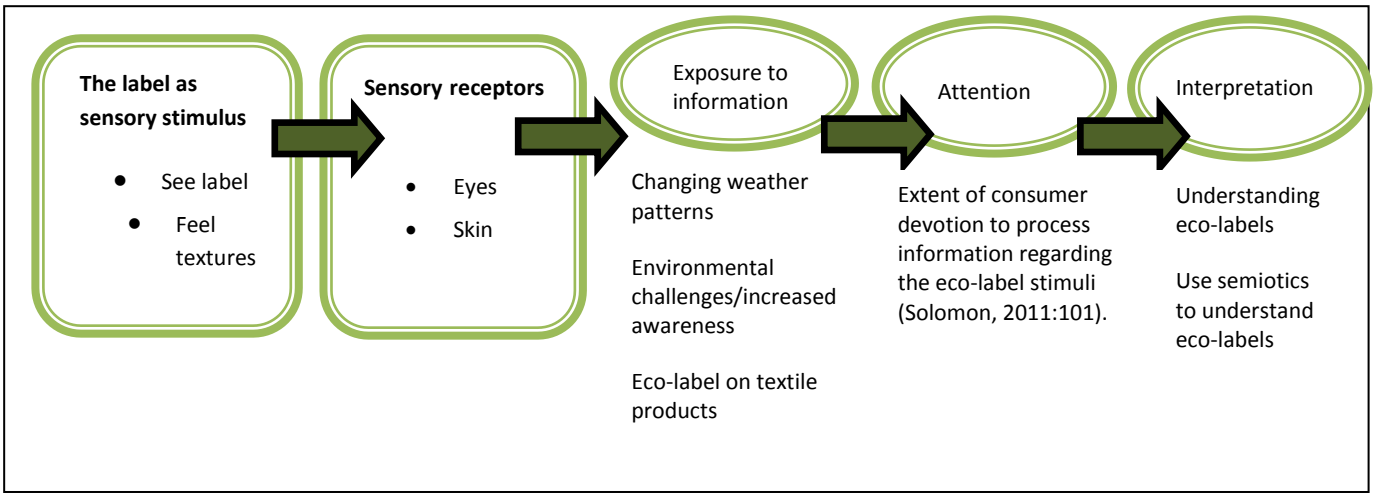


Figure 2.9: The perceptual process when consumers search for information regarding eco-labelled products (Adapted from Solomon, 2011:83).

The process of consumer perception has three phases. They are *exposure*, *attention* and *interpretation,* as illustrated in Figure 2.9 (Solomon, 2011:83). *Exposure* entails being aware of, or being exposed to stimuli (Babin & Harris, 2011:44; Solomon, 2011:94), which includes changing weather patterns and environmental challenges leading to eco programmes which includes eco-labels on textile products. Because of selective exposure, consumers may actively seek out certain messages they pay attention to and then interpret them, because the message meets their needs and interests (Schiffman & Kanuk, 2010:227). The process of *attention* explains that consumers go through the pre-purchase information search phase of the consumer decision-making process with an increased awareness of a specific stimulus that meets their needs or interests (Schiffman & Kanuk, 2010:181). For example consumers who are aware of environmental challenges might be more aware of eco-labelled products, therefore they organise their issue-relevant knowledge (Solomon, 2011:83; Thøgersen, 2010:1791) about environmental challenges and eco-labelled products to find an association and act on it (Thøgersen, 2010:1791). *Interpretation* pertains to the meaning and understanding consumers assign to the sensory stimuli and therefore *interpret* the acquired information in the pre-purchase information search (Solomon, 2011:105) about environmental issues. Therefore, as part of the perceptual process, interpretation can lead to

consumers' understanding of eco-labels. Since understanding and learning are interrelated concepts, understanding is discussed with learning in 2.4.2.4

Perception is an important aspect of consumers' behaviour with regard to eco-labels as it is difficult to predict consumers' purchasing behaviour. Therefore, it is easier to study consumers' perception of an eco-labelled product. Teisl *et al.* (2008:151) state that individuals' likelihood to buy an eco-labelled product (i.e. a blue motion car) is positively impacted by consumers' observation of the eco-friendliness of the product, the apparent credibility of the eco-information on the label and the significance the individual places on eco-information (D'Souza, 2004:181). Shen *et al*. (2012:240) conclude that consumers' points of view regarding moral fashion are based on their perceptions of the companies pertaining to their status in the fashion industry, which influences what they recognise as socially- and environmentally-responsible businesses and behaviour.

Perceived quality and perceived risk

As a result of the ambiguity of eco-labels (Ottman, 2011:37) consumers might use their perceptions that they formed about the eco-labelled products to guide their actions (D'Souza *et al*., 2006:163). Consumers' perceived quality of a product is based on various intrinsic and extrinsic cues of information related to the product (Schiffman & Kanuk, 2010:195). Although eco-labelled products may have added value for consumers, perceived risk is also involved. Perceived risk is the degree of consumers' uncertainty regarding the personal consequences of purchasing and using a certain product (Kardes *et al.,* 2011:182; Kang & Kim, 2013:270). The perceived risk of buying and using a product will be high if a negative outcome is more likely than a positive outcome. As the perceived risk increases, consumers tend to gather more information and evaluate their alternatives more carefully (Kardes *et al.,* 2011:183; Hoyer & MacInnis, 2010:59).

A recent study done by Kang and Kim (2013:279) shows that perceived financial risk is the greatest barrier to buying environmental sustainable apparel and textile products, followed by perceived psychological risk with regard to consumers' self-image. Hoyer and MacInnis (2010:59-60) mention factors that can increase perceived risk of a product. These include product novelty, insufficient information available about a product, a premium price, perceived as inferior in quality, and a lack of experience with regard to consumption of the product. These factors might also be applicable to consumers, using and buying eco-labels in a South African context. Therefore, it can be deduced that the perceived risk South

African consumers may experience, when considering buying eco-labelled products, could be high.

Hoyer and MacInnis (2010:61) state that there is a positive relationship between perceived risk and higher motivation and involvement. It can therefore be assumed that consumers might be more involved in the pre-purchase search for information of eco-labelled products, since the perceived risk, according to the above mentioned factors, might be high in South Africa. Continuous exposure to eco-labels as well as experience gained with eco-label product consumption might lead to learning, which facilitates the understanding of other eco-labels and reduces the perceived risk of these eco-labels (Thøgersen *et al*., 2010:1802).

Perceived value

Perceived value for consumers lies in the ratio between the consumers' perceived benefits that they would receive from the product and the actual performance of the product (Schiffman & Kanuk, 2010:29). The consumer decision-making process leads to the consumers' purchase choice, which does not necessarily means that a consumer will buy a tangible product, but always involves choices linked to value (Babin & Harris, 2011:214; Rajagopal, 2010:19). Therefore, value is at the centre of consumer behaviour and decision making. Consumers frequently rely on price as an indicator of product quality, therefore in the absence of other information, they perceive the higher priced product as the product with superior quality and value (Schiffman & Kanuk, 2010:198).

Eco-labels have the opportunity to provide consumers with added value, because should consumers purchase an eco-friendly product, they will assume that they are supporting environmentally-sound practices. Figure 2.10 explains value as the ratio between what consumers have to give up or sacrifice in return for the benefit they receive (Babin & Harris, 2011:233;) when they choose the eco-labelled textile product (Reijonen, 2011:406). The benefit consumers receive, by choosing and using the eco-labelled products, should outweigh the sacrifices they need to make to obtain it (Hjelmar, 2011:338; Reijonen, 2011:406). In this way, the eco-labelled product creates value for the consumer (Hjelmar, 2011:338; Moisander, 2007:405).

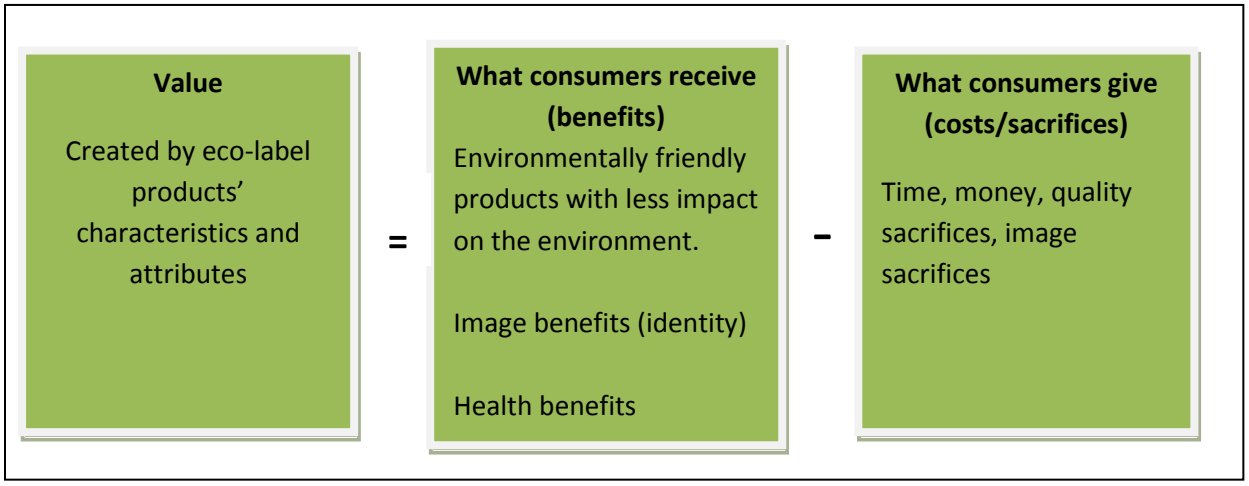


Figure 2.10: The value equation pertaining to eco-labelled textile products (Adapted from Babin & Harris, 2011:232).

2.4.2.4 Learning

Consumer learning refers to a change in behaviour (Babin & Harris, 2011:41) resulting from an interaction between consumers and the sensory stimuli that they can see, hear, smell, touch or taste (Solomon, 2011:83). It is the process where consumers acquire experience and provide a basis for future behaviour in similar situations (Schiffman & Kanuk, 2010:210). In order to explain learning more comprehensively, it is discussed in the following sub-divisions: *Information processing and cognitive learning* as well as *understanding.*

Information processing and cognitive learning

Learning can take place as a result of consumer thinking and problem-solving, which is called cognitive learning (Schiffman & Kanuk, 2010:225). Consumers process product information such as product characteristics and attributes (Kardes *et al.,* 2011:120). They can however become cognitively overloaded when they are given too much information in a limited time, which can lead to frustration and confusion resulting in poor decision-making (Schiffman & Kanuk, 2010:227).

Information processing depends on the level of consumer involvement (discussed as part of motivation in 2.3.5.1), cognitive ability and experience with the product category (Solomon, 2011:128). When consumers' involvement is high, information processing will be extensive (Schiffman & Kanuk, 2010:229; Süle, 2012:214). Consequently, consumers will most likely follow the central route to persuasion when their involvement is high, which involves consumers' careful consideration of information about a specific matter or product, which

can lead to a change in attitudes and behaviour (Petty & Cacioppo, 1984:70). For example, consumers who adopt a new eco-label will follow a high effort path, which includes extensive involvement and information processing which leads to understanding of the information on the eco-label (Thøgersen *et al*., 2010:1789). This involves extensive thought, information processing and problem solving (Schiffman & Kanuk, 2010:231) of an advertisement or label and usually creates a long-term attitude change towards a product if they are persuaded by an advertising message that led them to assess the content of the message (Reiser & Simmons, 2005:593). Consequently, consumers make a considered decision whether to accept or reject the message, which could predict their subsequent behaviour (Petty *et al.,* 1981:848).

Understanding

Understanding is the ability to know or grasp the intended meaning or cause of a stimulus and is related to comprehension (Hawker & Waite, 2007:993) which is the mental process of a person by which they interpret a stimulus in order to understand the intended meaning (Foxall *et al*., 1998:82; Soanes, 2002:999). Furthermore, understanding is the way consumers organise and classify their knowledge (categorisation) and the process of extracting higher-order meaning from the categories (Babin & Harris, 2011:53). According to Cowburn and Stockley (2005:22), consumers' understanding of information on food labels relies on their cognitive abilities to read and internalise the information. When consumers accurately understand the intended message, it is called objective comprehension, which also refers to the correct interpretation of the intended message by the consumer (Grunert & Wills, 2007:387). When consumers misunderstand the intended meaning of the message or have their own subjective interpretation of the information, it is known as subjective comprehension, which can be a result of the way the information is presented (the type language or colours used), the quantity of information (D'Souza, 2004:179) and/or differences in the sender and receiver's prior knowledge (Hoyer & MacInnis, 2010:109; Kardes *et al.,* 2011:124).

With regards to consumers' understanding of eco-labels, it is implied that consumers should be aware of the label's existence, know what the labels look like and have knowledge about the meaning of the labels (Thøgersen, 2000:288; Thøgerson, 2002:88). Knowledge and understanding is closely related in the form of prior knowledge of products and is essential to understanding information presented by products (Hoyer & MacInnis, 2010:92). However, the environmental attributes of products can be difficult to seek out and therefore the information on labels should be sufficient to guide consumers' understanding (D'Souza *et al.,*

2006:163). Therefore, knowledge about environmental issues can be the initiating point for understanding and using environmental labels (Moisander, 2007:406; Paulins & Hillery, 2009). Other aspects that can determine consumers' understanding of labels is the clear meaning of labels (D'Souza, 2004:179) and the perception of the organisation with regards to the environment (D'Souza *et al.,* 2006:164).

The practical implication of the utilisation and understanding of eco-labels is seen where consumers look for trusted eco-labels, but only a small percentage of green products carry an eco-label and if they do, there is no guarantee that consumers will recognise or understand the meaning of the label (Ottman, 2011:37; Thøgerson, 2002:90). This ambiguity is often a result of labels where only pictures without words are used to convey a certain message, which consumers find hard to process (Hoyer & MacInnis, 2010:63). As discussed earlier, eco-labels are presented in the form of a seal of approval, symbol or logo (D'Souza, 2004:182; Tang *et al.,* 2004:87). The seal of approval consists of a symbol or picture, sometimes with limited phrases, that is added to the normal label, and implies all conventional or agreed standards relevant to the organisation (Ambrose & Harris, 2003:127; Solomon, 2011:110; Yan *et al*., 2012:155). Therefore, consumers might need more information to understand the symbol and the standards it represents.

Other influences on understanding an intended message can be low motivation and limited opportunity to process the information on labels, the effects of cultural background and expertise knowledge about the subject (Hoyer & MacInnis, 2010:110). Consumer inferences, such as brand names and symbols, product features and packaging, price, retail atmospherics and display, advertising and selling, pictures and language are also factors that can influence consumers' understanding of the intended message and meaning of a product (Hoyer & MacInnis, 2010:112-118). Therefore, factors that influence consumers' understanding include the features of the message, the characteristics of the message receiver and the character of the environment, the information-processing situation and other external influences (Babin & Harris, 2011:63).

In a South African context, the diverse population, the high levels of illiteracy and the lack of education are factors that may have an impact on how consumers understand and use the information presented on eco-labels (Hanks *et al.,* 2002). Additionally, the understanding of eco-labels is likely to depend on consumers' concern for the environment or the specific environmental crisis, which motivates the label and the importance of their specific behavioural goals that consumers assume the eco-label will accomplish (Thøgersen *et al.,*

2010:6). In this way, knowledge about environmental issues is the starting point for understanding environmental labels and identifying green products (D'Souza *et al.,* 2006:165; Moisander, 2007:406). Furthermore, accurate and clear meanings on eco-labels can enhance the understanding of the label and promote a positive green product value for consumers (D'Souza *et al.,* 2006:163; Thøgersen *et al.,* 2010:1791).

In order to explore South African consumers' understanding and utilisation of textile eco-labels when making a pre-purchase decision there were important variables that were considered in the study. These included consumers' level of education, their consciousness about environmental factors such as weather-related disasters and global warming, recycling, energy and water saving, understanding their interpretation of eco-labels – what they mean to them, compared to what they actually mean (objective and subjective understanding) and how they utilise eco-labels in the different stages of the pre-purchase decision-making process.

2.4.2.5 Attitude

Attitudes can be described as evaluative judgements that are responsible for directing consumers' thoughts (cognitive function), influencing their feelings (affective function) and affecting their behaviour in a constantly positive way with regards to a given object (Hoyer & MacInnis, 2010:122; Kardes *et al*., 2011:86). Consumers' attitudes are partly influenced by their values and beliefs (Shiffman & Kanuk, 2010:366) and are therefore important when their understanding of eco-labels is investigated, since attitudes influence and motivate their purchase behaviour (Pedersen & Neergaard, 2006:17; Polonsky *et al*., 2012:243). Therefore, it can be assumed that attitude influences consumers in their pre-purchase information search in the decision-making process because positive attitudes towards the environment often result in an enthusiasm to incorporate environmental information into their utilisation decisions (Polonsky *et al*., 2012:243; Thøgersen, 2000:296).

Attitudes can be based on beliefs and/or emotions (Hoyer & MacInnis, 2010:123; Kardes *et al*., 2011:86). The following practical example explains this relationship: consumers who have positive feelings towards environmental issues and reveal environmentally responsible behaviour, such as recycling, show a greater consistency between their attitudes and environmental intentions (Polonsky *et al*., 2012:243; Solomon, 2011:293). Furthermore, consumers who believe (non-evaluative judgements) that a new textile product with an eco-label, such as an organic cotton t-shirt, has characteristics that will satisfy their need to

consume more environmentally friendly products, will be more likely to develop positive attitudes towards the eco-labelled textile product as well as the label. Although, most research studies, pertaining to eco-labels and consumers' behaviour, focus on their buying intentions and not their actual buying behaviour, these studies show a positive relationship between consumers' attitudes towards the environment and their intentions to purchase environmentally friendly products (Dunlap *et al.,* 2000:437). However, there is an inconsistency in research between consumers' environmental consciousness, their buying intentions and their actual buying behaviour (Leire & Thidell, 2005:1067; Young *et al.,* 2010:29). Yet, individual environmental consciousness is known to influence decision-making behaviour in favour of eco-labelled products (Shen *et al*., 2012:242). Therefore, the current study considered consumers' environmental consciousness as an indication of their likelihood to engage in eco-labelled purchases.

2.4.3 Stages in the pre-purchase decision-making process

The different phases in the decision-making process are influenced by all the internal and external factors discussed earlier. Each phase in the pre-purchase decision-making process is discussed below.

2.4.3.1 Need/problem recognition in the decision-making process

Problem recognition occurs when consumers realise that they have unfulfilled needs (Hoyer & MacInnis, 2010:12) and consumers make purchase decisions to fulfil these needs (Dash & Sarangi, 2008:9; Moisander, 2007:405). Consumers often buy products for the function and use they provide (Thøgersen, 2000:290). For example, they buy textile products, such as scatter cushions, for decorative purposes and to express their personality and not necessarily because they are concerned about the earth and its sustainability (Ottman, 2011:39). The exception may arise when consumers have the need to buy more environmentally friendly manufactured textile products because they have background knowledge about the impact the textile industry has on the environment. Therefore, awareness about environmental issues is a pre-requisite for consumers to realise the need to consume in a more environmentally friendly way (D'Souza *et al*., 2006:164; Polonsky *et al.,* 2012:243; Thøgersen *et al.,* 2010:1801) and to recognise the need for greener textile products. After this need is recognised, consumers enter the pre-purchase information search phase, where they draw information from internal and external sources.

2.4.3.2 Pre-purchase search for information about eco-label textile products

As soon as consumers recognise their needs, such as the need for 'green' products, they start to search for information to satisfy those needs (Solomon, 2011:337). As seen in Figure 2.1, consumers search for information from internal and external sources, which influences their decisions (Schiffman & Kanuk, 2010:485), which can include labels as information source. The optimal direction and intensity of the information search is determined by the importance of the level of satisfaction of the identified need in the need recognition phase as well as the amount of time available to satisfy this need (Süle, 2012:214). Internal sources of information include previous experience, but when there is no previous experience, consumers might turn to another source of information. To make choices, consumers could rely on their memory, which pertains to the psychological field or internal influences (Hoyer & MacInnis, 2010:198) and external sources (Süle, 2012:214) (as shown in Figure 2.1).

From the literature it is evident that green purchasing behaviour can be influenced by emotions (Rahbar & Wahid, 2011:76) and that consumers are highly motivated and involved in the process because of factors such as perceived risk (Babin & Harris, 2011:87; Solomon, 2011:345). Therefore, it can be derived that the pre-information search for eco-labels is extensive.

2.4.3.3 Evaluation of alternative eco-labelled textile products

In the pre-purchase information phase, consumers search for information to provide them with alternative choices. These alternative choices range from different products, product labels, alternative prices, alternative attributes and product characteristics to the alternative performance of products (Babin & Harris, 2011:222). Consumers use different strategies to evaluate alternatives, such as an evoked set of brands to choose from and criteria to evaluate each brand (Schiffman & Kanuk, 2010:491). With regard to eco-labels, the evoked set of brands can be replaced by an evoked set of labels and the criteria can include environmental attributes of products. Some of the other strategies relevant to eco-labels are consumer decision rules (Thøgersen, 2000:291) and the lifestyle decision strategy (Jain & Kaur, 2006:111)

Consumer decision rules are also known as heuristics, decision strategies and information-processing strategies that are all procedures used by consumers to assist them in making consumption-related choices (Kardes *et al.,* 2011:232). There are different decision rules

such as the compensatory and the non-compensatory decision rules that include the conjunctive rule, the disjunctive rule and the lexicographic rule (Schiffman & Kanuk, 2010:491). In this study, the compensatory decision rule is the most applicable and is explained in more detail. The compensatory decision rule can be explained as the sum total of relevant product attributes that a consumer uses to evaluate a brand, which gives merit to a potential purchase choice (Schiffman & Kanuk, 2010:491). It can be assumed that the consumer will choose the product with the highest score when compared to alternative products (Schiffman & Kanuk, 2010:491). For example, when consumers want to buy a towel, they can choose between ordinary towels and towels with eco-labels, such as organic cotton towels and towels made from bamboo fibres. The ordinary towels are cheaper than the eco-labelled towels, but the consumer may value the environment and might rather want to purchase a green product. In this way, the green attributes of the eco-labelled towels outweigh the price attribute. Thøgersen (2000:291) explains this decision-making process as choosing the most favourable, environmentally friendly alternative within the set of alternatives.

Lifestyle as a decision strategy explains that consumers can make decisions to be committed to a certain lifestyle (Hjelmar, 2011:339; Schiffman & Kanuk, 2010:495). This can be seen with consumers who prefer to live 'green', as a lifestyle choice, which is an important socio-demographic factor (Haanpää, 2007:480; Hjelmar, 2011:339; Jain & Kaur, 2006:111). For example, consumers or families who intend to live green will rather buy organic cotton sheets and towels, while limiting conventional cotton textile products.

Factors that can be described as barriers when alternatives are evaluated include: inadequate knowledge, trust in certification companies, availability of products, decreased convenience and an inferior quality (D'Souza *et al.*, 2006:164; Hjelmar, 2011:339; Ottman, 2011:40). A lack of knowledge and cognitive ability to interpret labels can also be seen as barriers when evaluating product alternatives (Moisander, 2007:407). For example, consumers who buy milk with an eco-label but fail to recognise, use and understand eco-labels on textile products (Pedersen & Neergaard, 2006:21). The ability of consumers to make rational choices may be limited by consumers' ambiguous preferences, limited information-processing capabilities and uncertainties about product alternatives and their consequences (Moisander, 2007:407; Pedersen & Neergaard, 2006:24).

Experience that consumers gain in the evaluation of alternatives component, affects consumers' existing psychological characteristics (Schiffman & Kanuk, 2010:37). Thus, the psychological influences provide consumers with information upon which to base their

decisions and it affects their consumer behaviour and understanding (Hoyer and MacInnis, 2010:10-11).

2.4.3.4 Informed choices about textile eco-labelled products

Consumers' choices are functions of socio-demographic and some psychographic variables such as values knowledge and attitudes (Hustvedt *et al*., 2008:428). In general, consumers make three types of purchases choices namely, trial purchases, repeat purchases and long-term commitment purchases (Shiffman & Kanuk, 2010:497). Trial purchases usually entails buying a small quantity of a product for the first time to evaluate the product by direct use, while repeat purchases is an indication that consumers have adopted the product and label (Thøgersen *et al.,* 2010:1789), which can lead to long-term commitment purchases (Shiffman & Kanuk, 2010:497). Eco-labels are tools that assist consumers in their decision-making and adoption of eco-labelled products. Consumers have adopted an eco-label if they dynamically, frequently and consistently consider the label when choosing products (Thøgersen *et al.,* 2010:1789).

2.5 CONCLUSION

The relative new tendency of green consumerism has emerged as a direct result of environmental issues, such as global warming and environmental degradation. The textile industry is seen as one of the worst offenders of pollution, which is detrimental to life and the earth's sustainability. International studies concluded that consumers are becoming more aware of environmental problems, more knowledgeable about the industries that cause them, and have a positive attitude towards consuming more green products. As a result, manufactures, producers and procurement professionals are forced to implement more sustainable practices and products to satisfy consumers' growing needs for green products.

One of the ways producers and manufacturers can communicate their products' green attributes to consumers, is through labels on products or labels as part of the packaging. Eco-labels are an external influence and source of information that can guide consumers' purchase choices. However, consumers do not always understand the intended message on an eco-label in the pre-purchase decision-making process and therefore do not effectively use eco-labels.

South African consumers have various factors that can influence their understanding of eco-labels, such as a lack of knowledge due to a lack of education and illiteracy. Additionally, there are only a few eco-labelled textile products currently available in South Africa;

therefore consumers in a South African context might have limited exposure to such products. Price might also influence consumers' purchase choice because eco-labelled products are usually sold at a premium price. Research is required regarding consumers' understanding and utilisation of textile eco-labels when making a pre-purchase decision in a South African context. This kind of research will help to identify problem areas that influence consumers' understanding and utilisation of eco-labels and suggest solutions to enhance South African consumers' understanding and utilisation of eco-labels and eliminate ambiguity with regard to eco-labels. If consumers realise and understand the connection between the aspects of environmental challenges and how eco-labelling programmes address them, they might understand the intended message and communicated values provided by the label of the textile product and incorporate such products in their pre-purchase decision-making.

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CHAPTER 3

Research Article

Consumers' understanding and utilization of textile eco-labels when making a pre-purchase decision

(Manuscript to be submitted for publication in the Clothing and Textile Research Journal, which is an American Journal)

(A more detailed methodology section can be found in Appendix A, while the e-mail to respondents is provided in Appendix B, the questionnaire in Appendix C and a more detailed results and discussion in Appendix D).

Abstract

International studies indicated that consumers do not always understand textile eco-labels and information on such labels although consumers from both developed and developing countries are willing to purchase eco-labeled products and pay more for such products. Limited research in this regard has been done in a South African context and thus necessitated this research. This study explored consumers' understanding and utilisation of textile eco-labels during pre-purchase decision-making by means of snowball sampling using quantitative online questionnaires. Results suggested that respondents in a South African context are only to some extent environmentally conscious, that they objectively understand eco textile products but not textile eco-labels or label information regarding organic cotton production process. Even though a segment of respondents indicated that they use and purchase textile eco-labelled products and are willing to pay more for such products, price was a barrier restricting respondents from including such products in their general purchase choice range. Findings encourage consumer education regarding textile eco labels in a developing country context.

Key Words

Eco-labels

Eco-friendly textile products

Consumer pre-purchase decision-making process

Understanding

Utilization

Title: Consumers' understanding and utilization of textile eco-labels when making a pre-purchase decision

Green consumption behavior is an intricate, ethical phenomenon and considered as a significant aspect of sustainable development (Young et al., 2010). Environmentally friendly behavior leads to positive emotions and feelings that consumers derive or expect to gain from contributing towards environmental protection (Abdul–Muhmin, 2007). A product label is an important communication tool, which conveys important information to consumers concerning products specifically informing them regarding the product's environmental attributes. Consumers' environmental distress influences their decisions related to textile products (Yan et al., 2012). By purchasing and demanding eco-labeled textile products, consumers could persuade the textile industry to introduce greener technology textiles (Momberg et al., 2012). However, consumers first need to be aware of, and understand the intended meaning of eco-labels, in order to make an informed purchase decision (Thøgersen et al., 2010). Therefore, consumers need background knowledge about why eco-labels exist and how environmentally friendly behavior can help manage environmental challenges. This will encourage consumers to purposefully consume greener products and consequently be classified as green consumers (D'Souza et al., 2006). In addition, individual environmental consciousness is known to influence decision behavior in favor of eco-labeled products (Shen et al., 2012). The objectives of this study were to determine the demographic profile and environmental consciousness of respondents; to explore and describe respondents' understanding of eco-labels by focusing on their subjective and objective understanding of textile eco-labels; and to explore and describe whether and how respondents utilize textile eco-labels during specific stages of the consumer pre-purchase decision-making process (need recognition, information search, evaluation of alternatives, making a purchase decision).

Literature review

The growing concern for the conservation of the environment influenced stakeholders to implement more sustainable manufacturing and consumption processes (Bratt et al., 2011). Environmental issues arise at all stages of the textile production and supply chain, and therefore the textile industry is starting to take a more holistic approach (Quinn, 2010). This new tendency considers the impact of the entire life cycle of a textile product on the environment

(Kadolph, 2010). This information is communicated to consumers by means of eco-labels. Eco-labels can be defined as environmental labels or seals of approval that are added to a product label, communicating the product's environmentally friendly attributes and characteristics and aims to inform consumers in order to ensure better purchase choices through enhanced knowledge and understanding (Bratt et al., 2011). Eco-label information programs have become an important instrument that aims to fulfill the need of effective market communication concerning sustainable consumption. These programs are critical in assuring consumers that the product information with regard to the environmental impact of a product is of high standard (Belz & Peattie, 2010).

There emergent interest and demand for green products and eco-labels are becoming a reference for green consumers (Belz & Peattie, 2010). Although studies indicate that eco-labels and eco-information on labels are necessary and used, there is uncertainty to whether this information influences consumers' actual buying behavior and how well consumers understand the information provided on labels (D'Souza et al., 2006). Several international studies examined this phenomenon (Cohn & Wolf et al., 2011; Thøgersen et al., 2010) and indicated that it is not clear whether consumers have appropriate knowledge of the content of environmental labels (MCL Global, 2012a). Consequently, the information on eco-labels might confuse consumers because they do not understand how to interpret the labels (Thøgersen et al., 2010). Additionally, a lack of clear information and difficulty to distinguish between various textile eco-labels can prevent consumers from understanding the information on eco-labels and therefore inhibit them from buying sustainable textiles (MCL Global, 2012a).

Previous research indicated that consumers in developed countries are willing to pay higher prices for eco-labeled products especially if claims are autonomously confirmable (Leire & Thidell., 2005). These results were strengthened by the annual Image Power Green Brands survey, which is conducted in three developing and five developed countries, indicating that more than 60% of respondents preferred to buy from environmentally responsible companies (Cohn & Wolf et al., 2010). These results indicate that a significant proportion of respondents, in developed and developing countries are willing to purchase from environmentally friendly and responsible

50 companies and pay more for their products (Cohn & Wolf et al., 2010). In addition, consumers from developing
51 countries, scored higher in the international Greendex survey, indicating that they are more concerned about
52 environmental issues, portray more sustainable behavior and consume more green products than consumers in some
53 developed countries (National Geographic, 2013). However, these tendencies have not yet been investigated and
54 confirmed in South Africa, which is also a developing country.
55
56 There are a limited number of South African studies on textile eco-label understanding and utilization thereof and
57 consequently an opportunity exists to study these tendencies in a South African context. Momberg et al. (2012) are of
58 the opinion that eco-friendly textiles have not yet been accepted in the South African market due to a lack of
59 understanding and availability of such products. Although there are eco-labeled products available in South Africa,
60 the concept is still relatively new especially with regard to textile eco-labeled products. Yet, TGI (2009) concluded
61 that South African consumers are becoming more aware of environmental issues and support green initiatives but this
62 does not necessarily prove that South African consumers understand the information on eco-labels in the broader
63 sense and include these labels in their pre-purchase decision-making process when shopping for textile products.
64
65 **Conceptual framework of consumers' understanding and utilization of textile eco-labels when making a pre-**
66 **purchase decision**
67 The conceptual framework for this study, presented in Figure 1, is constructed from existing literature and adapted
68 frameworks from Jacobs et al. (2010) and Schiffman and Kanuk (2010). It is based on the consumer decision-
69 making processes before making purchasing decisions. The framework illustrates the decision-making process of
70 consumers and the utilization of textile eco-labels with internal and external influences affecting consumers, during the
71 pre-purchase decision-making process.
72 ———————————————————————————————————————
73 **Figure 1**
74 ———————————————————————————————————————

Consumers' understanding of eco-labels

The conceptual framework proposes that understanding is an internal influence in the consumer decision-making process. Understanding is the ability to know or grasp the intended meaning or cause and is related to comprehension (Hawker & Waite, 2007). Comprehension is the process by which consumers make sense of a stimulus so that they can understand it (Foxall et al., 1998). Understanding also comprises the way consumers organize and classify their knowledge (categorization) and the process of extracting higher-order meaning from the categories (Hoyer & MacInnis, 2010). Consumers objectively understand a message if they correctly interpret the message from the sender (Grunert & Willis, 2007). However, when they misunderstand the intended meaning of message, or have their own subjective interpretation of the information, it is known as subjective understanding. This can be a result of the way the information is presented (the type of language or colors used), the quantity of information (D'Souza, 2004) and/or the differences in the sender and receiver's prior knowledge (Kardes et al., 2011). Consumers' understanding of information on for example food labels depends on their cognitive abilities to read and interpret the information on these labels ,which implies that if they recognize and understand the information on the label, they take action because of their understanding (Cowburn & Stockley, 2005). For the purpose of this study, understanding implies that in order to understand eco-labels, consumers should be aware of these labels' existence, know what the labels look like and have knowledge about the meaning of the labels (Thøgerson, 2000). In other words, consumers should be aware that by buying eco-labeled products, they contribute towards a more sustainable lifestyle.

Knowledge and understanding are closely related, since prior knowledge of products is essential to understand information presented by products (Hoyer & MacInnis, 2010). However, the environmentally friendly attributes of products can be difficult to seek out and therefore the information on labels regarding the product's environmental characteristics should be sufficient to guide consumers' understanding (D'Souza et al., 2006). It is evident from the literature that knowledge about environmental issues can be the initiating point of understanding and utilizing of environmental labels (Thøgersen et al., 2010). Other aspects that can influence consumers' understanding of labels

are the clear meaning of labels (D'Souza, 2004) and consumers' perception of the organization's environmentally friendliness (D'Souza et al., 2006).

Influences on consumers' decision-making regarding textile eco-labels

Several internal and external factors influence consumers when making decisions about eco-labels and products. External influences, for the purpose of this study are knowledge about environmental degradation, labels as information source (eco-labels), price, family, informal information sources, social class and social status, culture and sub-culture. Internal influences are motivation, personality, perception, learning and attitude. Understanding forms part of learning as mentioned earlier, which is therefore an internal influence (Schiffman & Kanuk, 2010).

Methodology

Research design and sampling

The study applied a convenience and purposive sampling method since specific including and excluding criteria for the sample selection were applicable (Fox & Bayat, 2011). Since there is limited information and research regarding eco-labels in a South African context, this study has been explorative in nature (Kumar, 2005). The study used survey data to explore and describe consumers' understanding and utilization of textile eco-labels when making a pre-purchase decision. The sample of respondents consisted of South African consumers, 18 years and older, residing in Pretoria, who are literate and had access to a computer with internet access. Finally, only consumers who at least considered buying or already have bought an environmentally friendly product participated since it was necessary for consumers to have a point of reference to answer the survey questions.

The sampling technique used for this study encompassed snowball sampling, where the selected respondents provided contact details of other potential respondents, who met the inclusion criteria (Fox & Bayat, 2011). Snowball sampling is a technique that is often used when the population in the survey should meet certain criteria and is at the same time scarce or difficult to find (Maree & Pietersen, 2007) (In this case, the study used only respondents who

have already bought an eco-labeled product). The researcher contacted individuals who possibly met the inclusion criteria, after obtaining their contact details from acquaintances, and asked them to participate in the study and to forward the questionnaire to people within their social network (e.g. family members, friends, colleagues) for completion. A disadvantage of snowball sampling is that it can result in a biased distribution of respondents in the sample (Snijders, 1992). However, a similar technique was used in other studies on consumers' environmental friendliness (Abdul-Muhmin, 2007) and attitudes towards hang tags (Hyllegard et al., 2012) and was proven to be successful. In this study, the biased due to the criteria of internet access might not be a significant problem since it is usually the higher educated and higher income groups who are interested in green products and who generally have internet access.

Measurement instrument design and data collection

Data (N = 234) were collected using an electronic questionnaire designed with SurveyMonkey© (2013). The link to the questionnaire was sent to respondents via e-mail. Several studies on green consumerism indicated that respondents provide socially desirable responses, especially with interviewer-administrated questionnaires, where the participants profess to have more environmentally friendly habits and knowledge than their actual behavior (Tang et al., 2004). This can lead to discrepancies; therefore an anonymous online questionnaire provides participants the opportunity to give truthful answers without an interviewer present, resulting in more honest responses (Schiffman & Kanuk, 2010). Data collection done online, with computer-assisted interviews and questionnaires, have proven to be popular and successful (Hyllegard et al., 2012), since many international studies investigating green consumer behavior, used this method of data collection (Cohn & Wolf et al., 2011; National Geographic, 2013).

The questionnaire mostly consisted of adapted questions, to suit the current study, from Do Paço et al. (2010), Dunlap et al. (2000), Lin (2010), collectively from Goswami (2008) and Vlosky et al. (1999), Jacobs et al. (2010), Thøgerson, (2000) and Van der Merwe and Campbell (2008). Furthermore, self-formulated questions based on the literature studied, were added to complete the questionnaire according to the constructs relevant to the present study. Section A

introduced respondents to the research aim and inclusion criteria, section B consisted of demographic and general information, while section C explored the environmental consciousness of respondents using Likert-type scale questions. Section D tested respondents' subjective understanding of eco-labels using Likert scale type questions and section E tested their objective understanding of eco-labels on textile products using test-like questions with a correct or incorrect answer, enhanced with pictorial examples of eco-labels where respondents had to answer questions regarding their understanding of the eco-labels. Section E also included possible reasons why respondents do not understand eco-labels (Likert-type scale). Section F explored the utilization of eco-labels and information during the different phases of the decision-making process using various Likert-type scale questions. This included a fictional choice between an eco-labeled product and a conventional product and criteria respondents would considered when making the fictional purchase choice.

Face and content validity have ensured that the measurement instrument measured what it was indented to measure and that individual items represent the constructs being measured (Field, 2013). A panel of experts in the field of consumer research inspected the questionnaires and analyzed the contribution of each construct in the questionnaire. This study satisfied all the necessary ethical aspects of conducting research with people and in order to have conducted the study, ethical approval was obtained from the North West University (NWU) (reference number: NWU-00024-09-A1). Respondents' privacy and confidentiality were assured since the researcher chose not to be able to see respondents' Internet Protocol addresses. Additionally, respondents were informed of their right to withdraw from the study if they wished to.

Statistical analysis

Data analysis was done using IBM® SPSS® Version 21 in consultation with the Statistical services of the NWU at the Potchefstroom Campus. Descriptive statistics (means and frequencies) were determined and statistically significant differences ($p \leq 0.05$) in means between variables of extracted factors in the study were tested using Tukey's tests and one-way analysis of variance (ANOVA) (Field, 2013). However, *p*-values were not reported since

Cohen's effect sizes (*d*-values) were used to determine whether differences between demographic variables and extracted factors were practically significant (Cohen, 1988). Following Cohen's guidelines, $d \geq 0.2$ was interpreted as a small effect size, $d \geq 0.5$ a medium effect size and $d \geq 0.7$ a large effect size. Effect size statistics gives an indication of the difference in magnitude between different groups (Steyn, 2009). This is also known as the strength of association between two variables. Associations between categorical variables were determined with cross-tabulation using the Phi-coefficient (Field, 2013). The Phi-coefficient are a measure of strength of association in cross-tabulations and can be interpreted as $phi \geq 0.1$ small effect size, $phi \geq 0.3$, medium and $phi \geq 0.5$, a large effect size. For the current study, only differences/associations of medium to large effect sizes ($d \geq 0.7$; $phi \geq 0.4$) were considered and reported since these indicate useful practical significance for social science (Morgan et al., 2007).

Validity and reliability

Exploratory factor analysis was done to facilitate external and construct validity (Field, 2013). The Principal Axis Factoring (PAF) method was used for extraction of factors and items were placed into different factors using the Direct Oblimin with Kaiser Normalization as rotation method (Field, 2013). All Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) values for the factor analyses done in this study were higher than the minimum suggestion of 0.6. Furthermore, using Kaiser's criterion, only factors with eigenvalues higher than one were extracted and the percentage variance explained were ≥50%, which is adequate (Pallant, 2013). Therefore, construct validity was present.

Items related to the respondents' environmental consciousness resulted in four extracted factors, after four items were removed from the initial 17 items in the factor analysis, because their communalities were low and they did not fit into the extracted factors. The extracted factors were "Positive orientation towards green products", "Environmental consciousness", "Knowledgeable about green production processes" and "Negative environmental consequences" measured on a four-point Likert-type scale (1 = Not at all; 4 = To great extent). The item that states that the earth has limited natural resources was treated as an individual item. In terms of the respondents' subjective understanding of

textile eco-labels, one factor was extracted namely "Subjective understanding of eco-labels on textile products" using a five-point Likert-type scale (1 = Strongly disagree; 5= Strongly agree). Items regarding respondents' objective understanding of textile eco-labels resulted in three extracted factors namely: "Objective understanding of textile eco-labeled products", "Objective understanding of textile eco-labels" and "Objective understanding of label information regarding organic cotton production". These test-like questions resulted in percentage correct answered questions within each factor. These factors included 19 items after three items were removed due to low communalities and not fitting into the extracted factors. Reasons why respondents did not understand textile eco-labels yielded two factors namely "Barriers in understanding textile eco-labels" and "Unavailability of eco-labels and products" depicted on a 4-point Likert-type scale (1 = Not at all; 4 = To a great extent).

From the items relating to label usage behavior and information use on labels, one factor was extracted namely "Label utilization and information use" that included seven items after one item was removed due to a low communality. This extracted factor comprised two different Likert-type scales (1 = Never ; 4 = Always and 1 = Not at all; 4 = To a great extent). Respondents' recognition of the need to buy an eco-labeled textile product yielded one factor namely: "Recognition of needs" (1 = Not at all; 4 = To a great extent). From items relating to the information search process, two factors were extracted namely: "Important information consumers seek on eco-labels" as well as "Price" (1 = Not important at all; 4 = Very important). The items regarding brand (as important information searched for when buying an eco-labeled textile product) was treated as an individual item. Items with regard to purchase choice of eco-friendly products, yielded one factor namely: "Reasons why consumers purchase green products" (1 = Strongly disagree; 5 = Strongly agree) and items relating to reasons why respondents have not purchased green products yielded two factors namely: "Negative association with eco-labels" and "Unavailability of eco-labels and information about eco-labels" (1 = Strongly disagree; 5 = Strongly agree). The item, which stated, "I felt that I have paid too much for the eco-labeled product" was treated as an individual item. The last extracted factor comprised of items that related to the criteria that have influenced respondents to choose between an eco-labeled and a conventional product and yielded one factor namely: "Criteria for buying eco-labeled products" (1 = Not at all; 4 = To a great extent).

Cronbach's alpha reliability test was used to describe the multi-item scales data's internal reliability and consistency (Shen et al., 2012) and inter-item correlation values were used to describe the data's internal reliability and consistency (Pietersen & Maree, 2007). Cronbach alpha values closer to one, indicate high levels of internal consistency for constructs with a suggested cut off value of 0.6 although it can be lowered when measuring psychological constructs (Kline, 1999) (such as environmental consciousness and negative environmental consequences). Values for the mean inter-item correlations of each factor should be between 0.15 and 0.55 to be acceptable (Clark & Watson, 1995). For all extracted factors, Cronbach alpha measurements were above 0.6 except for concerned about "Negative environmental consequences" with α=0.51. Therefore, this factor has to be interpreted with caution. However, this factor's mean inter-item correlation yielded a value of 0.38, which is acceptable and comprised of only two items. All of the factors' mean inter-item correlations were between 0.15 and 0.55 except for "Subjective understanding of eco-labels on textile products" (0.66) and "Availability of eco-labels and info regarding eco-labels" (0.57) which both had slightly higher values. This can be a result of the few items in each mentioned factor as well as the great extent of similarity between items. Therefore, the internal reliability of all factors extracted was acceptable.

Results and discussion

Demographics

The sample consisted of 70.7% females and 29.3% males (Table 1). A total of 71.9% of respondents indicated that they are married/living with a partner, which might explain the large portion of female respondents, since married women or women living with a partner often make purchase choices on behalf of the men and are therefore more knowledgeable about eco-labeled products (IISD, 2013). In the current study 83.5% of respondents indicated Afrikaans as their home language, 91.8% were Caucasian, 80.5% had a tertiary education and 68% earned between R8001 – R50 000 per month (where R10 equals approximately US $1) (Table 1) . A total of 72.3% indicated that they have switched products/brands for ecological reasons. Therefore it seems as if there was a higher tendency under these respondents to purchase environmentally friendly products than USA respondents in a study by Cotton

Incorporated (2010), which indicated that almost half of their sample's respondents have bought eco-labeled products instead of conventional products.

Table 1

The current study determined that 50.7% of respondents were from younger generations (18 – 34 years old) and only 2.2% of respondents were 65 years or older (Table 1). These findings are consistent with similar international research, which concluded that usually, eco-labeled products are rather consumed by consumers with a higher level of education and income (D'Souza et al., 2007) and that young adults tend to be the most responsive age group (IISD, 2013) as discussed above. Furthermore, previous research in South Africa also confirmed that consumers who are interested in environmentally friendly products and are knowledgeable about environmental issues are in higher socio-economic groups, often have a tertiary education (Dos Santos, 2012; TGI SA, 2009) and tend to be from younger generations (Barrow, 2006). Therefore the current study's demographic profile of respondents, with regard to the above mentioned factors, are consistent with other research done in the field of eco-labeled products, since the inclusion criteria required that respondents had to have previously bought an environmentally friendly product or considered buying one. As discussed the snowball sampling method, which is a non-probability sampling method, can possibly explain the uneven distribution of certain demographic characteristics of this sample as discussed previously.

Respondents' environmental consciousness

According to the mean factor scores (1 = not at all; 4 = to a great extent) the respondents' environmental consciousness is described as follows: respondents were environmentally conscious to some extent (mean = 3.3) as well as greatly concerned about negative environmental consequences, such as pollution (mean = 3.6). Yet, on average, respondents were only knowledgeable about green production processes to a small extent (mean = 2.4) and were to some extent positively orientated towards green products (mean = 3.1). These results are similar to another

recent South African study, which indicated that although consumers are aware of and concerned about environmental issues such as global warming and pollution, they are only knowledgeable in this regard within certain parameters. Thus, they are not fully knowledgeable about what it entails and how their actions can make a difference (Dos Santos, 2012). On average respondents agreed on the single item which stated that the earth has limited natural resources (mean = 3.8), although different ethnic groups, differed in opinion regarding this statement which will be discussed later in this article.

Respondents' subjective and objective understanding of textile eco-labels

The mean factor score (1 = Strongly agree; 5 = Strongly disagree) regarding respondents' subjective understanding of textile eco-labels indicated that most respondents were not sure whether they agreed on their subjective understanding of textile eco-labels (mean = 3.4). However when looking at the mean values of the individual items in the factor, it is evident that they agreed to understanding symbols on textile labels (mean = 3.5). This corresponds with findings by Van der Merwe et al. (2013) who found that 75% of respondents had sufficient textile label knowledge to locate specific information and 78% correctly identified textile and care symbols on labels. Yet less than 65% of their respondents could correctly identify some of the care symbols on the label. Pertaining to eco-labels, respondents in the current study tend to be uncertain whether they understand textile eco-labels, especially the symbols on eco-labels (mean = 3.2) as well as the message that the manufacturer of the eco-labeled product wants to convey (mean = 3.3).

According to the factor scores, in general, respondents' objective understanding (% correct) of the factor, eco-textile products (68.3%) was adequate. However, their objective understanding of textile eco-labels (42.7%) and objective understanding of label information regarding organic cotton production (43.8%) as two separate factors indicated that respondents did not adequately understand textile eco-labels and label information regarding organic cotton production. This can possibly be explained by findings from Cervellon and Carey (2011) which indicated that consumers experience difficulty to determine whether products are eco-friendly or not, when products such as cosmetics or clothes, or as in this case organic textile products, go through elaborate production processes.

There were no practical significant associations between the factors describing respondents' subjective and objective understanding of textile eco-labels. Respondents' own judgment of their understanding of eco-labels on textile products were therefore not a good indication of their actual understanding of these labels. However, respondents were uncertain whether they agree to understanding textile eco-labels and they did not objectively understand textile eco-labels, although they did understand eco-textile products to some extent. These results, in a South African context, are in line with recent international studies which indicated that there is uncertainty as to whether consumers have appropriate knowledge of the content of environmental labels (MCL Global, 2012a) but that information on eco-labels might confuse consumers, because they do not understand the information (Thøgersen et al., 2010).

Reasons for not understanding (barriers and unavailability) textile eco-labels

The mean factor scores (1 = not at all; 4 = to a great extent) indicated that respondents' mostly agreed to a great extent (mean = 3.4), that eco-labels and textile products are unavailable; therefore they did not understand textile eco-labels because they have not been not sufficiently exposed to it. According to the mean factor score (1 = not at all; 4 = to a great extent) most respondents experienced, to some extent, barriers in understanding textile eco-labels (mean = 2.7). Respondents indicated, by means of the individual items within this factor, that the most important reasons (barriers in understanding textile eco-labels) that caused them to some extent to not understand textile eco-labels, were that labels contained contradictory information (mean = 3.0), they did not understand the symbols on the labels (mean = 2.9) and they did not have the necessary environmental knowledge to understand the information on the labels (means = 2.9). Momberg et al. (2012) confirmed that the lack of knowledge and availability of such products prevents South African consumers from adopting eco-friendly textile products.

These barriers highlighted, among others, that on average respondents felt that they do not understand the symbols on textile eco-labels and since most eco-labels contain symbols, they might not understand textile eco-labels. This response evidently confirms that a lack of understanding of symbols on textile products and labels can complicate information processing and therefore limit the understanding of textile product labels (Yan et al., 2008). Thus, it

seems that respondents did not subjectively understand symbols on textile eco-labels and the objective testing parameters indicated that this is in fact true for their objective understanding of symbols. International studies indicated that the lack of clear information and difficulty to distinguish between various eco-labeled textiles, hinder consumers to completely understand the information on eco-labels, which prevents them from buying sustainable textiles (MCL Global, 2012a). Therefore, education programs regarding eco-labels and products that are available might aid the industry and consumers to understand different eco-labels and the information on the labels better and to make more informed purchase choices.

Textile eco-label utilization and information use

Regarding the mean factor score (1 = never; 4 = Always) for the factor: label utilization and information use, respondents indicated that they rarely used textile eco-labels and the information on these labels during their pre-purchase decision-making process (mean = 2.2). Of the respondents, 66.2% reported that they never/rarely read textile labels and that it rarely influences their purchasing decision. Van der Merwe et al. (2013) indicated that 73% of respondents in their study, sometimes/always read textile labels, in general. The present study, however, shows that eco-labels on textile products are read less frequently. Furthermore, an international study regarding consumers' understanding of eco-labels on food products indicated that 68% always read these labels (D'Souza et al., 2006:168). D'Souza et al. (2007) suggested that consumers worldwide (mostly in developed countries) are aware of and use eco-labels when making purchase choices, however the opposite seems to be true based on findings from the current study regarding textile eco-labels. This might be explained by the novelty of the eco-label concept in South Africa, especially pertaining to textile eco-labels and also possibly by South Africa's developing country status which contradicts developed countries purchasing choices. Furthermore, research indicates that consumers who aim to buy environmentally friendly products, read food eco-labels more often (62%) than textile eco-labels (48%) (Cotton Incorporated, 2013).

Recognition of the need to purchase an eco-labeled textile product

Concerning the mean factor score (1 = not at all; 4 = to a great extent) for the factor: recognition of the need to purchase a textile eco-labeled product, respondents indicated that they recognize to some extent the need to buy eco-friendly textile products (mean = 2.5). Furthermore respondents indicated within this factor, that their awareness of environmental issues (mean=3.1), contribution towards and support for green initiatives (mean = 2.8) and changing lifestyles through greener purchasing decisions (mean = 2.7) were their most important needs for buying textile eco-labeled products by agreeing to some extent on these individual items. Furthermore they agreed to a great extent that by purchasing eco-labeled products they are contributing towards conserving the environment (mean = 3.6). This indicates that the environment was their most important considering factor and not their lifestyle or social image, as was expected. However, Haanpää (2007) is of the opinion that green consumption styles, based on consumers' environmental concerns, can be regarded as a lifestyle-based expression of their identity. This idea contradicts the Cervellon and Carey's (2011) study which indicated that consumers' motivation for displaying green behavior are not eco-centric but ego-centric. They would thus only be 'green' if it is trendy to do so (Cervellon & Carrey, 2011). This however does not seem to be the case for textile eco-labeled products among the scope of respondents in the current study.

Important information that respondents considered when buying an eco-labeled textile product

According to the mean factor scores (1 = not important; 4 = very important) respondents indicated all the information (green attributes of product, textile composition, care instructions, quality of green textile products, and credibility of eco-logo's) on labels were somewhat important to them (mean = 2.8). The mean factor score (mean = 3.3) of the factor pertaining to price' indicated that price was also a somewhat important piece of information that respondents looked for when purchasing an eco-labeled product. Other information respondents' considered to be somewhat important, when shopping for green textile products, were the quality of the green textile products (mean = 3.0), the care instructions (mean = 2.9) and credibility of the eco-labels (mean = 2.8). These findings are consistent with similar findings from a recent South African study, which indicated that apart from price, care instructions and quality are

373 important factors when purchasing a textile eco-labeled product (Momberg et al., 2012) as well as the credibility of
374 eco-labels (Goswami, 2008). Respondents indicated that they did not consider brand to be very important (mean =
375 2.3) when buying a textile eco-labeled product, however different ethnic groups, differed in opinion of the importance
376 of brand, which will be discussed later in this article.
377
378 *Reasons for purchasing/not-purchasing textile eco-labeled products*
379 More than half of respondents (64.1%) indicated that they have previously bought an eco-labeled textile product. It is
380 evident that respondents agreed to the reasons given for purchasing textile eco-labeled products (mean = 3.1)
381 according to the mean factor score (1 = Strongly disagree; 5 = Strongly agree). The most important individual reasons
382 within this factor that respondents agreed on for their choice of product was indicated as the quality of the product
383 (mean = 3.6; strongly agree), followed by the textile composition of the product (mean = 3.2; agree) and the
384 environmentally friendliness of the product (mean = 3.1; agree). These results corresponds with results from Cotton
385 Incorporated (2013) who indicated that nearly half of the consumers usually look at the textile composition of the
386 product when choosing between an eco-labeled and conventional product. Furthermore, 99.2% of respondents in the
387 current study who have already bought an eco-labeled textile product before, indicated that they would purchase such
388 a product again. This can be an indication that respondents have adopted the use of eco-products and intent to
389 consider the product label when choosing products (Thøgersen et al., 2010).
390
391 The mean factor scores (1 = Strongly disagree; 5 = Strongly Agree) indicated that respondents were uncertain
392 whether or not they have negative associations towards eco-labels (mean = 3.1), however they agreed on the item
393 within this factor stating that the unavailability of eco-labeled products prevents them from buying such products
394 (mean = 3.6). Furthermore, respondents who have not bought an eco-labeled textile product before (35.9%) indicated
395 that price was the main barrier, since they agreed on feeling that they will pay too much for eco-labeled products
396 (mean = 3.5). The importance and implication of higher prices when purchasing eco-labeled products is discussed in
397 the next section.

Criteria when purchasing an eco-labeled/conventional product

Although respondents indicated that they are environmentally conscious only to some extent, and evidently do not have a good objective understanding regarding the labels on eco-textile products and relevant processes, more than half (58.5%) of respondents chose product 1 (eco-labeled product) above product 2 (41.5%; conventional product). This can possibly be explained by their adequate objective understanding of eco-textile products (68.3%).

Practically significant differences were evident between respondents' choice between product 1 and product 2 and the criteria they considered important in their choices (1 = Not at all; 4= To a great extent), which highlighted the importance of price to a segment of respondents. Respondents who chose the conventional product to a great extent indicated the lower price as an influential factor (d = 1.12; mean = 3.5) as compared to those who chose the eco-labeled product and was only to some extent influenced by the price (mean = 2.5). This once again confirms that the premium price of eco-labeled products prevents price-sensitive respondents to purchase such products because the price factor outweighs the environmental attributes of a product (Cohn & Wolf et al., 2011), which adds a new level of complexity to decision-making (MCL Global, 2012b). Consequently, it can be concluded that at least 41.5% of respondents in the current study were not willing to pay a higher price for an eco-labeled product because they used a price-sensitive decision-making style (Potgieter et al., 2013). This result contradicts the Green Brands survey, which indicated that more than 70% of consumers from developing countries are willing to pay a premium price for eco-labeled products (Cohn & Wolf et al., 2010).

The respondents who chose product 1 (eco-labeled product) considered all other criteria as influential to a greater extent with practical significant differences, than those who chose product 2 (conventional product). Therefore, respondents mostly agreed to a greater extent with the quality associated with the eco-logo on the product (d = 0.99; product 1: mean = 3.4; product 2: mean = 2.5), the environmentally friendliness of the product (d = 1.15; product 1: mean = 3.5, product 2: mean = 2.5) and the credibility of the eco-logo (d = 0.98; product 1: mean = 3.2, product 2: mean = 2.4) as reasons for their choice with regard to the eco-labeled products, than agreeing to some extent on

reasons for the conventional product. This indicates that, for respondents who chose product 1, the green attributes of the eco-labeled product outweighed the price attribute. Thus, respondents used the compensatory decision rule by choosing the most favorable environmentally friendly alternative after evaluating all the different options. These respondents also used a quality-conscious decision-making style, which is in accordance with findings from Potgieter et al. (2013) which concluded that respondents of all age groups seek quality during the decision-making process.

Differences between demographic groups with regard to extracted factors

Tukey's multiple comparison tests resulted practical significant differences indicating that younger respondents (18 - 24 years) were to a lesser extent (mean = 3.2; $d = 0.76$) environmentally conscious (mean = 3.2) than the 45-54 years age groups (mean = 3.5) who were to a great extent environmentally conscious. Thus they also made practically significantly more negative associations with eco-labeled products (mean = 3.2) than respondents older than 55 years (mean = 2.8; $d = 0.75$) that served as reasons for not using eco-labels on products, although both groups agreed to some extent with the latter. These differences are consistent with findings by Do Paço et al., (2010) and D'Souza et al. (2007) who found older consumers to be more committed to being more environmentally conscious and therefore more critical towards the content of environmental labels. ANOVA also indicated a practically significant difference ($d = 0.7$) between age groups for the importance of price (as important information) when shopping for green textile products. Price was very important to the middle age group (35 - 44 years; mean = 3.5) during the information search while only being somewhat important to the younger age group (18 - 24 years; mean = 3.0). Possible explanations include that consumers from a younger age might be more impulsive and fashion-conscious than older consumers when buying new products (Potgieter et al., 2013) regardless of price. Furthermore, the middle age group might be more price-sensitive because this age group often has younger children living with them, which forces them to divide their spendable income in a more disciplined way.

Practically significant differences with regard to objective understanding of textile eco-labels were evident among the lowest income group of R0 - R4000 (64.0% correctly answered) and the higher income groups R20 001 - R50 000 (35.0% correctly answered; $d = 0.82$), and more than R50 001 income group, (39.0% correctly answered; $d = 0.72$).

The lowest income group seemed to have a better objective understanding of textile eco-labels than the other groups, which contradicts with their lesser extent of label and information usage (mean = 1.7). The other income groups tend to use eco-labels and information practically significantly more often, R4001 - R8000 (mean = 2.2; *d* = 0.76), R8001 - R20 000 (mean = 2.3; *d* = 0.78), R20 001 - R50 000 (mean = 2.2; *d* = 0.7) and > R50 001 (mean = 2.1; *d* = 0.59), although all groups used label information to a lesser extent There was also a practical significant difference between income groups of R4001 - R8000 (mean = 3.4) and respondents earning more than R50 001 (mean = 3.0; *d* = 0.78), which indicated that respondents from the higher income group were more uncertain whether they agree with the reasons given for purchasing eco-labeled products than the lower income group who agreed to some extent. In this study, the better objective understanding of the lower income group regarding textile eco-labels could possibly be explained by students in the process of adding to their qualifications but earning a low income, which could explain their adequate understanding in this regard. This finding contradicts most eco-label research internationally (Cleveland et al., 2011; D'Souza et al., 2007) and in South Africa (Dos Santos, 2012; TGI SA, 2009). In both cases, the research indicates that low-income respondents usually do not have adequate knowledge of green products since income often has a positive relationship with education which presumably influences knowledge (Momberg et al., 2012) and also eco-labeled product consumption. There were practical significant differences between the income group R0 - R4000 (mean = 4) and R20 001 - R50 000 (mean = 3.5; d = 0.99) as well as more than R 50 001 (mean = 3.5; d = 0.71) respectively and the unavailability of eco-labels/products. This indicates that the lowest income group agreed to a great extent that eco-labels are unavailable, which served as a reason why they do not purchase eco-labeled products. This might be explained by the retail outlets that certain income groups typically visit during their shopping, since certain outlets have more eco-labeled products available than others because of the demographic characteristics of the consumers who shop there.

Several practically significant differences between Caucasian and African respondents regarding the different factors and items were evident. Caucasian respondents were practically significantly more knowledgeable about green production processes (mean = 2.5) than African respondents (mean = 1.9; *d* = 0.77) by agreeing to some extent.

Furthermore Caucasian respondents agreed to a great extent that the earth has limited natural resources (mean = 3.9) (single item) while African respondents only agreed to some extent (mean = 3.0; p = 0.00; d = 1.02) with this statement. These outcomes might be explained by cultural differences or lack of knowledge regarding environmental issues since Latif et al. (2011) is of the opinion that previously disadvantaged individuals in South Africa might be negatively orientated towards environmental policies due to a lack of knowledge regarding environmental issues. This can result in a barrier experienced towards awareness, understanding and utilization of eco-labeled programs and products, which makes it difficult for these respondents to include eco-labeled products in their decision-making process (Momberg, 2012). In addition, African respondents disagreed that they pay too much for green products (mean = 2.3) while Caucasian respondents indicated to be uncertain (mean = 3.0; *d* = 0.92). This relates to value-consciousness tested by Potgieter et al. (2013) whom also found Africans to be significantly less value-conscious than Caucasians. Thus, the differences between paying too much for an eco-labeled product and ethnic groups can be explained by cultural differences.

Potgieter et al. (2013) found that African respondents were significantly more brand-conscious in the decision-making process and the current study proved the same phenomenon for eco-labeled products, since African respondents indicated brand to be important when seeking green products (mean = 3.1) while Caucasian respondents (mean = 2.3; *d* = 0.78) only indicated brand to be only somewhat important with a practically significant difference. Respondents often use extrinsic attributes of a product, such as the brand, as a symbol of specific intrinsic attributes they seek (Park & Stoel, 2005). Additionally symbolic meanings reflect product properties that consumers use to distinguish between products, but are not literally part of the product's appearance (Aaker, 1997). Therefore, in accordance with findings by De Klerk and Lubbe (2004), some respondents use extrinsic characteristic of textile products, such as brand, to judge the quality of the product or the environmentally friendliness of such products (Yan et al., 2012). This might explain why African respondents, in the current study, used brand as an extrinsic attribute to allocate the intrinsic attributes of a green product in order to add to their inadequate understanding of green production

processes whereas Caucasian respondents used their adequate level of understanding concerning green production processes to distinguish between conventional and green products.

Respondents who have switched products for ecological reasons were practically significantly more positively orientated towards green products (mean = 3.2), than those who have not (mean = 2.7; $d = 0.77$) although both agreed to some extent to be positively orientated towards green products. Respondents who have switched brands in the past might be less hesitant to switch brand to green products and thus more positive towards these products due to previous experience with brand switching than those with a lack of brand switching experience. A practically significant difference ($d = 0.78$) were also evident between marital status and reasons for purchasing green products. Single/widowed/divorced respondents agreed to a great extent that there are specific reasons why they buy eco-labeled products (mean = 3.5) while respondents who are married/living with a partner only agreed to some extent (mean = 3.0). This can possibly be explained by the phenomenon where respondents in a relationship often buy products on behalf of someone else whereas those who are single, purchase products for themselves, and therefore consider specific information when purchasing products and are thus more up to date regarding product information.

Conclusion

This study contributes towards existing literature regarding consumers' understanding and utilization of textile eco-labels in the pre-purchase decision-making process when making a purchase choice. This study concludes that respondents were environmentally conscious only to some extent and is not effectively knowledgeable about green production processes, although they are concerned about the environmental consequences such as pollution and global warming. Furthermore, findings in this study support international research, which suggested that consumers do not effectively understand textile eco-labels or the information on labels. This contributes to respondents not considering textile eco-labels in the decision-making process. Yet, there was a segment of respondents who do purchase textile eco-labeled products, are willing to pay a higher price for such products, and indicated that their environmental concern and the positive feelings they gain from supporting eco-label initiatives are their main reasons

for doing so. This contradicts other studies that indicated that consumers usually buy eco-friendly products, only to gain something extra, such as a monetary reward or positive social image. There was however, a segment of respondents who have not previously bought an eco-labeled product and are also not interested in doing so in the future. They indicated their main reason for this behavior to be the higher prices charged for eco-labeled products.

These findings suggest that the textile industry can gain from educating consumers regarding textile eco-labeled products to enhance their understanding of the information on labels and so consequently use and purchase these products. Furthermore education can help consumers to understand that their actions (buying and supporting green initiatives) can positively affect the environment. Additionally, education can help consumers to understand the reasons for the premium price involved in eco-labeled textile products. However, the industry can strive towards keeping eco-labeled products' prices relatively equal to regular product's prices to make it easier for consumers to choose between the different products, based on their environmental attributes and not price. Finally, the textile industry and manufacturers can aim to provide a more comprehensive range of textile eco-labeled products and focus on making textile eco-labels more attractive and eye-catching in order to focus consumers' attention on these labels. In addition, we propose that symbols and words should be used together and that these elements should correspond to enhance understanding. If all of these elements of an eco-label convey the same message, consumers might be able to understand the intended message better.

Limitations of this study include that snowball sampling resulted in very few African respondents and therefore the majority of respondents were Caucasian and Afrikaans speaking. The questionnaire was extensive and some respondents lost internet connection, which resulted in incomplete questionnaires. Future research can therefore make use of a larger population in different regions of South Africa as well as a different sampling method to ensure a more comprehensive distribution of respondents in order to generalize the study to all South African consumers. Furthermore, respondents' actual buying behavior regarding textile eco-labeled product, can be researched instead of only their intentions to do so, since previous research indicated that there is a behavioral gap between intentions to buy

544 eco-labeled products and the actual buying behavior of consumers. Finally, the population was not representative of
545 the South African population and therefore the results could not have been generalized to all South African
546 consumers. It however provided valuable recommendations that may also be of considerable value to role players in
547 the eco textile industry in other developing country contexts and deserve future investigation in other developing
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555
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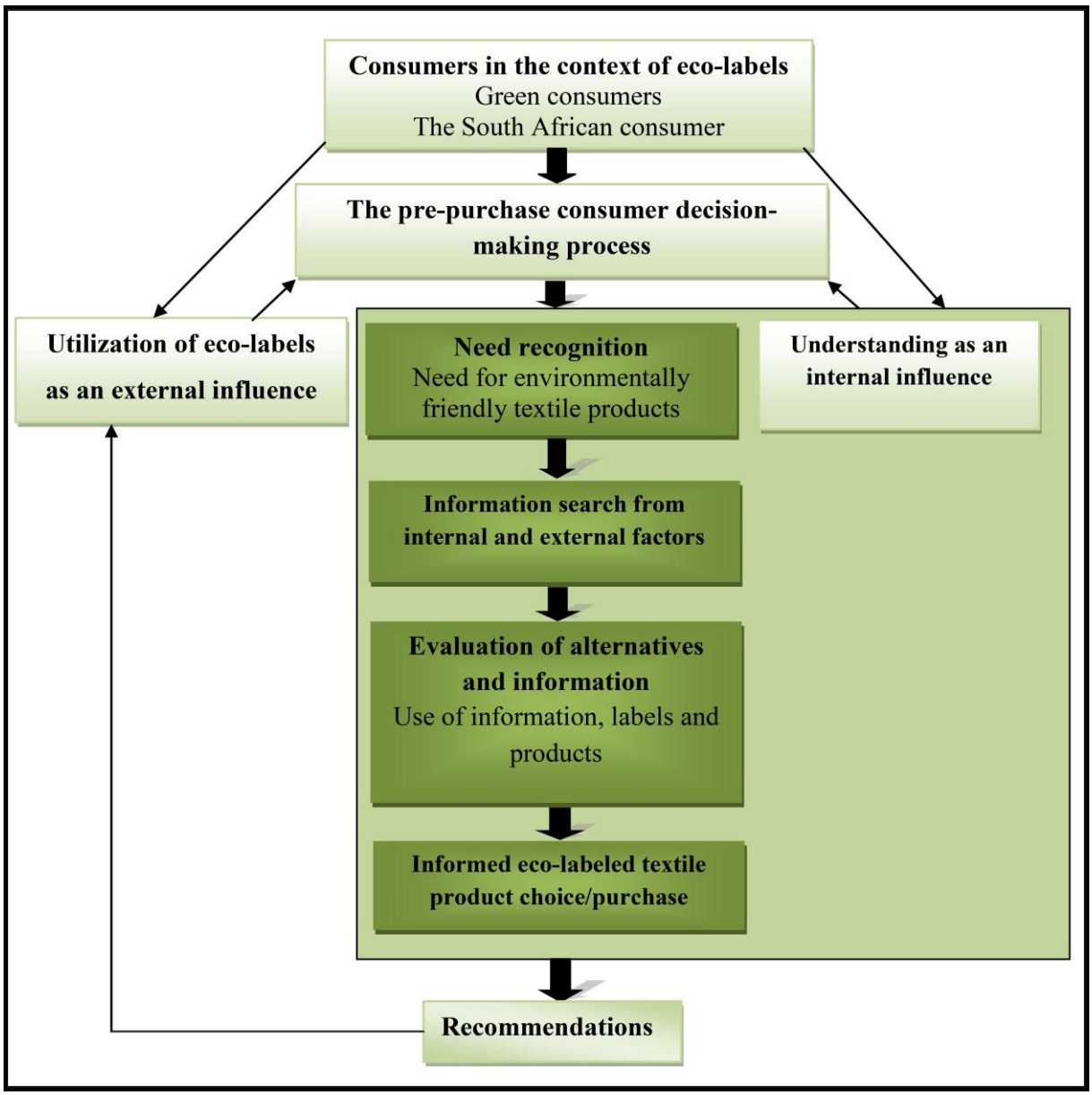

Figure 1: Conceptual framework of consumers' understanding and utilization of textile eco-labels when making a pre-purchase decisions, adapted from Jacobs et al. (2010) and Schiffman and Kanuk (2010).

Table 1 Demographic profile of the study population

Variables	Total group	
	Frequency	Percentage (%)
Gender		
Male	68	29.3
Female	164	70.7
Language		
Afrikaans	193	83.5
English	20	8.7
African	18	7.8
Ethnicity		
Caucasian	212	91.8
African	18	7.8
Other	1	0.4
Age		
18 - 24	21	9.1
25 - 34	96	41.6
35 - 44	41	17.7
45 - 54	33	14.3
55 - 64	35	15.2
≥65	5	2.2
Tertiary education		
Less than grade 12	5	2.2
Grade 12[1]	40	17.3
Tertiary education	186	80.5
Income[2]		
R0 – R4 000	19	8.2
R4001 – R8000	27	11.7
R8001 – R20 000	82	35.5
R20 001 – R50 000	75	32.5
R50 001- R100 000	15	6.5
≥R100 000	4	1.7
Non-disclosure	9	3.9
Marital status		
Single/widow/widower/divorced	65	28.1
Married/living with a partner	166	71.9

[1] Highest level of secondary education in South Africa

[2] In South African Rand (R) where US $1 is approximately R10

CHAPTER 4
Concluding discussion

4.1 INTRODUCTION

The aim of this study was to explore consumers' understanding and utilisation of textile eco-labels when making a pre-purchase decision. The conclusions reached for this study are discussed in this final chapter focusing on the achievements of the objectives of this study. Furthermore, the limitations of the study, recommendations for future research and implications for consumers in a South African context are discussed. This study contributes to existing literature regarding consumers' understanding and utilisation of textile eco-labels. Furthermore, the textile industry can benefit from the study's findings by improving textile eco-labels to enhance consumers' understanding and utilisation of these labels in the pre-purchase decision-making process.

4.2 CONCLUSION

The consumer pre-purchase decision-making process is extensive and complex, especially pertaining to green consumption (in this case, textile eco-labelled products specifically). Consumers use eco-labels as a tool in their pre-purchase decision-making process. However, there is little literature available regarding textile eco-label studies in South Africa. The South African's multi-cultural background and diverse consumer profile complicates this concept even more. Yet, this phenomenon has been studied internationally, in both developing and developed countries. These international studies indicate that consumers are becoming more environmentally conscious and prefer to buy from environmentally responsible companies. Consumers are also willing to pay more for eco-labelled products. However, it is evident that consumers do not always understand textile eco-labels and that this prohibits them from buying eco-labelled textile products. Therefore, the current study explored whether these findings are also true in a South African context. This research can contribute to existing literature on consumers' understanding and utilisation of textile eco-labels during the pre-purchase decision-making process. It can benefit the industry by gaining insights about South African consumers in order to provide them with the necessary understandable information on textile eco-labels.

The first objective of the study was to determine the demographic profile and environmental consciousness of respondents, since it has been proven that individual environmental

consciousness influences decision-making behaviour in favour of eco-labelled products. Therefore, this study used respondents' environmental consciousness as an indication of their likelihood to engage with green purchases. The sample consisted of mostly young female Afrikaans speaking, Caucasian, educated, above average income respondents who considers the environment in their decision-making process. In addition, respondents were only environmental conscious to some extent but were greatly concerned about environmental consequences, such as pollution. Although they lacked knowledge about green products and production processes, they were somewhat positively orientated towards green products.

The second objective was to explore respondents' subjective and objective understanding of textile eco-labels. In general, respondents' subjective understanding of symbols on textile labels was high, although they were uncertain about textile eco-labels. Consequently, respondents' objective understanding of textile eco-labelled **products** were high, but their objective understanding of textile eco-**labels** and label information regarding **organic cotton production processes** were lower**.** Therefore, respondents might not adequately understand textile eco-labels. The unavailability and low level of exposure to textile eco-labels and –products in South Africa prevented respondents to effectively understand textile eco-labels specifically. Furthermore, various barriers added to respondents' poor understanding of textile eco-labels such as contradictory information on labels, eco-symbols on the labels and a lack of the necessary environmental knowledge to understand the information on the labels. The presence of these barriers can prevent South African consumers to purchase eco-friendly textile products. Therefore, it seems as if respondents did not understand textile eco-labels subjectively and objectively.

The third objective was to explore and describe whether and how respondents use textile eco-labels during specific stages of the consumer pre-purchase decision-making process. The respondents indicated that they rarely use textile eco-labels and the information on textile eco-labels in the pre-purchase decision-making process. The respondents indicated their most important recognised needs, when buying textile eco-labelled products, as the need for eco-friendly products, their need to be aware of environmental issues, contribution towards and support for green initiatives and changing lifestyles through greener purchasing decisions. Respondents indicated that information on labels such as, care instructions, quality of green textile products, and credibility of eco-logos as well as price, are somewhat important when searching for information regarding eco-labelled textile products.

Furthermore, the most important reasons for the respondents' choice of a green textile product were indicated as: the quality of the product, followed by the textile composition of the product, and finally the environmental friendliness of the product. The respondents also indicated that the unavailability of eco-labelled products prevents them from buying such products. Those who have not yet bought an eco-labelled textile product indicated the reason for this was that eco-labelled products are too expensive.

The fourth objective involved the differences between demographic groups with regard to extracted factors. There were many practical significant differences between demographic groups and the extracted factors, which evidently indicate that demographic factors are important when studying consumers' understanding and utilisation of textile eco-labels when making a pre-purchase decision. Younger respondents (18 - 24 years) were to a lesser extent environmentally conscious in comparison to the 45 - 54 years age group of respondents. Therefore, they made more negative associations with eco-labelled products than respondents older than 55 years, which explains why they do not use eco-labels and eco-labelled products. The middle age group (35 - 44 years) were more price-sensitive towards more expensive textile eco-labelled products than the younger age group (18 - 24 years) during the information search process.

The lowest income group (R0 - R4000) seemed to have a better objective understanding of textile eco-labels than the other groups, which contradicts their minimal use of labels and information. The other income groups (R4001 – R8000; R8001 – R20 000; R20 001 – R50 000; >R50 001) tend to use labels and information more often. Furthermore, the higher income groups (>R50 001) were not sure whether they agree with the reasons given for purchasing eco-labelled products whereas the lower income group (R4001 – R8000) agreed to some extent with the reasons given for purchasing eco-labelled products to a certain extent. The lowest income group (R0 – R4000) and higher income groups agreed to a greater extent that eco-labels are unavailable and therefore serve as a reason why they do not purchase eco-labelled products.

Caucasian respondents were more knowledgeable about label information regarding green production processes, than African respondents. Caucasian respondents also agreed that the earth has limited natural resources, while African respondents only somewhat agreed to this statement. In addition, the African respondents disagreed that they have paid too much for eco-labelled products while Caucasian respondents were uncertain. African respondents

indicated that the brand was important when seeking to purchase an eco-labelled textile product while Caucasian respondents indicated the brand to be less important.

4.3 APPLICATIONS FOR THIS STUDY

Based on the results of this study, it is evident that respondents can be more environmentally conscious and educated about environmental issues, eco-labelled products and label information regarding green production processes. More information about these aspects can enhance respondents' understanding of how their behaviour contributes to environmental issues such as pollution. By choosing eco-labelled products, they can contribute towards green consumption. The industry can therefore make consumers more aware of environmental issues and the eco-labelled products they produce that impact less harshly on the environment. Respondents indicated that the unavailability of eco-labelled textile products influence them to not understanding and buying such products. If these eco-labelled products are more readily available and marketed, consumers might become more aware of them and might understand these labels on products better and utilise them when making a pre-purchase decision.

Respondents did not understand textile eco-labels and therefore did not always include these products in their pre-purchase decision-making process. In this way, improved understanding of eco-labels can help consumers to include eco-labelled textile products in their pre-purchase decision-making process. Furthermore, respondents indicated that they do not understand the symbols on eco-labels. Previous research indicated that symbols alone can confuse respondents and that words and phrases can overload consumers. In both cases consumers do not understand the message of the symbols. Therefore, it is proposed that symbols and words should be used together and that these elements should correspond to enhance understanding. For example, a rounded eco-logo can symbolically refer to the earth's spherical shape, which can indicate the products' environmental attributes, that are beneficial to the environment. Additionally, colours such as blue, green or brown can serve the same purpose and symbolise these attributes. If all of these elements of an eco-label convey the same message, consumers might be able to understand the intended message better.

Respondents did not use textile eco-labels correctly and therefore the labels did not influence their pre-purchase decision-making. These findings suggest that the textile industry can gain from educating consumers regarding textile eco-labelled products so that

they have a better understanding of the information on the labels and therefore use and purchase textile eco-labelled products. Furthermore, the industry can focus on making textile eco-labels more attractive and attention-grabbing in order to focus consumers' attention on these labels. Education can also aid consumers to understand that their actions (buying and supporting green initiatives) can positively affect the environment. Finally, respondents indicated that price is one of the main factors that prevent them from buying textile eco-labelled products. In other words, a segment of respondents, will not buy an eco-labelled textile product if it costs more than a regular product. Educating consumers can help them to understand why there is a premium price involved in eco-labelled textile products. However, the industry can strive towards keeping eco-labelled products' prices relatively equal to regular product's prices to make it easier for consumers to choose between the different products, based on their environmental attributes and not price.

4.4 LIMITATIONS AND RECOMMENDATIONS

Limitations of the study include that snowball sampling resulted in fewer African respondents, and the majority of respondents were female, Caucasian and Afrikaans-speaking. The population was however not intended to be representative of the South African population and thus the results could not have been generalised to all South African consumers. It however provided valuable recommendations that may also be of considerable value to role players in the eco-textile industry in other developing country contexts and deserve future investigation in these countries. Future research can use a larger population to ensure a more diverse group of respondents.

The questionnaire was extensive and some respondents lost internet connection, which resulted in incomplete questionnaires. Future research can aim to use shorter questionnaires in order to improve the completion process. Future research can also aim to include other areas, within South Africa in order to expand the possibility of including various respondents from different backgrounds with the intention to compare respondents from different areas' understanding and utilisation of textile eco-labels. Finally, it could be beneficial to explore respondents' actual buying behaviour regarding textile eco-labelled products instead of only their intentions to do so, since previous research indicated that there is a behavioural discrepancy between consumers' intentions to buy eco-labelled products and their actual buying behaviour.

In conclusion, the researcher is of the opinion that there is an opportunity to explore this phenomenon more extensively to gain insight into South African consumers' environmentally friendly behaviour regarding textile eco-labelled products and eco-labelled products in general. This can benefit all stakeholders and add South Africa to the list of countries, worldwide, where environmentally friendly consumption is of high importance to all stakeholders. Consequently, more research can benefit consumers through added knowledge and education about environmental issues and how their purchasing choices can make a difference in conserving the environment. Furthermore, education regarding eco-labelled textile products might increase the awareness of and utilisation of eco-labels on textile products, which might encourage consumers to include such products in their pre-purchase decision-making process.

APPENDICES

APPENDIX A

Research Methodology

APPENDIX A

Research Methodology

1 INTRODUCTION

This appendix provides an in-depth discussion of the methodology followed in this study in addition to the method described in Chapter 3 (research article). Most studies with regard to eco-labels and consumers' behaviour focus on their buying intentions and not their actual buying behaviour. Therefore, there are inconsistencies in the research between consumers' environmental consciousness, their buying intentions and their actual buying behaviour (Leire & Thidell, 2005:1067; Young *et al.,* 2010:29). However, individual environmental consciousness is known to influence decision behaviour in favour of eco-labelled products (Shen *et al*., 2012:242). Therefore, this study considered consumers' environmental consciousness as an indication of their likelihood to engage in eco-labelled purchases.

2 RESEARCH DESIGN

Since there is little information and research regarding eco-labels in South Africa, this study has been explorative in nature (Kumar, 2005:10), which aimed to explore consumers' understanding and utilisation of textile eco-labels when making a purchase decision, in a South African context. This study was conducted by means of a quantitative survey and used an electronic questionnaire to collect the data. Quantitative research seeks to explore, count and measure aspects of social life (Blaikie, 2010:205). Furthermore, quantitative research objectively and systematically uses numerical data from a selected population to indicate patterns in the phenomenon being studied (Maree & Pietersen, 2007a:145) and makes use of structured instruments while the focus is concise and narrow (Fox & Bayat, 2011:78).

Surveys are an accepted and popular method to use for obtaining descriptive data and the careful design of the survey instrument can reduce sources of bias (Blaikie, 2010:209; Fox & Bayat, 2011:87). Survey data are known for its descriptive nature since it can explain certain status of phenomena and can be used to draw comparisons between relevant factors (Creswell, 2008:388; Fox & Bayat, 2011:87). Many studies of green consumerism indicated that respondents provide social-desirable responses, especially with interviewer-

administrated questionnaires, where the participants admit to having more environmentally friendly habits and knowledge than their actual behaviour (Tang *et al.,* 2004:90). This kind of inconsistency can lead to bias. Therefore, an online questionnaire gives participants the opportunity to give truthful answers without an interviewer being present, which can result in more honest responses (Schiffman & Kanuk, 2010:57). Data collection done online, with computer assisted interviews and questionnaires, has proven to be popular and successful (Betlehem & Hundepool, 2002:3; Mintz, 2011:36). Many studies such as the international Image Power Green Brands Survey and the National Geographic/Globescan Greendex international survey use this method of data collection, especially when studying green consumer behaviour (Cohn & Wolf *et al.,* 2010; Cohn & Wolf *et al*., 2011; National Geographic, 2013).

3 POPULATION AND DESCRIPTION OF THE SAMPLE

Many international studies of eco-labels have found that there are specific demographic characteristics within populations of consumers who are generally interested in buying eco-labelled products (Cleveland *et al.,* 2011:245; D'Souza *et al.,* 2007:371; Gilg *et al.,* 2005:491). In addition, Gilg *et al.* (2005:494) are of opinion that environmental and social values, socio-demographic variables and psychological factors are important when classifying green consumers. These studies shows that eco-labelled products are usually rather consumed by consumers with a higher level of education and income (D'Souza *et al.*, 2007:372; Gilg *et al.,* 2005:491).

Research in South Africa confirms these outcomes that consumers who are interested in green products and who are knowledgeable about environmental issues, are often in a higher socio-economic group and often have a tertiary education (Barrow, 2006:15; Deloitte, 2009:8; Dos Santos, 2012:391; TGI SA, 2009:1). These consumers seek quality products and engage in more intensive pre-purchase searches at "upmarket" outlets and they tend to be, though not exclusively, from younger generations (Barrow, 2006:15). In addition, the Council on Higher Education (2004:114; 2006:23) is of the opinion that computer literacy and access to computers are almost prerequisites to engage in higher education and to obtain a degree. Furthermore, recent studies indicate that owning a Personal Computer (PC) is one of the criteria used to determine individuals' Living Standard Measure (LSM) status (SAARF, 2012:60). The LSM study found that it is typically LSM groups 8 to 10 who own a computer, have grade 12 or higher education, live in urban cities, have a higher income (>R12,000), and comprises 23.8% of the population (SAARF, 2012:60-62). Thus, the assumption can be

made that consumers in higher socio-economic groups with a higher level of education do have access to computers and are computer literate. Therefore, an online questionnaire for the current study targeted respondents more likely to meet the inclusion criteria mentioned previously.

3.1 Population and description of the sample in a South African context

South African consumers have unique qualities within their diversity, but it proposes unique challenges especially with regard to understanding and utilising eco-labels on products (Hanks *et al.,* 2002) when making purchase decisions. Moreover, according to several studies (Barrow, 2006:15; Bratt *et al.,* 2011:1632; Pantzar *et al.,* 2005), education, awareness and knowledge of environmental issues are seen as precursors to engage in green product consumption. Therefore, these studies' results regarding demographic characteristic was used as a guideline to select the target population for this study. These guidelines have increased the likelihood to include respondents who might have experience with eco-labels or who have previously engaged in purchasing eco-labelled textile products, although it could not be determined with certainty.

The city of Pretoria forms part of the Tshwane Metropolitan Municipality and was the location of the selected population. Pretoria is one of South Africa's three capital cities and is situated in the Northern part of Gauteng. Pretoria has a population of approximately 2.4 million people (City of Tshwane Municipality, 2008:14). Even though half of the population does not have an income, Pretoria as part of Tshwane, is one of the three main centres of consumption of certified organic produce in South Africa (Barrow, 2006). This is an indication that there are eco-labelled products available to consumers and therefore was selected as an appropriate location to explore consumers' understanding and utilisation of textile eco-labels when making a pre-purchase decision.

3.2 Sampling criteria for the study

According to the basic criteria regarding consumers with an interest in eco-labels as described in 5.3.1, the sample group for the current study consisted of:

- South African consumers residing in Pretoria.
- Consumers who were able to read the questionnaire (literate), as this implies that respondents have some educational background and are able to read the information given on the labels.

- Consumers with access to a computer with an internet connection and who are computer literate as the questionnaires were only available online and should have been filled out and submitted online.
- Consumers 18 years and older
- Consumers who had at least considered buying or previously bought an environmentally friendly product, as various questions focused on the understanding and utilisation of textile eco-labels. Therefore, it was necessary for consumers to have a point of reference in order to answer these questions.

4 SAMPLING TECHNIQUE AND SAMPLE SIZE

A non-probability convenience and purposive sampling method was used since specific including and excluding criteria for the sample selection were applicable (Fox & Bayat, 2011:60; Maree & Pietersen 2007b:178). The sampling technique for this study encompassed a unique combination of purposive sampling where the researcher selected respondents, who might meet the inclusion criteria (purposive), and snowball sampling, where the selected respondents has provided contact details of other potential respondents who also met the inclusion criteria (Fox & Bayat, 2011:60). Snowball sampling is a technique often used when the population is scarce or difficult to find (Maree & Pietersen, 2007b:177). Therefore, this sampling technique was regarded ideal since respondents who have already bought an eco-labelled product was difficult to obtain with other sampling methods.

The sampling process took place in several phases. For the first and initial phase, the researcher asked acquaintances for contact details of individuals who might satisfy the inclusion criteria. The researcher then contacted these persons to ask if they would be willing to participate in the study. These secondary contacts, obtained from acquaintances, have been the initial sample size to which the researcher has sent an e-mail with the link to the questionnaire.

For the second phase, the researcher asked the respondents from the first phase contact list for contact details of other individuals they might know, who might meet the inclusion criteria, for the snowball sampling method. The method for phase two did not yield many respondents; since many were reluctant to disclose personal information about people they know and thus rather offered to forward the e-mail to their contacts. There were however, a few respondents who did provide contact details of acquaintances. The researcher

contacted these individuals, of whom the researcher had contact details, and asked their permission to participate in the study after which the link to the questionnaire was sent to them via email. A similar technique was used in a study on consumers' environmentally friendliness and was proven to be successful (Abdul-Muhmin, 2007). During the third phase, a reminder e-mail was sent to all respondents on the e-mail contact list, which yielded more responses. Another reminder was sent to the address list and yielded a few more responses. Of the total of 258 responses, only 234 were eligible for inclusion into the study.

There were several reasons for this sampling technique combination, which includes that the population is unique, as explained previously (Maree & Pietersen, 2007b:177) and the questionnaire was extensive. Thus if the questionnaire had been completed in, for example a shopping mall, respondents would not have had enough time available to fill out the questionnaire, which might have resulted in unreliable results. Selected respondents should have filled out the questionnaire at a time that suited them best, to ensure that they read the questions properly and that they gave comprehensive answers (Creswell, 2008:169). This implies, that for the current study, there were no fieldworkers, which reduced bias often caused by fieldworkers when collecting the data (Fox & Bayat, 2011:88; Maree & Pietersen, 2007a:158). However, the study included other biases since respondents need access to a computer and the internet. Studies indicated that ethnicity influences consumers' environmental knowledge (Dos Santos, 2012:391) and the researcher attempted to include respondents from all ethnic groups. The sample size for this type of study was determined by the Statistical Services of the North-West University, who indicated that 258 completed questionnaires were sufficient for this study.

5 MEASUREMENT INSTRUMENT: DESIGN

The design of the measurement instrument will be discussed in four categories namely: developing the instrument; the validity of the instrument; the reliability of the instrument and data collection by means of the instrument.

5.1 Developing the instrument

The proposed questionnaire is attached as addendum C and was also available electronically (https://www.surveymonkey.com/s/ecolabelunderstandingandutilisation). Since self-administered, structured electronic questionnaires have been used to collect the data, the questionnaire was developed with a set of predetermined and tested questions (Kumar,

2005:126; Thomas, 2009:162) that required fewer interviewing skills than unstructured questionnaires (Kumar, 2005:126). Furthermore, structured questionnaires have uniform information that assures the comparability of the study (Kumar, 2005:126).

The questionnaire consisted of six sections (A to F) and had a total of 33 questions with several sub-sections under each question. Section A served as a sifting tool to determine whether respondents met the inclusion criteria to be able to continue with the questionnaire and participate in the study. Respondents who did not meet the inclusion criteria were directed to a page that thanked them for their participation but prevented them from continuing with the questionnaire. The inclusion criteria were compiled based on existing literature studied.

Section B consisted of the demographic and general information of the respondents. Section C explored the environmental consciousness of the respondents and consisted of adapted questions from Do Paço *et al.* (2010), Dunlap *et al.* (2000), Lin, (2010) and collectively from Vlosky *et al*. (1999) and Goswami (2008) who also studied environmental consciousness, to suit the current study. It contained questions with sub-questions and was in the form of a five-point Likert-type scale where 1=Not at all, 2=To a small extent, 3=To some extent, 4=To a great extent and 5=I don't know.

Section D tested the subjective understanding of eco-labels of the respondents and consisted of adapted questions from the literature to suit the current study. The section included a Five-point Likert-type scale where 1=Strongly disagree, 2=Disagree, 3=Uncertain, 4=Agree and 5=Strongly Disagree. Section E tested respondents' objective understanding of eco-labels on textile products and consisted of adapted questions, to suit the current study, from Lin, (2010) and Thøgersen, (2000) as well as self-formulated questions, based on the literature studied. The questionnaire from Jacobs *et al.* (2010) was used as a guideline to compile questions regarding labels and consumers' understanding of these labels. Section E consisted of questions that respondents could answer correctly or incorrectly. Options given to respondents included "TRUE or FALSE" and "YES or NO". In addition, a five-point Likert-type scale was used where 1=Not at all, 2=To a small extent, 3=To some extent, 4=To a great extent and 5=I don't know. Furthermore, Section E included pictorial examples of eco-labels with questions to test respondents' objective understanding of them.

Section F explored the utilisation of eco-labels in the decision-making process. It consisted of questions adapted from Van der Merwe and Campbell (2008) to suit the current study, as well as self-formulated questions based on the literature studied. Section F consisted of questions with several sub-questions of which most of the questions used five point Likert-type scales. This section included questions regarding textile label usage and information on textile labels as well as the different phases of the decision-making process. Lastly, respondents were presented with a fictional choice between two products. One product had to be chosen based on the information on the label. Finally respondents had to indicate to which extent specific criteria listed in the five-point Likert-type scale influenced their decision, where 1=Not at all, 2=To a small extent, 3=To some extent, 4=To a great extent and 5=I don't know .

5.5.2 Validity of the instrument

Validity is the ability of an instrument to measure what it is intended or designed to measure (Kumar, 2005:153). Face and content validity ensures that each question or item can be linked to an objective and that all objectives are covered with various questions in the questionnaire (Kumar, 2005:154). Additionally, literature regarding each construct of the study was researched. A panel of experts from Consumer Sciences and the Statistical Consultation Services of the North-West University inspected the questionnaires and analysed the contribution of each construct in the questionnaire (Kumar, 2005:155), thus contributing to the face and content validity of the questionnaire. Furthermore, questionnaires from existing studies that studied the same and/or similar phenomena, such as environmental consciousness (Do Paço *et al.,* 2010; Dunlap *et al.,* 2000; Vlosky *et al.,* 1999), eco-label understanding in general (Thøgerson 2000), textile eco-labels (Goswami 2008; Lin 2010), food label understanding (Jacobs *et al.,* 2010), and the decision-making process (Van der Merwe & Campbell*,* 2008), were consulted to develop the questionnaire (Creswell, 2008:397). These studies' questionnaire formats and individual questions acted as a guide to design a collective adapted questionnaire for this study. The questionnaire was designed and tested to be user friendly (Creswell, 2008:397; Maree & Pietersen, 2007a:159). In addition, questions on the same topic were organised together and the researcher attempted to ensure that the topics follow a logical order and therefore lead the respondents into the themes of the study (Kumar, 2005:140; Maree & Pietersen, 2007a:160).

5.3 Reliability of the instrument

The study attempted to yield reliable results with the aid of certain measures that were put into place (Babbie, 2010:150; Kumar, 2005:156). These measures included the fact that the hard copy of the questionnaire was tested and filled out by five respondents living in Potchefstroom who met the rest of the inclusion criteria. This test ran, ensured that the respondents interpret the questions correctly and to eradicated any uncertainties that could arose (Creswell, 2008:402; Maree & Van der Westhuizen, 2007:37). Thereafter, the researcher designed the questionnaire with Survey Monkey (SurveyMonkey, 2012), an electronic computer-based programme. Five more suitable respondents were asked to complete the questionnaire online to test the questionnaire. The questionnaire included open and closed ended questions, which could result in more reliable outcomes (Guthrie, 2010:110). Therefore, the questionnaire was standard with fixed options which resulted in more reliable data (Fox & Bayat, 2011:88; Maree & Pietersen, 2007a:158).

6 DATA COLLECTION

Data collection was done with a structured, self-administered, electronic questionnaire. Respondents received an e-mail explaining the aim of the study and provided them with the electronic link where they could complete and submit the questionnaire. Respondents were given the option to submit the questionnaire or view previous pages of the questionnaire before submitting their answers. Once the questionnaire was submitted, the survey automatically closed and respondents were presented with a page thanking them for their participation in the study. Completed questionnaires' data was stored on a database where the researcher could access it and retrieve the information for data analysis.

7 ETHICAL CONSIDERERATIONS

- This study forms part of the comprehensive 'South African consumers' labelling behaviour' (SAVE) project which has been granted ethical approval (NWU-00024-09-A1) from the Ethics Committee of the North-West University. The study was approved to be included with the same ethical approval of the SAVE project.
- Respondents, who met the inclusion criteria, were identified and invited to participate in the study. Each respondent gave their permission to participate in the study. It was agreed that respondents gave their consent to participate in the study once they filled out the questionnaire.

- Participation in the study was voluntary and respondents were free to withdraw from the study at any given time. This was explained to them in writing with the e-mail that was sent to them together with the link to the webpage where the questionnaire could be accessed.
- The researcher pledged and undertook to keep all information of each respondent private and confidential (David & Sutton, 2011:47; Strydom, 2005:61). This was made possible by an option in the programme used to design and sent out the questionnaire (Survey Monkey). This function enabled the programme to not disclose respondents' Internet Protocol (IP) addresses.
- The research data are stored on a hard drive in the Consumer Sciences Building (F15) of the Potchefstroom Campus of the North-West University, for a minimum period of seven years.

8 DATA ANALYSIS

The analysis of the data for the study is discussed in two categories namely the reliability and validity of the data and the statistical analysis of the data

8.1 Validity and reliability of the data analysis

Exploratory factor analysis was done to facilitate external and construct validity (Pietersen & Maree, 2007:217). For more detail on the factor analysis, please refer to Chapter 3. Reliability tests such as Cronbach's alpha was used to describe the multi-item scales data's internal reliability and consistency (Pietersen & Maree, 2007:216; Shen *et al.,* 2012:238). A detailed discussion of internal reliability is offered in Chapter 3 (research article).

8.2 Statistical analysis of data

The measurement instrument included questions that was easy to understand and did contain different formats of closed structured questions, because it renders the data easy to analyse (Creswell, 2008:397; Maree & Pietersen, 2007a:159). The Survey Monkey program has the ability to ensure that all sections and questions in the questionnaire was compulsory to complete, thereby ensuring that all the questionnaires that was submitted were complete with all relevant and necessary information. However, some respondents lost internet connection, which resulted in incomplete questionnaires.

The data was analysed using the Statistical Package for Social Science (SPSS) by the Statistical Consultation Services of the NWU at the Potchefstroom Campus. Firstly, the demographic variables in Section B of the questionnaire were analysed for descriptive statistics. Secondly, the data were tested for validity and reliability. Thirdly, relationships and differences between different demographic factors, and factors relating to the objectives of the study, were determined. Thus, T-tests, one-way ANOVA correlations and cross tabulations were used to indicate the differences and relationships between the different demographic factors and respondents' environmental consciousness; respondents' subjective and objective understanding of textile eco-labels and respondents' utilisation of textile eco-labels in the different stages of the pre-purchase decision-making process . Phi Coefficient and Cramer's V tests were used with the cross tabulations to identify the strength of the relationship between two variables such as gender and environmental consciousness. The *p*-value of Phi Coefficient and Cramer's V should be $p < 0.05$ to be statistically significant (Field, 2013:721). Cohen's guidelines for the *r*-value with regard to the Phi Coefficient are $r = 0.1$ indicating a small effect size, $r = 0.3$, a medium effect size, and $r = 0.5$ indicating a large effect size (Steyn, 2009:4). For this study, Phi Coefficient and Cramer's V values of ≥ 0.4 are discussed, since it indicates practical significance (Morgan *et al*,, 2007:92).

T-tests and one-way ANOVA are tests that indicate whether there are statistically significant differences in the mean scores for two different groups across one or more variables (Pallant, 2013:248; Swanepoel *et al.,* 2011:205). In addition effect size statistics indicates the difference in magnitude between different groups (Biddix,2009; Pallant, 2013:250). This is also known as the strength of association between two variables. Practical significance tests were used to determine the effect sizes, by analysing Cohen's *d-values* as a measure of effect sizes (Pallant, 2013:251). There are certain guidelines for interpreting *d-values* (Cohen, 1988:284-287) which describes the difference between groups in terms of standard deviation units. This guideline shows that $d=0.3$ indicates a small effect size, $d=0.5$ indicates a medium effect and $d=0.8$ indicates a large effect size. For this study, Cohen's *d*-values of ≥0.7 were considered as practical significant, (Morgan *et al.,* 2007:92).

9 SUMMARY

This appendix provided an in-depth overview of the design of the study, which included the measurement instrument and data collection, the population, sampling procedures and data analysis. The study was exploratory and descriptive in nature and was conducted by means of a survey. The final sample size consisted of 234 respondents, who completed the

structured questionnaire online with SurveyMonkey©. Validity and reliability measures included in the study, ensured that the quality of the data was acceptable.

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APPENDIX B

E-mail cover letter

E-mail cover page

Dear Mr/Mrs/Miss/other,

Thank you for your willingness and giving of your time to participate in this study.

The aim of the study is to explore consumers' understanding of textile eco-labels and their utilisation thereof during their pre-purchase decision-making process in order to make recommendations regarding making eco-labels easier to understand.

The questionnaire will take approximately 15 minutes to fill out. The data gathered in this study will be filed and stored as confidential information, and only members of the research project will have access to the data. Your participation in this study is completely voluntary and by filling out the questionnaire you give your consent that the data generated may be used by the researchers for scientific purposes as they see fit. However, any published data will not contain any confidential information that may reveal the identification of the respondents. You may withdraw from the study at any time; however, you are kindly requested not to do so without careful consideration. Should you require more information, please contact Heleen Dreyer (Master of Consumer Sciences student) on 082 878 6586 or Eloise Botha (supervisor) on 018 299 4422.

In order to ensure that enough participants fill out the questionnaire, please forward this e-mail with the link to the questionnaire, to as many of your acquaintances in Pretoria.

Thank you very much for your participation.

Please click on the following link to fill out the questionnaire:

https://www.surveymonkey.com/s/ecolabelunderstandingandutilisation

APPENDIX C

Questionnaire

QUESTIONNAIRE

STRICTLY CONFIDENTIAL

Please note:

For the purpose of this study, an eco-label is regarded as a label that indicates that the product is environmentally friendly. It can be added to a product label or packaging, and consist of words, symbols or both.

Please read the following questions carefully and follow the instructions given.

Section A: Inclusion criteria

Please answer the following questions by clicking on the applicable option.

1. Are you a South African citizen?	Yes	No
2. Do you reside in Pretoria?	Yes	No
3. Are you 18 or older?	Yes	No
4. Have you ever considered buying/have you ever bought an environmentally friendly product? (i.e. low energy globes/environmentally friendly detergents / electronic devices with energy star logo ect.)	Yes	No

Section B: Demographic and general information

For the following questions, please select the applicable option by clicking on the relevant block.

5. Please indicate your sex.

Male		1
Female		2

6. Please indicate your age category.

18–24 years old		1
25–34 years old		2
35–44 years old		3
45–54 years old		4
55–64 years old		5
65 or older		6

7. Please indicate your race.

Black		1
Coloured		2
White		3
Indian		4
Other		5

8. Please indicate your home language.

English		1
Afrikaans		2
Sesotho		3
Setswana		4
Sepedi		5
IsiZulu		6
IsiXhosa		7
IsiNdebele		8
Tshivenda		9
SiSwati		10
Xitsonga		11
Other		12

9. Please indicate your highest educational level passed.

Lower than Grade 12		1
Grade 12		2
Tertiary education		3

10. Please indicate your approximate monthly income (in South African Rand).

R0–R4 000		1
Between R4 001 and R8 000		2
Between R8 001 and R20 000		3
Between R20 001 and R50 000		4
Between R50 001 and R100 000		5
More than R100 001		6
I would prefer not to disclose this information.		7

11. Please indicate your marital status.

Single/widow/widower/divorced		1
Married/living with a partner		2

12. Please indicate the number of children under the age of 18 who live with you.

None		1
1 child		2
2 children		3
3 children		4
4 children		5
5 or more children		6

13. Have you ever switched products/brands for ecological reasons?

Yes	**No**

Section C: Environmental awareness

14. Please indicate the extent to which you agree with the following statements by clicking on the applicable option.

	Not at all	To a small extent	To some extent	To a great extent	I don't know
14.1. Humans are abusing the environment severely.	1	2	3	4	5
14.2. The earth has limited natural resources.	1	2	3	4	5
14.3. I value and appreciate the environment.	1	2	3	4	5
14.4. I know how to preserve the environment.	1	2	3	4	5
14.5. I am concerned about global warming.	1	2	3	4	5
14.6. Pollution in South Africa is a problem.	1	2	3	4	5
14.7. I choose the product that causes the least pollution.	1	2	3	4	5
14.8. I buy products made from recycled material.	1	2	3	4	5
14.9. I would buy products that have unnecessary packaging.	1	2	3	4	5
14.10. I use environmentally safe soaps and detergents.	1	2	3	4	5
14.11. I believe that environmental information on product labels and packaging is important.	1	2	3	4	5
14.12. There is a need for environmental regulations for growing cotton and other textile fibres.	1	2	3	4	5
14.13. Labelling products as environmentally friendly is just another sales strategy.	1	2	3	4	5
14.14. I have given thought to the amount of chemicals it takes to produce textiles.	1	2	3	4	5
14.15. I am concerned with issues regarding	1	2	3	4	5

commercially grown cotton and its effects on the environment.					
14.16. I believe that organic cotton products are more environmentally friendly than conventional cotton products.	1	2	3	4	5
14.17. I consider textile products made from bamboo fibres to be eco-friendly.	1	2	3	4	5

Section D: Subjective understanding of eco-labels on textile products

15. Please indicate the extent to which you agree/disagree with the following statements regarding your level of understanding by clicking on the applicable option.

I understand		**Strongly disagree**	**Disagree**	**Uncertain**	**Agree**	**Strongly agree**
15.1.	the label information on textile products	1	2	3	4	5
15.2.	the written information on textile labels	1	2	3	4	5
15.3.	the symbols on labels	1	2	3	4	5
15.4.	eco-labels	1	2	3	4	5
15.5.	the written information on eco-labels	1	2	3	4	5
15.6.	the symbols on eco-labels	1	2	3	4	5
15.7.	the message the manufacturer of the eco-labelled product wants to convey	1	2	3	4	5

Section E: Objective understanding of eco-labels on textile products

16. Please indicate whether the following statements are true or false by clicking on the applicable option.

		True	False	Don't know
16.1.	Satisfying specific requirements is necessary before a company can put an eco-label on their products.	1	2	3
16.2.	"100% cotton" indicates that the product is environmentally friendly.	1	2	3
16.3.	"Made from recycled materials" indicates that the product is environmentally friendly.	1	2	3
16.4.	"100% organic cotton" indicates that the product is environmentally friendly.	1	2	3

Please look at the following label and answer the questions below by clicking on the applicable option.

17. Is this label an eco-label?

Yes	No

18. What does this label indicate when it appears on a textile product's label? Please select only one of the options for each statement.

		Yes	No	Don't know
18.1.	The textile item does not contain harmful substances.	1	2	3
18.2.	It is an eco-friendly textile.	1	2	3
18.3.	The textile item satisfies strict eco-friendly requirements.	1	2	3

Please look at the following labels and answer the questions that follow.

Label 1

Label 2

19. Based on these labels, what do you think the main difference between the two T-shirts is? Please select only one of the options for each statement.

		Yes	No	Don't know
19.1.	The T-shirt bearing label 2 is made from organic cotton.	1	2	3
19.2.	The T-shirt bearing label 1 is made from a blend of organic cotton and conventional cotton.	1	2	3
19.3.	The T-shirt bearing label 1 contains conventional cotton.	1	2	3
19.4.	The T-shirt bearing label 2 contains conventional cotton.	1	2	3
19.5.	The T-shirt bearing label 1 is made from conventional cotton only.	1	2	3
19.6.	The T-shirt bearing label 1 is made from a blend of organic cotton and other fibres, such as polyester.	1	2	3
19.7.	The T-shirt bearing label 2 will keep the wearer more dry and comfortable than the T-shirt bearing label 1 will.	1	2	3

20. What do you understand by the term "organic cotton"? Please select only one of the options for each statement.

		Yes	No	Don't know
20.1.	It is the same as conventional cotton.	1	2	3
20.2.	It is cotton grown in a special way that is more environmentally friendly.	1	2	3
20.3.	Organic cotton production uses no pesticide.	1	2	3
20.4.	Organic cotton production uses no fertilisers.	1	2	3
20.5.	Organic cotton production uses less water than conventional cotton.	1	2	3
20.6.	It has something to do with the environment.	1	2	3

Please look at the following symbol and answer the following questions.

21. What does this symbol indicate when it appears on a product label?

22. When it appears on a product label, does this symbol communicate environmental attributes of the product? Please select only one of the options.

Yes	No	Don't know
1	2	3

23. When considering purchasing eco-labelled textile products, to what extent do you agree with the following reasons that you **do not understand** textile eco-labels?

	I do not understand textile eco-labels because	Not at all	To a small extent	To some extent	To a great extent	I don't know
23.1.	the labels take too long to read	1	2	3	4	5
23.2.	I do not have the environmental knowledge necessary to understand the information	1	2	3	4	5
23.3.	I do not understand the meaning of the symbols	1	2	3	4	5
23.4.	the labels contain too much information	1	2	3	4	5
23.5.	the labels contain contradictory information	1	2	3	4	5

23.6.	eco-labels contain false green claims	1	2	3	4	5
23.7.	I do not often see eco-labels in South Africa	1	2	3	4	5
23.8.	information regarding eco-labels is not generally available	1	2	3	4	5
23.9.	I cannot read the information because the text is too small	1	2	3	4	5

Section F: Utilisation of eco-labels in the decision-making process

24. Please answer the following questions by clicking on the applicable option.

	Never	**Rarely (once in a while)**	**Often**	**Always**
24.1. How often do you read textile labels?	1	2	3	4
24.2. How often does the information on the textile label affect your decision to buy or not to buy a product?	1	2	3	4
24.3. How often do you buy eco-labelled textile products?	1	2	3	4

25. Please indicate the extent to which you agree with the following statements by clicking on the applicable block.

	Not at all	To a small extent	To some extent	To a great extent	I don't know
25.1. I read the labels to see whether the textile products are environmentally safe.	1	2	3	4	5
25.2. I use the information on textile labels when deciding to buy or not to buy a textile product.	1	2	3	4	5
25.3. I would seek out textile products with eco-labels if available.	1	2	3	4	5
25.4. I read the fibre-content label before purchasing a textile product.	1	2	3	4	5
25.5. I have bought textile products made from organic cotton.	1	2	3	4	5

26. Please indicate the extent to which the following **need** statements apply to you when shopping for green/eco-labelled/environmentally friendly textile products.

	I shop for green textile products because	Not at all	To a small extent	To some extent	To a great extent	I don't know
26.1.	I need something new, e.g. new t-shirt, tablecloth, jeans, towels, sheets	1	2	3	4	5
26.2.	my lifestyle/image necessitates buying green textile products	1	2	3	4	5

26.3.	I want to change my lifestyle through greener purchasing decisions	1	2	3	4	5
26.4.	I am aware of environmental issues	1	2	3	4	5
26.5	I contribute towards and support green initiatives	1	2	3	4	5

27. How important is the following information to you when shopping for green/eco-labelled/environmentally friendly textile products?

		Not important at all	**Not very important**	**Important**	**Very important**
27.1.	The general information on the label regarding the green attributes of the product	1	2	3	4
27.2.	The price on the label	1	2	3	4
27.3.	The brand of the product	1	2	3	4
27.4.	The textile composition	1	2	3	4
27.5.	The care instructions	1	2	3	4
27.6.	The quality of the green textile product	1	2	3	4
27.7.	The credibility of the eco-logo	1	2	3	4

28. Have you ever bought an eco-labelled/environmentally friendly textile product?

Yes (continue with question 29 automatically)		1
No (continue with question 31)		2

29. Please indicate the extent to which you agree/disagree with the following statements regarding a green/eco-labelled/environmentally friendly product that you purchased in the past.

		Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
29.1.	I was satisfied with the purchase I had made.	1	2	3	4	5
29.2.	I did not feel different after the purchase.	1	2	3	4	5
29.3.	I felt like I had contributed towards conserving the environment.	1	2	3	4	5
29.4.	I was excited to show the purchase to my friends/family.	1	2	3	4	5
29.5.	I felt that I had paid too much for the product.	1	2	3	4	5
29.6.	It suits my lifestyle.	1	2	3	4	5
29.7.	It symbolises who I am.	1	2	3	4	5
29.8.	The purchase improved my image as a green consumer.	1	2	3	4	5
29.9.	The product persuaded me that eco-labels are credible.	1	2	3	4	5

30. Would you buy a green/eco-labelled/environmentally friendly product again?

Yes		1
No		2

31. You have not yet bought a green/eco-labelled/environmentally friendly product. Please indicate the extent to which you disagree/agree with the following statements.

		Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
31.1.	Eco-labels will not make a difference to the preservation of the earth.	1	2	3	4	5
31.2.	Eco-labels in South Africa are not credible.	1	2	3	4	5
31.3.	There are too many false claims regarding eco-labelled products.	1	2	3	4	5
31.4.	Eco-labelled products are too expensive.	1	2	3	4	5
31.5.	Eco-labelled products are not readily available.	1	2	3	4	5
31.6.	There are not enough competing eco-labelled products from which to choose.	1	2	3	4	5

Please look at the following sets of labels. Each set of labels belongs to one textile product.

Product 1

A
Bamboo towels are eco- friendly. Bamboo is a very fast-growing plant that is converted into yarns without the addition of chemicals and is 100% biodegradable.

B
The towels consist of 60% bamboo yarn and 40% cotton with a weight of 600gsm.

C
Bamboo absorbs 1.5 times faster and is softer than cotton.
Bamboo will take less time to dry.
Bamboo fibers will stay soft so require little or no fabric softner.

D
Bamboo is the most easily replenishable natural resource on earth. It grows without pecticides or fertilizers and can be harvested within two months of planting.

E
Bamboo fibers are prone to snagging.
Please wash with care.

Product 2

32. You want to buy towels and can choose between product 1 and product 2. Which product would you choose?

Product 1		1
Product 2		2

33. Please indicate the extent to which the following criteria influenced your choice between product 1 and product 2.

		Not at all	To a small extent	To some extent	To a great extent	I don't know
33.1.	The price	1	2	3	4	5
33.2.	The quality of the product	1	2	3	4	5
33.3.	The quality associated with the eco-logo	1	2	3	4	5
33.4.	The textile composition	1	2	3	4	5
33.5.	The environmental friendliness of the product	1	2	3	4	5
33.6.	The credibility of the eco-label	1	2	3	4	5

Thank you for taking the time to fill out the questionnaire.

APPENDIX D

Additional tables

Table 1 Summary of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) values and cumulative eigenvalues

Factors in different sections	**KMO**	**Percentage of variance explained (%)**
Section C: Environmental consciousness	0.84	66.56
Section D: Subjective understanding	0.87	71.42
Section E: Objective understanding of textile eco-labels (labels, products and label information regarding organic cotton production)	0.89	60.11
Section E: Barriers for not understanding textile eco-labels and Unavailability of eco-labels products	0.77	56.69
Section F: Eco-label utilisation and information usage	0.86	60.44
Section F: Need recognition for eco-labelled products	0.81	59.94
Section F: Important information respondents seek on eco-labels Price	0.83	68.42
Section F: Purchase choice – reasons why respondents buy green products	0.84	59.55
Section F: Purchase choice – reasons why respondents do not buy green products (**negative association** and u**navailability of eco-labels and information**)	0.60	65.55
Section F: Criteria for buying/not buying textile eco-labelled textile products	0.81	69.67

Table 2 **Summary of exploratory factor analysis of the 13-item environmental consciousness scale (Factor loadings from Principal Components Analysis)**

Item	Factor loadings			
	Positive orientation towards green product	Environmental consciousness	Knowledgeable about green products	Negative environmental consequences
I believe that environmental information on product labels and packaging is important	.80			
I buy products made from recycled material	.70			
I use environmentally safe soaps and detergents	.65			
I believe that organic cotton products are more environmentally friendly than conventional products	.51			
There is a need for environmental regulations for growing cotton and other fibres	.50			
I know how to preserve the environment		.86		
I value and appreciate the environment		.58		
I choose the product that causes the least pollution		.70		
I am concerned with issues regarding commercially grown cotton and its effects on the environment			.86	
I have given thought to the amount of chemicals it takes to produce textiles			.82	
I consider textile products made from bamboo fibres to be eco-friendly			.63	
Pollution in South Africa is a problem				.90
I choose the product that causes the least pollution				.59
Inter Item correlation	.45	.32	.43	.38
Cronbach alpha coefficient	.80	.57	.70	.51
Mean factor score **Standard Deviation**	3.1 ±(0.76)	3.3 ±(0.59)	2.4 ±(0.88)	3.6 ±(0.61)

Table 3 **Summary of exploratory factor analysis of the 7-item subjective understanding of textile eco-labels scale (Factor loadings from Principal Components Analysis)**

Item	**Factor loadings**
	Subjective understanding of textile eco-labels
I understand the label information on textile products	.81
I understand the written information on textile labels	.80
I understand the symbols on labels	.76
I understand eco-labels	.82
I understand the written information on eco-labels	.87
I understand the symbols on eco-labels	.88
I understand the message the manufacturer of the eco-labelled product wants to convey	.78
Inter Item correlation	.67
Cronbach alpha coefficient	.93
Mean factor score **Standard Deviation**	3.4 ±(0.83)

Table 4 **Summary of exploratory factor analysis of the 19-item objective understanding of textile eco-labels scale (Factor loadings from Principal Components Analysis)**

Item	Factor loadings		
	Objective understanding of textile eco-labelled products	Objective understanding of textile eco-labels	Objective understanding of label information regarding organic cotton production
The T-shirt bearing label 2 contains conventional cotton	.91		
The T-shirt bearing label 2 is made from organic cotton	.80		
The T-shirt bearing label 1 contains conventional cotton	.75		
The T-shirt bearing label 1 is made from conventional cotton only	.71		
Organic cotton is the same as conventional cotton	.64		
The T-shirt bearing label 1 is made from a blend of organic cotton and conventional cotton	.62		
Organic cotton has something to do with the environment	.60		
The recycled symbol communicates a product's environmentally friendly attributes	.39		
Satisfying specific requirements is necessary before a company can put an eco-label on their products	.38		
When this label appears on a textile product's label it indicates that the textile item does not contain harmful substances	.35	.31	
"100% cotton" indicates that the product is environmentally friendly	.33		
When this label appears on a textile product's label it indicates that the it is an eco-friendly textile		.82	
When this label appears on a textile product's label it indicates that the textile item satisfies strict eco-friendly requirements		.81	

Table 4 (continued) **Summary of exploratory factor analysis of the 19-item objective understanding of textile eco-labels scale (Factor loadings from Principal Components Analysis)**

Item	Factor loadings		
	Objective understanding of textile eco-labelled products	Objective understanding of textile eco-labels	Objective understanding of label information regarding organic cotton production
Is this an eco-label		.65	
"Made from recycled materials" indicates that the product is environmentally friendly		.42	.36
Organic cotton production uses no fertilisers			.63
Organic cotton production uses no pesticides			.61
"100% organic cotton" indicates that the product is environmentally friendly			.50
Organic cotton production uses less water than conventional cotton			.43
Inter Item correlations	.47	.47	.35
Cronbach alpha coefficient	.91	.77	.69
Mean factor score **Standard Deviation**	68.3% ±(0.34)	42.7% ±(0.34)	43.8% ±(0.34)

Table 5 **Summary of exploratory factor analysis of the 8-item reasons for not understanding textile eco-labels scale (Factor loadings from Principal Components Analysis)**

Item	Factor loadings	
	Barriers against understanding textile eco-labels	Unavailability of eco-label products
The labels contain too much information	.92	
I cannot read the information because the text is too small	.63	
The labels take too long to read	.62	
The labels contain contradictory information	.53	
I do not understand the meaning of the symbols	.49	
I do not have the environmental knowledge necessary to understand the information	.44	
Information regarding eco-labels is not generally available		.82
I do not often see eco-labels in South Africa		.60
Inter Item correlations	.39	.52
Cronbach alpha coefficient	.79	.69
Mean factor scores **Standard Deviation**	2.7 ±(1.10)	3.4 ±(0.97)

Table 6 **Summary of exploratory factor analysis of the 7-item label utilisation and information usage scale (Factor loadings from Principal Components Analysis)**

Item	Factor loadings
	Label utilisation and information usage
I read the labels to see whether the textile products are environmentally friendly safe	.88
I use the information on textile labels when deciding to buy or not to buy a textile product	.87
How often does the information on the textile label affect your decision to buy or not to buy a product	.77
How often do you read textile labels	.69
I read the fibre-content label before purchasing a textile product	.66
How often do you buy eco-labelled textile products	.62
I would seek out textile products with eco-labels if they are available	.62
Inter Item correlation	.53
Cronbach alpha coefficient	.88
Mean factor score **Standard Deviation**	2.2 ±(0.67)

Table 7 **Summary of exploratory factor analysis of the 5-item need recognition for green textile product scale (Factor loadings from Principal Components Analysis)**

Item	**Factor loadings**
I shop for green textile products because:	**Need recognition for green textile products**
I contribute towards and support green initiatives	.82
I want to change my lifestyle through greener purchasing choices	.81
I am aware of environmental issues	.77
My lifestyle/image necessitates buying green textile products	.63
I need something new, e.g. new T-shirt, tablecloth, jeans, towels , sheets	.66
Inter Item correlation	.49
Cronbach alpha coefficient	.83
Mean factor score **Standard Deviation**	2.5 ±(.77)

Table 8 **Summary of exploratory factor analysis of the 6-item important information respondents seek on labels scale (Factor loadings from Principal Components Analysis)**

Item	**Factor loadings**	
	Important information respondents seek on labels	**Price**
The credibility of the eco-logo	.85	
The textile composition	.74	
The general information on the label regarding the green attributes of the product	.74	
The quality of the green textile product	.72	
The care instructions	.547	
Price		.64
Inter Item correlation	.51	
Cronbach alpha coefficient	.84	
Mean factor score **Standard Deviation**	2.5 ±(.65)	3.3 ±(0.74)

Table 9 **Summary of exploratory factor analysis of the 7-item reasons why consumers buy eco-labelled products (Factor loadings from Principal Components Analysis)**

Item	Factor loadings
	Reasons why respondents buy eco-labels products
The purchase improved my image as a green consumer	.89
It symbolises who I am	.82
The product persuaded me that eco-labels are credible	.74
I was excited to show the purchase to my friends/family	.72
I felt like I had contributed towards conserving the environment	.69
It suits my lifestyle	.59
I did not feel different after the purchase	-.55
Inter Item correlation	.27
Cronbach alpha coefficient	.73
Mean factor score **Standard Deviation**	3.1 ±(.61)

Table 10 **Summary of exploratory factor analysis of the 6-item reasons why consumers do not buy eco-labelled products (Factor loadings from Principal Components Analysis)**

Item	Factor loadings	
	Negative associations with eco-labels	Unavailability of eco-labels and information regarding eco-labels
Eco-labels in south Africa are not credible	.86	
There are too many false claims regarding eco-labelled products	.78	
Eco-labelled products are too expensive	.57	.49
Eco-labelled products are not readily available	.54	.90
There are not enough competing eco-labelled products from which to choose		.82
Inter Item correlation	.50	.57
Cronbach alpha coefficient	.72	.73
Average mean **Standard Deviation**	3.1 ±(0.56)	3.6 ±(0.60)

Table 11 **Summary of exploratory factor analysis of the 6-item criteria for buying/not buying textile eco products (Factor loadings from Principal Components Analysis)**

Item	Factor loadings
	Criteria for buying /not buying textile eco-labelled products
The credibility of the eco-label	.88
The environmentally friendliness of the product	.85
The quality associated with the eco-logo	.81
The textile composition	.61
The quality of the product	.49
The price	-.30
Inter Item correlation	.27
Cronbach alpha coefficient	.68
Mean factor score **Standard Deviation**	3.1 ±(.60)

Table 12 Summary of respondents' subjective understanding

Item	Means	
	Individual items in factor	Factor
Subjective understanding of textile eco-labels		**3.4**
I understand the label information on textile products	3.5	
I understand the written information on textile labels	3.6	
I understand the symbols on labels	3.4	
I understand eco-labels	3.3	
I understand the written information on eco-labels	3.4	
I understand the symbols on eco-labels	3.1	
I understand the message the manufacturer of the eco-labelled product wants to convey	3.3	

Table 13 Frequency of correct responses to questions regarding consumers' objective understanding of textile eco-labels and products

	Percentage correctly answered
Items	**%**
Objective understanding about textile eco-labelled products	**68.3%**
The T-shirt bearing label 2 contains conventional cotton	68.8%
The T-shirt bearing label 2 is made from organic cotton	81.2%
The T-shirt bearing label 1 contains conventional cotton	57.3%
The T-shirt bearing label 1 is made from conventional cotton only	69.7%
Organic cotton is the same as conventional cotton	71.8%
The T-shirt bearing label 1 is made from a blend of organic cotton and conventional cotton	67.1%
Organic cotton has something to do with the environment	76.9%
The recycled symbol communicates a product's environmentally friendly attributes	66.2%
Satisfying specific requirements is necessary before a company can put an eco-label on their products	77.4%
"100% cotton" indicates that the product is environmentally friendly	47.0%
Objective understanding of textile eco-labels	**42.7%**
When this label appears on a textile product's label it indicates that the textile item does not contain harmful substances	67.5%
When this label appears on a textile product's label it indicates that the it is an eco-friendly textile	31.6%
When this label appears on a textile product's label it indicates that the textile item satisfies strict eco-friendly requirements	25.2%
Is this an eco-label?	45.3%
"Made from recycled materials" indicates that the product is environmentally friendly	44.0%
Objective understanding of label information regarding organic cotton production	**43.8%**
Organic cotton production uses no fertilisers	41.5.%
Organic cotton production uses no pesticide	56.8%
"100% organic cotton" indicates that the product is environmentally friendly	58.1%
Organic cotton production uses less water than conventional cotton	18.8%

Table 14 Summary of reasons why respondents do not understand textile eco-labels

Item	Means	
	Individual items in factors	Factors
Barriers for not understanding textile eco-labels		**2.7**
The labels contain too much information	2.4	
I cannot read the information because the text is too small	2.2	
The labels take too long to read	2.5	
The labels contain contradictory information	3.0	
I do not understand the meaning of the symbols	2.9	
I do not have the environmental knowledge necessary to understand the information	2.9	
Unavailability of eco-label products		**3.4**
Information regarding eco-labels is not readily available	3.4	
I do not often see eco-labels in South Africa	3.4	

Table 15 Summary of respondents need recognition for green textile products

Item I shop for green textile products because:	Means	
	Individual items in factor	Factor
Need recognition for green textile products		**2.5**
I contribute towards and support green initiatives	2.8	
want to change my lifestyle through greener purchasing choices	2.7	
I am aware of environmental issues	3.1	
My lifestyle/image necessitates buying green textile products	1.8	
I need something new, e.g. new t-shirt, tablecloth, jeans, towels , sheets	2.1	

Table 16 Summary of important information respondents seek when shopping for green textile products

Item	Means	
	Individual items in factor	Factor
Important information respondents seek when shopping for green textile products		**2.8**
The credibility of the eco-logo	2.8	
The textile composition	2.6	
The general information on the label regarding the green attributes of the product	2.6	
The quality of the green textile product	3.0	
The care instruction	2.9	
Price		**3.3**

Table 17 Summary of reasons why respondents buy eco-labelled products

Item	Means of items	
	Means of individual items in factor	Factor
Reasons why respondents buy eco-labels product		**3.1**
The purchase improved my image as a green consumer	3.0	
It symbolises who I am	2.9	
The product persuaded me that eco-labels are credible	3.2	
I was excited to show the purchase to my friends/family	2.8	
I felt like I had contributed towards conserving the environment	3.6	
It suits my lifestyle	3.3	
I did not feel different after the purchase	3.1	

Table 18 Summary of reasons why respondents do not buy eco-labelled products

Item	Means	
	Individual items in factors	Factors
Negative association with eco-labels		**3.1**
Eco-labels in south Africa are not credible	3.0	
There are too many false claims regarding eco-labelled products	3.2	
Eco-labelled products are too expensive	3.5	
Unavailability of eco-labels and information regarding eco-labels		**3.6**
Eco-labelled products are not readily available	3.6	
There are not enough competing eco-labelled products from which to choose	3.6	

Table 19 Summary of criteria for buying or not buying and eco-labelled textile product

Item	Means	
	Individual items in factor	Factor
Criteria for buying /not buying textile eco-labelled product		**3.1**
The credibility of the eco-label	3.0	
The environmentally friendliness of the product	3.1	
The quality associated with the eco-logo	3.0	
The textile composition	3.2	
The quality of the product	3.6	
The price	2.9	

Table 20 Associations of different criteria for choice of product 1 or 2

Items	Products[3]	Frequency	Mean	SD	Std. Error mean	Effect Size (d)
The price	Product1 Product2	114 81	2.5 3.5	.91 .82	.86 .91	1.12
The quality of the product	Product1 Product2	114 81	3.8 3.4	.57 .89	.53 .99	0.45
The quality associated with the eco-logo	Product1 Product2	113 73	3.4 2.5	.87 .94	.82 .11	0.99
The textile composition	Product1 Product2	111 78	3.4 2.9	.79 .98	.08 .11	0.52
The environmentally friendliness of the product	Product1 Product2	114 75	3.5 2.5	.85 .91	.08 .10	1.15
The credibility of the eco-label	Product1 Product2	109 73	3.3 2.4	.88 .98	.09 .12	0.89

[3] Product 1 – eco-labelled textile product; Product 2 – conventional textile product

APPENDIX E

Clothing and textiles research journal: Guidelines

(American Journal)

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4. ***Each table or figure should be prepared as a separate file (each table or figure in its own file)*** to be uploaded to the system. Please review the author tutorials that are accessible at the portal log-in page at http://mc.manuscriptcentral.com/ctrj. Look particularly at the information related to file types that are compatible with the system. This is very helpful if you are loading graphics, charts, or excel files.
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APPENDIX F

Plagiarism reports and letters of confirmation from the Language Editors

Plagiarism reports

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Chapter 1 Introduction 1.1 INTRODUCTION Environmental friendly consumption is a complex and ethical phenomenon within the study field of consumer behaviour, which influence consumers intellectually, morally and in practice, (Moisander, 2007:404; Young et al., 2010:20).

Sustainable consumption is considered as an important aspect of sustainable development [4]

(Abeliotis et al., 2010:154). Therefore eco-label systems were introduced

to make it possible for consumers to choose **products which are** less **harmful** to the **environment** [12]

and consequently reduce the negative environmental implications of consumption (Grankvist & Lekedal, 2007:169; Scheer et al., 2008:5). Eco-label information programmes are used as a communication tool to inform consumers about sustainable consumption and communicating product information regarding its

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Paromita Goswami, "Is the urban Indian consumer ready for clothing with eco-labels?", International Journal of Consumer Studies, 09/2008

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need to be aware of and understand the intended meaning of **eco-labels,** 18

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Chapter 1 Concluding discussions 4.1 INTRODUCTION The aim of this study was to explore

consumers' understanding and utilisation of textile eco- labels when making a pre-purchase decision. [1]

The conclusions reached for this study will be discussed in this final chapter focusing on the achievements of the objectives for this study. Furthermore, the limitations, recommendations for future research and implications for consumers in a South African context for this study will be discussed. This will contribute to existing literature regarding

consumers' understanding and utilisation of textile eco-labels. [1]

Furthermore, the textile industry can benefit from the findings by improving textile eco-labels to enhance consumers' understanding and utilisation in the pre-purchase decision-making process. 4.2 CONCLUSION The consumer pre-purchase

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Leire, C., "Product-related environmental information to guide consumer purchases - a review and analysis of research on perceptions, understanding and use among Nordic consumers", Journal of Cleaner Production, 200508/09

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APPENDIX A RESEARCH METHODOLOGY 1 INTRODUCTION This appendix provide an in-depth discussion of the methodology followed in this study in addition to the method described in chapter 3 (research article). Most studies with regard to eco-labels and consumers' behaviour focus on their buying intentions and not their actual buying behaviour. Thus, there is an inconsistency in research between consumers' environmental consciousness, their buying intentions and their actual buying behaviour (Leire & Thidell, 2005:1067; Young et al., 2010:29). However, individual environmental consciousness is known to influence decision behaviour in favour of eco-labelled products (Shen et al., 2012:242). Therefore, the current study considered consumers' environmental consciousness as an indication of their likelihood to engage in such purchases. 2 RESEARCH DESIGN Since there is little information and research regarding eco-labels in South Africa, this study has been explorative of nature (Kumar, 2005:10) which aimed to explore

consumers' understanding and utilisation of textile eco-labels when making a purchase decision, [3]

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Dear Mr/Mrs/Miss/other, Thank you for your willingness and giving of your time to participate in this study. The aim of the study is to explore consumers' understanding of textile eco-labels and their utilisation thereof during their pre-purchase decision-making process in order to make recommendations regarding making eco-labels easier to understand. The questionnaire will take approximately 15 minutes to fill out. The data gathered in this study will be filed and stored as confidential information, and only members of the research project will have access to the data. Your participation in this study is completely voluntary and by filling out the questionnaire you give your consent that the data generated may be used by the researchers for scientific purposes as they see fit. However, any published data will not contain any confidential information that may reveal the identification of the respondents. You may withdraw from the study at any time; however, you are kindly requested not to do so without careful consideration. Should you require more information, please contact Heleen Dreyer (Master of Consumer Sciences student) or Eloise Botha (supervisor) on 018 299 2470. In order to ensure that enough participants fill out the questionnaire, please forward this e-mail with the link to the questionnaire, to as

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QUESTIONNAIRE STRICTLY CONFIDENTIAL Please note: For the purpose of this study, an eco-label is regarded as a label that indicates that the product is environmentally friendly. It can be added to a product label or packaging, and consist of words, symbols or both. Please read the following questions carefully and follow the instructions given. Section A: Inclusion criteria Please answer the following questions by clicking on the applicable option. 1. Are you a South African citizen? Yes 2. Do you reside in Pretoria? Yes 3. Are you 18 or older? Yes 4. Have you ever considered buying/have you ever Yes bought an environmentally friendly product? (i.e. low energy globes/environmentally friendly detergents / electronic devices with energy star logo ect.) No No No No Section B: Demographic and general information For the following questions, please select the applicable option by clicking on the relevant block. 5.

Please indicate your sex. Male 1 Female 2 6. Please indicate your age 8

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APPENDIX D Additional tables 1 Table 1: Summary of KMO values and cumulative eigenvalues Factors in different sections Section C: Environmental consciousness Section D: Subjective understanding Section E: Objective understanding of textile eco-labels (Labels, Products and label information regarding Organic cotton production) Section E: Barriers in understanding textile eco-labels and Unavailability of eco-labels and products Section F: Eco-label utilisation and information usage Section F: Need recognition for eco-labelled products Section F: Important information respondents seek on eco-labels Price Section F: Purchase choice – reasons why respondents buy green products Section F: Purchase choice – reasons for not buying green products (Negative association and unavailability of eco-labels and information) Section F: Criteria for buying/not buying textile eco-labelled products KMO 0.840 0.869 0.892 0.772 0.860 0.808 0.827 0.836 0.602 0.808 Percentage of variance 66.561 71.42 60.105 56.689 60.442 59.94 68.424 59.549 65.552 69.668 2 Table 2: Demographic profile of the study population (N = 234) Comment [H1]: Net 234 respondente Variables Total group Gender Number % Male 68 29.1 Female 164 70.1 Missing values 2 0.9 Language Afrikaans 193 82.5 English 20 8.5 African 18 7.8 Missing values

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Letters of confirmation from the Language Editors

P.O. Box 20163
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26 November 2013

Dear Sir/Madam,

Letter of confirmation

This letter serves to confirm that the questionnaire and accompanying e-mail cover page for the Master of Consumer Sciences study by Heleen Dreyer were language edited at her request on 20 April 2013.

Yours faithfully,

Sabrina Raaff

Cell.: 079 697 5047
E-mail: sabrina@greenbadger.co.za

Qualifications:
Master of Arts in Linguistics and Literary Theory
Bachelor of Arts (Honours) in Linguistics and Applied Language Studies
Bachelor of Arts in English Language and Linguistics

Acknowledgement of Language Review

Date: 28 November 2013

To whom it may concern

This serves to confirm that I performed the task of **language review** for **Heleen Dreyer** on her dissertation, entitled: **Consumers' understanding and utilisation of textile eco-labels when making a pre-purchase decision** for submission **November/December 2013**. Final documents with comments for correction before submission were provided by me to **Ms Dreyer on 27 November 2013.**

I, Elsa Laura Diedericks, obtained a post-graduate honours degree in Linguistics and Literature Science (specialising in Translation, Editing and Interpreting) from the University of Johannesburg during 2004. I am a seasoned freelance Language Practitioner with more than 10 years' experience, with various high-profile tertiary education clients, including the University of Johannesburg and North-West University. In addition, I have been a member of the South African Translators' Institute (SATI) since 2003 (membership nr: 1001137) and the Professional Editors' Group (PEG) since 2007.

Should any further particulars be required, please do not hesitate to contact me.

Elsa Diedericks

Language Practitioner | Linguist

ID: 8011130011082

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