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Consumer and Product-Related Factors Impacting on Green Product Purchase Behaviour

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Thesis
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of
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University of the Witwatersrand

Supervisor: Dr Helen Duh

2018

DECLARATION

I, Nombulelo Dilotsotlhe, do hereby declare that this thesis is my own, unaided work. It is being submitted for the Degree of Doctor of Philosophy in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other University.

November 2018

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ABSTRACT

Following the growing environmental, health and social concerns about the impact of marketing activities and consumption, consumers are becoming increasingly conscious of the products they use in their households and the food they eat. Even though this awareness is advancing at a slower pace in South Africa when compared to other countries, South African consumers are nonetheless aware of green products and are buying such products.

'Green products' can be defined as those products which do not pollute the earth or deplete natural resources and which can be recycled or conserved. Despite the awareness and availability of green products, sales of these products are reportedly low, with an estimated market share of less than 4% worldwide as at 2012. Considering the low demand for green products, there is a clear need to study factors that hinder or help the purchase and consumption of such products.

In examining the drivers of green purchase behaviour, the Theory of Planned Behaviour (TPB) has been applied in a variety of pro-environmental, behavioural studies, including research on key factors that influence the intention to consume green products as well as studies on recycling and reducing energy consumption. The findings from these studies have supported the usefulness of the TPB constructs in predicting the intention to go green or to adopt green behaviour. However, the strength of the explanatory power of the TPB model has been widely debated. It has therefore been suggested that more constructs need to be examined in the TPB to improve the variance explained in intention or behaviour. Such constructs could include the different values that consumers enjoy from green products. The Theory of Consumption Values (TCV) has been used to understand such values. However, studies on these values have not examined the product-related factors which help or hinder green product purchase. The Diffusion of Innovation Theory (DOI) addresses product-related factors but has been used chiefly in analysing the adoption of new technologies. Recommendations have therefore been made to test the Diffusion of Innovation Theory in green product purchase behaviour.

Upon defining the research problem, this study integrated the TPB, TCV and DOI to understand the consumer-related and product-related factors driving green appliance (e.g. fridges, heaters, freezers) purchase behaviour among black middle class South Africans. This is particularly

important since studies on green products in South Africa have focused primarily on understanding awareness, perceptions, interest and environmental concerns regarding eco-friendly products or green products and not on how these factors drive green product purchase behaviour. The black middle class was selected because they are considered to be significant in terms of size and spending power and may have the income to purchase green products, which are often considered to be somewhat more expensive.

A structured questionnaire was used to collect data from 500 black middle class respondents residing in Gauteng. Confirmatory Factor Analysis and Structural Equation Modelling were the main data analysis methods. Specifically, Partial Least Squares (PLS) Structural Equation Modelling was used to test the hypotheses after testing and obtaining good construct reliability and validity.

The results indicated that the integrated conceptual model provided a reasonably good explanation of the consumers' attitudes towards green appliances as well as their actual purchase and consumption of the products. All the significant independent variables (functional value, conditional value, epistemic value, relative advantage, compatibility and observability) explained 84.5% of the variance in attitude towards green consumption. Attitudes, social value and perceived behavioural control explained 83.1% of the variance in behavioural intention towards green consumption and behavioural intention explained 24.2% of the variance in adoption behaviour.

This study made a major contribution to the body of literature on green consumption behaviour by presenting and testing an integrated model with the aim of increasing knowledge on green consumer behaviour. This study also identified key predictors of consumers' green product consumption behaviour, enabling practitioners to understand which factors influence black middle class consumers in their decision-making regarding green purchase and consumption. This knowledge will help marketing managers design effective strategies to encourage green consumption behaviour among such consumers. Further studies should, however, investigate the factors which would convert the purchase intention into actual behaviour. The study could be replicated among Generation Y consumers, who are also a large and lucrative market segment in South Africa.

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CHAPTER 1:
INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

There has been an increased global interest in green products, which have shown a remarkable growth in sales over the last ten to twenty years (Koller, Floh and Zauner, 2011:1163). The reasons for this growth, according to Vermeulen and Bienabe (2010:20), revolve around environmental, health and social concerns which are influencing consumer demand. Consumers are thus becoming more concerned about the products they use in their households and the food they eat, not only in terms of intrinsic factors (e.g. chemical residues, environmental contamination and nutritional content) that affect health, but also with regard to broader environmental issues such as the impact on the environment (biodiversity and climate change) and the welfare of animals.

The term 'green products' is defined as products that do not pollute the earth or deplete natural resources and can be recycled or conserved (Shamdasani, Chon-Lin and Richmond, 1993:489; Mostafa, 2007:220). According to Tan (2011a:1766), green products address environmental issues by having characteristics of recyclability, reusability, refillability, long life, degradability or decomposability, high quality in terms of their green performance, energy saving and being made of recycled materials. Green products do not only help the environment; they are also a source of competitive advantage, profitability and a means to tap into the large and growing segment of health and environmentally conscious consumers. To reap the rewards of green products, firms and nations need to be committed to the innovation and production of green products (Olson, 2013:792). In South Africa (SA), for example, significant progress has been made with regards to environmental management in the last decade by implementing laws and strategies that focus on sustainable development and green issues (United Nations Environment Program, 2011:22). A number of South African businesses that in the past assumed that incorporating 'green' into their business strategy would cost money, are now realising that ignoring negative impacts on the environment will, in fact, be costly in the future (Van der Zee, 2008:6).

Green product innovation, production and expected market and financial performance depends on assessing and understanding the market demand for the products (Lin, Tan and Geng, 2013:101) and the factors which drive the adoption of the green product innovation (Olson, 2013:791). This is particularly so because the demand for conventional products still outstrips the demand for green products (Ha and Janda, 2012:462; Kilbourne and Pickett, 2008:887; Olson, 2013:791). According to Gleim, Smith, Andrews and Cronin (2013:46), the estimated market share for green products in the year of 2013, was less than 4% worldwide. These figures confirm the findings of Godelink (2012:1) who maintains that although consumer spending has generally increased for conventional products, the 'green glass ceiling' is still unbreakable and its market share is still very small. There is therefore a clear need to study the factors that either hinder or drive the purchase and consumption of green products, especially in South Africa, where very few studies have been conducted on consumption drivers of green products or on environmentally and ethically friendly products.

Studies in South Africa have focused on understanding the ethical consumer (Hughes, McEwan and Bek, 2015:148), green habits of generation Y consumers (Anvar and Venter, 2014:183), consumer attitudes towards green cosmetics (Beneke, Frey, Deuchar, Jacobs and Macready, 2010:477), consumer perceptions of environmentally friendly packaging (Scott and Vigar-Ellis, 2014:642) and consumer behaviour in relation to green wines (Kruger and Saayman, 2013:63). These studies chiefly assessed awareness, perceptions, habits and knowledge of green products, however, the way in which these factors determine consumers' willingness and actual purchase behaviour is yet to be investigated. Moreover, Lin *et al.* (2013:105) suggest that in today's highly competitive market, green product marketers and innovators need to understand the value that consumers derive from their products to gain competitive advantage and sustain market demand. While Sheth, Newman and Gross's (1991) Theory of Consumption Values (TCV) identifies the types of value consumers may gain from different product categories, Thøgersen, De Barcellos, Perin and Zhou (2015:411) suggest that for green products in emerging markets such as China and Brazil, the value consumers expect to derive from green products will affect their attitudes towards those products. According to the Diffusion of Innovation theory (DOI), it is the product-related factors which drive consumers' attitude towards the products. These attitudes, according to the Theory of Planned Behaviour (TPB), can lead to purchase intention, which is a driver of purchase behaviour.

This study integrated the TCV, DOI and TPB to examine the extent to which consumer- and product-related factors impact on green product purchase behaviour in South Africa. Considering that high household electricity consumption is a growing problem in South Africa, and 80% of middle class consumers use electric cookers and appliances for household cooking, cooling, heating and entertainment (Department of Energy, 2013:13), this study will focus on green household electrical products such as fridges, washing machines, dryers, heaters, stoves, irons and light bulbs.

The South African black middle class was the subject of study as this consumer market segment is said to be growing rapidly in size, influence and income. It also has the largest spending power compared to other South African middle class segments and, most importantly, its expenditure on houses, cars and household technological and electrical products is increasing rapidly (University of Cape Town's Unilever Institute of Strategic Marketing, 2013:1).

Considering the environmental and resource conservation benefits of consuming green products, this study will practically and theoretically contribute by revealing the consumer and product-related factors driving green products attitudes and ultimate purchase intention and behaviour of a large and lucrative market segment, such as the black middle class in South Africa. With this knowledge, marketers would be able to not only promote the appropriate benefits of purchasing green products over conventional products, but also increase their market demand for green products.

1.2 PROBLEM STATEMENT

Numerous studies have been conducted on understanding green purchase behaviour. For example, in Asia researchers (Biswas and Roy, 2015; Kumar, 2012; Chen and Chang, 2012; Wu and Chen, 2014; Lin and Huang, 2012; Huang, Lin, Lai and Lin, 2014; Tan, 2011; Onwezen, Bartels and Antonides, 2014; Chairy, 2012; Zhao, Gao, Wu, Wang and Zhu, 2014) have examined the main determinants of green cosmetic product consumption, recycling, wind energy and influences of culture in green product purchases. In the United State of America, researchers (Matthes, Wonneberger and Schmuck, 2014; Barber, Bishop and Gruen, 2014; Elliott, 2013; Cho, Thyroff, Rapert, Park and Lee, 2013) have looked at the effects of advertising in increasing the purchase of green products, the role of price in green product purchase, consumer perceptions regarding hybrid vehicles and the role of culture in environmental behaviour. In Europe, studies (Vermeir and Verbeke, 2008; Gracia and

Magistris, 2007; Leire and Thidell, 2005; Grankvist and Biel, 2007; Kanchanapibul, Lacka, Wang and Chan, 2014; de Maya, Lopez-Lopez and Munuera, 2011; Paco, Alves, Shiel and Leal Filho, 2013) sought to understand perceptions of customers regarding green products, the influence of cultural values on green product purchase and the importance of eco-labelling in improving sales of green products. These studies have mainly and independently used either the Theory of Planned Behaviour (TPB) or the Theory of Consumption Values (TCV) to understand green products purchase behaviour. However, with the complexity of drivers of purchase behaviour, especially for non-conventional items such as green products, there is a need to integrate theories for a deeper understanding of the phenomenon.

The Theory of Planned Behaviour (TPB) has been applied across a variety of pro-environmental behaviour studies, including understanding the key factors that influence the intention to consume green products (Gracia and Magistris, 2007; Wu and Chen, 2014; Kim and Han, 2010), recycling (Boldero, 1995; Taylor and Todd, 1995) and reducing energy consumption (Sparks, Hindis, Curnock and Pavey, 2014). Findings from these studies have supported the usefulness of the TPB constructs in predicting the intention to go green or to adopt green behaviour. However, the strength of the explanatory power of the TPB model has been widely debated (Eagly and Chaiken, 1993; Conner and Armitage, 1998) and it has been suggested that more constructs should be examined in the TPB to improve the variance explained of purchase intention or behaviour. Thøgersen *et al.* (2015:411) maintain that such constructs may be the different values consumers enjoy from green products.

The Theory of Consumption Values (TCV) of Sheth *et al.* (1991) suggests the types of values which consumers may seek from green products. The TCV has been used extensively in the past in analysing consumer behaviour. In their attempt to understand green behaviour, Lin and Huang (2012:11) used the consumption values to determine the main influencing factor on choice behaviour. Haws, Winterich, Naylor (2014:336) and Suki and Suki (2015:269) examined the impact of green consumption values on protecting the environment. Goncalves, Lourenco, Silva (2016:1484) adopted the TCV in identifying the specific consumption values that can better predict green purchase behaviour. Biswas and Roy (2015:332) and Hur, Yoo and Chung (2012:688) also used the TCV in understanding environmental attitudes, consumer innovativeness in relation to sustainable green consumption. Thøgersen *et al.* (2015:411) suggest that in emerging countries, the purchase of green products is not only rooted in consumer value priorities, but also in how the values drive attitudes towards green products in

the first place. All these studies uncover the various values consumers would have to enjoy in order to develop positive attitudes, go green and act pro-environmentally. However, these researchers did not examine the product-related factors which may drive attitudes and help or hinder green product purchase. The DOI suggests such factors.

The DOI has been widely used to identify aspects of an innovation (such as a product or idea), which helps or hampers the adoption of the innovation. The theory has also been used to predict whether or how a new invention will be successful (Zhu, Dong, Xu and Kraemer, 2006:602; Tan, Chong, Lin and Eze, 2008:227; MacVaugh and Schiavone, 2010:198). Even though the DOI is mainly used to determine the adoption of technological, business-to-business products, a study by Vaccaro (2011:328) demonstrates that the DOI can provide insights into understanding product-related factors driving the adoption of green consumer products. Considering, however, that the intention and actual adoption of behaviour may be first driven by a positive attitude towards the innovation, as the TPB suggests, it is important to integrate both the DOI and the TPB to better understand the process of green product adoption.

In South Africa, studies are needed to understand green products purchase drivers to improve demand. Local research has chiefly focused on assessing the level of awareness, perceptions, interest and environmental concerns regarding eco-friendly products or green products with little insights into how these factors drive green product purchase behaviour. The present study will therefore integrate the TPB, TCV and DOI to provide a holistic look at the consumer and product-related factors driving green product purchase in South Africa. With the growing awareness and interest in green products and green marketing in SA (Dallas, 2015:14), this study will be of value to companies seeking to understand what consumers seek in green products and which aspects of those products will affect their attitudes and ultimate purchase and consumption.

1.3 OBJECTIVES OF THE STUDY

1.3.1 Primary Objective

The primary objective of this study is to investigate the consumer and product-related factors impacting on green appliance attitudes and purchase behaviour among the black middle class in South Africa.

1.3.2 Secondary Objectives

To achieve the primary objective, the following theoretical and empirical secondary goals have been formulated:

1.3.2.1 Theoretical Objectives

- To assess the size of supply and demand of green products globally and in South Africa and the attractiveness of Black middle class as a market for green products
- To review literature on the consumer-related factors that impact on consumers' attitude towards the purchasing of green products.
- To review literature on the various product-related factors that impact on consumers' attitude towards the purchasing of green products.
- To review literature on the extent to which consumers' attitude towards green products can affect their intention and decision to purchase green products.
- To appreciate theories and models explaining green products purchase, and to develop a conceptual model, which delineates how consumer and product-related factors affect attitude towards green products, purchase intention and actual behaviour.

1.3.2.2 Empirical Objectives

- To examine the extent to which functional, emotional, social, conditional and epistemic values (i.e. consumer factors) impact on consumer attitude towards green products.
- To examine the extent to which relative advantage, compatibility, complexity and observability (i.e. product-related factors) impact on attitude towards green products.
- To determine the extent to which green product attitude, social value (subjective norm) and perceived behavioural control affect the intention to buy green products.
- To examine the relationship between the intention to buy green products and the actual behaviour towards green products.
- To empirically test the conceptual model developed to understand the consumer and product-related factors that impact on green product purchase behaviour.

1.4 RESEARCH QUESTIONS

This study seeks to answer the following main question:

→ To what extent do the consumer- and product-related factors impact on attitudes towards green products and the ultimate intention and actual purchase behaviour of black middle class in South Africa?

From this question, the following sub-questions will be addressed:

- What are the impacts of functional, emotional, social, conditional and epistemic values (i.e. consumer factors) on attitudes towards green products among South African black middle class?
- What are the impacts of relative advantage, compatibility, complexity and observability (i.e. product-related factors) on attitudes towards green products among South African black middle class?
- What influence do attitudes towards green products, social value (subjective norm) and perceived behavioural control have on the intention to purchase green products among South African black middle class?
- To what extent does the intention to buy green products affect the actual purchase among South African black middle class?

1.5 PRELIMINARY LITERATURE REVIEW

This section reviews literature on green consumer behaviour. It then discusses a number of theories that are commonly used in understanding green purchase behaviour by consumers. The relevant literature will be drawn from textbooks, journal articles and conference papers.

1.5.1 Overview of Green Consumer Behaviour

An understanding of green consumer behaviour is fundamental for environmental and business reasons. From an environmental standpoint, the reduction of negative effects of consumption is essential to fulfil some of the goals put forth by the international community (Organisation for Economic Co-operation and Development - OECD, 2009; United Nations Environment Programme - UNEP, 2007; 2010). From a business and marketing perspective, the development of less ecologically harmful products is of little use without consumers adopting these greener

technologies and lifestyles. Researchers have also argued that the 'right' purchasing decision has the potential to reduce, and even eliminate, environmental harm in the later stages of the consumption cycle (Cheah and Phau, 2011:503; Vergragt, Akenji and Dewick, 2014:2). However, the consumer behaviour of reducing negative environmental impact (for example, energy conservation and recycling) has received considerably more attention than the consumer behaviour of purchasing green products. The failure to purchase green products, Tseng and Hung (2013:182) suggest, could be attributed to the unavailability of green products. However, even when green products are available, it is necessary to understand the factors helping or hindering green consumer behaviour (Follows and Jobber, 2000:745; Cheah and Phau, 2011:452). Consequently, theories and models have been proposed to understand the drivers of green consumer behaviour.

1.5.2 Diffusion of Innovation Theory

Diffusion of innovation is defined as a process by which an idea, practice or object that is perceived as new catches on among mainstream consumers. It is described as a process by which consumers gain knowledge about the innovation, are persuaded or form attitudes towards the innovation, make a decision to adopt or reject the innovation, use the innovation, and evaluate the results (Rogers, 2003:229).

Rogers (2010:62) posits that every time that an innovation emerges, the act of diffusion occurs, involving a process of communicating or disseminating the information and opinions on that innovation to potential users through a communication channel. Based on this information, the potential adopter then decides to adopt (or reject), and use the innovation to confirm his/her decision. Rogers (2010:10) refers to this process as the innovation decision process and conceptualises five logical steps of this process as depicted in Figure 2.1 (see Chapter 2). The steps in the process are: knowledge, persuasion, decision, implementation and confirmation.

Rogers (2003:232) further states the rate of adoption id affected by factors such as type of innovation decision, communication channels involved, nature of the social system in which the innovation is placed and the extent of the change agents' promotional efforts. Rogers (2003:232) argues that perceived innovation characteristics are an important explanation of the rate of adoption and that most of the variance in adoption rates of (49 to 67%) is explained by five characteristics. The five innovation characteristics are as follows:

Relative advantage – This is described by Rogers (1995:11) as the degree to which an innovation is perceived to be a better idea than the idea it supersedes. For example, a new product that is technologically more advanced and may reduce production costs, may be evaluated as having a relative advantage.

Compatibility – This refers to the degree to which an innovation is perceived as being consistent with existing values, past experiences and needs of potential adopters.

Complexity – This refers to the degree to which an innovation is perceived as relatively difficult to understand and use. The more difficult a product is to understand and use, the less likely consumers are to adopt the product.

Trialability – This refers to the degree to which an innovation may be experimented with, on a limited basis. According to Rogers (1995:12), when users can try an idea in small doses or ease into an innovation gradually, they are more likely to adopt the innovation. This innovation characteristic will be excluded from this study. Previous research on household/domestic solar power systems has excluded trialability, as these products are not considered to be trialable due to their nature (Faiers and Neame, 2006; Tapaninen, Seppanen, and Makinen, 2009a:102)

Observability – This refers to the extent to which the outcomes of an innovation are noticeable to others. The easier it is for potential users to see the results of an innovation, the more likely they are to adopt it.

Although the DOI theory has been widely accepted as a useful theory for studying the adoption of technological innovations, it can also be used to understand the adoption of green products. For example, the DOI has been used to explore factors driving the decision to adopt or reject a green product innovation or stimulate the diffusion of green products (Oliver, 2007:24; Janssen and Jager, 2002:288), consumer purchase motivations for hybrid cars (Ozaki and Sevastyanova, 2011:2218) and modelling of eco-innovation diffusion (Kijek, 2015:67). Another useful theory, which can be used for the understanding of green product purchase behaviour is the TPB.

1.5.3 Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB), as proposed by Ajzen in 1991, is derived from the Theory of Reasoned Action developed by Fishbein and Ajzen (1975). According to the TPB, an individual's specific behaviour is determined by his/her behavioural intention to perform the behaviour. This behavioural intention is in turn determined by three factors related to the behaviour: the person's attitude, subjective norms and perceived behavioural control. Attitude reflects the degree to which carrying out the behaviour is valued positively or negatively by the individual, subjective norm reflects the perceived social pressure to engage with the behaviour and perceived behavioural control reflects the individual's appraisal of his/her ability to carry out the behaviour. In summary, if individuals feel favourable towards a particular behaviour, believe that important people in their lives would approve of them carrying out the behaviour and are confident about their ability to undertake the behaviour, then they are more likely to have a positive intention to engage in the behaviour. This positive intention is in turn associated with a greater likelihood that the behaviour will be enacted. It is also worth noting that in some situations perceived behavioural control is believed to exert a direct effect on behaviour unmediated by intention (Ajzen, 1991:198).

According to Han, Hsu, Lee and Sheu (2011:351), the TPB allows researchers to examine the influence of personal determinants, social surroundings as well as non-volition determinants on intention. The TPB model optimises the potential relationship between intention and its determinants by measuring each construct at equivalent levels of specificity. The TPB has been used to understand organic food choice (Paul and Rana, 2012:415; Davis, O'Callaghan and Knox, 2009:138) and green purchase intentions (Chen and Tung, 2014: 222; Barber, 2010:424). Although the TPB gained empirical support from previous pro-environmental behaviour studies (Dowd and Burke 2013:137; De Leeuw, Valois, Ajzen and Schmidt, 2015:128), it has inherent limitations (Sniehotta, Presseau and Araujo-Soares, 2014:3). The TPB emphasises proximity between intention and behaviour, which renders the operationalisation of the TPB problematic. These limitations notwithstanding, Ajzen (1991:199) maintains that TPB is open to the inclusion of additional constructs that have the ability to demonstrate a significant variance in intention or behaviour.

1.5.4 Theory of Consumption Values (TCV)

The Theory of Consumption Values proposed by Sheth, Newman and Gross (1991a, 1991b) suggests that consumers attach different values to product groups and that these in turn will affect motivations to purchase. Sheth *et al.* (1991) suggest that consumers' choice behaviour of products or services is influenced by five expected values or benefits, namely, functional, social, conditional, emotional and epistemic values.

The five values are explained as follows:

Functional value - also referred to as 'value for money', this is measured by consumers' perception about the product performance with respect to price. It is assessed as the primary driver of consumer choice behaviour with regard to green product purchase (Sheth *et al.*, 1991:172; Biswas and Roy, 2015:464).

Social value – measures perceived utility derived from consumers' association with social groups. Social value for green products can be defined as the perceived net utility derived from green product consumption based on the perception of social pressure or prestige gain through engagement with environmental issues (Sheth *et al.*, 1991:172; Biswas and Roy, 2015:464). This represents the subjective norm in the TPB.

Conditional value – denotes the perceived net utility derived in a specific situation or circumstances faced by the decision maker (Sheth *et al.*, 1991:172; Gadenne, Sharma, Kerr and Smith, 2011:7686).

Emotional value – refers to the perceived utility derived from an alternative capacity to arouse feelings or affective state. (Sheth *et al.*, 191:173).

Epistemic value – refers to the perceived utility resulting from a product or service that stimulates the desire for knowledge and offers novelty (Sheth *et al.*, 1991:173; Biswas and Roy, 2015:464).

Sheth *et al.* (1991b:6) posit that by analysing the values which predominate among a given population regarding a product category, it is possible to discriminate between various offers according to particular value weightings.

The TCV applies only in cases of individual, voluntary and rational or systematic decision situations, and depends on three axioms:

i. Market choice is a function of multiple values;
ii. These values make differential (and incremental) contributions to choice; and
iii. The values are independent (Sheth *et al.*, 1991b:7).

The TCV has been applied by Lin and Huang (2012) in determining the drivers of consumer choice behaviour for green products. Biswas and Roy (2015) also used TCV to examine the consumption values impacting on sustainable consumption behaviour across different consumer segments with preferential green choice. While Lin and Huang (2012) found all consumption values have a positive relationship with the choice behaviour of green products, Biswas and Roy (2015) revealed that social value was the dominant factor in influencing sustainable consumption behaviour adoption among the green consumers. Whether these values will affect South African consumers' attitudes toward green product purchase is one of the aims of this study.

1.6 CONCEPTUAL MODEL AND HYPOTHESIS DEVELOPMENT

This study integrates the components of the DOI, TPB and TCV to develop the conceptual model and hypotheses. This conceptual model proposes that the consumer-related factors (functional, social, emotional, conditional and epistemic values) and product-related factors (relative advantage, compatibility, complexity and observability) are likely to positively influence green purchase behaviour attitudes, which may in turn positively lead to intention to buy and the actual buying of green products. Social value (subjective norm) is likely to positively influence behavioural intention. Perceived behavioural control is expected to influence the intention to buy and the actual purchase of green products.

The Theory of Consumption values developed by Sheth *et al.* (1991:159) focuses on values that explain "why consumers choose to buy or not to buy (or use or not use) a specific product, why consumers choose one product type over another". The Diffusion of Innovation theory of

Rogers (2003:273) is mostly used to study adoption patterns, clarify the mechanism and assist in predicting whether and how a new invention or idea will be successful. The Theory of Planned Behaviour, which was first put forward by Ajzen (1991:197), is one of the classic theoretical models for studying individual behaviour. The theory suggests that an individual's behavioural intention is affected by behavioural attitudes, subjective norms and perceived behavioural control.

A number of studies that have examined the key determinants of green products have integrated the TCV and TPB (de Maya *et al.*, 2011:1773, Lin and Huang, 2012:15; Papista and Krystallis, 2013:83; Jiang and Kim, 2014:308; Biswas and Roy, 2015:336). All of the results from these studies show that the integrated models provided a good relationship of green product purchase attitudes and behavioural intention. In the study by Biswas and Roy (2015:335), their results for testing the integrated model explained 51% variance in attitudes and 53% variance in behavioural intention.

The integrated model of DOI and TPB has been used in numerous studies seeking to understand the important attributes that consumers or potential consumers will consider when buying a new cell phone, hybrid vehicle, alternative fuel vehicle or solar system (Jansson, 2011:196; Ozaki and Sevastyanova, 2011:2218; Karakaya, Hidalgo and Nuur, 2014:393). All these studies showed a good relationship between variables and attitudes towards these above-mentioned products. In the study (Karakaya *et al.*, 2014:393) on hybrid vehicles (also referred to as eco-innovation in the study), the integrated model was found to explain 52% and 49% of the variance in attitudes towards hybrid vehicles and behavioural intention respectively.

It is therefore, the researchers' opinion that the proposed integrated model from three theories is likely to provide a higher explanatory power for attitudes towards green product purchase, intention and actual behaviour than when these theories are used separately or paired.

The next section introduces the research methods used to test the conceptual model.

1.7 OVERVIEW OF RESEARCH METHODOLOGY

The research methodology outlines the procedures that are followed by a researcher when conducting the study (Saunders, Lewis and Thornhill, 2012: 118). This study used the following research methodology described below.

1.7.1 Research Philosophy

A research philosophy refers to a set of assumptions and beliefs that guide an empirical study (Jonker and Pennink, 2010:29). Saunders *et al.* (2012:119) propose three research philosophies – positivism, realism and interpretivism. This study follows a positivistic philosophy. The positivistic philosophy assumes that objective knowledge is acquired through the use of systematic, scientific methods of inquiry (Bryman and Bell, 2011:20). Using theories and models, positivists formulate hypotheses which need to be tested (Saunders *et al.*, 2012:120; Sekaran and Bougie, 2013). Consistent with the positivistic philosophy, this study proposed a set of hypotheses that were verified by collecting quantitative data that were subjected to statistical analysis.

1.7.2 Research Approach

From the inductive and deductive research approaches described by Saunders *et al.* (2012:121), this study subscribed to the deductive approach. While the inductive approach is aimed at developing a theory or a model, the deductive is used to test theories or models. The deductive approach draws inferences from analysed data with the objective of generalising research findings to a broader population (Saunders *et al.,* 2012:121). The deductive approach is consistent with the objectives of this study, which tests relationships between variables as hypothesised in the conceptual model.

1.7.3 Research Strategies

Saunders *et al.* (2012:122) define a research strategy as the overall plan that is followed by a researcher to gather the primary data and answer the research questions. A survey is an appropriate strategy for this study. Survey research involves acquiring information about one or more groups of people about their characteristics, opinions and attitudes, or previous experiences, by asking them questions and tabulating their answers. The ultimate goal is to learn about a large population by surveying a sample of that population (Leedy and Ormrod, 2013:195). According to Neuman (2011:83), surveys give the researcher a picture of what many

people think or report doing and also allow the researcher to explore the characteristics, attitudes and behaviours of the targeted respondents through interviews or a self-administered research instrument.

1.7.4 Data Collection Methods or Designs

The primary data collection was accomplished through a survey using structured questionnaires. It was a face-to-face survey, which produces a higher response rate and is known to generate large amounts of data (Babin and Zikmund, 2016:303). The use of questionnaires during a survey yields essential information which can be generalised to the target population (Saunders *et al.*, 2012:122).

1.7.5 Sampling Design

The target population for this study was the South African black middle class living in Gauteng Province, who have the income and capability of purchasing green appliances. A study conducted by the University of Cape Town's (UCT) Unilever Institute of Strategic Marketing (2013) posits that more than 4,2 million people in South Africa fall within the category of black, middle class, salaried and well-educated people. Gauteng Province is considered to be the ideal setting for this study as more than 66% of the black middle class resides in Gauteng, according to the UCT findings. The UCT findings also indicate that the spending power of this market has increased substantially, from R1,7 billion (approximately, $123 million US dollars) annually in 2004 to over R400 billion (approximately, $29 billion US dollars) annually in 2013. The findings further state that more people are entering the housing market for the first time, spurring construction and resulting in increased demand for household products.

There are two types of sampling techniques, namely, probability and non-probability sampling (Burns and Bush, 2014:262; Saunders *et al.*, 2012:125). Probability sampling is "a sampling technique in which each population element has a known, non-zero chance of being included in the sample" (Iacobucci and Churchill, 2010:285). The non-probability sampling technique, on the other hand, relies on the researcher's judgment to select a suitable population element to form part of the sample (Zikmund and Babin, 2013:305). Probability sampling is constituted by simple random sampling, stratified sampling, systematic sampling and cluster sampling. Non-probability sampling is subdivided into convenience sampling, quota sampling, judgement sampling and snowball sampling (Saunders *et al.*, 2012:125). For the purposes of this study, a

probability sampling technique using simple random sampling was used. This was possible, because the research company that was tasked with the field work had an existing database for the South African middle class from which they could randomly select respondents to participate in the study. Simple random sampling ensures a high degree of representativeness, as it guarantees that every sample of a given size, as well as every individual in the target population, has an equal chance of being selected (Saunders *et al.*, 2012:125).

1.7.6 Determining the Sample Size

The sample size for the study will be determined by using two approaches – the historical evidence method and the requirements of the data analysis method. The historical evidence method determines sample size by benchmarking against previous related studies (Zikmund and Babin, 2010:265). Based on previous similar studies conducted by Arvola, Vassallo, Dean, Lampila, Saba, Lahteenmaki and Shepherd (2008:446), Orten and Atik (2009:822), Thøgersen (2011:1062), Peloza, White and Shang (2013:106), White and Simpson (2013:81), Rajalakshmi (2014:143), Cheung, Lam and Lau (2015: 233), it was found that researchers used sample sizes of between 200 – 400. Based on the requirements of the data analysis methods, as a rule of thumb for robust partial least squares structural equation modelling (PLS-SEM) estimations, it has been recommended that the sample size be equal or larger to ten times the number of structural paths directed at a particular construct in the structural model (Barclay, Higgins and Thompson, 1995: 306). Kline (2011:112) further states that when using confirmatory factor analysis, having fewer than 300 respondents is considered weak, 300 respondents is considered to be good, and 400 to 500 respondents is very good. With this study having thirteen constructs, the sample size of 500 respondents was deemed acceptable for the confirmatory factor analysis and partial least square structural equation modelling that was used to analyse data of this study.

1.7.7 Sampling Procedure

To contact the targeted sample, the researcher used the services of Ramsay Research Media – a research company that has offices in both Cape Town and Johannesburg. For more than ten years, Ramsay Research Media has been collecting large amounts of data for the UCT Unilever Institute of Strategic Marketing for numerous studies involving the black middle class of South Africa. Ramsay Research Media therefore has extensive experience in working with the South African black middle class and they could be contracted to collect reliable data for this study.

1.7.8 Questionnaire Design

Data was collected by means of a self-administered, structured questionnaire. The questionnaire consisted of five sections. A cover letter introduced the purpose of the study and advised the participants of their anonymity, the confidentiality of their response and their right to withdraw from the study at any point in time, should they wish to do so. Section A contained questions that sought biographic information of the respondents using a multi-choice and dichotomous questions. Section B covered questions on consumer-related factors expected to have an impact on attitudes towards green products, such as functional, social, emotional, conditional and epistemic values. Section C covered questions on product-related factors expected to have an impact on attitude towards green products such as relative advantage, compatibility, complexity and observability. Section D questions were designed to measure respondents' perceived behavioural control, attitudes, intention and actual behaviour of green product purchase. A filter question was used to separate current users and non-users of green products. All measurement items in Sections B, C, and D used a seven-point Likert scale anchored by 'strongly agree' (7) and 'strongly disagree' (1). All constructs in Sections B, C and D were operationalised using validated scales from previous similar studies (Beck and Ajzen, 1991; Kim and Choi, 2005; Mostafa, 2009; Han, Hsu and Sheu, 2010; Chen and Peng, 2012; Chen and Chang, 2012) in order to enhance reliability and validity.

1.7.9 Data Analysis

Data analysis is defined as the process of bringing order, structure and meaning to the mass of collected data (De Vos, 2011:335). Descriptive statistics, reliability and validity tests, measurement model and PLS-SEM were used to analyse the data. The descriptive statistics provided the mean, standard deviation and percentages of respondents' responses. They were also used to assess the profiles of the respondents.

A confirmatory factor analysis (CFA) using the partial least squares structural equation modelling technique, with the aid of the SmartPLS version 3.2.7 software, was conducted to evaluate the measurement model. A number of criteria were used to assess the measurement model; these included Factor Loading, Internal Consistency Reliability (Cronbach's alpha and Composite Reliability), Convergent Validity and Discriminant Validity, as suggested by Hair, Hult, Ringle and Sarstedt, 2017). The same program was used to evaluate the structural equation model, which tested for Collinearity Assessment, Coefficients of Determination (R^2)

value, Predictive Relevance (Q^2), identification of the size and significance of the path coefficient and effect sizes (f^2). The hypothesised relationships between the latent constructs in the structural model were also tested.

1.8 CONTRIBUTION OF THE STUDY

This study seeks to make theoretical and managerial contributions. From a theoretical viewpoint, the following contributions will be made:

- The body of knowledge on understanding the drivers of attitudes, intention and behaviour towards green product purchase and consumption will be broadened by conducting the study in a multicultural and socio-demographically diverse country like South Africa (SA).
- This study will not only fill a void of academic information on drivers of green product consumption in South Africa, but will do so among the black middle class, who are a large, lucrative and fast-growing market segment in SA.
- Another theoretical contribution of this study will be to test the explanatory power of integrating DOI, TPB and TCV and in an emerging consumer market.

From a managerial viewpoint, the contributions will be the following:

- Previous research studies have estimated market share for green products to be growing at a very slow pace despite increased awareness of green products. By understanding both the consumer and product-related factors helping and hindering green product purchase behaviour in SA, marketers will ultimately be better equipped with information on the benefits middle class consumers seek from green products and on how they can best position green products for increased adoption, purchase and consumption. This will not only increase sales and profits for the marketers from a large and lucrative market segment like the black middle class in SA, but will be good for the health of the consumer and the general environment. Other global marketers, consumer and environmental interest groups can use the findings for better targeting and positioning for green appliances. These can increase general demand for green appliances.

1.9 ETHICAL CONSIDERATIONS

Ethical issues become crucial whenever human subjects are the focus of investigation. It is expected that the researcher always searches for truth, however, this should not be at the expense of others (Babbie and Mouton, 2008:521; Saunders *et al.*, 2012:226). Babin and Zikmund (2016:89) suggests four ethical guidelines that should be adhered to by the researcher when dealing with respondents. These guidelines are listed as follows:

- Respondents' right to privacy should be preserved;
- Respondents should be assured of confidentiality;
- Respondents should not be deceived regarding the purpose of the study; and
- Respondents' safety should not be compromised.

These guidelines were applied in this study. Furthermore, the questionnaire included a covering letter (Annexure A) which explained the purpose of the study and assured the respondents of their anonymity and confidentiality. The respondents were assured that the collected data would to be used for research purposes only. To ensure anonymity and confidentiality, no names were mentioned in the questionnaires (Babin and Zikmund, 2016:90). The findings of the study were reported in an aggregated format and no personal details of the participants were included in the presentation of results.

In addition to the above, ethical clearance for the study was obtained from the University of the Witwatersrand internal ethics review committee, and a letter of approval authorising the researcher to proceed with the study was received (Annexure C). All data collected from respondents was stored and disposed of in accordance with the rules and regulations provided by the Ethical Review Committee.

1.10 OUTLINE OF THE STUDY

This thesis comprises seven chapters which are outlined below.

Chapter 1 – This chapter introduces the research and states the research problem and objectives. It also introduces the theories and models used to develop the conceptual model and hypotheses and describes the research methods which were used to test the model.

Chapter 2 – This chapter presents an overview of green product marketing, supply and demand. Green conscious consumers and the barriers and opportunities of green product consumption are also discussed. The chapter also discusses why understanding green consumption among the SA middle class is important for this study.

Chapter 3 – This chapter reviews existing literature on drivers that have been found to influence green purchase behaviour.

Chapter 4 – The theoretical models and theories that inform the drivers of green consumption are examined in this chapter. The conceptual model and hypotheses are also formulated in this chapter.

Chapter 5 – This chapter outlines the research methodology of the study. Specifically, it discusses the research philosophy, research design, sampling method and other methods used to obtain the primary data, which was used for the empirical testing of the conceptual model. The chapter also describes the statistical techniques used to analyse the data and test the relationships of the conceptual model.

Chapter 6 – The results of the statistical data analyses are presented and the key findings are highlighted in this chapter.

Chapter 7 – Conclusions and key findings are discussed. Theoretical and practical contributions are presented, as well as limitations of the study and suggestions for future research of the study.

CHAPTER 2:

GREEN PRODUCT SUPPLY AND DEMAND GLOBALLY AND IN SOUTH AFRICA: EXAMINING THE BLACK MIDDLE CLASS AS A MARKET SEGMENT

2.1 INTRODUCTION

The risks and impact of climate change will increase significantly over the next decade (UNEP 2014a), with annual climate change adaptation costs projected to reach US$300 billion by 2050 (UNEP, 2015). Energy consumption, particularly in relation to carbon dioxide emissions, is the major contributor to rising global temperatures and many associated environmental problems (Gardner and Stern, 2002). The promotion and adoption of lower energy consuming lifestyles is therefore imperative for environmental sustainability (Bhate, 2005; Pothitou, Kolios, Varga and Gu, 2016; UNEP, 2015). This is particularly needed in emerging markets such as South Africa, where there are faster electricity demand growth rates (UNEP, 2014b). More so, in emerging markets, the economic aspirations of billions of inhabitants are often facilitated by "unprecedented levels of energy consumption" (Smil, 2013:145). Creating awareness of sustainability concerns and supplying green products to promote the demand and use of green products in emerging markets will therefore be important.

Growing global public awareness of sustainability issues has been widely reported in documents about climate change (e.g. IPCC, 2014; UNEP, 2015) and numerous global initiatives such as the Efficient Appliances and Equipment Partnership (UNEP, 2014b) seek to accelerate the transition to more sustainable consumption behaviour. However, educating consumers about sustainability is challenging, not least because awareness and concerns about environmental issues frequently fail to translate into sustainable behaviours (Figueredo and Tsarenko, 2013). Nonetheless, according to Squires, Juric and Cornwell (2001), and depending on the level of economic development of a country, the demand for organic and green products is increasing. The question, however, is whether the supply of these products is matching the demand, and which consumer segment is the most likely to drive the demand of green products.

This chapter discusses the demand and supply of green products in South Africa and globally. It starts by exploring the concept of green products and green marketing, green product characteristics and how using green products can benefit the consumer and the community at large. It then proceeds to explore the supply of green products, barriers to supply and the size of the green market in South Africa and globally. The discussion moves to exploring the demand for green products and identifying the profiles of green product consumers. The chapter ends with a discussion of the South African black middle class as a potential market for green products, their consumption lifestyle and the attractiveness of the segment for green products purchase.

2.2 THE CONCEPT OF GREEN PRODUCTS AND GREEN MARKETING

2.2.1 What is a Green Product?

The terms 'green product' or 'environmentally-friendly products' usually describe products that protect or enhance the natural environment, the conservation of energy and the reduction or elimination of toxic agents, pollution and waste (Olson, 2013:171). Olson (2013:172) further states that:

> …although no consumer product has a zero impact on the environment, in business, the terms 'green product' or 'environmental product' are used commonly to describe those that strive to protect or enhance the natural environment by conserving energy and/or resources and reducing or eliminating the use of toxic agents, pollution, and waste.

The American Marketing Association (2015:1) defines green products as those which "use less resources, have lower impacts and risks to the environment and prevent waste generation already at the conception stage". This definition emphasises the importance of designing green products, even from the conceptualisation phase.

Peattie (2010:181) feels that a product is green "when its environmental and societal performance, in production, use and disposal is significantly improved in comparison to conventional or competitive products". This means that the environment should be considered at the different life cycle phases of a product. Additionally, Tomasin *et al.* (2013:74) state that "green products are designed to prevent, limit, reduce and/or correct harmful environmental impacts on water, air and soil." Reinhardt (1998:46) explains that environmental product differentiation entails "creating products that provide greater environmental benefits or that impose smaller environmental costs than similar products." Dangelico and Pontrandolfo

(2010:1609) indicate that this definition illustrates how green products are able to generate a lower environmental impact and provide higher environmental benefits compared to conventional products. All these definitions stress the importance of considering environmental factors such as energy, resources, pollution, waste, water, air and soil at every stage of developing, manufacturing, using and disposing of products and services. Examples of some green products in the market are household appliances (microwaves, fridges, kettles, washing machines, hair dryers, heaters) that use less electricity and water; compact fluorescent lamps (CFLs) which use 75% less energy than incandescent bulbs (Energy Star, 2015); organic foods, which are grown and processed without antibiotics, pesticides or synthetic fertilisers (Environmental Protection Agency, 2015); hybrid gas electric vehicles such as Toyota Prius, which uses significantly less fuel than comparable conventional vehicles; and eco-friendly tissue papers and biodegradable detergents (European Commission, 2012b). Thus, in developing these green products, it is important to also create successful environmental strategies and to ensure that companies and economies become environmentally sustainable (Pujari, 2009:76).

2.2.2 Types and Characteristics of Green Products

By studying literature on green product classification, it was discovered that different perspectives are used to classify green products. Dangelico and Pontrandolfo (2010:1609) quote Brezet's (1997) studies that resulted in four different types of environmental innovations which vary in terms of eco-efficiency. As shown in Table 2.1 below, these are i) Product improvement, ii) Product re-design, iii) Function innovation and iv) System innovation.

Table 2.1: Environmental innovation classification system

Type of Innovation	Characteristics
Product improvement	▪ Product improvements from a preventative environmental impact perspective for existing products. Product and production technology are the same.
Product re-design	▪ The product concept remains almost intact. The product and its components are further developed or replaced, for example, by introducing non-toxic materials, improving distribution, recycling or energy efficiency.
Function innovation	▪ Not limited to existing product concepts. The innovation is related to how the function is achieved, for example changing paper-based information sources to e-mail.
System innovation	▪ The complete technological system (product, production chain, infrastructure and related institutions) is replaced by a new system.

Source: Brezet (1997)

These four types of innovation are all environmentally driven but have different characteristics. The first type involves the improvement of products from the perspective of pollution prevention and environmental care. Both the product and production technique will generally remain the same.

With the second type of innovation which involves redesigning the product, the product concept remains the same but parts of the product are improved and replaced for the purpose of using non-toxic materials, recycling and disassembly, improved distribution and energy use reduction with respect to all components over the product life cycle.

The starting point of the third type, functional innovation, is the function of the current product. In this case, the way in which the product fulfils the function is changed. The generation shift from physical products to dematerialised services belongs to this category.

In the fourth type, the system innovation, the entire technological system (product, production chain and associated infrastructure and institutional structure) is replaced. System innovation tends to create a new system, for example, consumption is organised in such a way that the environment does not suffer as a result and other economic rules and principles are applied.

Dangelico and Pontrandolfo (2010:1610) conducted a review of research conducted over two decades on the features of green products. Their review is presented Table 2.2.

Table 2.2: Studies on the characteristics of green products

Authors	Characteristics associated with the 'green' nature of a product
Ljungberg (2007)	▪ Reduce the materials and the use of energy for a product ▪ Reduce emissions, dispersion and creation of toxins ▪ Increase the amount of recyclable materials ▪ Maximise the sustainable use of renewable resources ▪ Minimise the service intensity for products and services ▪ Extend the useful life of a product ▪ Assess and minimize the environmental impact ▪ Having a 'functional economy' ▪ Use 'reverse logistics' ▪ Increase the efficiency in the usage phase
Luttropp and Lagerstedt (2006)	▪ Do not use toxic substances and utilise closed loops for necessary but toxic ones ▪ Minimise energy and resource consumption in the production phase and transport ▪ Use structural features and high-quality materials to minimize weight ▪ Minimise energy and resource consumption in the usage phase ▪ Promote repair and upgrading ▪ Promote long life ▪ Invest in better materials, surface treatments or structural arrangements ▪ Prearrange upgrading, repair and recycling ▪ Promote upgrading, repair and recycling ▪ Use as few joining elements as possible
Roy, Wield, Gardiner and Potter (1996)	▪ Capable of lessening global environmental problems ▪ Energy efficient ▪ Easily repairable ▪ Designed to last, or to be reused, reconditioned or recycled ▪ Generates minimum pollution and waste ▪ Can be disposed of safely ▪ Minimal use of materials, including packaging ▪ Manufactured from renewable or abundant resources or recycled materials ▪ Manufactured, if possible, locally and from locally obtainable materials to reduce transport requirements

	▪ Environmental information on product available to purchase ▪ Not harmful to human health ▪ Satisfies a genuine human need
Shrivastava and Hart (1995)	▪ Low environmental impact during usage ▪ Easily composted, reused, or recycled at the end of their useful life
Robert (1995)	▪ Minimise the use of nonrenewable materials ▪ Avoid the use of toxic materials ▪ Use renewable resources in accordance with their rate of replenishment
Peattie (1995)	▪ Recyclability ▪ Resource efficiency ▪ Emissions ▪ Impact on ecosystems ▪ Social impact ▪ Sustainability of resource use ▪ Waste and disposal ▪ Eco-efficiency of production and organisation
Schmieding (1992)	▪ Eliminate or replace product ▪ Eliminate or reduce harmful ingredients ▪ Substitute environmentally preferred materials or processes ▪ Decrease weight or reduce volume ▪ Produce concentrated product ▪ Produce in bulk ▪ Combine the functions of more than one product ▪ Produce fewer models or styles ▪ Redesign for more efficient use ▪ Increase product life span ▪ Reduce wasteful packaging ▪ Improve reparability ▪ Redesign for consumer reuse ▪ Remanufacture the product
Simon (1992)	▪ Reduced raw material, high recycled content ▪ Non-polluting manufacture/non-toxic materials ▪ No unnecessary animal testing ▪ No impact on protected species ▪ Low energy consumption during production/use/disposal ▪ Minimal or no packaging ▪ Reuse//refillability where possible ▪ Long useful life, updating capability ▪ Post-consumer collection/disassembly system ▪ Remanufacturing capability
Elkington and Hailes (1988)	▪ Not endangering the health of the consumer or of others ▪ Causing no significant damage to the environment during manufacture use or disposal

	▪ Not consuming a disproportionate amount of energy during manufacture, use and disposal ▪ Not causing unnecessary waste, either because of over-packaging or because of an unduly short useful life ▪ No use of materials derived from threatened species or from threatened environments ▪ Not involving unnecessary use or cruelty to animals ▪ Not adversely affecting other countries, particularly the third world

Source: Dangelico and Pontrandolfo (2010:1610)

It is important to note that recent studies (American Marketing Association, 2013; Leonidou, Katsikeas and Morgan, 2013:152) show the same or similar characteristics as described by previous authors in Table 2.1. These characteristics indicate that irrespective of how green products have been classified, their contribution to the environment and their sustainability cannot be underestimated.

2.2.3 Benefits of Green Product Consumption

Green products consumption is beneficial to the environment, the consumer, the economy and business. Environmentally, green products have evolved as a result of the growing concerns about global and local pollution levels, global warming, diminishing natural reserves and overflowing waste (Maniatis, 2015:218). Given these concerns, and according to the facts in Table 2.1, the consumption of green products will undoubtedly protect the environment. For example, green products have been proven to have reduced harmful side effects, reduced hazards, reduced toxic substances, reduced health issues, improved recyclability and improved environmental friendliness (Azevedo, Carvalho and Machado, 2011:851).

Green standards, technologies, and practices in supply chains have benefitted consumers in many ways (Palevich, 2012:63). Over a period, economic gains could also be realised because of the benefits of green products consumption to consumers (Azevedo *et al.*, 2011:851). For example, improved recyclability helps in reducing waste disposal costs (Azevedo *et al.*, 2011:851). The true gains from a green product come from its lifecycle benefits (Zhao, Gao, Wu, Wang and Zhu, 2014:144). Many environmental impacts are caused by using natural resources in massive quantities, hazardous methods of manufacturing, harmful ways of usage, harmful patterns of generating waste and harmful patterns of disposal (Zhao *et al.*, 2014: 143). A green product may be costlier than other comparative products but may have lower lifecycle

costs (Boztepe, 2012:92). For example, the product may be easily recyclable causing little negative impact on the environment (Zhao *et al.*, 2014:143).

Green products, their consumption and marketing also benefit business, especially in terms of providing competitive advantage. Prior studies have found that product and process innovations contribute to a firm's competitive advantages (Chiou, Chan, Lettice and Chung 2011:822; Wong, 2012:469). These advantages, as postulated by Porter (1985), can be gained by differentiation and cost leadership strategies. 'Greenness' is a differentiator because waste and pollution represent an inefficient and incomplete use of resources. Thus, preventing or reducing waste and pollution through green marketing entails better resources utilisation, a lesser burden on the environment and better value to customers (Porter and van der Linde, 1995). While the innovative processes which are green confer cost advantage on a firm over its competitors, innovative green products also enhance firm profitability as products marketed under the green and innovative concept may bring in new customers and fresh revenue (Chiou *et al.*, 2011, Kash and Rycoft, 2000; Lieberman and Montgomery, 1988; Nassimbeni, 2003).

Studies have found that to embark on green innovation early enables a firm to gain first-mover advantage (Porter and van der Linde, 1995). For example, when Sony launched its 'Green Partner' programme in 2005 to restrict the use of hazardous substances by suppliers, only a few component manufacturers could meet this requirement. Those that met the requirement became Sony's preferred suppliers and partners in developing the new green electronics market. This partnership enabled the chosen suppliers to gain first-mover advantages and to grow and develop with Sony in the flourishing green electronics arena. Many of the selected suppliers won orders from other green innovative companies such as Apple and Cisco by leveraging on the partnership status conferred on them by Sony. In the past ten years, the number of green electronic component manufacturers eligible to become Sony's 'Green Partners' continues to expand. The late-movers face an uphill battle of competing against the first- and fast-movers.

Competitive advantage is the result of matching the core competencies of a firm to market opportunities (Porter, 1985). Most firms, after identifying a market opportunity, take their first steps in building up green core competences by initiating green process innovation alongside product development. These steps may typically include activities such as promoting firm-wide learning about green innovation and environmental management trends and regulations,

translating green opportunities into green product features and building up new capabilities and aligning both new and existing capabilities with opportunities (Chen, 2008; Chiou *et al.*, 2011).

Green innovation usually entails changes in technology and raw materials and ultimately provides competitive advantage. For example, before the turn of the century, solder alloys with 40% lead were a primary choice for assembling electronics. Due to the relatively high toxicity of lead to human health and environment, European countries banned the use of lead in electronic assemblies in 2005. The leading component manufacturers responded by realigning their capabilities to facilitate a phased replacement of lead-based with lead-free solders in full compliance with the European requirements (United States Environmental Protection Agency, 2011). For manufacturers which were less capable of mastering the use of lead-free solder, it took them considerably longer to make the process and materials change to catch up with the market. Considering the benefits of green products to businesses, initiatives for green marketing are being forged.

2.2.4 Defining Green Marketing

Green marketing is defined as holistic management for identifying, anticipating and satisfying the requirements of customers and society in a profitable and sustainable way (Choudhary and Gokarn, 2013:27; Stenzel 2011:1). According to Cheung, Lam and Lau (2015:234), green marketing refers to marketing activities developed to stimulate and maintain consumers' environmental attitudes and behaviours. The American Marketing Association (AMA, 2015:2) provides three perspectives of green marketing, viewing it "as the marketing of products that are presumed to be environmentally safe" (retailing perspective), as "the development and marketing of products designed to minimise negative effects on the physical environment or to improve its quality" (social marketing perspective) and also as "the efforts by organisations to produce, promote, package, and reclaim products in a manner that is sensitive or responsive to ecological concerns" (environment perspective). Following the social marketing view, Morel and Kwakye (2012:53) state that that the primary objective of green marketing is to educate customers with an aim of increasing their willingness to go green, because this has an influence on changing the lifestyle and behaviour of potential consumers.

Kotler and Armstrong (2013:453) posit that since marketing is seen as a process whereby the marketing mix (product, price, promotion and place) is used to respond to the needs and wants

of customers while achieving business objectives, many marketers have seen green marketing as simply another way of satisfying consumer needs under the same marketing mix. However, a closer look at the concept of green marketing shows a distinct variation that has transformed traditional marketing thinking (Kotler and Armstrong 2013:454). The term 'green marketing' itself has undergone many changes, with different terminology such as environmental marketing, sustainable marketing and ecological marketing being vaguely used.

The term 'green marketing' surfaced in the 1980s following growing global awareness and concerns regarding the environmental hazards generated from business activities (AMA, 2015). It was in this context that environmentalists began to exert pressure on businesses to minimise the environmental pollution in the production of goods and services. Firms too have responded in equal measure by emphasising and incorporating these environmental concerns in their business activities (Stenzel, 2011:1). Today, the concept of green marketing entails certain fundamental elements. These elements include the marketing of products which are environmentally safe, developing and marketing products to minimise environmental hazards and producing, promoting and packaging products in a manner which protects the environment. All of these are some of the characteristics of green marketing, understood in the present business world context (Cheung *et al.*, 2015:234). On the part of consumers, studies (Manjunath and Manjunath, 2013:75; Thulasimani, 2012:448; Constantinos, Constantine and Neil 2012:153) indicate that green marketing is significant in shaping consumers' attitudes, perceptions and responsibility towards the present environmental situation and pressing environmental problems.

2.2.5 Ways in Which a Firm Can Go Green

A firm has many choices for going green. Figure 2.1 below presents Narula and Desore's (2016:10) pyramid by which a firm can go green. A company may adopt one or many stages in the pyramid. Narula and Desore (2016:10) describes these stages as follows:

Green product development is all about taking into consideration the issues related to environmental concerns, such as environmental safety and health over the product life-cycle with the potential for the product to be re-used or recycled at the end of life (Camison and Lopez, 2012:135). Green product development processes include green practices such as the

design of products for the '3Rs' – re-use, recycle and the recover materials and component parts – as well as the design of products to avoid the use of hazardous materials.

Green manufacturing is a combined set of harmless production processes, which reduce the consumption of resources and generate little or no waste or pollution, and provide a pollution-free environment to consumers, employees and the community (Deif, 2011:1554). Samad (2012:487) maintains that green manufacturing is not an option but a necessity for our wellbeing and survival in today's competitive environment. It aims to reduce the environmental burden and can lead to lower raw material costs, production-efficiency gains, reduced environmental expenses and improved public image through the use of appropriate materials and innovative environmental technologies (Deif, 2011:1554).

Green logistics and distribution are defined as the integration of environmental issues into packaging, transportation and logistics activities (Bose and Pal, 2012:624). Thus, green distribution practices are presented in green packaging and green transportation. Green packaging is the use of environmentally friendly materials and recycled packaging with improved packaging designs and techniques to help companies reduce waste and costs.

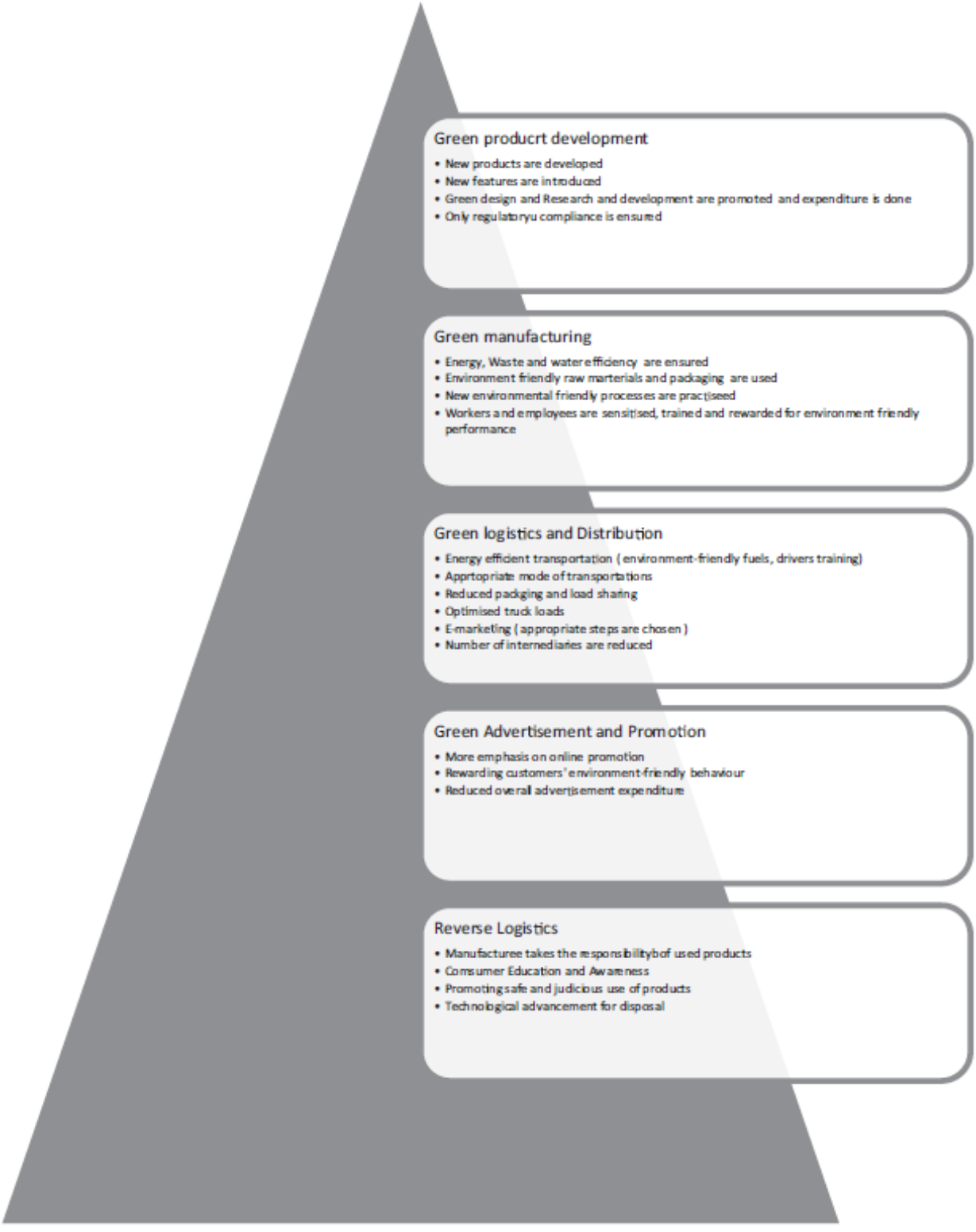
Green advertising and promotion consist of marketing communication that focuses on the ecological features of the products. According to Grimmer and Wooley, 2014:231, customers are often attracted to the green product because of green advertising. Green advertising often compels the consumer to buy a green or eco-friendly product. WOW (word of mouth) is one of the important means of promoting green products and awareness among consumers (Smith, 2012:536).

Reverse logistics is defined as a process of retrieving used products from the point of consumption to the point of origin for possible re-using, recycling and remanufacturing (Hazen, Wu, Cegielski, Jones-Farmer and Hall, 2012:418). It presents the transformation of used products into re-usable products. Reverse logistics practices include collection, inspection, selection, sorting, recycling recovery, redistribution and disposal.

The more the number of stages a company occupies in the pyramid, the greater are the green character of its products and services. A few companies may have an entirely green business

model, which means that they sell only environment-friendly products in an environment-friendly manner. Actually, for a firm, the opportunities range from design and development stage till the consumption and recycling stage (Narula and Desore, 2016:12). Green marketing is not merely about going for environment-friendly production and processes; rather, it also extends to a stage where companies promote the responsible consumption and disposal of their products (Leonidou, Katsikeas and Morgan, 2013:153).

Figure 2.1: The pyramid of green marketing



Source: Narula and Desore (2016:10)

Some companies go green by doing a small modification to the existing product, whereas others may adopt rigorous, environment-friendly processes related to energy, waste and air pollution management and hence are able to save costs. Others may go beyond launching products and adopting various voluntary or non-voluntary standards and ecolabels.

2.3 SUPPLY MARKET OF GREEN PRODUCTS IN SOUTH AFRICA

2.3.1 Green Industry in South Africa

As a developing country, the South African government has demonstrated serious action and commitment to embrace sustainability and the green economy agenda (Department of Environmental Affairs, 2014). A number of firms from diverse sectors have been encouraged to be involved in green practices (Economic Development Department, 2011). Retailers in South Africa play a fundamental role in the green economy, particularly in the supply chain that links consumerism, consumption and demand on resources, with industry and green sustainable products, services and processes. It also allows for sustainability in the green value chain as retailers are decision-makers in the products which they choose to offer for consumption. They can thus choose credible, verified green products and services for their consumers and ultimately influence consumption (Sustainlabour, 2013).

The entry of international players into South African markets has put considerable pressure for the retail sector to join the green economy (PricewaterhouseCoopers, 2012). For many South African retailers, major investments are being made in their supply chains, such as centralised distribution and more advanced IT systems, for the purposes of greater efficiency and increased pressures and competition (PricewaterhouseCoopers, 2012).

There are a number of organisations in South Africa which aim to assist companies to meet the green demand. Cleaner Productions in South Africa is led by the National Cleaner Production Centre of South Africa (NCPC-SA) which is sponsored by the South African Department of Trade and Industry (DTI). The Centre is implementing projects to support a sustainable, competitive green industry and serves as the DTI's key environmental programme (Odendaal, 2011). Through cleaner production techniques, the Centre aims to create competition and productivity nationally, with preventative techniques and measures for processes, services and products aimed at minimising or eliminating waste and pollution, resource optimisation and efficiency (Odendaal, 2011).

2.3.2 Dealers of Green Products in South Africa

Currently in South Africa, the home appliance industry is dominated by appliances which are imported from Germany, China, the United States, the United Kingdom, Japan and Korea (Finlay and Liechti, 2008) and approximately 25 different brands are sold in the local retail sector (Covary, 2013). Defy, LG and Samsung, which are more affordable brands, are considered key role players in this sector (PwC and Economist Intelligence Unit, 2012; Euromonitor International, 2013a) with marketing campaigns that are strongly focused on value for money, aesthetically pleasing, feature-rich and eco-friendly appliances (Euromonitor International, 2013a). Consumers' evaluation and selection of major household appliances can comprise various attributes, which may have a direct or indirect impact on the environment. Washing machines, as an example, may be assessed in terms of wash load capacity, which determines the number of wash loads, water and energy consumption (Sammer and Wüstenhagen, 2006), all of which have significant environmental implications throughout the life span of the product (Otto, Ruminy and Mrotzek, 2006; Laitala, Boks and Grimstad Klepp, 2011).

Over the past few years, appliance manufacturers have endeavoured to incorporate life cycle assessment (LCA) into their product design strategies with other state-of-the-art sensor technology to achieve optimized consumption of energy and resources (Otto *et al.*, 2006). These initiatives have contributed to an increased availability of energy-efficient, eco-friendly product alternatives in the SA medium-to high-end white goods sector (i.e. major household appliances). Furthermore, in an effort to eliminate inefficient appliances on the market and to empower consumers to make informed choices when purchasing appliances (e.g. dishwashers, washing machines, dryers, ovens, hobs, stoves, refrigerators and freezers), the SA government has recently approved a five-year project with a US$13-million budget to implement standards and labelling for appliances that are sold locally (Lazenby, 2012; Covary, 2013). Energy labels are well known among European consumers (Sammer and Wüstenhagen, 2006) and the measures suggested for the SA market are modelled after the European Union standards (Covary, 2013).

2.3.3 Barriers to the Supply and Marketing of Green Products in South Africa

The green market industry in South Africa is still in its infancy and therefore faces a number of challenges and constraints. From the reviewed literature on South African companies (Mvubu,

2016:26; Mvubu and Naude, 2016:277; Pooe and Mhelembe, 2014:1), it was found that some of the barriers include supplier reluctance to change towards green, green manufacturing constraints, lack of information technology implementation, organisations' reluctance to adopt technology advancement, market competition and uncertainty, lack of implementing green practices, lack of top management commitment, initial investment and costs, lack of customer awareness and demand, product recovery constraints and costs related to product recovery, customers' negative perception of remanufactured products and lack of organisation encouragement. These barriers can be grouped into internal and external barriers, as shown in Table 2.3 below.

Table 2.3: Internal and external barriers to supply and marketing of green products

Internal Barriers	External Barriers
Green manufacturing constraints	Supplier reluctance to change towards green
Lack of IT implementation	Market competition and uncertainty
Organisation's reluctance to adopt technology advancement	Lack of customers awareness and demand
Lack of implementing green practices	Customers negative perception about remanufactured products
Lack of top management commitment	
Initial investment and costs	
Product recovery constraints and costs related to product recovery	
Lack of organisation encouragement	

Source: Author's own compilation

Supplier reluctance to change towards green – Sage (2010:137) argues that the reluctance of suppliers to change towards green procurement can be attributed to the traditional attitudes and interests of suppliers, which are dissimilar from those of the entire network. Mvubu and Naude (2016:276) explain that relationships between suppliers and manufacturers are necessary for the development of green product market initiatives. The collaboration between manufacturers and customers is essential to facilitate the manufacturing of environmentally

friendly products. Suppliers have to fulfil the sustainability requirements of the organisations to sustain supplier relationships.

Green manufacturing constraints – According to Ninlawan**,** Seksan, Tossapol and Pilada (2010:64):

> "green manufacturing enhances the product value, which offsets the cost of environmental investments and improves the corporate image of a company, while green product innovation pertains to the evaluation of a product's economical, technical and commercial feasibility".

However, current constraints in green manufacturing involving huge research and development (R and D) cost inhibit the implementation of environmentally sustainable practices in procurement.

Lack of information technology (IT) implementation – According to Ho, Shalishali, Tseng and Ang (2009:83), information technology (IT) systems have the ability to support co-operative supply chain processes and enhance the performance of the supply chain. As a result, it is essential to have an efficient information and technology system in place in order to support green product supply through various phases of the product life cycle. Well-organised information systems are necessary to ensure the effective tracking and tracing of product returns and to link with previous sales (Ravi and Shankar, 2012:77). The development of relationships to attain effective green manufacturing in organisations in South Africa requires IT support. It is paramount to facilitate efficient handling of forward and backward information flows of materials to enable efficient management of green product supply (Alkhidir and Zailani, 2009:85).

Organisations' reluctance to adopt technology advancement – Kannan, Noorul-Haq, Sasikumar and Arunachalam (2008:72) explain that an organisation that is more experienced in adopting and implementing relevant technologies is likely to have greater technological innovation. Advances in technology can be accomplished by ensuring the effective sharing of technological information (Cooper and Schindler, 2011:36). Organisational obstruction leads to difficultly in the execution of essential organisational transformation (Alkhidir and Zailani, 2009:25), which may lead to green product design and production.

Market competition and uncertainty – Lin (2009:193) found that high fluctuations in demand and supply in the market increase global competitiveness, which can pose a

disadvantage for local small companies when competing for the same South African market with big, established foreign companies. Morelli (2011:33) explains that the external environment in which a company operates its business will influence a its innovative ability as well as its attempts to adopt innovations.

Lack of implementing green practices − Lin and Ho (2009:192) expound that innovative practices to ensure a green product supply are connected with the ability of green practices to accumulate understanding and knowledge as well as organisational reinforcement. Designing for the environment is achieved by considering non-harmful, reusable and recyclable resources in the design phase (Ravi and Shankar, 2012:249). The safer discarding of products after effective end of life can be achieved through end of life product management. Inventive and creative green practices consist of disposing of hazardous solid waste, energy conservation, recycling and reusing materials.

Lack of top management commitment − Zhu, Sarkis and Lai (2012:1379) claim that commitment from top management is essential for the execution of any strategic programme. Support from top management is particularly valuable for the accomplishment of green manufacturing. The role of top management is to encourage and effect the application of environmental sustainability (Sarkis, 2012:217).

Initial investment and costs − Prior to the implementation of greening initiatives, a significant financial investment is needed, which is a cost to the company. Traditionally, cost has been utilised as the primary measure of performance. Typically, high costs are a constraint in the implementation of green manufacturing as opposed to conventional manufacturing (Pooe and Mhelembe, 2014:6). There are two types of costs, namely, direct costs and transaction costs. According to Alkhidir and Zailani (2009:47), incurring both types of costs is a major constraint in the implementation phase of green product supply. Enabling IT, adopting technological advancement, recruiting a quality workforce, conducting training programmes requires a considerable initial investment (Alkhidir and Zailani, 2009:47).

Lack of customer awareness and demand − Not all customers are aware of the benefits of environmentally friendly products (Sage, 2010:192). Organisations could create awareness among customers through advertising initiatives on different platforms. However, Ravi and

Shankar (2012:94) explain that government has a role to play, as it should establish awareness campaigns to provide customers with sufficient information on environmentally friendly products and the benefits that can be derived from them. Customer knowledge of environmentally friendly products could encourage them to buy these products, thus improving the reputation of the company and sales volumes (Ravi and Shankar, 2012:94).

Product recovery constraints and costs related to product recovery – Product recovery is defined as "the task of recovering discarded products; it may include packaging and shipping materials and backhauling them to a central collection point for either recycling or remanufacturing" (Alkhidir and Zailani, 2009:82). External pressures compel organisations to reduce costs (Pollock, 2010:8). There are numerous cost implications related to product recovery such as investment in activities and equipment to generate energy, minimise waste and recover obsolete products.

Customers' negative perception of remanufactured products – Customers have a negative perception of products that undergo remanufacturing and recycling (Zhu *et al.* 2012). It becomes a constraint when customers do not regard recycled products as meeting their specified needs. This perception impacts negatively on the sales of recycled products. As a result, organisations are usually reluctant to adopt product recovery initiatives due to a lack of customer demand for such products (Srivastava, 2011:85).

Lack of organisation encouragement – Lin and Ho (2009:47) maintain that informal relations and enhanced communications enable organisations to implement product recovery. According to Ravi and Shankar (2012:67), training and education are a key requirement for accomplishing effective adoption and application of green product supply and marketing practices in any organisation. Top management may support and encourage the workforce to learn more about green practices and offer support by educating themselves about green practices (Tsai and Ghoshal, 2008:114).

2.4 GREEN PRODUCT DEMAND

2.4.1 Green Product Demand Globally

The increasing awareness and concern in the global community about how some products may be profoundly harmful to the environment has led to a higher demand for environmentally friendly products, sustainable business activities and stricter regulations from national governments (de Maya *et al.*, 2011). Indeed, some consumers have reportedly changed their purchase behaviour in favour of producers who sell green products and/or adopt green policies (Abeliotis, Koniari and Sardianou, 2010:153). Environmentally friendly behaviour has become increasingly relevant to countries, companies and consumers alike (Kaufmann, Stagl and Franks, 2009:2581; National Geographic and GlobeScan, 2012). In terms of revenue, Europe is the second largest market for organic foods in the world. According to BioFach (2014), European retail sales of green products (including organic products) in 2014 rose by 7.6% to the value of more than 26 billion euros. Consumers in the European Union spent 23.9 billion euros on green products (BioFach, 2014). With a share of 30% of retail sales, Germany is the biggest green market in Europe followed by France (18%), the United Kingdom (9%) and Italy (8%). From a global perspective, the 28 states of the European Union represent the second largest organic market worldwide with 38% of global retail sales. The US, however, is the leader in green and organic product sales and represents 43% while China occupies the third place with 31% (BioFach, 2014).

The BioFach (2014) report further shows that Europe's biggest green markets include Germany (7.9 billion euros) and Italy (2.1 billion euros). The first market data available for 2015 shows that growth continues in these large markets. In a global context, the United States are the largest market (27.1 billion euros with a per capita consumption of 85 euros in 2014), followed by Germany. Nearly 90% of all consumers in the US, the largest market in the world, would opt in favour of green products if they were priced the same as the non-green alternatives (BBMG Report, 2012). These examples show that ‘green values’ can help differentiate products, but also that there is little doubt about the need to identify market segments that are more willing to purchase organic products.

A number of companies are increasingly aware of the importance of environmentally responsible marketing and are conscious of the increasingly important demands for environmentally friendly products in the Western and developing world (Shandu *et al.*, 2010).

Worldwide, the market for green products is growing steadily (Costantini and Mazzanti, 2012:132), but in many cases, domestic supply cannot satisfy the demand for green products, which creates interesting opportunities for firms internationally (Sarkar, 2013:171; Kumar, Chattopadhyaya and Sharma, 2012:276). Since consumer and consumption behaviour varies across countries, it is worthwhile identifying international market segments that are more interested and willing to choose green products. That way, marketers can understand and respond appropriately to the core needs and wants of the various international consumer segments (Sheth *et al.*, 1991:171).

2.4.2 Size of Green Product Demand in South Africa

The awareness and concern of South African consumers about their social responsibility and their immediate influence on the environment as a result of their purchase behaviour is steadily rising (Bischof and Liebenberg, 2016:176). Consumers are beginning to enlighten themselves as to the perceived advantages of making environmentally responsible choices (Nielsen, 2015). In 2011, the Ogilvy Earth South Africa Sustainability Survey studied the relationship between consumer attitudes towards green products and environmental issues in SA. Their study involved a sample of 800 respondents, mainly residing in Johannesburg and Cape Town. Their results showed that 85% of respondents were willing to boycott a company or brand if they suspected it was acting in an irresponsible or damaging way towards its people, its community or its environment. It was additionally found that up to 76% would be prepared to pay a little more for a product or service that was environmentally friendly.

Another study conducted by Anvar and Venter (2014:183) was conducted to determine the factors influencing attitudes and purchase behaviour of green products in 200 Generation Y consumers in SA. The study also confirmed that the majority of the respondents were willing to buy green products. For the sake of a healthy environment, they were also willing to pay extra cash for them. A study published in the Nielsen Global report (2015), which examined 3000 Millennials from various countries including SA on their concerns for environmental sustainability, found that 75% of the respondents were very concerned about environmental issues and were also willing to pay extra for green products. These respondents also favour reputable brands rather than products from an unknown origin. These studies were consistent with previous literature (Han, 2010:325; Oliver, Volschenk and Smith, 2011:544).

South Africa, as a developing country, has established significantly less groundwork for sustainable behaviour compared to the developed 'first world' countries (Bischof and Liebenberg, 2016: 176). In addition, South African consumers have had comparatively minimal exposure to sustainability execution in contrast with the rest of the developed world (Smith, 2013:94). Scott and Vigar-Ellis (2014:642) state in their research that appropriate education and more extensive enlightenment is required to increase awareness and knowledge of environmental concerns. These researchers state, for example, that knowledge about climate change, environmentally friendly or green products is regarded at the most, to be average among most South African consumers. This is well below the knowledge levels of the developed or first world countries. They also state that the initial phase of obtaining a general dedication from communities in developing countries is to determine the degree of awareness, attitudes and behaviour towards sustainability and also determine what characteristics and attributes consumers would expect to find from environmentally friendly products. This type of study should, however, start by identifying the market segment most likely to be interested in green products.

2.4.3 Profile of Green Product Consumers

Research on green marketing has attempted to profile green consumer segments using various variables (Barverstam and Larsson, 2009:6). In terms of profiling green consumers, the Green Gauge Report (2011), citing data from the Roper Organization (2009), categorises green consumers into five profiles based on environmental attitude. The Roper Organisation's typology traces the roots of green consumerism by classifying consumers as true-blue greens, greenback greens, sprouts, grousers and basic browns (Barverstam and Larsson, 2009:6)

1) The true-blue greens – These consumers strongly believe that their actions have an impact on the environment. They are willing to invest more on green products and willingly engage in ecological activities like recycling and composting. They are the most environmentally conscious consumer group and will make certain they purchase green products only from trustworthy, environmentally conscious companies.

2) The greenback greens – These consumers invest in more expensive green products but are not willing to engage in environmental activities. In order to protect their lifestyle, these consumers only engage in environmental activities through monetary means.

3) The sprouts – These are green consumers who support environmental regulations yet they are less likely to spend more money on green products.

4) The grousers – They believe that it is not their responsibility to solve environmental issues. This consumer group chooses regular products over green products to avoid higher costs.

5) The basic brown – This segment believes that no amount of personal, commercial or political effort can solve ecological problems (Green Gauge Report, 2011).

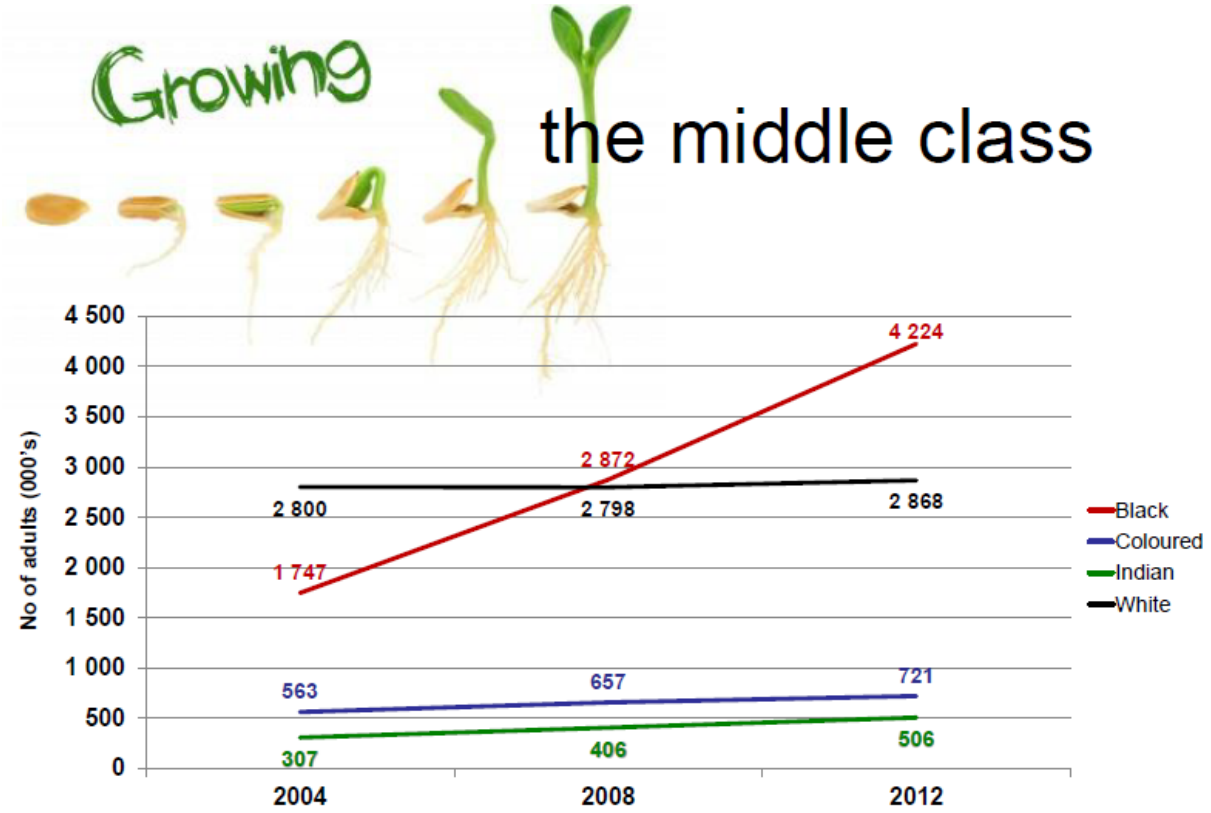
In addition to the five segments described above, Montague and Mukherjee (2010) report that there are some green consumers who want products that will protect or benefit the environment, yet they are unwilling to sacrifice quality or change their lifestyles. Although the Roper Organisation's segmentation provides a framework for profiling green consumers, a study by Baverstam and Larsson (2009:35) reveals that, in practice, effective segmentation of green consumers' needs to take into account the nature of the product and the industry profile rather than the degree of consumer greenness.

2.5 SOUTH AFRICAN BLACK MIDDLE CLASS AS A POTENTIAL MARKET FOR GREEN PRODUCTS

2.5.1 The Size and Income of the South African Black Middle Class

The rise of the black middle class since 1994 has dominated economic and political discourse in South Africa and a number of researchers have written extensively about this (Burger, Steenkamp, van der Berg and Zoch, 2015; Donaldson, Mehlomakhulu, Darkey, Dyssel and Siyongwana, 2013; Bevan-Dye, Garnett and de Klerk, 2012. The middle class, also referred to as the 'Middle of the Pyramid' (Chikweche and Fletcher, 2014: 27), is a new market segment that presents interesting and new opportunities to researchers and marketers. The South African black middle class is seen as the largest driver of growth in the South African economy (Steyn, 2013b), with nearly 65% of black middle class consumers owning their own home (Kroeker, 2014). According to University of Cape Town (UCT) Unilever Institute (2013), the black middle class has grown from a population of 1.7 million in 2004 to 4.2 million in 2012 (as depicted in Figure 2.2 below), with an average income of between R16 000 and R50 000 per month. This increase in the black middle class population has led to an increase in consumption of items such as property, household goods, vehicles and other luxury items.

Figure 2.2: Population size of the middle class in South Africa



Source: www.unileverinstitute.co.za

While there can be no doubt that middle class consumers are a growing segment for varied goods and services, there is little consensus on the definition of the middle class in South Africa's current literature. Traditionally, definitions have been based on the European or American middle class (Kroeker, 2014). The earliest and most prominent definitions of middle class were drawn from Karl Marx (1972) and Max Weber (1961). Marx (1972) defines middle class as shared structural positions within the social organisation of production. His approach is embedded in a social-psychological perspective with class originating from shared interests and economic position. This definition, however, does not integrate social mobility. In the definition of Max Weber cited by Kroeker (2014), the author offers a structural-functionalist view of middle class as shared life chances, with life chances associated with opportunities for generating income in the market. Similar to Marx, Weber also differentiates between those with access to property and land and those without, who have to earn their living through work. For those without property, their education, skills and knowledge determine their market value, their occupation and their wages and in turn, their wages determine the lifestyle that an individual can afford. In this way, economic position is linked to social status and shapes shared

interests and social communities. However, while economic power, social status and political power are often correlated, Weber diverges from Marx by recognising that social status and political power are separate dimensions that are not always aligned with economic position and power. According to Weber, differences in social status can emerge due to ownership of the means of production, but it can also emerge due to other factors such as skills and credentials. Recent definitions of the middle class have centred on individual income and lifestyle (UCT Unilever Institute, 2013; Chikweche and Fletcher, 2014: 28). Irrespective of how the middle class should be defined, their consumption capabilities are attractive and fast-growing in emerging markets such as South Africa (McEwan, Hughes and Bek, 2015) and Brazil (Ariztia, Kleine, das Gracas, Brightwell, Agloni, Afonso, and Bartholo, 2014). Of special note are the fast-growing consumption levels of the South African black middle class (UCT Unilever Institute, 2013), as discussed in the next subsection.

2.5.2 Segments and Consumption Lifestyle of South African Black Middle Class

The Unilever Institute, along with TNS Research Surveys, have been at the forefront of segmenting the black South African middle class, terming them the 'Black Diamonds' (Ndanga, Louw and Van Rooyen 2010: 298). To understand this segment of the market, it is important to know where their journey began and how it evolved (UCT Unilever Institute, 2013). In their latest ground-breaking research, the Unilever Institute held ten focus groups, used Eighty20 analyses of AMPS and other databases, held video interviews as well as workshops with experts and with Ramsay Media Research. From these they obtained over 6 000 respondents (Unilever Institute, 2013). They found that the South African black middle class is not a homogenous group and is thus segmented in four 'super segments'. The segments are defined according to life stage, age, income, occupation and education (UCT Unilever Institute of Strategic Marketing and TNS Research Surveys, 2013).

The Established

This super segment consists of 780 000 wealthy, educated, employed and stable individuals between the ages of 35 and 49, making up 39% of Black Diamonds. The gender division in this group is split 50:50. They are the wealthiest and highest educated of all the Black Diamond segments and 81% have school-going children with just 2% having no children. Almost 91% occupy full-time employment. This segment of the Black Diamonds is further divided into two groups.

i) **The status quo:** This is the oldest group of the 'established' and they have a strong township orientation, living a comfortable and settled lifestyle. The segment consists of 355 000 people, thus 44% of the established segment and 17% of the total black middle class segment. They are the most conservative in the management of their money despite feeling trapped by debt sometimes. They contribute 25% of the black middle class buying power.

ii) **The future focused:** This group consists of 425 000 affluent individuals, with most of them being professionals. They form the majority in the established segment (56%) and contribute 23% of buying power. This group of individuals is optimistic and are driven achievers, with almost half living in suburban areas, of which half owns a house in these areas. They are interested in property and have a strong drive to invest.

Young Families

This group consists mostly of females who have young children below six years of age. They are single mothers between the ages of 25 to 34 years old. Half of this segment is single mothers, who are not as highly educated as the other segments. Their contribution is 20% or R25 billion of the black middle class buying power, whilst only occupying 22% of the black middle class space. They too are further segmented into two groups:

i) **The status quo**: They have a very strong orientation to the township and are the least financial savvy group. Almost 82% of the young mothers live in the township and are the least educated. They contribute only 7% of the Black Diamond buying power. The issues that keep them awake at night are crime and unemployment. Young mothers occupy 55% of this group.

ii) **The future focused**: In this group of 200 000 individuals, 81% live in the township. They are better educated than their status quo counterparts and most work full-time. They are goal-oriented and their future focus is on investment and property ownership.

Start-me-ups

These are youngsters, who are starting out and on the way up the corporate ladder. They are almost 430 000 individuals between the age group of 18 to 29 years. They are mostly single (85%) and childless (100%). They are virtually all employed and this segment is male dominated. Most of these youngsters live in Johannesburg and many can drive a vehicle, despite not owning one. They are estimated to be 21% of the black middle class segment and contribute 19% or R28 billion in terms of buying power. They also constitute two groups:

i) **The status quo**: The 270 000 status quo makes up 63% of the Start-me-ups segment. They are male biased and have strong township roots. Almost 78% of them live in the township and would like to stay in the townships. Even the suburb dwellers have strong township roots. They mostly have customer front-line jobs or their own informal business. Their outlook on life is optimistic although they feel their life is unfulfilled. Their investment orientation is not towards owning property. Despite loving the township, they also have a strong Johannesburg bias. Their education level only goes as far as matric or technical qualification and they are the least educated of the Start-me-ups. Their contribution to the buying power is 11% (R14 billion). Their average monthly personal income is estimated at R4 700 (Opperman, 2010).

ii) **The future focused:** The future-focused segment, which consists of 160 000 individuals, comprises a more even male to female gender split. They mostly live in townships, but want to move to urban areas. They contribute 8% (R11 billion) of the black middle class buying power and have a monthly personal income of R6 000 (Opperman, 2010). They are better educated and because they accessed better education relative to their counterparts, they subsequently occupy better jobs. Most work full-time and they have a sound investment understanding.

Mzansi Youth

This last segment mostly consists of young, single students living with their parents. The segment consists of equal amount of male and female individuals and they are 350 000 individuals with a clear plan for furthering their education. Very few have kids and love the lack of restrictions that the townships offer. They are physically fit and live active lives. Due to their low personal income, they only contribute 3% to the black middle class buying power.

2.5.3 Can the South African Black Middle Class be an Attractive Market for Green Products?

South Africa's black middle class has shown a 38% value growth from R180 billion spend in 2006 to 2007, to a growth of over R250 billion in 2008 and s staggering R400 billion in 2012 (UCT Unilever Institute, 2013). This growth has been stimulated by a combination of political and economic factors, which include better job opportunities, constitutional freedom, greater access to education, relatively low inflation and interest rates and more spending power to buy goods and services (Mahajan, 2011; Visagie, 2013). In 2013, black middle class citizens constituted an estimated 4.2 million South Africans, compared to 2 million in 2005. There is

not only growth from new entrants into the black middle class segment, but also from within its ranks, as people are moving up the ladder and establishing themselves in the middle class (Visagie, 2013). Much of their buying behaviour is future-orientated, largely driven by the need to ensure sustainability of their lifestyle for themselves and the next generations. Many of the day to day products and services they own are in comparison with other middle class members with whom they interact (UCT Unilever Institute, 2013). The products are typically homes, cars, clothing, cell phones and home electrical appliances. Figure 2.3 below shows the growth of home appliance ownership that the black middle class has accumulated from 2004 to 2012.

Figure 2.3: Electrical home appliances owned by the black middle class

Item	Black middle class 2004	Black middle class 2012
Dishwasher	3%	4%
Computer in home	19%	45%
DVD player	30%	63%
Washing machine	24%	58%
Microwave	60%	92%



Source: www.unileverinstitute.co.za

According to previous research findings (Mashaba and Wiese, 2016; UCT Unilever Institute, 2013), it is clear that the South African black middle class is growing and becoming an increasingly important sector of the economy that is already responsible for much of the consumer spending and has also emerged as the strongest buying influence in the South African economy (Visagie and Posel, 2013; Donaldson, Mehlomakhulu, Darkey and Siyongwana, 2013; Mashaba and Wiese, 2016). A few published studies and news articles have also linked the black middle class's increased buying power to the growth of a number of industries in SA

such as organic food (Hughes, McEwan and Bek, 2015; Dubihlela and Ngxukumeshe, 2016), green wines (Kruger and Saayman, 2013; Heyns, Herbst and Bruwer, 2014), increased sales of hybrid cars (Autodealer SA, 2016), organic apparel (Momberg, Jacobs and Sonnenberg, 2012), green cosmetics (Beneke, Frey, Deuchar, Jacobs and Macready, 2010), solar heating for their new homes and local tourism (Deloitte, 2012). This has led to increased economic growth for these industries and generated new employment for the people of South Africa (Fairtrade International, 2014). The value of the middle class to an economy's growth cannot be overestimated. It is an essential factor in sustaining long-term, consistent growth. The middle class is the anchor of any economy because it buys the goods and services that represent the greatest portion of a country's GDP (Ariztia, Kleine, das Grasa, Brightwell and Agloni, 2014:89).

It is thus becoming increasingly important for marketers to come to grips with the different black middle class segments. The sheer magnitude of this segment suggests that marketers would ignore this market at their own peril as there are enormous opportunities available for those marketers who want to grow and be profitable (Visagie and Posel, 2013).

2.6 CONCLUSION

This chapter discussed the concept of green products and green marketing. It also examined the role of green marketing in creating consumer awareness, knowledge and influencing positive attitudes towards these products, and ultimately, purchase decision. A review of prior research revealed that the increased usage of green products can be beneficial to the consumers, the economy and businesses, especially in the attainment of competitive advantage.

The literature review also revealed that even though green products are yet to become popular in South Africa, retailers are increasingly selling green imported electric appliances. Green marketers, according to the literature findings, may encounter a number of challenges both internal and externally. Among these challenges, there could be green manufacturing constraints, lack of management commitment and uncertain customer demand. From the customers' perspective, it was noted that there is an increasing awareness, knowledge, positive attitudes and willingness to pay extra for green or environmentally friendly products. Whether this willingness will ultimately translate into a purchase decision, especially by the lucrative black middle class market, is one of the objectives of this study.

In an attempt to understand the factors that influence green consumption, the next chapter provides a detailed discussion on the drivers and outcomes of green consumer purchase behaviour.

CHAPTER 3:
REVIEW OF DRIVERS OF GREEN PURCHASE BEHAVIOUR

3.1 INTRODUCTION

The previous chapter discussed the concept of green products and the state of supply and demand of green products in SA and globally. The growth and the attractiveness of the South African black middle class as a possible market for green products was also discussed. This chapter reviews literature on the drivers of green purchase behaviour. Increasing the understanding of green consumer purchase behaviour is important for environmental and business reasons. From an environmental perspective, the lessening of negative effects of consumption is vital in order to fulfil some of the goals put forward by the OECD (2009) and the UNEP (2015). From a business and marketing perspective, the development of less environmentally harmful products is pointless unless consumers adopt greener products and lifestyles and purchase the products. It has also been argued that the 'right' purchasing decision has the potential to reduce, and even eliminate, environmental harm in the later stages of consumption cycle (Jansson, Marell and Nordlund, 2010:359). Overall, understanding the drivers of green products purchase from a consumer's perspective is very crucial for marketers (Kim and Chung, 2011:65). It helps to formulate suitable strategies for maintaining and developing markets for green products. Understanding the determinants of consumer's green purchase behaviour may also contribute in eliminating the obstacles in green consumption (Yadav and Pathak, 2017:114).

The chapter first discusses the various definition of green purchase behaviour and thereafter presents a detailed discussion of the reported drivers of green purchase behaviour.

3.2 GREEN PURCHASE BEHAVIOUR AND ITS REPORTED DRIVERS

3.2.1 Defining Green Purchase Behaviour and its Various Facets

The growing environmental problems that society and consumers face are the key reason behind the shift from traditional or non-green purchasing behaviour to greener purchasing patterns (Dagher and Itani, 2014: 189). Mostafa (2007:220) defines green or environmentally friendly buying behaviour as the consumption of environmentally friendly products that are

'sensitive/responsive', 'recyclable/conservable' and 'benevolent/beneficial' to the environment. Steg, Bolderdijk, Keizer and Perlaviciute (2014:104) simply defines green product purchase behaviour as referring to "any action that enhances the quality of the environment".

According to Lai and Cheng (2016:69), green purchasing behaviour refers to buying environmentally friendly products and avoiding products that harm the environment. Dagher and Itani (2014:188) observe that consumers are trying to help improve the environment through green purchasing. However, being environmentally friendly is not the only aim of consumers who engage in green purchasing behaviour; they also purchase green products when they know that such a purchase will bring them immediate benefits (Vermillion and Peart, 2010:68).

Green purchase behaviour has received increasing attention from consumer behaviour scholars, e.g. (Barbarossa and De Pelsmacker, 2016; Chen, 2014; Griskevicius *et al.*, 2012; Mancha and Yoder, 2015; Parsa *et al.*, 2015; Tjärnemo and Dodahl, 2015; Goncalves, Lourenco and Silva, 2016). Stern, (2000) categorise green purchase behaviour as belonging to two categories, i.e. public and private. The public sphere encompasses committed activism (e.g. working in environmental organisations), good citizenship (e.g. petitioning on environmental issues) and support for environmental policies (e.g. stated approval of environmental regulations). Private sphere behaviour, which is the main focus of most consumer research, consists of the purchase, consumption and disposal of personal and household products that impact on the environment (Stern, 2000). Hence the purchase of green or eco-friendly products has the most direct positive impact on environmental problems (Mostafa, 2007:221).

Green purchase behaviour or 'green consumerism' generally refers to purchasing products that are environmentally beneficial (Nguyen, Lobo and Greenland, 2016:99). More specifically, Stern (2000) subdivided such behaviour into two categories according to its environmental impact during the stages of production and consumption. First, green consumerism reflects purchasing practices that consider the environmental impact of future production demand, such as buying organic food or recycled products. Second, it is the purchase of major household goods and services, such as automobiles or household appliances, which tend to have more environmental impact during the consumption stage (Stern, 2000). This latter stage of green purchasing has more of a direct impact on the environment (UNEP, 2015), particularly in

relation to carbon dioxide emissions and climate change. Considering these environmental concerns, researchers are studying factors that can motivate green purchase behaviour.

3.2.2 Reported Drivers of Green Purchase Behaviour

Whenever there is a purchase decision, there is the potential that the final resolution can contribute to a more or less sustainable pattern of consumption. All purchasing actions have ethical, resource, waste and community impact consequences (Young, Hwang, McDonald and Oates, 2010:21). Green purchasing is most often measured as green purchase intention and behaviour. Green purchase intention refers to consumers' willingness to purchase green products. Intentions capture the motivational factors that influence the green purchase behaviour of consumers (Ramayah, Lee and Mohamad, 2010:1420). Green purchase behaviour represents a complex form of ethical decision-making and is considered a type of socially responsible behaviour. As a socially responsible consumer, the green consumer "takes into account the public consequences of his or her private consumption and attempts to use his or her purchasing power to bring about social change" (Moisander, 2007:404).

Several researchers argue that green purchase behaviour is determined by a multitude of factors, depending on type of behaviour and involvement with the product (Huang, Yang and Wang, 2014:252; Jansson, Marell and Nordlund, 2010:369; Lee, 2009:87). In green marketing theory, the drivers of green purchase behaviour are documented as demographic factors (i.e. age, gender, income, occupation, education level and family size); psychological variables (i.e. environmental concern, environment attitude, environmental values and environmental beliefs and norms), group factors (i.e. cultural orientation, ethical orientation and social influence) and environmental variables (media exposure).

3.2.2.1 Demographic Variables

Demographic analysis is one statistical analysis commonly used for segmenting consumers and understanding their green purchase behaviour because of its readily available characteristics (Diamantopoulos *et al.*, 2003). Numerous studies have attempted to identify demographic variables that correlate with green purchase behaviour (Sang and Bekhet, 2015; Zhao *et al.*, 2014; Yuan and Zuo, 2013; Yau, 2012; Bekhet and Al-alak, 2011). Such variables, including age, sex, income and education, if significant, offer easy and efficient approaches for marketers

to segment consumers and identify green purchase behaviours (Verrain, Bartels, Dagevos, Sijtsema, Onwezen and Antonides, 2012:127).

Age

The general belief as to age and consumer behaviour is that younger consumers engage in greener consumer behaviour than older ones, which is supported by many studies (Parment, 2013: 191; Hill and Lee, 2012:488; Han, Hsu and Sheu, 2010:325). The most common argument for this is that those who have grown up in a time period when environmental concerns were a salient issue at some level, are more likely to be sensitive to these issues (Awad, 2011:60). Although there are attempts to predict consumer behaviour by age, Parment (2013:189) notes that a major shortcoming of this approach is its inability to address the intrinsic drivers of purchase and consumption behaviours, hence other demographic variables such as gender are considered.

Gender

Taking gender into consideration, the connection between sex and green consumer behaviour suggests that women display stronger green consumer behaviour than men and this again is supported by many studies (Rezai, Teng, Mohamed and Shamsudin, 2013; Han, Hsu, Lee and Sheu, 2011; do Paço and Raposo, 2010). The theoretical justification for this is that women will consider the impacts of their actions on others more carefully (Braun, 2010:248). However, the foregoing reasoning contradicts the findings of a study by Tan and Lau (2010), which found no significant differences between males and females in green purchase behaviour. Overall, the notion that a typical green consumer is a young woman, well-educated, wealthy and liberal is contested. There is therefore a need to examine why women are more prone to exhibiting green buying behaviour.

Income

Income is another variable that is often considered, as it is generally positively related to green purchase behaviour (Awad, 2011; do Paço and Raposo, 2010). The most common justification for this belief is that individuals can, at higher income levels, bear the marginal increase in costs associated with supporting green causes and favouring green product offerings (Drozdenko, Jensen and Coelho, 2011:112). This view is echoed by Brecard, Hlaimi, Lucas, Perraudeau and Salladarre (2009:117), who argue that budget constraints play a central role in consumer choice between green products and conventional ones, especially given that green products are more

expensive. Rezai *et al.* (2013:15) posit that the income aspect of green purchase behaviour has resulted in 'the willingness to pay' debate. According to Drozdenko *et al.* (2011:112), willingness to pay for green products tends to vary with product category and potential savings emanating from purchase action. Furthermore, Aryal, Pashupati, Sangita and Govinda (2009:19) observe that although consumers are willing to pay a higher price for ecological products, their level of acceptance varies considerably with lack of product information, price sensitivity and green product availability.

Education

In line with income, educational level is generally expected to be positively correlated with green purchase behaviour. Most studies have found a significant and positive relationship between education level and green purchase behaviour (Wahid, Rahbar and Shyan, 2011:41; Gam, 2011:180). The level of education is assumed to have an impact on the formation of favourable attitudes towards environmental issues and environmental knowledge. Also known as 'eco-literacy', environmental knowledge refers to consumer's ability to identify green products and green practices (Cheah and Phau, 2011:456). Eco-literacy encompasses the level of environmental awareness of consumers and creates a sense of obligation to maintain the environment for the sake of future generations (Kumar, 2012:10). Literature indicates that the better-educated consumer tends to score higher on all components of the environmental domain since they understand the issues involved more fully. They are therefore more concerned about environmental quality and more motivated to engage in green consumer behaviour (Polonsky, Vocino, Grau, Garma and Ferdous (2012:242).

Research on environmental knowledge and green behaviours has resulted in contradictory conclusions. Some studies have shown that environmental knowledge is positively related to green consumer behaviours (Polonsky *et al.*, 2012:242; Chen and Phau, 2011:456). The justification for this is that consumers who are more educated and knowledgeable about the problems associated with the deteriorating environment as well as the advantages of using green products may have more positive attitudes toward green products (Ottman, 2011:159). On the other hand, others indicate that there is no significant linkage between environmental knowledge and green consumer behaviours (Levine and Strube, 2012:321; Rahbar and Wahid, 2011:80; do Paco and Raposo, 2009:432).

Based on the foregoing discussion, researchers have only been able to identify a weak relationship between demographic variables and green purchase behaviour (Akehurst, Afonso and Goncalves, 2012). The use of traditional demographic variables, even though important, was characterised as inappropriate for identifying the drivers of green purchase behaviour because of contradicting and inconclusive findings (Yuan and Zuo, 2013; Leonidou, Leonidou and Kvasova, 2010; Diamantopoulos, Schlegelmilch, Sinkovics and Bohlen, 2003). Verrain *et al.* (2012:124) conclude that green purchase behaviour cannot be explained exclusively by demographic factors, but also by psychographic variables.

3.2.2.2 Psychographic factors

Much research on green purchase claims that the behaviour is driven by the consumer's intrinsic disposition towards green products and the value attached to environmental protection (Goh and Balaji, 2016; Biswas and Roy, 2015; Azizan and Suki, 2014). Psychographic variables are therefore regarded as more effective than purely demographic variables in predicting the factors that influence pro-environmental behaviour (Akehurst *et al.* 2012:983; Chen and Phau, 2011:465). Psychographic variables that tend to influence green purchase behaviour can be characterised as environmental attitudes, values, beliefs and environmental concern (Akehurst *et al.* 2012:977).

Environmental attitudes

Attitude plays a strong role in influencing behaviour and thus is necessary in consumer behaviour research (Synodinos, Bevan-Dye and De Klerk, 2013:22; Follows and Jobber, 2000:723). Individuals' attitudes vary from one person to another by being positive or negative; some people can have a mixed attitude towards the subject matter of a place, thing, event or person. As Ajzen (2001) asserts, when a person has an attitude, he/she often judges something based on emotional dimensions, these being either helpful or disastrous, pleasant or unpleasant, likable or dislikeable, good or bad. In other words, it refers to individual interpretations being favourable or unfavourable regarding a certain object. Herein, an object of the attitude refers to the environmental judgments made by consumers and assessed through their perception, affect and willingness to act.

Environmental attitude has been defined as a psychological tendency expressed by evaluating the natural environment with a certain degree of favour or disfavour (Milfont and Duckitt, 2010:81). Similarly, Gupta and Ogden (2009:385) indicate that environmental attitudes are

rooted in the concept of one's self and the extent to which an individual perceives themself as part of nature. According to Ajzen (1991:181), a person will be more likely to perform certain behaviours if he/she has a favourable attitude toward performing the behaviour. Environmental attitude is considered to be a powerful motivator of environmental behaviour (Singh and Gupta, 2013:6; Lee, 2011:35). Positive environmental attitudes are often cited in previous empirical studies linked to support consumers' green product buying decisions among different cultures and samples across the globe. They also involve different categories of products such as cosmetics, clothing, organic food, hybrid and electric cars and electronic equipment (Zsoka, Szerenyi, Szechy and Kocsis, 2013:126; Sheth *et al.*, 2011:22; Chen and Chai, 2010:28; Rashid and Ramli, 2009:132; Mun, 2009; Laroche, Bergeron and Barbaro-Forleo, 2001:503). Laroche *et al.* (2001:518) concede that environmental attitude transcends environmental concerns and environmental knowledge, not only affecting the intention to purchase green products but also as an essential element promoting the individual's willingness to pay more for green products.

Favourable environmental attitudes enable individuals to make environmentally conscious consumption decisions with simultaneous optimisation of value for money, social approval and functional benefits (Biswas and Roy, 2015:332; Tanner and Kast, 2003:884). Consumers' confidence concerning the positive effect of their green product purchases on the environment, along with a personal norm of being morally responsible to protect the environment, has a great influence on their voluntary purchase intention (Milfont, 2012:82; Malhotra and Maheshwari, 2011:2; Chen and Chai, 2010:29). Despite substantial supporting literature, Rodríguez-Barreiro, Fernandez-Manzanal, Serra, Carrasquer, Murillo, Morales, Calvo and Valle (2013:116) in the case of university students, a similar relationship was found to be weak while others found a negative relationship (Cottrell, 2003:348). Stern (2000:408) brought to light that attitude has an important function for the prediction of behaviour when it is not greatly constrained by self-ability or context. The researchers note that attitudes are important with regard to the environment eventually leading to positive green purchase intention, which in turn shapes our actions.

Values, beliefs and norms

Aertsens, Verbeke, Mondelaers and Huylenbroeck (2009:3) state that consumers' values, beliefs and norms need to be considered when examining the influences that affect purchasing decisions. Values are enduring beliefs that a given behaviour is desirable or good, and include valuing the environment. Environmental values play a primary role in pro-environmental

behaviour: values affect people's beliefs, which then influence personal norms that lead to consumers' pro-environmental behaviour (Reser and Bentrupperbaumer, 2005:125; Stern, 2000:407). Although pro-environmental values do not guarantee pro-environmental behaviour, it is likely that pro-environmental values lead to pro-environmental behaviour. Aetsens *et al.* (2009:3) therefore consider values as instrumental in shaping behaviour intentions in a value-congruent manner during the purchase decision-making process.

Using this notion, the Value-Belief-Norm Theory (VBN) (Stern, 2000) was developed and found valid in a wide variety of green consumer (curtailment) behaviour contexts, such as household energy use (Poortinga, Steg and Vlek, 2004:71), conservation behaviour (Kaiser, Hubner and Bogner, 2005:2151) and car use reduction (Eriksson, Garvill and Nordlund, 2006:15). The VBN theory combines value theory (Schwartz, 1992) and norm-activation theory (Schwartz, 1977) in postulating that the relationship between values and actual behaviour is affected by more factors than consumption specific attitudes. These factors are: fundamental values, behaviour-specific beliefs and personal moral norms that guide the individual's actions. Within VBN theory, several types of individually held values have been found to affect green consumer behaviour. The values most strongly related to activating pro-environmental personal norms and thus influencing green behaviours, have been found to be social-altruistic, biospheric and egoistic values (de Groot and Steg, 2008:331; Hansla, Gamble, Juliusson and Garling, 2008:1). The two former values have generally been found to have a positive relation with green consumer behaviours, whereas the latter have been found to have a negative influence (Samarasinghe, 2012:71). Individuals with an egoistic value orientation will mainly consider costs and benefits of green behaviour for them personally, indicating that when the perceived benefits exceed the perceived costs they will behave in an environmentally friendly way and vice versa (Sahin, 2013:271). Individuals with a social-altruistic value orientation will base their green consumer decision on perceived costs and benefits for other people. Finally, individuals with a biospheric value orientation will especially base their decision to act green or not on the perceived costs and benefits for the ecosystem and biosphere as a whole (de Groot and Steg, 2008:352).

In conjunction with values, environmental beliefs are regarded as influential in fostering purchase intentions. In environmentalism, beliefs are captured as an individual's awareness of the implications of behavioural actions for the environment (Wan, Cheung and Shen, 2012:633). Environmental beliefs are formed when an individual is aware of the environmental

consequences of his/her behaviour and takes responsibility for addressing environmental problems (Nordlund and Garvill, 2002:751). Thus, awareness of consequences and ascription of responsibility promote pro-environmental behaviour by alerting individuals to the negative consequences of engaging in behaviours that are detrimental to the environment (De Groot and Steg 2009:426).

Broadly, environmental beliefs are categorised as general and specific (Stern, 2000:416). General beliefs are shaped by traditional wisdom that has to do with the relationship between human beings and the natural environment (Stern, 2000:416). Environmental beliefs are principally influenced either by the harmony-with-nature orientation or by the anthropocentric mindset (Polonsky, 2011:1311). The harmony-with-nature orientation instils a sense of environmental responsibility in individuals and naturally fosters the values of environmental protection (Dietz, Stern and Guagnano, 1998:11). An anthropocentric orientation, on the contrary, regards nature as subservient to human needs and often this mindset results in environmental degradation (Polonsky, 2011:1311).

Alternatively, specific environmental beliefs concern the extent to which individuals perceive the magnitude and existence of environmental problems such as threats of climate change, ozone depletion and global warming (Sinnappan and Rahman, 2011:131). Environmental concern has the potential to trigger favourable attitudes and purchase intentions towards green products (Dietz *et al.,* 1998:11). In terms of purchase behaviour, Zagata (2012:81) observes that beliefs about the healthiness, safety and environmental performance of green products significantly influence purchase intentions. For example, in most developing economies, economic growth takes precedence over environmental considerations and this has the potential of inhibiting the formation of pro-environmental behaviour (Lee, 2008:582).

In order to promote the formation of environmental beliefs, Nordlund and Garvill (2003:345) advise marketers to develop green marketing messages to generate awareness of the negative environmental consequences of behavioural actions and emphasise the seriousness of environmental problems. In particular, the awareness of the consequences of individual behaviour on the environment has the potential to stimulate pro-environmental, personal norms (Jansson *et al.,* 2011:365).

Generally, personal norms are defined as the moral principles that influence an individual to perform or refrain from certain actions (De Groot and Schuitema, 2012:101). In environmentalism, personal norms imply the intrinsic drive of individuals to engage in actions that enhance the well-being of the environment (Wan *et al.,* 2012:633).
In relation to green purchase behaviour, environmental norms are considered as drivers of green product purchase intentions. For example, it has been reported that personal environmental norms prompt the purchase of organic food (Thøgersen, 2015:389; Minton and Rose, 1997:40) and the willingness to pay the premium associated with green products (Nordlund and Garvill 2002:753). It can be inferred, therefore, that the activation of environmental personal norms is central to promoting pro-environmental behaviour.

Based on the foregoing discussion, the continued existence of the value-action and belief behaviour gaps implies the limitations of values, beliefs and norms in promoting pro-environmental behaviour. In an attempt to understand the drivers of green purchase behaviour, another attitudinal factor, environmental concern, is discussed in the following section.

Environmental concern
Environmental concern is a general attitude, which centres on the cognitive and affective evaluation of the object of environmental protection (Bamberg, 2003:21). Hu, Parsa and Self (2010:344) refer to environmental concern as "the degree to which people are aware of problems regarding the environment and support efforts to solve them and or indicate the willingness to contribute personally to their solution".

Existing literature suggests that environmental concern or an individual's concern for the environment is fundamental to understanding intentions to purchase green products (Aman, Harun and Hussein, 2012:165; Haartman and Apaolaza-Ibanez, 2012: 1254; Han, Hsu and Lee, 2009:519). It is considered a global attitude towards preserving the environment (Goh and Balaji, 2016:632). Prior studies suggest that customers' concern for environmental issues may determine their green purchase behaviour. For example, Van Doorn and Verhoef (2011:167) found that customers who have higher levels of concern about the environment are more willing to pay premium prices for renewal energy than those who have low environmental concerns. Hartmann and Apaolaza-Ibanez (2012:1261) showed that environmental concern has a strong influence on customers' intentions to purchase environmentally friendly products. Mostafa (2006:97) demonstrates that environmental concern is positively related to customers'

intentions to purchase green products among Egyptian customers. Similarly, Hartmann and Apaolaza-Ibanez (2012:1254) found that environmental concern has a positive impact on customers' attitude and purchase intentions towards a fictitious green energy brand. Based on Hunt and Vitell's (1986) model, Lu, Chang and Chang (2015:207) showed that the customers who have a positive attitude towards a business are more likely to accept the ethical beliefs of green products and this favourably influenced green buying behaviour. More recently, Newton, Tsarenko, Ferraro and Sands (2015:1974) showed that environmental concerns motivate customers to learn about the outcomes of environmental purchases. Specifically, customers with a high degree of environmental concern were found to be well-aware of the claims made by green products and were actively involved in identifying the additional information to aid in their environmental purchase decisions.

While the above studies indicate that environmental concern is a major determinant of green purchase intentions, contradictory findings have also been reported. For example, Smith and Paladino (2010:94) use the theory of reasoned action in examining the role of various antecedents on attitudes, purchase intentions and purchase behaviours. The authors found that environmental concern did not influence the customers' intentions and behaviour towards green products. Similarly, Hwang (2016:281) did not find that environmental concerns influence the purchase intentions towards organic food in both older and younger consumers. More recently, Yadav and Pathak (2016:124) extend the theory of planned behaviour in examining the antecedents of purchasing organic food among young consumers in a developing economy. Their findings show that environmental concern does not influence the purchase intentions for organic food. While researchers have attributed these inconsistencies in the relationship to a number of external factors including demographics, it is widely accepted that environmental concern has a low to moderate correlation with green purchase intentions (Newton *et al.*, 2015:1980; Kalafatis, Pollard, East and Tsogas, 1999:441). Abeliotis, Koniari and Sardianou (2010:158) found that while 79% of their study respondents indicated engagement in environmental practices, only 20% were willing to make changes in their lifestyle in order to reduce the negative environmental impacts in their everyday activities.

3.2.2.3 Group Factors

Zander, Stolz and Hamm (2013:133) and Lee (2011:306) have identified cultural orientations, ethical ideologies and social influences as the main factors that influence the adoption of environmental buying and consumption behaviour. These factors are discussed below.

Cultural orientations

Culture plays a significant role in environmental impacts and influences the consumption of green products (Tseng and Hung, 2013:174; de Maya *et al.*, 2011:1767). Understanding how cultural orientations affect decision-making and green purchase behaviour is important because consumers around the world have experienced increases in consumption of power, globalisation, megamergers and new technological communications in international retailing (Oliver and Lee, 2010). Since cultural differences are likely to affect the way consumers respond to sustainability efforts (Onwezen, Bartels and Antonides, 2014:240), consumer behaviours across countries need to be understood within a cultural context (De Mooij and Hofstede, 2002).

Cultural models identified by Hofstede (2001) have been used as a theoretical foundation by numerous consumer behaviour researchers, with much of the work focused on the individualism / collectivism construct. The notion of individualism and collectivism illustrates differences in the basic beliefs of individuals with respect to their interaction with others, the priority of group goals and the perceived importance of unity with others. In general, people from individualistic cultures tend to be independent and self-oriented, whereas those from collectivistic cultures are more interdependent and group-oriented. When studied at the cultural level, individualism and collectivism are considered to represent opposite ends of one continuum, and cultures are often described as being either individualistic or collectivistic in their orientation (Millan, Pelsmacker and Wright, 2013:976). At the individual level, however, research suggests that individualism and collectivism represent separate dimensions (Engelen and Brettel, 2011:516). Both individualism and collectivism can exist within the same culture, and a person may possess both individualistic and collectivistic tendencies (Cho, Thyroff, Rapert and Lee, 2013:1053). Different situations may prompt a person to activate individualistic or collectivistic aspects of the self (Pemer, Sieweke, Werr, Birkner and Mohe, 2014:283; Engelen and Brettel, 2011:516). Thus, a person who believes in personal initiative and independence may also value group harmony and sharing.

Many studies (Ritter *et al.*, 2015; Onwezen *et al.*, 2014; Tseng and Hung, 2013; Voldnes, Gronhaug and Nilssen, 2012; de Maya *et al.*, 2011) have investigated the cross-cultural aspect of consumers from individualist and collectivist cultures. Most of the studies have suggested that collectivistic individuals who value group goals and cooperation may be highly motivated to make pro-environmental choices if they have stronger beliefs that their behaviour would make a difference in mitigating environmental problems (Liobikiene, Mandravickaite and Bernatoniene, 2016:38).

According to Peattie (2001:129), consumers in different countries are influenced by different cultural norms and values relating to the environment and society. This may lead to very different patterns of green consumer behaviour (Peattie, 2001:129). Oliver and Lee (2010:97) further posit that differences in consumption, power, economic growth, cultural borrowing and assimilation, convergence of markets and technological advances tend to affect the way consumers respond to their relationships with nature. Considering the limits of cultural orientations, Chan, Wong and Leung (2008:469) suggest the application of ethical practices to understand green behaviour.

Ethical orientations

Environmentally ethical views are the moral relationship between the human race and the natural environment; they provide systematic and comprehensive elucidations towards the world. The primary purpose of environmental ethics is in addressing questions such as whether the ethical relationship between the human race and the natural environment is appropriate, and what is the philosophical foundation between people and nature (Zander *et al.*, 2013:133).

Most literature explores the damage and degradation to the environment. There is little mention of the direct moral relationship between people and nature. At that time, environmental ethics was a fruition principle, i.e. it only had ethical value when people adopted moral positions, and only when other things were also beneficial (Tsai and Tsai, 2008:285). A contemporary exploration of environmental ethics consists primarily of two methods: the New Environmental Paradigm (NEP) of Dunlap and Van Liere (1978), and the General Awareness of Consequence (GAC) of Stern, Dietz and Guagnano (1995). The former postulates that environmental growth has its limits, that humans will cause certain environmental impacts and suggests that people establish a practical world view to avoid ecological disaster. The latter postulates that the effects of human behaviour deemed favourable or detrimental to the environment will affect the extent

to which people will pursue environmental political movements. Regardless of the school of thought or research orientation, those concerned about this issue hope that through ethical discourse, awareness of the function of value perspectives can be increased in human activity and that moral visions can encourage people to protect the environment. Furthermore, decision-making processes should reflect clear value judgments that can be exercised to resolve value conflicts and establish a new global environmental standard (Chen, Kuo and Hsiao, 2004:117).

Social influence

Social influence, which is also referred to as subjective norm, can be explained as a state where someone complies with the expectations of another or considers the information acquired from another as a sign of reality (Joshi and Rahman, 2016:457). In the context of green purchase behaviour, social influence is regarded as a proxy for subjective norm (Wahid *et al.*, 2011:45). Ajzen (1991:181) defines subjective norms as a function of perceived expectations by individuals or groups who are important to the individual and spur the motivation to comply with their expectations. Ottoman (2010:10) found that most green consumers had a high level of trust in others, and they expected others to also engage in green behaviour. Thus, consumers often purchase green products to show their ecological concern to some significant others or the society.

Consumers realise the importance of green products when they interact with others and gather related information (Oliver and Lee, 2010:97). Consumers, as a part of a community or a social group, receive and share information and know what others think of a particular product (Kumar and Ghodeswar, 2015:330). They also evaluate the products based on the comments and opinions of others (Peattie, 2010:195). The comments and opinions of family members are often more influential.

The family is more likely to have an effect on the purchase of green products (Smith and Brower, 2012:541), because it is considered as the primary reference group that shapes the consumption values of consumers (Caruana and Vassallo, 2003:55; Cotte and Wood, 2004:84). For instance, a study by Lee (2011:306) found that the attitudes and purchase intentions of young consumers are influenced by their parents. Within a family setting, parents are considered as the primary socialisation agents of their children as they inculcate and reinforce consumption values and behaviours (Lee, 2014:230). It follows that, based on the values

entrenched during their childhood, young consumers tend to benchmark their product preferences against those of their family.

In the context of green marketing, family is considered a driver of environmental consciousness as it enhances the formation of environmental values and attitudes (Yue, Grebitus, Bruhn and Jensen, 2008:1; Cheah and Phau, 2011:456). At household level, young families are at the forefront when it comes to purchase of green products, with environmental protection being one of the key drivers (Aertsens *et al.*, 2009:1152; Elliott 2013:310; Paul and Rana, 2012:413). Young families are presumed to patronise green products as they are considered to be able to afford the higher prices associated with green products because of their higher levels of disposable income (Gan, Wee, Ozanne and Kao, 2008:100). Although the family is influential in the formation of environmental values and attitudes, consumption of green products tends to change with the change in the family cycle (Riefer and Hamm, 2008:1). For instance, Loureiro and Hine (2002:484) observed that, as the family grows, the willingness to pay for organic products diminishes.

Riefer and Hamm (2008:1) concur that the preference for green products tends to decrease when the family grows, as children develop their own consumption lifestyles. When the children grow up, they tend to form their own clearly defined preferences and tastes (Kumar and Ghodeswar, 2015:330). Besides, consumers are generally attracted towards a product that develops a sense of self for them (Gupta and Ogden, 2009:376) and the way they want to be perceived by others. Thus, social influence is also found to be influential in developing product preferences (Lee, 2008:574).

Consumers tend to buy products that follow the perceptions of the society as well as constructing their own social identities (Ozaki and Sevastyanova, 2011:2218). In an environmentally friendly society, consumers widely perceive that it is reputational and part of a modern lifestyle to behave in an environmentally friendly manner (Cheah and Phau, 2011:456). If they fail to behave in such a manner, they will be perceived as out-dated in society. Environmental friendliness has symbolic meaning of morality, unselfishness, nature-orientation and eco-aspirations. It leads to important functional consequences for consumers, such as pro-social reputation of being trustworthy or valuable companion and status (prestige) (Griskevicius, Tybur and Bergh, 2010:392). Overall, green product purchase decisions communicate eco-friendliness of consumers (self-image) and demonstrate their concerns for

environmental conservation so as to comply with social pressure (social image) (Park and Ha, 2012:388; Oliver and Lee, 2010:102).

A vast number of research studies declare that social influence encourages consumers to purchase green products and is one of the dominant factors influencing sustainable consumption (Biswas and Roy, 2015; Zhao *et al.*, 2014; Lorek and Fuchs, 2013; Wang, Liu and Qi, 2014; Ritter *et al.*, 2015). Vermeir and Verbeke (2008:542) revealed that social influence positively influences behavioural intention towards the purchase of green products. However other authors found that social influence is related to purchase intention insignificantly (Kumar, 2012:42). Lin and Huang (2012:11) claim that social influence does not have a significant impact on choice behaviour. This may occur because some respondents did not feel that 'going green' increased social approval or made a good impression. In view of this, Lee (2011:302), Zhu, Li and Qi (2013:280) contend that environmental factors play a major role in influencing green purchase behaviour.

3.2.2.4 Marketing Factors

A number of researchers (Chan and Lau 2000:340; Lee 2011:301; Kreiddler and Joseph-Mathews 2009:229; Sinnappan and Rahman 2011:132) posit that the main environmental factor that have been found to have positive influence on pro-environmental behaviour is media exposure. This environmental factor is discussed below

Media and advertising appeals

A number of researchers have suggested that the news media plays an important role in informing and shaping public opinion on environmental issues (Ho, Liao and Rosenthal, 2015:77; do Paco and Reis, 2012:147; Zhao, Leiserowitz, Maibach and Roser-Renouf, 2011:716).

Media use generally refers to exposure or attention to the media, which includes traditional media such as television or newspapers as well as the Internet (Huang, 2016:2207). In environmental studies, researchers usually measure people's media use for general, public affairs content or for environment-specific content. Few environmental studies (Yang, Lu, Zhu and Su, 2015:2663; White and Simpson, 2013:73; Kronrod, Grinstein and Wathieu, 2012:95; White, MacDonnell and Dahl, 2011:472) focus on the role of media use, but extant research overall shows positive impact from both types of content (public affairs and environment-

specific) on environmental issues and pro-environmental behaviour. For instance, earlier studies reveal a strong relationship between the coverage of environmental issues and individual-level knowledge and attitudes toward those issues.

Researchers have found that television coverage of the environment increases people's knowledge about the issue (Brother, Fortner and Mayer, 1991:22). News media attention to pollution also affects awareness of the issue with the public (Ader, 1995:301). These studies provide evidence of the indirect effects of media use on the audiences' perceptions and knowledge. Liu, Vedlitz and Alston (2008:379) directly investigate the impact of media use on audiences and find that public affairs and environment-specific media exert a strong influence on people's environmental issue awareness but not on their environmental behaviour. A later study shows that media use has an indirect influence on environmental behaviour through social norms, as coverage of recycling may constitute social pressure and increase people's intentions to recycle waste (do Paco and Reis, 2012:147). Although early research does not show a direct impact of media use on environmental behaviour, recent studies have provided evidence of both direct and indirect effects of media. Researchers found that televised public affairs news and nature documentaries positively predict people's pro-environmental behaviour (Hsu, 2013:1).

The attention of traditional media and the Internet to environmental issues also positively predicts green purchasing and environmental civic engagement (Ho, Liao and Rosenthal, 2015:77). In addition, newspapers and web use have an impact on environmental information seeking (Zhao, 2009:698). Science and environmental news attention positively predict support for emission reduction policies indirectly through perceived global warming risk (Zhao, Leiserowitz, Maibach and Roser-Renouf, 2011:714). Exposure to environmental messages from traditional media and the web also has positive effects on environmental behaviour through environmental value, attitude and intention mechanisms (Lee, 2011:301).

Studies on the use of media have also indicated that using different types of advertising appeals can significantly affect consumers' attitudes and behaviour toward sustainable consumption (White and Simpson, 2013; Kronrod *et al.*, 2012; White *et al.*, 2011). For example, Kronrod *et al.* (2012:97) examine the role of assertive appeals across various environmental contexts, including economising water, reducing air pollution and recycling plastic containers. They found that the appeals' efficacy depends on the perceived importance of the issue at hand.

Specifically, when consumers perceive sustainable consumption as important, they respond better to assertive appeals, whereas when sustainable consumption is viewed as unimportant, they respond negatively to such appeals. White *et al.* (2011) explore how gain and loss appeals can encourage consumers to engage in sustainable behaviour such as recycling. They find that the effectiveness of the appeal type relies on whether a particular mindset is activated. In practice, marketers always use two types of advertising appeals (i.e., abstract and concrete) to motivate consumers' green consumption behaviour. Yang, Lu, Zhu and Su (2015:2664) define abstract appeals as advertising that contains vague wording and describes the features of sustainable products in a vague and unspecific way while concrete advertising appeals include detailed and rich information describing the features of sustainable products in a more concrete and specific way (Leonidou, Leonidou, Palihawadana and Hultman, 2011:6). These advertising appeals are found to be of vital importance to the success of green consumption.

Although the media can have a positive influence in raising public awareness of environmental issues, it is often a challenge for marketers to convince consumers that any communication they undertake in relation to environmental issues represents a genuine commitment to sustainability (Peattie, 2010:198). Lee (2008:582) notes that often, the extensive coverage of the seriousness of environmental problems tends to desensitise consumers' attitudes towards the environment. To promote sustainability, Qader and Zainuddin (2011:244) suggest that media messages need to be coordinated, integrated and scientifically oriented.

3.3 CONCLUSION

This chapter provided a literature review of the drivers of green purchasing behaviour, specifically from a customer perspective. The review of previous studies on green purchase behaviour shows that demographic factors, psychological variables, group/social factors and marketing factors influence green purchase or pro-environmental behaviour. Specifically, some of the drivers identified were environmental attitude, environmental concern, values, beliefs, norms (environmental factors), social influence, cultural and ethical orientations (group factors), age, gender, income and education (demographic factors) and media exposure, price, distribution and perceived product quality (marketing factors). Limited information was available on consumer- and product-related factors explaining green purchase behaviour.

The next chapter will discuss the various theories and models in literature that are used to explain or predict the adoption of green products and to identify any consumer and product-

related factors influencing purchase behaviour. It will also formulate a conceptual model for green product purchase and delineate the hypothetical relationships between the constructs of this study.

CHAPTER 4:
THEORIES AND MODELS EXPLAINING GREEN PRODUCT PURCHASE BEHAVIOUR AND CONCEPTUAL MODEL DEVELOPMENT

4.1 INTRODUCTION

Green consumers are changing the marketplace in significant ways (Vermillion and Peart, 2010:69) and consumers are recognising the enormous impact of their buying behaviour on the environment (Abdul Wahid, Rahbar and Shyan, 2011:38). This raises the importance of green products and creates the essence to empirically examine the consumer- and product-related factors that may increase green products purchasing behaviour.

The preceding chapter presented green purchase behaviour as an imperative for achieving sustainable development. It also demonstrated that the promotion of green behaviour is a complex process with notable variations in drivers of green purchase behaviour across global markets. Despite these complexities, academic research is leaning towards the same view of not only acknowledging green purchase and consumption as a significant tool in enhancing sustainable development, but by also searching for appropriate theories and models to explain green purchase behaviour (Saleki and Seyedsaleki, 2012:101)

The focus of this chapter therefore is to review and provide an in-depth account of prevalent theories and models used to understand the drivers of green products purchase behaviour. The theories and models are also examined in terms of how they explain the extent to which consumer and product factors influence attitudes towards green product purchase. Lastly, and the literature reviewed, the theories and models, the conceptual framework, together with the hypotheses are developed and presented in this chapter.

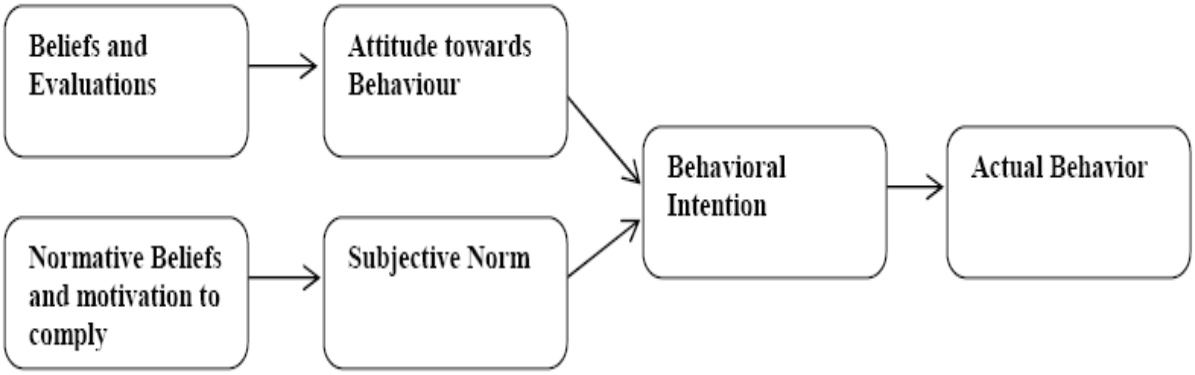
4.2 THEORIES AND MODELS OF PURCHASE BEHAVIOUR DRIVERS

This study considers the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB) and the Theory of Consumption Values (TCV) and the Diffusion of Innovation (DOI) model as theories that assist in understanding green product purchase behaviour. Each of these theories is discussed in turn in the sub-sections that follow.

4.2.1 Theory of Reasoned Action

The Theory of Reasoned Action (TRA) postulated by Fishbein and Ajzen (1975) is a well-established social psychology model that is fundamentally concerned with consciously controlled behaviours (Fishbein and Ajzen, 2010:20). The TRA suggests that human beings are generally rational and will consider the consequences of their actions before deciding whether or not to engage in a behaviour (Fishbein and Ajzen, 1980:40). The TRA, as shown in Figure 4.1 below, explains that the most dominant predicator of an individual's volitional behaviour is the individual's behavioural intention. This behavioural intention is a function of both the attitude that the individual has towards the actual behaviour and the normative influence (subjective norm) associated with the behaviour.

Figure 4.1: The Theory of Reasoned Action



Source: Ajzen and Fishbein (1980:40)

The TRA is often expressed in a simple mathematical function as:

$$BI = (A_B)\, W_1 + (SN)W_2$$

where BI denotes the individual's behavioural intention. This behavioural intention is a function of both A_B (the individual's attitude towards engaging in the behaviour) and SN (the individual's subjective norm related to engaging in the behaviour). The Ws empirically represent the derived weights.

Under the propositions of the TRA, attitude signifies an affective response towards engaging in a given behaviour, and not towards some general attitude object. This attitude is the individual's positive or negative assessment of engaging in a particular behaviour of interest

(Ajzen, 2005:118). This attitude is derived from the Summative Model of Attitude of Fishbein (1967). According to this model, an individual's attitude towards a given behaviour is seen as a salient belief (B) that engaging in the behaviour will subsequently lead to certain outcomes, and an evaluation of the outcomes (E), which is the rating of the desirability of the outcome (Ajzen and Fishbein, 1980:42). This is expressed as:

$$A_B = \sum B_i E_i$$

where A_B is the individual's attitude toward the behaviour, and that attitude is the sum of belief (B_i) and the belief evaluation (E_i).

In the TRA, subjective norm is interpreted as a product of normative belief and the motivation to conform to the normative belief (Ajzen and Fishbein, 1980:42). Normative belief is defined as the behavioural expectations that important referent individuals/groups of the actor will approve or disapprove of the behaviour (Ajzen and Fishbein, 1980:42), and the motivation to conform is the individual actor's overall propensity to act on the wishes of the salient referents (Hagger and Chatzisarantis, 2005:515). Subjective norm is mathematically represented as follows:

$$SN = \sum B_j M_j$$

where B_j is the normative belief or perceived expectation of the important others and M_j is the individual's inclination to comply with the perceived expectation of others. The subjective norm construct implies that individuals' actions are often based on their observation of what other individuals/groups think they should do, and that their intentions to engage in behaviour are potentially influenced by their perceived expectations of people who are important to them.

Over the years, the TRA has proved to be a robust model for explaining and predicting the actual behaviour of individuals (Maio and Haddock, 2010:68). Various scholars have tested and validated the model in different settings, including health behaviours (Bissett *et al.*, 2013; Jönsson *et al.*, 2012), education (Burak, Rosenthal and Richardson, 2013) and marketing and consumer behaviours (Lee, Ham and Kim, 2013). More specifically, TRA has been utilised to

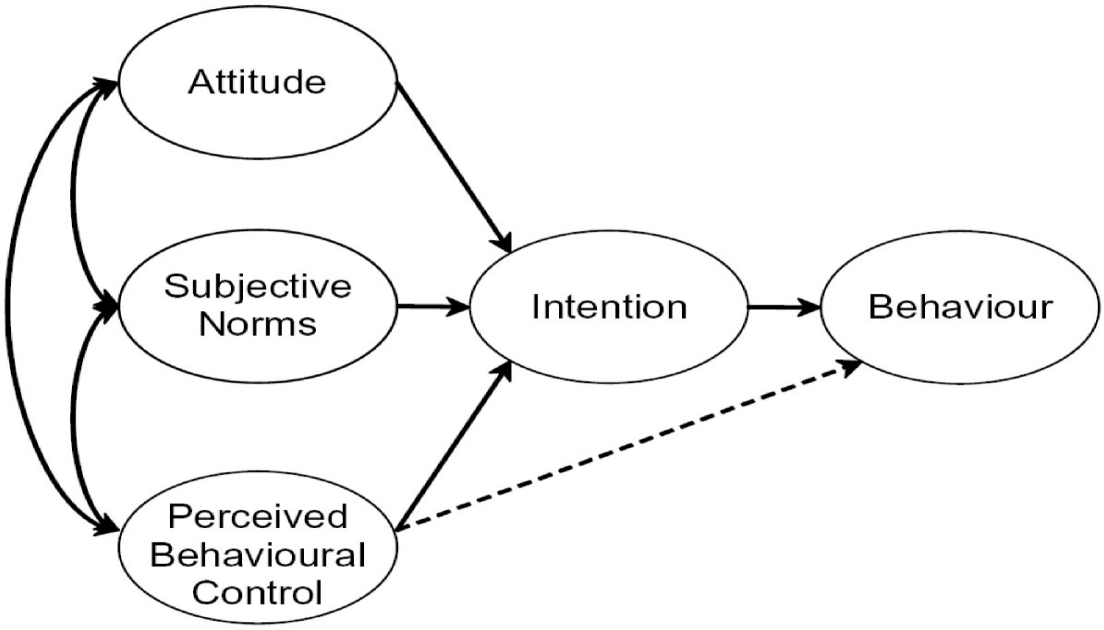
predict the intentions in green marketing areas, such as examining energy conservation and recycling behaviours (Ha and Janda, 2012; Wahidetal, 2011).

In spite of the robustness of the TRA in explaining and predicting the behaviour of individuals, it has been heavily criticised because of its condition of complete volitional control, which is seen as unrealistic (Dillard and Pfau, 2002:32). As a result, the TRA is seen to be inadequate in predicting conditions in which individuals have low levels of volitional control (Ajzen, 2005:117).

4.2.2 Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) postulated by Ajzen (1985), is a logical extension of the TRA, and is designed to compensate for the limitations of the TRA. In particular, it seeks to deal with behaviours over which individuals do not have complete volitional control. As with the TRA, the TPB is contingent on the assumption that human beings are rational and that they directly or indirectly consider the consequences of their actions. In line with this, the TPB postulates that an individual's intention to perform (or not to perform) a given behaviour is the most fundamental determinant of that action (Ajzen, 2005:118). The TPB posits that behaviour (B) is a direct product of behavioural intention (BI) and perceived behavioural control, and that behavioural intention is formed by the individual's attitude (A), which denotes the individual's overall positive or negative evaluation of engaging in a given behaviour, and is postulated to comprise affective (e.g. like/dislike), cognitive (beliefs and ideas) and conative (tendency to act in a particular way) elements. Subjective norm (SN) refers to the individual's perceptions of social pressure from important referents to perform the behaviour. Perceived behavioural control (PBC) refers to the perceived level of control that individuals have over performing the behaviour (Ajzen, 1985; 1991; 2005). Put succinctly, behaviour is a weighted product of intention and perceived behavioural control; and intention is a weighted aggregate of attitude, subjective norm and perceived behavioural control constructs.

Figure 4.2: The Theory of Planned Behaviour



Source: Ajzen (2005:118)

The additions that PBC makes to TPB are crucial, because they pinpoint the personal and environmental factors that influence the performance of a given behaviour (Ajzen, 2005:118). PBC emphasises the belief about availability and access to resources and opportunities that are required in order to engage in behaviour. It encapsulates two dimensions. The first is 'facilitating conditions' (Triandis, 1979:200), which refers to the availability of resources required to perform a particular behaviour, including access to financial resources, time and other specialised resources. The second dimension of PBC is 'perceived self-efficacy', which is derived from the research of Bandura (1977) and associates. This theory holds that individuals' intention to engage in a given behaviour is significantly influenced by the belief in their ability to successfully to accomplish the behaviour in question. The construct of PBC is also hypothesised as a function of a set of control beliefs and the perceived power of these beliefs (Ajzen, 2005:119). Thus PBC is often described as the summation of the control beliefs (cb_k) weighted by perceived facilitating conditions (pf_k) of the control belief in either facilitating or inhibiting the given behaviour. It is mathematically represented as:

PBC = $\sum cb_k\, pf_k$

The schematic representation of the theory highlights two important features of the TPB. First, the TPB proposes that perceived behavioural control has incentivised implications for intention.

Succinctly put, if individuals perceive that they lack the resources and opportunities to undertake certain behaviour, they are unlikely to develop a strong behavioural intention to perform it, even if they form a positive attitude towards the behaviour and also believe that performing that behaviour will be consistent with the expectations of their important referent groups. The second important feature of the TPB is the possibility of a direct connection between PBC and behaviour. The theory assumes that PBC has the ability to influence behaviour through intentions, and can also be used to predict behaviour directly, because it has the ability to assume the role of a proxy or a partial substitute for a measure of actual control.

The TPB has been useful in predicting both consumer intention and behaviour in a wide range of green/pro-environmental areas. It has been validated in several studies investigating recycling behaviours (Wan *et al*., 2012), green hotels and restaurants (Chen and Tung, 2014; Han *et al.*, 2009, 2010; Lee *et al.*, 2013), energy efficient products (Ha and Janda, 2012), green products (Chen and Tung, 2014; Zhou *et al.*, 2013; Chen and Peng, 2012; Han *et al*., 2011; Barber, 2010), organic food choices (Kim and Chung, 2011; Zagata, 2012) proved its applicability and robustness.

The TPB, like previous theories, has limitations. Like the TRA, it emphasises proximity between intention and behaviour, which suggests that precise situational correspondence is still imperative for accurate prediction (Chudry, Foxall and Pallister 2011:135). Moreover, the relationship between belief structures and the antecedents of intention is often criticised for its lack of clarity. For instance, the TPB's constellation of belief structures into unidimensional constructs is often found problematic, as it may not consistently reflect attitude, subjective norm or perceived behavioural control. Also, the belief set describing attitude has been seen as idiosyncratic in the empirical research setting, rendering the operationalisation of the TPB problematic. These limitations notwithstanding, Ajzen (1991:199) emphasises that the TPB is open to the inclusion of additional constructs that have the capability to demonstrate a significant variance in intention or behaviour.

4.2.3 Theory of Consumption Values

Sheth, Newman and Gross (1991) developed the Theory of Consumption Values (TCV) in order to determine whether consumption values influence customers' purchase decisions and how customers decide to purchase or not purchase particular products and services, specifically

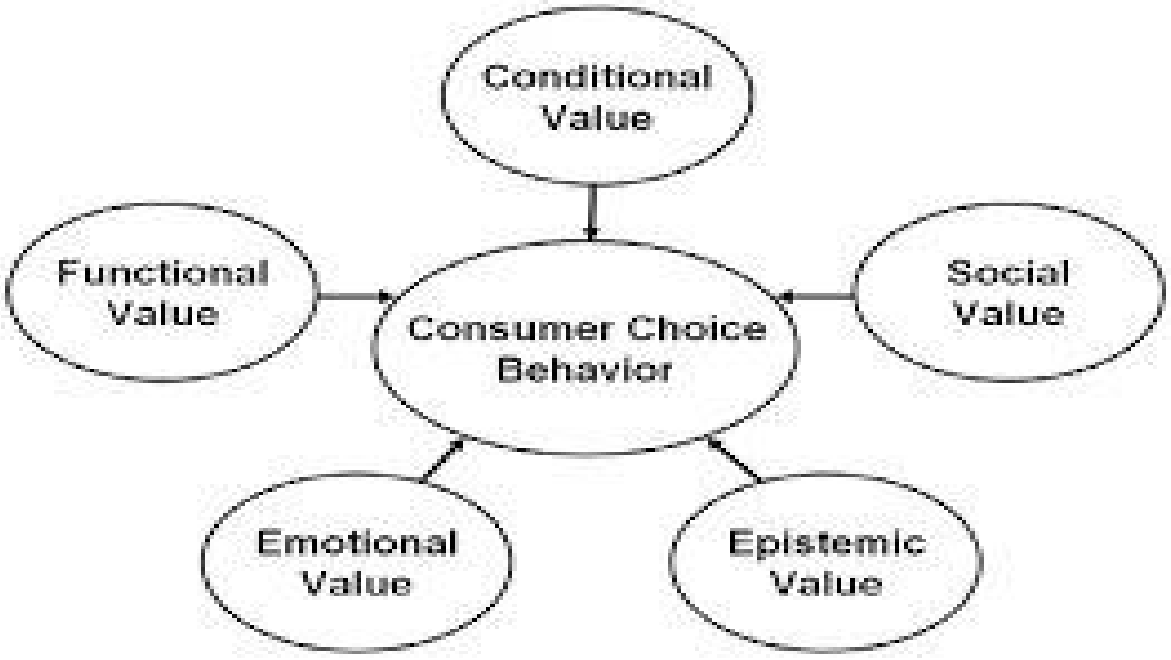
in regard to product type and how brand affects decision-making. This theory assists marketers, researchers and practitioners to understand why consumers behave in a certain way.

The Theory of Consumption Values is based on three axioms:

i. Consumer choices consist of multiple consumption values.
ii. These values make differential contributions in any given choice situation.
iii. The values are independent (Sheth *et al.,* 1991).

Sheth *et al*., (1991) identify five values that impact on consumer choice behaviour. These are depicted in Figure 4.3 below.

Figure 4.3: The Theory of Consumption Values



Source: Sheth, Newman and Gross (1991)

Functional value

Market choice has traditionally been regarded as influenced primarily by functional value. According to Sheth *et al.* (1991a; 1991b), functional value is derived from the perceived utility of the object in the choice situation, and generally relates to attributes such as performance,

reliability, durability and price. A consumer who chooses a product type and brand, and makes a purchase decision based on functional value, would consider whether the functional physical attributes of the product are needed and whether the product possesses the desired functional attributes (Sheth *et al.,* 1991a, 1991b).

Social value

Many market choices are also influenced by social value which is attached to a product from its association with social groups. The attribution of social value occurs most frequently for very visible items of consumption. Market choices such as product type, brand choices and purchase decisions are influenced by social value insofar as consumers perceive that various product classes are either congruent or incongruent with the norms of the reference groups to which they belong or aspire (Sheth *et al.*, 1991a; 1991b).

Emotional value

Market choice may also be based on emotional values related to the alternative's ability to arouse desired emotions. Many products are associated with or facilitate the arousal of specific emotions or feelings. Emotional value relates to the individual's affective response to the product (Sheth *et al.*, 1991a; 1991b). Again, all three levels of market choice – purchase decision, product type and brand – may be influenced by the individual's emotional response to the product.

Epistemic value

Market choices can also be based on the ability of alternatives to satisfy curiosity, knowledge and novelty needs (Sheth *et al.*, 1991a; 1991b). Epistemic value is the need to obtain a product in order to satisfy curiosity, novelty or knowledge-seeking. A brand name or a type of product selected according to its epistemic value may be anything perceived by the consumer as new or different. A purchase decision may also be made because the consumer is bored, even though satiated with her or his current brand; is curious about a potential experience; or desires to learn more about the alternatives.

Conditional value

Finally, conditional value is a need attributed to an object through circumstance of use. According to Sheth *et al.* (1991a; 1991b), the conditional value is defined as the perceived

utility acquired as a result of the specific situation or the context faced by the choice maker. Thus, conditional value often influences the choice maker to deviate from their typical or planned pattern of behaviour.

The Consumption Value Theory of Sheth *et al.* (1991a; 1991b) has been used by researchers to explain various consumer attitudes and behaviours. For example, Turel, Serenko and Bontis (2010) applied this theory as a means of explaining consumer decisions for the use of hedonic digital artefacts. Lin and Huang (2012) used this theory to determine the influence factors on consumer choice behaviour for green products. Biswas and Roy (2015) studied the impact of consumption values on sustainable consumption behaviour across different consumer segments with preferential green choice approach.

The second axiom of Sheth *et al*. (1991) theory of differential contributions of the consumption values posits that the five values make different contributions dependent on the choice situation. In some choice situations some values contribute more than others.

The third axiom of Sheth *et al*. (1991) theory of independence among values sees the inter-correlations between the five values being very low. Sheth *et al.* (1991a) argue that their consumption values relate additively and contribute incrementally to choice.

The model is limited to choice by the individual and only addresses choices which are systematic and voluntary. Sheth *et al.* (1991a) maintain that random or stochastic choices are not uncommon in market choices but claim that this is largely confined to choice situations of low importance or little significance to the consumer. The model requires that there be some degree of deliberation in decision-making, with the decision being of some importance to the consumer. The model is also only suitable for voluntary decisions, thereby excluding mandatory or involuntary decisions.

Sheth *et al.* (1991a) cite the eclectic nature of their consumption value model as a major strength. The model draws upon research in economics, sociology and psychology. Whilst the model is based on varied research, it remains both comprehensive and parsimonious.

4.2.4 Diffusion of Innovation Model

The Diffusion of Innovation (DOI) model describes "the process by which innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2010:35). This definition contains four key elements of the diffusion, namely, i) the innovation, ii) the communication channel(s), iii) time, and iv) the social system. For the adopter (individual or other unit of adoption), an innovation is seen as "an idea, practice, or object that is considered as new" (Rogers, 2010:35). It can thus be new to the market, re-introduced, or modified from the original purpose (Rogers, 2010:11). In order for an innovation to be diffused rapidly among potential adopters, it must possess certain characteristics. The perception of these characteristics by potential adopters determines its rate of adoption (Rogers, 2010:14). In the classical DOI model, Rogers (2010:15) identifies five characteristics of an innovation that influence its adoption. These are described below.

Relative advantage – "the degree to which an innovation is perceived to be a better idea than the idea it supersedes" (Rogers, 2010:15). The fact that an innovation does indeed have an objective, relative advantage is not enough. What is necessary is that the innovation be *perceived* as advantageous. According to Rogers (2010:15), the more that individuals or adopting units perceive the innovation to be highly beneficial, the greater the likelihood of the innovation being adopted.

Compatibility – "the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (Rogers, 2010:15). An innovation that is inconsistent with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible.

Complexity – "the degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers, 2010:16). Complexity in this case is analogous to the level of mental or physical effort that an individual exerts in attempting to use the innovation. Innovations that are easier to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understandings.

Observability – "the extent to which the outcomes of an innovation are noticeable to others" (Rogers, 2010:16). The easier it is for potential users to see the results of an innovation, the more likely they are to adopt it.

Consequently, innovations that are perceived by potential adopters as having superior relative advantage, compatibility, observability and less complexity are adopted more rapidly than innovations that do not (Rogers, 2010:16). These five characteristics have been extensively applied by many researchers to examine the awareness and acceptance of green innovations and sustainable/eco-friendly products (Ozaki and Sevastyanova, 2011; Jansson, 2011; Islam and Meade, 2013; Olson, 2013; Kapoor, Dwivedi and Williams, 2014)

The next element of Rogers' DOI model is the category of communication channel. Rogers (2010:17) defines communication as the "process by which participants create and share information with one another in order to reach a mutual understanding". Communication must come about if an innovation is to be adopted. This communication proceeds through a channel, defined by Rogers (2010:17) as "the means through which messages are transmitted from one individual to another". According to Rogers (2010:18), the use of mass media channels is necessary to create initial knowledge about the innovation, while interpersonal channels are more powerful in developing and changing attitudes toward an innovation and therefore inducing a decision to accept or reject it. For most individuals, the decision to accept or reject an innovation does not rest on scientific outcomes from experts, but on the opinion of peers who have previously adopted the innovation.

Mass media channels are more effective in creating initial knowledge of innovations, whereas interpersonal channels are more effective in forming and changing attitudes toward a new idea, and thus in influencing the decision to adopt or reject it. Most individuals evaluate an innovation not on the basis of scientific research by experts, but through the subjective evaluations of near-peers who have already adopted the innovation. Diffusion is fundamentally a social practice through which people talking to other people spread an innovation.

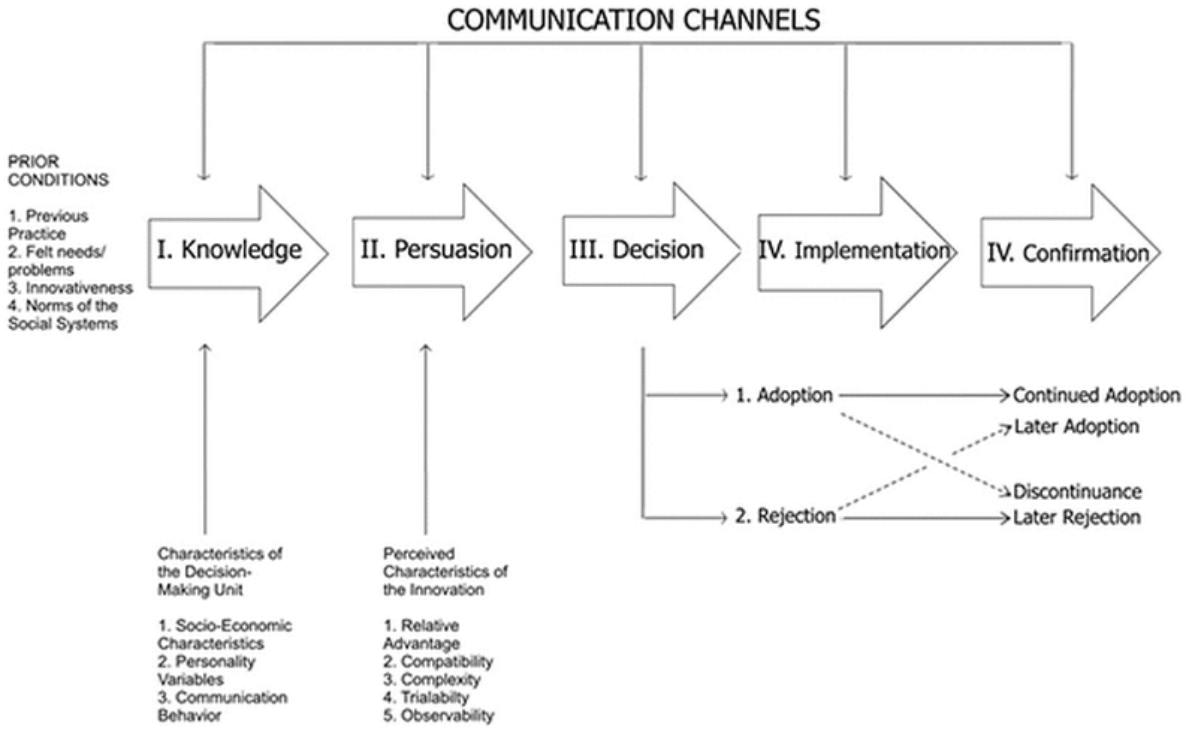
The third element in the innovation diffusion process is time, which includes three aspects: i) the decision-making process, ii) innovativeness, and iii) the rate of adoption. The decision-making process denotes the length of time between the introduction of an innovation and the

decision to accept/reject it. The innovation-decision process (as shown in Figure 4.4 below) is therefore seen as a mental process through which a potential adopter goes:

i. from first knowledge of an innovation;
ii. to forming an attitude toward the innovation;
iii. to a decision to adopt or reject the innovation;
iv. to implementing the new idea; and
v. to confirming this decision.

The innovativeness is the degree to which a potential adopter is relatively earlier in adopting new ideas than other members of a social system. Figure 4.4 shows the stages in the innovation diffusion process.

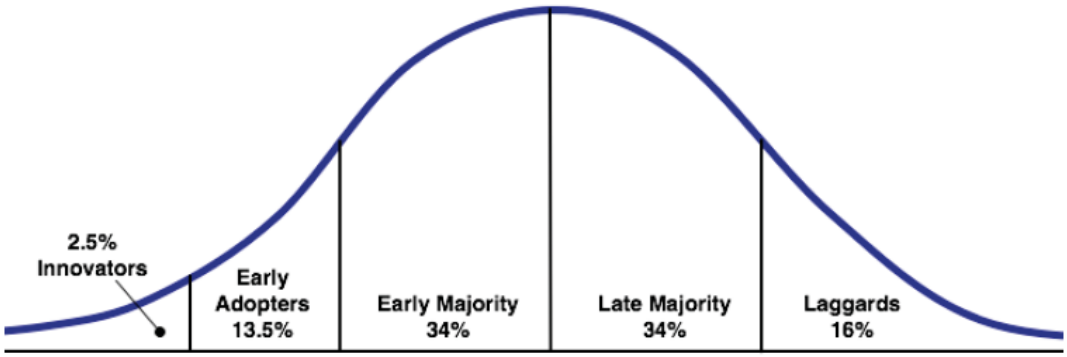
Figure 4.4: Stages in the innovation diffusion process



Source: Rogers (2010:20)

Rogers (2010:27) identifies five adopter categories of the members of a social system on the basis of their innovativeness: i) innovators, ii) early adopters, iii) early majority, iv) late majority, v) laggards. These five adopter categories are illustrated in Figure 4.5 below.

Figure 4.5: Adopter categories



Source: Rogers (2010:37)

Innovators are the first 2.5% of individuals or other adopting agents in the system to adopt an innovation. Venturesomeness is an outstanding characteristic of innovators who are interested in new ideas and are eager to try them. Moreover, they are primed to handle sporadic setbacks associated with the innovation as they try to use it and are not discouraged if the invention proves unsuccessful (Rogers, 2010:37).

Early adopters are the second category, constituting the next 13.5% of individuals to adopt an innovation. Rogers noted that while innovators are 'cosmopolites', early adopters are 'localites' because they are an integrated part of the social system with a reasonably high level of opinion leadership, making them a crucial resource for individuals who are in search of advice, cues and information to facilitate rapid adoption. Potential adopters thus look up to this category of adopters for information and advice about the innovation (Rogers, 2010:37).

Early majority is the third category – the next 34% of individuals in a system to adopt an innovation. This group is cautious about change and new ideas or technology. The early majority rarely rises to leadership positions and so seldom leads crucial change efforts; they are keen to adopt new ideas and technology, although they put a lot of time and effort into deliberation prior to adoption. The unique position of the early majority, who are found between the very early and relatively late adopters, makes them a crucial link in the diffusion process (Rogers, 2010:38).

Late majority represents the next 34% of adopters in a social system. The late majority view change with scepticism and caution, but feel pressure to accept change from others in the social

system or from the organisation that has adopted the innovation. Their comparatively limited resources imply that most of their uncertainties about the innovation need to be overcome if they are to trust the late majority before they will feel that it is safe to adopt (Rogers, 2010:38).

Laggards are the last 16% of people in the social system of all adopters of an innovation. They are old-fashioned in their outlook and are the last group in the social system or institution to adopt a change. They do not possess any opinion leadership and they always use the past as a point of reference in their decisions. Laggards most often view innovations and change agents with suspicion. They too have limited resources, so they rationalise their hesitation by making certain that the innovation will never fail before proceeding to adopt it (Rogers, 2010:38).

The third aspect related to the time element in the diffusion process is the rate of adoption. This is defined as the relative speed with which an innovation is adopted by members of a social system. The rate of adoption is often posited as the number of members of the social system who adopt the innovation within a given time period. As emphasised previously, an innovation's rate of adoption is determined by the five perceived characteristics of the innovation (Rogers, 2010:38).

The fourth and last element in the diffusion process is the social system, defined by Rogers (2010:37) as "a set of interrelated units that are engaged in joint problem-solving to accomplish a common goal". Rogers (2010:37) notes that participants in or units of a social system may be made up of individuals, informal groups, organisations and/or subsystems. The social system delineates the parameters within which an innovation diffuses. Every social system comes with norms, opinion leaders and change agents who play different roles in the diffusion process.

The DOI model has been successfully applied in studying the adoption of a number of green innovations (Shih and Chou, 2011; Woersdorfer and Kaus, 2011; Sasikumar and Jayasubramaniam, 2013; Islam and Meade, 2013; Olson, 2013). A recent study by Kapoor, Dwivedi and Williams (2014:152) applied the DOI model in examining the consumer acceptance of household solar equipment in the UK. The results identified relative advantage, compatibility with existing household equipment and processes, reasonable complexity and observability as significant factors that influence consumers in forming favourable intentions towards such innovations

4.3 CONSUMER FACTORS DRIVING GREEN PRODUCT ATTITUDE

4.3.1 Description of Consumer Factors

Consumer-related factors are those motivating factors of choice behaviour that consumers value. These factors influence consumers' attitudes which, in turn, influence the performance of environmentally responsible behaviour, including the purchase of green products. These motivating factors are the functional, social, emotional, conditional and epistemic values which are adapted from the TCV by Sheth *et al.* (1991:159).

Value orientations are theorised as powerful drivers that influence purchase behaviour, lifestyle formation and product choice (Werff, Steg and Keizer, 2013:55). In general, values are defined as enduring beliefs that shape human behaviour (Pickett-Baker and Ozaki, 2008:281). In consumer buyer behaviour theory, values play a pivotal role in explaining the relationship between behavioural intentions and actual purchase behaviour (De Groot and Steg 2008:347). In the context of green purchase behaviour, Haws *et al.* (2014:337) employed the term 'green consumption values' to refer to the propensity of consumers to express principles of environmental protection through their purchase and consumption behaviour. Green consumption values are considered influential in driving consumers towards the adoption of sustainable consumption patterns (Lu, Bock and Joseph, 2013:3).

4.3.2 Functional Value and Green Product Attitude

Functional value is a central concept in consumer purchase behaviour and is traditionally presumed to influence product choice and value perceptions (Kotler and Keller, 2012:193). The TCV describes functional value as the ability of a product or service to satisfy the consumer's utilitarian needs (Sheth *et al.*, 1991:160). Functional value is particularly important for the creation and sustenance of competitive advantage in today's value-driven marketing environment (Zhuang, Cumiskey, Xiao and Alford, 2010:1). It is further articulated that consumers are more likely to buy a product if it results in utility maximisation relative to competing offerings (Phipps, Ozanne, Luchs, Subrahmanyan, Kapitan, Catlin, Gau, Naylor, Rose, Simpson and Weaver, 2013:1228). Thus, a green consumer who is principally driven by functional value considers the costs and benefits of green products before making a purchase decision (Elliot, 2013:299). Perceived value is considered as a comprehensive concept that encompasses search attributes such as price, quality and performance that drive purchase intentions (Barber, Bishop and Gruen, 2014:220; Lin and Huang 2012:12; Matthes,

Wonneberger and Schmuck, 2013:1). According to Zhuang *et al.* (2010:1), quality plays a central role in enhancing purchase intentions by reducing product performance risk and fostering brand loyalty among consumers (Batra and Kazmi 2008:127). Consumers are therefore likely to engage in pro-environmental behaviour if they realise tangible benefits in consuming green products (Phipps *et al.,* 2013:1229).

4.3.3 Social Value and Green Product Attitude

In addition to functional value, consumption behaviour appears to be influenced by the quest to satisfy social value needs such as social identification, self-presentation, symbolism and belonging (Ashworth and Matear, 2009:129; Koenig-Lewis, Palmer, Dermody and Urbye, *2014*:96). In particular, social identification plays a key role in buying behaviour as it enhances approval from an esteemed reference group (Bartels and Reinders, 2010:350). Similarly, Dhurup (2012:743) used the term 'in-group association' to suggest the extent to which individuals sacrifice self- control as a way of enhancing behaviour congruence with a preferred social group. For instance, the surge in environmental concern among social groups and the formation of environmental clubs gives credence to the importance of social values in promoting pro-environmental behaviours (Khare, 2014:2).

In general, the purchase of environmentally friendly or green products is regarded as a socially acceptable gesture with a high social value attachment (Webb, Mohr and Harris, 2008:93). Conceptually, social value entails the quest for identification with a significant social group and the extent to which an individual complies with the expectations of peers through the purchase and consumption of products or services (Bearden, Netemeyer and Teel, 1989:473).

Accordingly, Leibenstein (1950:184) introduced the 'bandwagon effect' concept to refer to the demand for products induced by the desire to belong to an esteemed reference group. This view is consistent with the TCV that states that consumers regularly buy products that enhance their social standing (Sheth *et al.*, 1991:161). Based on the concept of social value, consumption is considered as a social conversation (Jackson, 2005:19). For example, sustainable consumption is regarded as a form of pro-social behaviour that emanates from an individual's awareness of the consequences of consumption behaviour on the natural environment and assumes responsibility for addressing the behavioural outcomes (Stern, 2000:407).

The purchase of green products represents a high sense of environmental commitment and is expected to elicit pro-environmental behaviours among consumers. Mazar and Zhong (2012:495) posit that consumers tend to engage in pro-environmental behaviour as a way of aligning themselves with the norms of their society. To substantiate this view, Hjelmar (2011:341) employed the term 'social embeddedness' to imply that the purchase of green products is not only an individual decision but a collective societal imperative.

4.3.4 Emotional Value and Green Product Attitude

Consumer product choices are influenced not only by functional and social values but also by the ability to satisfy emotional needs (Koenig-Lewis *et al.*, 2014:96; Liao and Wang 2009:991). For instance, Lin and Huang (2012:16) observe that consumers who buy green products are driven by the intrinsic feelings of doing something good both for their own wellbeing and that of society. This view resonates with De Young's (2000:515) observation that consumers engage in pro-environment behaviours in order to satisfy emotional values. Emotional values refer to "the perceived utility acquired from an alternative's capacity to arouse feelings or affective states" (Sheth *et al.*, 1991:161). Emotional value is instrumental in positioning products that are high in credence attributes where consumers are unable to ascribe value prior to and after utilising the product (De Pelsmacker, Janssens, Sterckx and Mielants, 2005:515). Traditionally, consumers assign a higher emotional value to a product if the consumer receives positive and memorable experiences from the product (Kemp and Bui, 2011:431). Given this background, Lee (2009:93) and Matthes *et al.* (2013:6) suggest that emotions play a pivotal role in enhancing favourable brand attitudes and are more effective when framing environmental messages. Similarly, Koenig-Lewis *et al.* (2014:97) contend that the introduction of green products in the market stimulates favourable emotions as consumers perceive green purchase behaviour as a potential solution to environmental problems.

The importance of emotional values in buyer behaviour is supported by the Attachment Theory, which posits a positive relationship between the consumer's emotional state and brand loyalty (Yim, Tse and Chan, 2008:753). In green marketing literature, the terms 'ecological effect' and 'dispositional empathy with nature' are employed to refer to the extent to which emotional attachment to environmental issues influences the purchase of green products (Chan and Lau, 2000:341).

4.3.5 Conditional Value and Green Product Attitude

Consumption behaviour is also regarded as situationally primed and largely dependent on contextual factors known as 'conditional value' (Lin and Huang 2012:11). Conditional value refers to the satisfaction derived by the consumer from purchase decisions that are triggered by a set of situational factors in the marketplace (Sheth *et al.*, 1991:162). The concept of conditional value is related to the Hedonic Goal Frame Theory, which posits that consumers seek to maximise sensory pleasure, variety and cognitive stimulation needs through purchase decisions (Lindenberg and Steg 2007:119). Based on the concept of conditional value, contextual cues that are salient at a given point are presumed to be influential in driving purchase behaviour (Hur, Yoo and Chung, 2012:692; Wood and Neal, 2009:589).

The external conditions can also be in the form of the perceived seriousness of environmental problems (Cheah and Phau, 2011:455). To support this view, Lin and Huang (2012:17) note that when confronted with contextual situations such as environmental threats, the propensity of consumers to act in a pro-environmental manner is enhanced. Environmental problems that are presumed to enhance conditional value include the negative efforts of climate change, global warming, depletion of fossil fuels, pollution, water and electricity (energy) shortages (Jamilah, Ali, Grigore and Stancu, 2012:85). When consumers understand the implications of their consumption behaviour for the environment, it is expected that a feeling of moral obligation will emerge and trigger the adoption of pro-environmental behaviours (Gadenne *et al.*, 2011:7686).

4.3.6 Epistemic Value and Green Product Attitude

Beyond functional, social, conditional and emotional values, Xiao (2005:23) suggests that product choice behaviour is also influenced by epistemic values. Epistemic values refer to "the perceived utility acquired from an alternative's capacity to arouse curiosity, provide novelty and satisfy a desire for knowledge" (Sheth *et al.,* 1991:162). For this reason, marketers intending to enhance the novelty of green products need to emphasise green product design features as a way of improving their attractiveness relative to non-green products (Lin and Huang, 2012:16). Design elements that have the potential to offer a differential competitive advantage include green packaging, eco-branding and shopping environments known as green atmospherics (Kreidler and Joseph-Mathews, 2009:229). According to Lin and Huang (2012:16), the integration of design elements in the green marketing mix has the capacity to

stimulate consumer curiosity and green product trial. To enhance consumer familiarity with green products, Lee (2009:93) also suggests that green marketers need to utilise novel media channels such as the Internet and social media networks. Enhancing familiarity is particularly important with regard to green products, especially in emerging or developing markets where they are regarded as innovations with a high-risk attachment (Saleki and Seyedsaleki, 2012:107).

4.4 PRODUCT FACTORS DRIVING GREEN PRODUCT ATTITUDE

4.4.1 Description of Product Factors

Product factors refers to product attributes that the potential adopter or consumer evaluates when deciding whether or not to purchase the green innovation. These five factors, namely, relative advantage, compatibility, complexity, trialability and observability, are adapted from the persuasion stage of the DOI model of Rogers (2010). According to Rogers (2010), these attributes provide an important explanation of the adoption rate of an innovation, and that most of the variance in the rate of innovation adoptions (49-87%), is explained by these five attributes of innovation. Understanding consumers' new product adoption or purchase behaviour helps organisations and companies to identify target markets, position products, and design communication strategies (Jansson, 2011:195). Rogers (2010) claims that it is important to study consumer adoption behaviour during the process when the innovation is diffused into the market, as is the case in South Africa, and not just after the innovation has been widely adopted.

4.4.2 Relative Advantage and Green Product Attitude

To have a relative advantage, an innovation must be perceived as better than the idea that it supersedes. The degree of relative advantage may be measured in economic terms, social prestige but convenience and satisfaction are also important. The potential adopters are essentially weighing the advantages and disadvantages associated with the use of an innovation against the alternative technology that they are currently using. Green appliances turn out to be cost-effective in the long run, saving electricity costs and contributing towards a greener environment, saving up resources that could soon become extinct. According to Pannell, Marshall, Barr, Curtis, Vanclay and Wilkinson (2006), in the long run, relative advantage determines the ultimate level of adoption for most innovations. Literature on green innovations has reported a significant influence of relative advantage on users' attitudes and their

behavioural intentions, for instance, the study on the adoption of electronic indicators for capturing household energy use by Vollink, Meertens and Midden, (2002), the adoption of domestic solar power systems by Faiers and Neame (2006), residential renewable energy systems adoption by Tapaninen *et al.* (2009a) and green practice adoption by Chou, Chen and Wang (2012).

4.4.3 Compatibility and Green Product Attitude

The innovation must be compatible, which means the degree to which it is perceived as being consistent with past experiences and needs of potential adopters. Claudy, Michelsen and O'Driscoll (2011) point out that potential adopters are often concerned that the adoption of green innovation would need them to alter their daily habits. When any innovation fits with the lifestyles of the potential adopters, staying in line with their preferences, matching the technologies that these potential adopters may have adopted in the recent past, it becomes more appealing to them (Rogers, 2010). Past studies on green innovations have found that compatibility significantly influences the use intentions of the potential adopter, for instance, a green electricity study by Ozaki (2011), energy conservation interventions adoption study by Vollink *et al.* (2002), solar energy systems adoption studies by Labay and Kinnear (1981) and Faiers, Cook and Neame (2007). Claudy *et al.* (2011), in studying the adoption of micro-generation technologies, report that compatibility has a positive influence on potential users' willingness to pay. A study on photovoltaic system adoption, which operates on solar cells, suggests that the fact that such a system has a fair share of compatibility with existing norms becomes capable of self-demonstrating how simple such a photovoltaic system is to use (Muller and Rode, 2013). The same argument can be applied in the present study. Being compatible implies not requiring making changes, in turn implying known usage ease/difficulty level, in turn minimising consumers' negative attitude or apprehensions towards product adoption.

4.4.4 Complexity and green product attitude

In using any given technological innovation, an individual's knowledge about that innovation, and the related skills required to use that innovation often determine the perception of complexity associated with the use of that innovation for the individual. The more comfortable an individual is with using a given innovation, the more attracted they will become to that innovation (Rogers, 2010). A simple equipment design and user-friendly interface will be more appealing to potential adopters. Arkesteijn and Oerlemans (2005) found that the perception of

ease of using green power in households increased the potential users' adoption probability. Rogers (2010), while explaining this attribute in his book, exemplified a simple case of the first adopters of home computers in the United States. He very logically divides the consumers into hobbyists and other adopters; he indicates how for the hobbyists, even the first home computers did not appear complex at all. However, a normal consumer, short of the technical knowledge, found even the basic computer highly difficult to use. Studies on green innovations have reported the important influence of reduced complexity on users' adoption intentions (Chou *et al.* 2012; Ozaki and Sevastyanova, 2011:2218; Kijek, 2015:67)

4.4.5 Observability and Green Product Attitude

When it comes to observability, the underlying idea is that the innovation under consideration is already in use by other consumers and the outcomes/results of using that innovation are available to be observed by potential users. There are numerous studies that have focused specifically on this innovation attribute. Some of these studies, such as those of Tapaninen *et al.* (2009a) on renewable energy systems or Labay and Kinnear (1981) on solar energy systems, noted a non-significant effect of observability on behavioural intention. Others, however, such as those of Faiers *et al.* (2007) on domestic solar power systems, Claudy *et al.* (2011) on residential microgeneration technologies or Chou *et al.* (2012) on green practices, have reported a significant influence on consumers' purchase intentions.

4.5 GREEN PRODUCT ATTITUDE

Green product purchase behaviour is considered to be reliant on the attitudes of consumers (Synodinos, Bevan-Dye and De Klerk 2013:22). Thus, Gupta and Ogden (2009:385) contend that consumers behave in ways that are consistent with their attitudes. A research study by Allport (1935:810) defines an attitude as a mental state of preparedness that is acquired through experiential learning with the inherent ability to direct an individual's psychological response to environmental stimuli. Similarly, Fishbein and Ajzen (1975:211) define attitude as "a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object". Integral to the attitude definition is the enduring nature of attitudes that are learned from experience and their influence on behaviour (Sheth *et al.*, 2011:1). In consumer behaviour, attitude is defined as an individual's consistently favourable or unfavourable evaluation, feeling and tendency towards a product or service (Kotler and Keller, 2012:552).

Attitudes include cognitive, affective and conative components (Eagly and Chaiken, 1993:10). Cognitive attitudes are formed following a rational, fact-based, decision-making process and are activated principally by rational appeals in green marketing messages (Sinnappan and Rahman 2011:137). Affective attitudes refer to emotional attachments that are associated with an object; peer influence is considered a dominant factor that triggers favourable emotions and feelings towards green products among young consumers (Lee, 2011:35). Conative attitudes denote the action-related attitudes towards a product and capture the actual purchase behaviour (Sinnappan and Rahman, 2011:137). In terms of attitude formation, a favourable evaluation of an object results in positive intentions and an unfavourable assessment often translates into negative intention towards an object (Eagly and Chaiken, 1993:13).

The Theory of Planned Behaviour (TPB) has been widely employed to explain the influence of attitudes on consumer buyer behaviour (Sinnappan and Rahman, 2011:130). The TPB posits that an individual's behaviour is influenced by intention, which is a function of two constructs: attitude towards the behaviour and subjective norm (Ajzen 1991:181).

The TPB further states that an individual's intention to engage in certain behaviour depends on cognitive and affective attitudes (Aman *et al.*, 2012:147). The cognitive perspective portrays human beings as rational entities that make systematic use of information available to them to evaluate the likely outcomes of certain behaviours (Wahid *et al.*, 2011:39). Based on the cognitive attitude view, consumers assess green products according to their performance, reliability, perceived risk and price (Ali and Ahmad 2012:87). Similarly, Sinnappan and Rahman (2011:13) note that integrating cognitive and affective elements when conveying green marketing messages has the potential to make consumers more environmentally responsible. Literature on the consumption of environmentally friendly products validates this finding, that perceived product performance as a significant barrier to green product selection (Pickett-Baker and Ozaki, 2008:281). For this reason, Chen and Chan (2010:36) stress the importance of blending green marketing messages with traditional functional product attributes, such as quality and performance, when marketing green products.

4.6 PURCHASE INTENTION AND ACTUAL PURCHASE BEHAVIOUR

According to Ramayah *et al.* (2010:1421), intention is defined as the determination to act in a certain manner. Attitude towards behaviour refers to the individual's assessments of whether

to execute a certain behaviour or not (Kim and Chung, 2011:40). It follows therefore, that the stronger the intention to engage in behaviour, the higher the propensity for the intention to translate into the actual behaviour. According to Ajzen (1985:183), an individual is more likely to perform certain behaviour if the attitude towards undertaking the behaviour is positive. Similarly, an increase in the intention to purchase a green product is expected to enhance the propensity of consumers to engage in actual green product purchase (Rehman and Dost, 2013:102). Green product purchase intention is therefore conceptualised as the probability and willingness of a consumer to prefer green products relative to conventional products (Ali and Amad 2012:88; Beckford, Jacobs, Williams and Nahdee, 2010:243). Green product purchase can therefore be fostered by enhancing purchase intentions and stimulating favourable consumer attitudes towards green purchase behaviour (Jamilah *et al.*, 2012:85).

4.7 CONCEPTUAL MODEL AND HYPOTHESES

As described in Chapter 1, the primary objective of this research study is to understand the consumer- and product-related factors that impact on green product purchase behaviour in South Africa. Based on the review of the literature relevant to the research objectives, a conceptual model is proposed. This model provides an integrated framework that incorporates the components of TCV, DOI and TPB.

The model suggests that the consumer-related factors (functional, social, emotional, conditional and epistemic) and product-related factors (relative advantage, compatibility, complexity, trialability and observability) are likely to positively influence green purchase behaviour attitudes, which may in turn lead to intention to buy and the actual buying of green products. Perceived behavioural control is proposed to influence the intention to buy and the actual purchase of green products.

The Theory of Consumption Values developed by Sheth *et al.* (1991:159) focuses on the consumption values that explain "why consumers choose to buy or not to buy (or use or not use) a specific product, why consumers choose one product type over another". The Diffusion of Innovation model by Rogers (2003:273) is mostly often used to study adoption patterns, clarify mechanisms and aid our understanding of predicting whether and how a new invention or idea will be successful. The Theory of Planned Behaviour, which was first put forward by Ajzen (1991:197), is one of the classic theoretical models for studying individual behaviour.

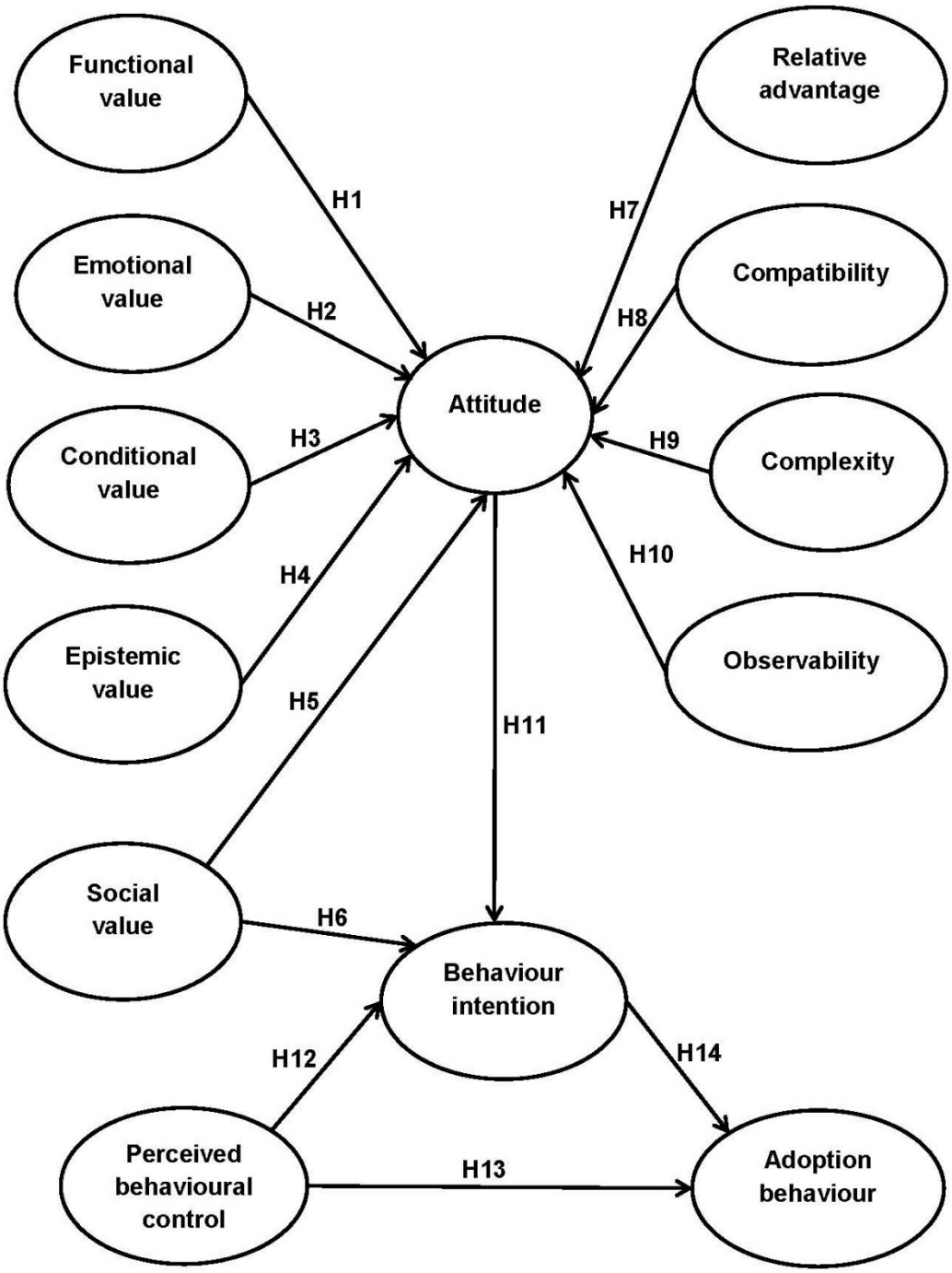
The theory suggests that an individual's behavioural intention is affected by behavioural attitudes, subjective norms and perceived behavioural control.

A number of studies investigating the main determinants of green products have integrated the TCV and TPB (de Maya *et al.*, 2011:1773, Lin and Huang, 2012:15; Papista and Krystallis, 2013:83; Jiang and Kim, 2014:308; Biswas and Roy, 2015:336). The results from all of these studies show that their integrated models provide a good relationship of green product purchase attitudes and also behavioural intention. In the recent study by Biswas and Roy (2015:335), their testing of the integrated model showed a 51% variance in attitudes and 53% in behavioural intention.

The integrated model of the DOI and TPB has been used in numerous studies seeking to understand the key attributes that consumers or potential consumers will consider when buying a new cell phone, hybrid vehicle, alternative fuel vehicle or solar system (Jansson, 2011:196; Ozaki and Sevastyanova, 2011:2218; Karakaya, Hidalgo and Nuur, 2014:393). All these studies showed a good relationship between variables and attitudes towards these above-mention products. In the latest study (Karakaya *et al.*, 2014:393) on hybrid vehicles (also referred to as eco-innovation in the study), the integrated model was found to fit the data well, with 52% and 49% of the variance in attitudes towards hybrid vehicles and behavioural intention explained respectively.

It is therefore, the researcher's opinion that the integrated model is likely to provide a higher explanatory power for the variables in relation to attitudes towards green product purchase than when these models are used separately or on their own. Figure 4.6 below depicts the conceptual model adopted for this study, specifying the hypothetical relations between constructs.

Figure 4.6: Conceptual research model



Source: Author's own model

The key constructs in the conceptual model and their hypothetical relationships with attitude, behavioural intention and actual behaviour are discussed below.

4.7.1 Hypothesised Relationships between Constructs in the Conceptual Model

Lin and Huang (2012:17) find that some consumers care enough about environmental degradation that they are willing to pay more for green products. In addition, a study by Biswas and Roy (2015:466) confirms that consumers ponder the price and quality (i.e., functional value) when they buy recycled products. The functional value has been found in other studies to have a positive influence on the purchases of green products (Tsay, 2010:33; Maheshwari and Malhotra, 2011:1). These suggest findings that the functional value consumers receive from green products will result in a positive attitude towards green products. Therefore, the following hypothesis is proposed:

H1: Functional value will positively influence attitudes towards green products

Consumer emotional values differ among individuals according to their personal and emotional experiences, which can be either positive, negative or mixed, and which all have impacts on purchase decisions (Sheth *et al.*, 1991a:168). Previous research has found that consumers with positive emotional values make enjoyable and receptive green purchase decisions as these confirm their belief that they are behaving responsibly by protecting the environment (Biswas and Roy, 2015:466; Rodrigues-Barreiro, Fernandez-Manzanal, Serra, Carrasquer Murillo, Morales, Calvo and Valle, 2013:118; Lin and Huang, 2012:18). With this feeling and belief, they may develop positive attitudes towards green products. Hence the following hypothesis is proposed:

H2: Emotional value will positively influence attitudes towards green products

In a study conducted by Lin and Huang (2012:18), it was found that conditional value influenced attitudes of consumer choice behaviour insofar as consumers took note of warnings about environmental consequences during their purchase decision-making. In line with this, the following hypotheses is proposed:

H3: Conditional value will positively influence attitudes towards green product

Consumers prefer to obtain product-related information and knowledge regarding how a product is produced and how this affects the environment (Kaufmann, Panni and Orphanidou,

2012:67). Previous studies by Mostafa (2009:11037) and Suki (2013:735) have affirmed that environmental knowledge has significant impacts upon green consumer behaviour and attitudes. Lin and Huang (2012:18) are also of the opinion that the epistemic value of green products, such as product characteristics and product design, significantly influence consumer choice behaviour. Based on these findings, the following hypothesis is proposed:

H4: Epistemic value will positively influence attitudes towards green products.

Even though De Leeuw *et al.* (2015:136) found social value to be insignificantly related to attitudes, a vast number of other studies (Ohman 2011:1; Biswas and Roy, 2015:466; Zhao *et al.*, 2014:149; Wang *et al.*, 2014; Ritter *et al.*, 2015,) suggest that social pressure encourages consumers to purchase green products. Wahid, Rahbar and Tan (2011:39) further suggest that "social value is a proxy of subjective norm". In other words, social value has the same meaning with subjective norms as is found in the Theory of Planned Behaviour. These studies posit social value as one of the dominant factors influencing attitudes and behavioural intention towards sustainable consumption. Thus, it is hypothesised:

H5: Social value will positively influence attitudes towards green products

H6: Social value will positively influence behavioural intention towards green products

Literature on green innovation has reported a significant influence of relative advantage on users' behavioural intentions, as demonstrated in studies on the adoption of electronic indicators for capturing household energy use (Vollink, Meertens and Midden, 2002:334), household solar power and renewable energy system adoption (Tapaninen, Seppanen, and Makinen, 2009a:101; Alam, Hashim, Rashid, Omah, Ahsan and Ismail, 2014:257) green practice adoption (Chou, Chen and Wang, 2012:710). These studies concluded that consumers found environmentally friendly household products to have an advantage over conventional products that households commonly use. Considering that this may positively influence consumers' attitudes toward green products, the following hypothesis is proposed:

H7: Relative advantage of green products will have a positive influence on attitudes towards green products

According to Rogers (2003:240), when any innovation fits with the lifestyles of potential adopters, stays in line with their preferences and matches similar technologies that they may have adopted in the recent past, the innovation becomes more appealing to them. Previous studies on green innovation have found that compatibility significantly influence attitudes and use intention of the potential adopter (Ozaki, 2011; Muller and Rode, 2013; Alam, Hashim, Rashid, Omah, Ahsan and Ismail, 2014:257). Hence the following hypothesis is proposed:

H8: Compatibility of green products will have a positive influence on attitudes towards green products.

A new idea or innovation is less likely to be adopted if it is perceived to be complicated and challenging to use (Rogers, 2003:257). The author further posits that new ideas that are easier to understand tend to be adopted faster than innovations that require the adopter to develop and/or use new skills and understanding. Studies on green innovation and innovation in general have confirmed complexity as an important factor underpinning attitudes towards adoption (Chou *et al.* 2012: 710; Alshamaila, Papagiannidis and Li, 2013:257 and Claudy, Michelsen, and O'Driscoll, 2011). In line with this, the following hypothesis is proposed:

H9: Complexity will have a negative influence on attitudes towards green products.

The decision to adopt an innovation is greatly influenced by an individual's ability to observe the impact of the innovation on others who have already adopted it. When an innovation is perceived to have a high level of observability by members of a society, it is more likely to have an increased rate of adoption (Rogers, 2003:258). Previous studies on the adoption of solar energy systems (Tapaninen *et al.*, 2009a:103) and renewable energy systems (Sardianou and Genoudi, 2013:1) have observed a non-significant effect of observability on attitudes and behavioural intention. However, other studies on the adoption of green practices have reported a significant influence on the consumers' use intention (Claudy *et al.*, 2011; Plotz, Gnann and Weitschel, 2014). Based on the latter findings and the fact that intention to engage in green practices may have been preceded by positive attitude, the following hypothesis is proposed:

H10: Observability will have a positive influence on attitudes towards green products.

In this study, attitude relates to the extent to which the person perceives certain behaviours to be favourable or unfavourable. The more favourable a person's attitude is towards some considered behaviour, the more likely it is that the person will want to engage in the behaviour (Cherian and Jacobs, 2012). Attitudes are recognised in cognitive psychology as being one of the major factors that guide human behaviour (Fishbein and Ajzen, 1975; Ajzen, 1985). Pro-environmental behaviour is contingent on nurturing and enforcing environmental attitudes (Zabkar and Hosta 2013; Hauser, Nussbeck and Jonas, 2013:768). Ajzen (1991) suggests that a consumer's attitude towards certain behaviour is predictive of the person's intention to engage in that behaviour. The following hypothesis is proposed:

H11: There will be a positive relationship between attitudes towards green products and the intention to purchase green products among consumers in South Africa.

The concept of perceived behavioural control suggests that individuals who believe that they lack the necessary resources and opportunities to perform a particular behaviour are unlikely to form strong behavioural intentions, regardless of their favourable attitudes (Ajzen 1991:183). The reverse is true. A number of studies have shown that perceived behavioural control is positively linked with intention in various research contexts, such as recycling (Yeow, Dean and Tucker, 2014:88), conservation (Albayrak, Aksoy and Caber, 2013:30), green hotels (Chen and Tung, 2014:224) and green products in general (Moser, 2015:169). These suggest that behavioural control enhances consumers' intention towards green product purchase since it is positively linked to both behavioural intentions and actual behaviour (Ajzen, 1991). It is therefore hypothesised that:

H12: Perceived behavioural control will positively impact on the intention to consume green products

H13: Perceived behavioural control will positively impact on behaviour to purchase green products

Behavioural intentions are considered as the individual's conscious willingness to purchase a particular product in the future (Bagozzi, 1981:611; Hassan, 2014:381). It is further stated that purchase intention is the probability of buying a product, and green purchase intention is the consumers' tendency to buy a product because of health and environmental reasons (Chen and Chang, 2012:507; Lai and Cheng, 2016:69). Ajzen (1991) found behavioural intention to be an

important determinant of purchase behaviour as it refers to the motivational factors that positively impact on behaviour. Thus, the relationship between behavioural intention and green product adoption is hypothesised as follows:

H14: There will be a positive relationship between intention and actual behaviour towards green product purchase among consumers in South Africa

4.8 CONCLUSION

Understanding the green purchase behaviour of consumers is becoming crucial as an increasing number of companies are entering this market with the hope of attracting and selling their products to a receptive consumer. However, the literature shows that more work still needs to be done in understanding the factors that will ultimately influence consumers (in large numbers) to actually purchase environmentally friendly products.

This chapter was divided into three parts, firstly discussing green purchase behaviour, then examining theories and models that have been used in the past to understand pro-environmental adoption/behaviour and lastly presenting the conceptual model and its hypothesis. The first part looked at the definition of green purchase behaviour and the impact of its reported drivers. The second part of this chapter identified and discussed major theoretical models that have been developed and are used in understanding pro-environmental behaviours in consumers. The theoretical models discussed include the Theory of Reasoned Action, the Theory of Planned Behaviour, the Theory of Consumption Values and the Diffusion of Innovation model. The third part presented a detailed and holistic conceptual model which integrates the components of the Theory of Consumption Values, the Diffusion of Innovations and the Theory of Planned behaviour together with the hypothesised relationships between constructs of this study.

The following chapter discusses the methodology that will be used to collect the data and statistically test the conceptual model.

CHAPTER 5:
RESEARCH METHODOLOGY

5.1 INTRODUCTION

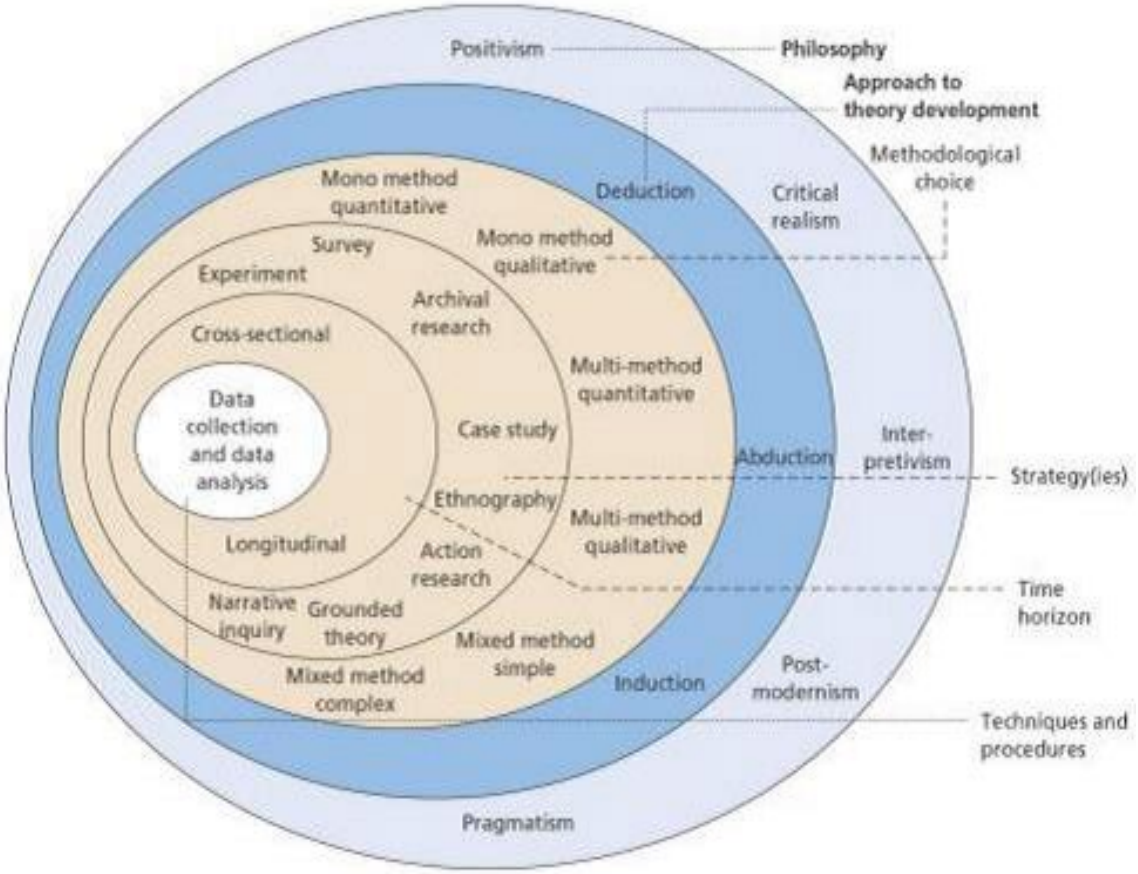
The primary objective of this study was to investigate the consumer- and product-related factors impacting on attitude towards green product purchase, intention and actual behaviour of the black middle class in South Africa. The previous chapter developed the conceptual model and accompanying hypotheses from reviewed theories and models. This chapter discusses the data collection and analysis methods used to empirically test the conceptual model.

This chapter starts by outlining the research process that was followed in conducting the study. The research philosophy that underpins the study is presented, followed by research approach, research strategy, time horizon, primary data collection method and data analysis procedures. The ethical issues that were taken into consideration when conducting the study are then discussed. The chapter concludes with a summary of the main issues covered.

5.2 RESEARCH PROCESS

Once a research problem has been identified, the researcher has to identify appropriate method(s) to approach the problem. In order to give direction to this study, the 'research onion' of Saunders, Lewis and Thornhill (2016:124) was adopted. This onion illustrates the range of choices, paradigms, strategies and steps followed by researchers during the research process (see Figure 5.1 below).

Figure 5.1: Research onion



Source: Saunders, Lewis and Thornhill (2016:124)

This diagram summarises the important issues that need to be taken into consideration and reviewed before undertaking any research. The different layers of the onion serve as a basis from which to consider the following: the philosophical orientation of the researcher, the research approach, appropriate research strategies, time lines and the data collection techniques employed by the researcher.

5.3 RESEARCH PHILOSOPHY

Research is an eagle-eyed human activity of systematically investigating truth in a particular field in an effort to contribute to knowledge and understanding (Hair, Ringle and Sarstedt, 2011:3). A research philosophy pertains to the development and nature of knowledge within the environment of the study. The researcher's assumptions about knowledge shape the formulation of the research questions, methods and interpretation of findings (Saunders *et al.* 2016:125). Thus, the research strategy and method that the researcher follows should fit within

the chosen philosophical framework. Hence, all research projects have some philosophical conventions of the worldview within which the research is based (Quinlan, 2011:95). The worldview, meaning "a basic set of beliefs that guide action", is sometimes referred to as a paradigm (Creswell, 2014:6; Lincoln, Lynham and Guba, 2011:101). The research paradigm is characterised by key concepts such as ontology, epistemology and axiology.

Ontology describes the nature of reality. It questions whether reality can be perceived as objective or as subjective (Bryman, 2012:27). Researchers with an objective view will approach the research environment without bias, and examine social phenomena through 'rigorous, standard procedures" (Olckers, 2011:110). Subjectivism reflects the point of view that the researcher is involved in the social activities of the actor and has an influence on the outcome of the social interaction being researched (Wahyuni, 2012:70).

Epistemology – This reflects what the researcher accepts as knowledge in the field of study, understanding and communicating the knowledge to others (Saunders *et al.*, 2016:127), i.e. what is the researcher's basic belief about knowledge? It refers to the kind of relationship between the researcher and the research phenomenon being studied.

Axiology – This pertains to the researcher's judgement of value. Values serve as the basis for decision-making in the research (Saunders *et al.*, 2016:128). Researchers choosing interviews as a data collection technique value personal interaction higher than non-personal interaction, as found in electronic surveys (Saunders *et al.*, 2016:128). Researchers' ethical values play an important role in the research. The results of studies of a similar nature may still differ between researchers, due to the differences in values considered to be important by the researchers (Bryman, 2012:27).

A number of theoretical philosophies are frequently used in research (Saunders *et al.*, 2016:135; Creswell, 2014:38; Bryman, 2012:26; Guba and Lincoln 1994:108). Two major philosophical viewpoints that are popular among social science research studies are the positivist viewpoint and the interpretivist viewpoint.

Positivism – A positivist viewpoint assumes that reality can be observed objectively and can be described by measurable properties, which are independent of the researcher. It primarily

assumes that a single truth can be discovered and that this resides in a regular, ordered world (Mora, Gelman, Steenkamp and Raisinghani, 2012:3). Positivist studies usually attempt to test theory and increase the predictive understanding of occurrences (Saunders *et al.*, 2016:136). As a guide, positivist research includes testing hypotheses to find greater understanding of the research phenomena. It also includes evidence of theory testing, formal propositions, drawing inferences about the phenomena and quantifiable measures of variables. In terms of research methodology, the positivist viewpoint is mainly associated with the use of quantitative research methods.

Interpretivism – An interpretivist viewpoint assumes that access to reality is only through social constructions such as language, consciousness and shared meanings. Rather than predicting experiences, interpretive studies attempt to understand them through the meanings that people assign to them (Hennink, Hutter and Bailey, 2011:4). During the research process, the researcher interacts with the human subjects, thereby changing the preconceptions and perceptions of both parties. Thus as a result, value-free data cannot be obtained. Methodologically, the interpretivist viewpoint is primarily associated with qualitative research methods. Table 5.1 below summarises the approaches associated with these two philosophies.

Table 5.1: Positivist and interpretivist research philosophies

	Positivism	Interpretivism
Assumption	Objective world that science can mirror with privileged knowledge	Inter-subjective world that science can represent with concept actors; social construction of a reality
Key focus or ideas	Search for contextual variables that cause actions	Search for patterns of meaning
Goal of paradigm	Uncover truth and facts as quantitatively specified relationships among variables	Describe meanings, understand members' definitions of the situation, examine how objective realities are produced
Nature of knowledge or form of theory	Verified hypotheses involving valid, reliable, and precisely-measured variables	Abstract description of meanings and members. Definition of solutions produced in natural contexts
Theory transference approach	Deductive (Theory confirmation)	Inductive (theory discovery)
Criteria for assessing research	Prediction-explanation, rigour, internal and external validity, reliability	Trustworthiness, authenticity
Unit of analysis	The variable	Meaning: symbolic act
Research methods	Experiments, surveys (questionnaires), secondary data analysis, quantitatively coded documents	Ethnography, participant observation, interview, conversational analysis, grounded theory development
Types of analysis	Quantitative, regression, Likert scaling, SEM, quantitative grounded theory testing	Case studies, conversational and textual analysis; expansion analysis

Source: Swanson and Chermack (2013:40)

From the information presented in Table 5.1, the positivist paradigm was used to find answers to the research questions of this study. Consistent with this paradigm, a quantitative design using the survey data collection approach was used to gather data from the respondents. Quantitative techniques were used to test and analyse the relationships proposed in the conceptual model. The choice of the positivist approach to conduct the current study is based on the following considerations:

- In the positivist paradigm, research questions are usually framed in quantifiable and measurable terms (Steinert, 2014:383). This study's research objectives and questions are measurable (refer to section 1.4 of Chapter 1)
- Positivist research studies are contingent on the assumption that there are prior causal relationships between variables, and that these can be used to explain phenomena (Swanson and Chermack, 2013:41). With the aid of the conceptual research model (Figure 4.6), this study proposes that there are 13 relationships between the main variables of the study. The positivist approach thus made it possible to test the posited relationships empirically.
- Unlike the interpretivist philosophy, which aims to discover theories, the positivist approach strives to confirm theories (Swanson and Chermack, 2013:40). From the extensive literature reviews conducted in Chapters 2 and 3, a number of theories were identified and used to propose a detailed conceptual model and a number of hypotheses.

5.4 RESEARCH APPROACH

Approaches to the research depend on the visibility or availability of a theory at the start of the research (Saunders *et al.*, 2016:144). Deduction, induction and abduction are processes of reasoning to acquire new knowledge. Table 5.2 distinguishes the characteristics of these approaches.

Table 5.2: Deduction, induction and abduction research approaches

	Deduction	Induction	Abduction
Logic	In a deductive inference, when the premise is true, the conclusion must also be true	In an inductive inference, known premises are used to generate untested conclusions	In an abductive inference, known premises are used to generate testable conclusions
Generalisability	Generalising from the general to the specific	Generalising from the interactions from the specific to the general	Generalising from the interactions between the specific and the general
Use of data	Data collection is used to evaluate propositions or hypotheses related to an existing theory	Data collection is used to explore a phenomenon, identify themes and patterns and create a conceptual framework	Data collection is used to explore a phenomenon, identify themes and patterns, locate these in a conceptual framework and test this through subsequent data collection
Theory	Theory falsification or verification	Theory generation and building	Theory generation or modification; incorporating existing theory where appropriate, to build new theory or modify existing theory.

Source: Saunders *et al.* (2016:145)

Deductive reasoning is the drawing of conclusions from premises (Mouton, 2011:117). The deductive approach is used where a hypothesis is drawn from theory and research is designed to test the hypothesis (Saunders *et al.*, 2016:146). This implies that a deduction or hypothesis is being made from a statement of theory or model in order to test the theory. It can also be used to clarify the meaning of a concept through deductive reasoning. As a general approach, deduction links more to positivism and the natural sciences, based on scientific principles (Saunders *et al.*, 2016:146).

Inductive reasoning expresses a logical reasoning method that is inferred from a collection of specific observations and enables the researcher to move from these observations to general statements (Bryman, 2012:28). Cassell and Symon (2006:165) define 'induction' as "a set of methodological procedures which attempts to systematically generate theory grounded in observation of the empirical world." Therefore, the inductive approach develops theory after

the data has been collected (Saunders *et al.*, 2016:147). Overall, the inductive approach is more often applied when it comes to conducting a qualitative research project (Saunders *et al.*, 2016:147).

Abduction consists of a combination of inductive and deductive reasoning (Saunders *et al.*, 2016:148). A study may commence with an inductive building of a theory from acquired data, followed by a deductive phase where the theory is tested to improve the credibility of the study (Bryman, 2012:29).

This study follows a deductive approach, as it is generally associated with positivist and quantitative research and involves the development of a hypothesis from existing theory which is then subjected to thorough and rigorous testing.

5.5 METHODOLOGICAL CHOICE

The key when choosing a research method is to match it to the specific task at hand. There are no 'good' or 'bad' research methods, only research methods appropriate for the task at hand and methods inappropriate for the task at hand (Wilson, 2012:14). A researcher has to make a choice between qualitative, quantitative or mixed methods. These methods are not distinct and should not be regarded as extreme opposites, as a research study may be either more qualitative or more quantitative (Creswell, 2014:12). Other research studies may combine both elements, thereby adopting a mixed methods approach. These methods are discussed below.

Quantitative research methodology

In quantitative research, numerical data is collected and then analysed using mathematical and statistical methods (Mouton, 2011: Creswell and Plano Clark, 2011; Flick, 2015). The research methods are designed to produce orderly outcomes and statistically reliable data and also to give an idea of what people do or perceive some of the ideas (Mouton, 2011:55). Quantitative research is defined as sampling strategies and experimental designs that are used to produce generalised results (Wiid and Diggines 2011:4; Burns and Bush, 2014:252). In this methodology, the role of the researcher is to observe and measure the results without contaminating them. According to Saunders *et al.* (2016:166) and Mouton (2011:57), the quantitative research methodology is used to collect any data through questionnaires or data analysis procedures by using graphs or statistics which generate numerical data.

McDaniel and Gates (2010:132) note that the use of a control and experimental group is a practice most appropriate for quantitative research. Zikmund and Babin (2013:98) relate quantitative research to data measurement and state that the researcher is detached from the people they study. This type of research also examines the set of people or settings being studied on a larger scale (Saunders *et al.*, 2016; Zikmund and Babin, 2013; McDaniel and Gates, 2010). This is a holistic approach which allows the researcher to examine many relevant elements so that the results of the research can be applied to a wider range of settings. The researcher is an external entity to the subjects under study, though the results can be replicable irrespective of who conducts the research. The main characteristics of quantitative research are discussed below.

- The researcher is an external entity and tends to distance himself or herself from the object of study. The role of the researcher is to observe and measure the results (Saunders *et al.*, 2016; Zikmund and Babin, 2013).

- Quantitative research uses standard procedures for specific narrow questions that are asked of respondents and the questions are the elements that actually interrogate the respondent. The way the questions are phrased should ensure that they are free from bias or error.

- This research methodology focuses on testing theories and hypotheses. It is of primary importance for the researcher to clearly state the hypotheses and then test if they are supported by the empirical data.

- The data collected from respondents is numerical, which is used for data analysis using mathematically based and statistical methods (Mouton, 2011; Creswell and Plano Clark, 2011).

- The evaluation of results tends to take an unbiased approach and makes use of a standard fixed structure for reporting.

- The research results are then applied to a wider range of people or settings.

Qualitative research methods

Qualitative research refers to non-numerical methods of collecting data, carried out through discussions and interviews by asking participants very broad questions (Saunders *et al.*, 2016:168; Malhotra and Dash, 2014:224). According to McDaniel and Gates, 2013:119, qualitative research seeks to describe and analyse the behaviour of the researcher from the point of view of those being studied. The researcher should therefore guard against being immersed in the object of study in trying to control its variables and factors. Saunders *et al.* (2016:168) concur that qualitative research is based on close contact between the researcher and the people being studied; the researcher therefore becomes the instrument for noting (data collection) or recording the observations. The research methodology results might vary immensely, as this type of research is dependent on who conducts the study. This methodology also examines the set of people or situations being studied in greater detail and depth, on a small chosen scale (Iacobucci and Churchill, 2010: 64; Zikmund and Babin 2013:110). This helps in studying relatively few chosen cases or elements. The researcher seeks to understand as much as possible of any given setting, such as in-depth interviews or focus groups, which leads to an exploration of various factors that might influence the research study.

Qualitative research is commonly used to discover or understand more about a topic or phenomenon which is unknown. This assists researchers in understanding people's experiences and expressing their perspectives (Saunders *et al.*, 2016:169). The main characteristics of qualitative research are discussed below.

- The first characteristic is being committed to viewing the events, norms, values and viewpoints of those being studied.

- The researcher examines the specific setting or set of people in considerable depth and detail, and explores relevant elements (McDaniel and Gates, 2013:120). A full description of the settings under investigation assists the researcher in understanding the subject's interpretation of what is taking place.

- The researcher studies the behaviour as it occurs naturally without much interference; this works well with relatively small numbers of cases under study. The investigation of the settings or people allows the researcher to have a better, subjective understanding of the subject and come up with their own interpretations of the observations. The

researcher will then have a better understanding of events and behaviour in the context in which the investigation is occurring.

- The research seeks to determine types of individuals being interviewed or in a focus group and to further understand how they interact or think and explore how they are holistically described. Qualitative researchers spend time studying the various aspects of the subject or phenomenon under study to gain a better understanding, draw an analysis and answer the how, whom and why research questions.

- Finally, this research methodology's view towards life is that all events are interconnected and are in a process of constant change (Bryman, 2012:32).

Qualitative research allows the researcher to be more connected to participants, involved in the setting or with the people being observed and to describe things in detail and depth (Zikmund and Babin, 2013:109). The participant observer is involved and recognises that anything observed is interconnected and nothing is context-free. The object of qualitative research must be representative of the subject that the researcher is investigating to gain a better understanding of that subject.

The main purpose of quantitative and qualitative methodologies is for the researcher to try to establish and understand the object or viewpoint of the subject of study. Researchers should select the research methodology which is most appropriate for their studies.

Mixed research methodologies

Silverman (2011:370) states that mixed research methodologies allow the generation of rich knowledge through the application of combinations of various methodologies. Thus, greater insight can be gained than through pursuing solely qualitative or quantitative methodologies. The popularity of these integrated methods can be explained by the fact that they are designed to achieve both generalisation and in-depth analysis. According to Saunders *et al.* (2016:170), the mixed research methodology "focuses on research questions that call for real-life contextual understandings, multi-level perspectives, and cultural influences". They further state that this methodology employs rigorous quantitative frequency of constructs and variables as well as a rigorous qualitative research methodology which examines the meaning of these variables and

constructs. This approach thus employs multiple methodologies (qualitative and quantitative) for intervention trials and in-depth interviews.

The mixed research methodology is most suitable for studies which require the development of multiple research perspectives and a complete understanding of the research problem or question. If a researcher requires quantitative outcome measures, these can be comprehensibly achieved using qualitative data.

This study used quantitative research to conduct the empirical investigation through data collected from the South Africa's black middle class who were aware of green products and were either user or non-users of these products. The qualitative and quantitative research methodologies were discussed above and the distinctions between the two are summarised in Table 5.3 below, which displays a side-by-side comparison of the key elements. The appropriate research methodology adopted for this study is highlighted in this table.

Table 5.3: Summary of quantitative and qualitative research methodologies

Quantitative methodology	Qualitative methodology
Collects numerical data	Collects text, words through discussions and interviews
Separates the data collected from analysis	Merges the data collected and analysis
Tests theories and hypotheses across a wide variety of variables (deductive analysis)	Creates theories and hypotheses through observations (inductive analysis)
Emphasises the data that can be measured	Emphasises meanings, interpretations
Researcher is external or detached	Researcher is involved and close to data
Analyses variables	Analyses holistic systems and phenomena
Statistical and mathematical analysis	Textual analysis
Experimental and statistical controls	Naturalistic approach
Data collection and analysis based on large sample scale	Data collection and analysis based on small sample scale
Generalisation to large array	

Source: Saunders *et al.* (2016); Zikmund and Babin (2013)

The quantitative research methodology was appropriate for this study based on the following strengths of this methodology:

- It involves the use of gathering numerical data and provides statistical information which cannot be misinterpreted (Saunders *et al.*, 2016:166; Bradley, 2010:28).

- The participation of the SA black middle class through the completion of a structured survey (questionnaire) to measure their current and potential purchase behaviour in relation to green products.

- The survey can be conducted on a large scale and more information can be gathered for statistical purposes.

The qualitative research methodology was not appropriate for this research as it involves small samples of people and yields only nominal-level data, which is difficult to quantify.

5.6 RESEARCH STRATEGY

A research strategy is a plan which the researcher uses to answer a research question (Quinlan, 2011:178; Saunders *et al.*, 2016:177). Research strategies are used for exploratory, explanatory and/or descriptive research. Some strategies may be better-suited for deductive research while others are more suitable for inductive research. The selection of a research strategy depends on the objectives of the research, the research questions to and the researcher's cognitive experience (Saunders *et al.*, 2016:178). Experiments, survey research, ethnography method, case studies and action research are examples of key research strategies. These strategies are well documented in many methodology text books (Mouton, 2011; Flick, 2015; Sue and Ritter, 2011; Coghlan and Brannick, 2014; Saunders *et al.*, 2016). A summary of characteristics is presented in Table 5.4.

Table 5.4: Summary of characteristics of the major research strategies

Strategy	Characteristics
Experiments	The strategy aims at testing cause-effect relationships with a view of explaining how or why a phenomenon occurs. Experimental studies allow controlling of the environment through standard procedures.
Survey research	The strategy is used to collect and interpret information relating to preferences, attitudes, practices, concerns, or interests of some group of people.
Action research	Action research is more practically oriented insofar as it seeks to solve an actual problem in any human endeavour, be it social or work-related. It aims at immediately changing or improving practices and mind sets in the human endeavour.
Case study	This method is used to make in-depth review of selected cases, from one up to six to fully understand the phenomenon of investigation in the case. Unlike the survey it represents depth of information, rather than breadth. Thus, the results suffer from not being generalisable to other situations.
Ethnography	Ethnography involves researchers immersing themselves in the environment of the subjects to study particular phenomena by participating in the rituals over a continuous period of time. Although the strategy was used to study 'native tribes', it is possible to use these days in studying organisational phenomena.

Source: Mouton, 2011; Flick, 2015; Sue and Ritter, 2011; Coghlan and Brannick, 2014; Saunders *et al.*, 2016

In this study, the choice of strategy was informed by the philosophical paradigm adopted for this research. The positivist paradigm uses experimental and survey research methods. Due to the descriptive nature of this study, a survey instead of an experimental design was adopted for this research.

5.7 TIME HORIZON

Time horizon provide an indication of whether the research is done over a period of time, for example, taking a diary, showing changes in the phenomena over the research period (longitudinal studies), or whether the study reflects a static picture, for example, taking a 'snapshot' of the phenomena (cross-sectional studies) (Saunders *et al.*, 2016:200). Cross-

sectional studies have the advantage that they can be conducted over a shorter period of time than longitudinal studies and are therefore more suited to studies that are time-constrained (Saunders *et al.*, 2016:200). This study was conducted within a fixed and limited time window, which was better served by doing a cross-sectional study (Flick, 2015:97)

5.8 RESEARCH TECHNIQUES AND PROCEDURES

Saunders *et al.* (2016:272) state that research techniques include data collection as well as data analysis, which are also referred to as modes of analysis. The selection of research technique is also dependent on the research method classification, the research philosophy, the research approach as well as the research strategy (Saunders *et al.*, 2016:272). Research techniques are concerned with the collection or the generation of data, while research procedures are concerned with data analysis. Several data collection techniques exist, which include interviews, observation, questionnaires and documents (Saunders *et al.*, 2016:273). Prior to data collection, sampling needs to be considered as it is most often impractical to collect data from every possible case or group member (census).

5.8.1 Sampling

Sampling is the process of obtaining the right individuals, objects or events as representatives of the entire population (Malhotra and Dash, 2014:228; Zikmund and Babin, 2013:323). The process begins by defining the target population precisely (Sekaran and Bougie, 2013:245). The target population (sometimes referred to as 'the population of interest' or 'universe') is the total group of people that the researcher wishes to examine in a study or obtain information from (Wilson, 2012:183). Iacobucci and Churchill (2010:282) and Sekaran and Bougie (2013:245) argue that the target population must be defined in terms of elements, geographical boundaries and time. Generally, the simpler the definition of the target population, the higher the incidence and the easier and less costly it is to find the sample (Iacobucci and Churchill, 2010:283). Hair *et al.*, (2011:167) note that research objectives and the scope of the study are critical in defining the target population.

For this study, the target population was defined as the black middle class who are aware of green products and are either users or non-users of such products, located in Gauteng Province during 2017, when the data was collected.

Sampling design

There are two broad sampling designs used by researchers, namely, probability and non-probability sampling, each constituting a variety of sampling techniques (Saunders *et al.* 2016:275). Probability sampling takes place when each sampling unit in the target population has a chance of being selected to form part of the sample (Zikmund and Babin, 2010:269). Members of the sample are selected using specific rules to ensure that sampling units are chosen in an unbiased manner and that the target population is represented (Malhotra and Dash, 2014:501). The results gathered using probability sampling could be generalised to the target population within a specified margin of error (Zikmund and Babin, 2010:269).

Non-probability sampling is a technique where the probability of the sampling units being chosen is unknown (Shiu *et al.*, 2009:470). The researcher uses some form of intuition or judgement to select the sampling units (Malhotra and Dash, 2012:501). This sampling technique requires the researcher to strictly control the execution of the sampling process. The degree of control influences how representative the sample is of the target population. Since the probability of selection is unknown, the findings cannot be generalised to the target population and therefore the sample error cannot be determined (Saunders *et al.* 2016:276). Table 5.5 below indicates the sampling designs with their associated sampling techniques and advantages and disadvantages.

Table 5.5: Sampling designs

Sampling design	Sampling technique	Description	Advantages	Disadvantages
Probability sampling	Simple random sampling	Each sampling unit has a known and equal chance of being chosen to form part of the sample and current, complete sample frame is required	Easy to execute Results can be generalised	Difficulty in obtaining accurate sample frame All sampling units must be identified
	Systematic random sampling	Sampling is done by identifying a	Requires shorter time and effort	Hidden patterns in data could result in sample

		random starting point and then selecting every nth element in succession from the sampling frame	Lower cost	not being representative
	Stratified random sampling	Involves dividing the target population into separate groups or strata. Samples are then selected from each stratum by using simple random sampling	Strata strengthens representativeness Opportunity to make comparisons between strata	Same as systematic random sampling
	Cluster sampling	Sampling units are divided into mutually exclusive subpopulations. Sampling units are then selected from one of the clusters and the findings are generalised to the general population	Cost effective Easy to implement Less reliant on lists of individual sampling units	Selected cluster might not be representative of population Likely to yield inaccurate results
Non-probability sampling	Convenience sampling	Sampling units are selected based on availability. The selection of the sampling units is decided by the interviewer	Cost-effective Not as time consuming Units are accessible, and willing to cooperate	Allows for selection bias Results are not representative of the target population

	Judgemental sampling	Researcher uses his/her judgement when selecting sampling units. The sampling units are selected based on their appropriateness for the target population of interest	Inexpensive Fast Convenient	Results are not representative of population
	Quota sampling	Sampling units are selected until a predetermined number of units are part of the sample based on prescribed characteristics such as age or gender	Ensures that appropriate subgroups are included in study Reduces selection bias	Results are not representative of population
	Snowball sampling	Initial sampling units are randomly selected. The following sampling units are chosen based on referrals provided by the initial sampling units	Can identify members of uniquely defined target populations	Allows for selection bias Results are not representative of population

Source: Adapted from Malhotra, Birks and Wills (2012:503); Saunders *et al.* (2016:286)

In this study, a two-stage probability sampling method was used. The first stage involved dividing the Gauteng list of black middle class according to the strata (areas or suburbs) where they were located. Once the strata were identified, the second stage involved using a simple

random sampling technique to draw the sample elements from the population. This approach improved sampling efficiency by increasing accuracy without increasing the cost of sampling (Saunders *et al.* 2016:279).

Determining the relevant sample size

In determining the sample size, several factors are commonly considered. These are: the available funds to cover the costs, time constraints, the heterogeneity of the population and the type of analysis the study seeks to undertake (Bryman, 2012:200). These factors were taken into consideration when deciding on a sample size in this study. Various multivariate data analysis statistical techniques are used to analyse the data and test the hypothesis in this study. These techniques include, confirmatory factor analysis and partial least squares structural equation modelling (PLS-SEM).

The statistical analysis method used for this study was PLS-SEM. It is a multivariate analysis approach used to examine the nature of relationships among observed and latent variables with either a confirmatory or hypothesis –testing goal (Byrne, 2012:5). Generally, PLS-SEM can use a considerately smaller sample size compared to other multivariate analysis approaches (Hair *et al.*, 2014:576). However, opinions on the minimum sample sizes required for PLS-SEM analysis varies.

Hair, Sarstedt, Ringle and Mena (2012:420) quoting Barclay, Higgins and Thompson (1995) note that as a rule of thumb, for robust PLS-SEM estimations, it is recommended to use a minimum sample size of ten times the maximum number of paths aiming at any construct in the outer model (i.e. the number of indicators per construct) and inner model (i.e. the number of path relationships directed at a particular construct). Although this rule of thumb does not account for effect size, reliability and other factors known to affect predictive power and can thus be misleading, it nevertheless provides a rough estimate of minimum sample size requirements. Therefore, the sample size of 500 usable responses is considerably above the minimum data requirement.

The following sections explores the methods and approached used in data collection.

5.8.2 Data Collection

The collection of data constitutes an integral element of the research process. Data collection refers to the precise and systematic gathering of opinions and views that have the potential of addressing the research problem (Murthy and Bhojanna, 2010:241). In order to address the research objectives, it is important to select suitable data collection tools that enhance the quality of data (Zikmund and Babin, 2013:98).

As previously indicated under research strategy (section 5.6), survey methods were used for data collection. Its aim is to obtain information on beliefs, values, attitudes, preferences and intentions (Sekaran and Bougie, 2013:102). The survey method is based on questioning respondents in some form, or the behaviour of respondents is observed and described in some way. Survey data does more than just report behaviour. It can provide insights into who the consumers are, how they behave and why they behave in certain ways. It is mostly used when the research involves sampling a large number of people (Wilson, 2012:13). Consistent with this, a structured questionnaire was the main instrument used in obtaining responses from the research participants.

The tasks of obtaining the responses can be accomplished by the interviewer verbally, in writing, or through computer-based technology. An interviewer may be used to administer they survey or the respondents may complete the survey on their own. The latter method is known as ‘self-completion’ or ‘self-administered surveys’. Interviewer-administered surveys that involve the use of paper-based questionnaires or computer terminals are commonly undertaken using face-to-face contact in the home, street or place of work or over the telephone (Wilson, 2012:131). The different types of survey research methods are presented in Table 5.6.

Table 5.6: Types of survey research methods

Type of Survey Research	Description
Person-Administrated	
In-home interview	An interview takes place in the respondent's home or, in special situations, within the respondent's work environment (in-office)
Executive interview	A business executive is interviewed in person
Mall-intercept interview	Shopping patrons are stopped and asked for feedback during their visit to a shopping mall
Purchase-intercept interview	The respondent is stopped and asked for feedback at the point of purchase
Telephone-Administrated	
Telephone interview	An interview takes place over the telephone. Interviews may be conducted from a central telephone location or the interviewer's home
Computer-assisted telephone interview	A computer is used to conduct a telephone interview; respondents give answers by pushing buttons on their phone
Completely automated telephone surveys	The survey is completely administrated by a computer without the use of any human interviewer
Wireless phone survey	The survey is conducted over the respondent's wireless phone in either text-based or voice-based formats
Self-Administrated	
Mail panel survey	Surveys are mailed to a representative sample of individuals who have agreed in advance to participate
Drop-off survey	Questionnaires are left with the respondent to be completed at a later time. The surveys may be picked up by the researcher or returned via email
Mail survey	Questionnaires are distributed to and returned from respondents via the postal service

Computer-Assisted (Online)	
Fax survey	Surveys are distributed to and returned from respondents via fax machines
E-Mail survey	Surveys are distributed to and returned from respondents via electronic mail
Internet survey	The internet is used to ask questions and record responses from respondents

Source: Hair, Wolfinbarger, Ortinau, and Bush (2013:111)

In this study, trained interviewers made appointments to see the willing respondents either at their homes or in their work place. The respondents had a choice of either completing the questionnaire by themselves or having the questions read out to them by the data collector, who then would then write their answers on the questionnaire. The researcher believed that personal contact through the use of interviewers was necessary in order to ensure the successful completion of the questionnaires.

Measurement and scaling procedures

When a concept is measured poorly, the outcome can be inaccurate data that will lead to inaccurate conclusions. Before measurement processes can be defined, the researcher must decide exactly what needs to be measured and what scales need to be used. The research objectives, research questions and research hypotheses can be used to decide what concepts need to be measured (Zikmund and Babin, 2010b:322).

Measurement can be described as a process of obtaining meaning by describing some property of a phenomenon, usually by assigning numbers in a reliable and valid way (Zikmund and Babin, 2010b:322). In developing the assignment process, a one-on-one correspondence must exist between the numbers and the characteristics being measured. Only then can the numbers be associated with the specific characteristics of the object being measured (Malhotra, 2012:279).

Scaling refers to procedures that attempt to determine quantitative measures of subjective and sometimes abstract concepts (McDaniel and Gates, 2010:333). It is an extension of measurement that involves the creation of a continuum upon which measured objects are

located. Thus, respondents are placed on a continuum with respect to their attitudes towards a situation, a person or an object (Malhotra, 2012:280). Ensuring the relevant scales of measurement are used when designing questions is very important to minimise measurement errors (Feinberg, Kinner and Taylor, 2013:47). Scale measurement errors occur when the researcher designs inappropriate questions, incorrect scale attributes or scale descriptors that collect incorrect information from respondents (Feinberg *et al.*, 2013:28; Malhotra, 2010:118). These errors in scale development can lead to lack of precision in measurement as well as ambiguity of scale questions. This bias can have a negative impact on the reliability and validity of the research findings

There are four scales of measurement that can be used as measurement, namely nominal, ordinal, interval and ratio scales (Churchill, Brown and Suter, 2010:246). Table 5.8 below presents the various levels of scales.

Table 5.7: Scales of measurement

Scale of measurement	Description	Example
Nominal	Numbers assigned to objects as labels for the purpose of identification. Allows the researcher to categorise individuals into groups or classes that are mutually exclusive	Gender, marital status
Ordinal	Assigns numbers to objects on the basis of some order. Assists a researcher to determine whether an object has more or less of a characteristic in comparison to another object	Preference ranking
Interval	Assigns the relative size of the difference between characteristics of objects. Allows for the comparison between the sizes of differences between objects. The zero point is not fixed, but assigned subjectively	Attitude measures
Ratio	Has all the features of nominal, ordinal and interval scales as well as an absolute zero point. It is the highest scale of measurement to be used by researchers. The scales can identify, rank and compare intervals or differences. Interval scales can also determine ratios of scale values	Sales, market share

Source: Adapted from Malhotra *et al.* (2012:412) and Churchill *et al.* (2010:247)

In this study, the questionnaire consists of nominal and interval scale questions. Attributes such as age, gender, level of education, level of income job status, economic status and level of awareness regarding green products were measured on nominal scales, whereas questions measuring respondents' attitude and behaviour towards green product purchase were measured on interval scales. The choice of measurement scales was also motivated by their ability to generate the data required to solve the research problem.

Operationalisation of constructs

Operationalisation entails the reduction of abstract concepts to render them measurable in a tangible way (Sekaran and Bougie, 2013:200). Operationalisation thus specifies how a construct used in a study is empirically measured (Churchill *et al.*, 2010:252). Hair, Black, Babin and Anderson (2010:735) note that constructs can be defined and operationalised as has done in previous studies. Consistent with the recommendation, the operational definition of the

constructs used in this study was adapted from previous related studies. In this study, the researcher operationalised the constructs by firstly proposing a definition of the constructs being measured. Secondly, items or questions were selected that actually measured the constructs. Lastly, the response format was chosen (e.g. a seven-point rating scale with end-points anchored by 'strongly agree' and strongly disagree', which was used in this study). Table 5.9 below provides the operational definitions of the constructs used in the study, their corresponding measurement items and their sources.

Table 5.8: Operational definitions of the study constructs

Constructs	Conceptual definition	Operational definition	Sources of the items
Functional value	The degree of fulfilment of consumer need by overall assessment of consumers' perceived net utility from green appliance purchase based on their perceptions about price and quality of green appliance	The green appliances are good quality The green appliances are well made The green appliances have acceptable standard of quality The green appliances offer value for money The green appliances perform reliably The green appliances perform their functions for a long time	Biswas and Roy (2015); Lin and Huang (2012); Malhotra and Maheshwari (2011); Tsay (2010); Sheth *et al.* (1991)
Social value	The perceived net utility derived from green appliance usage based on perception about social pressure or prestige gain through engagement in environmental saving	Purchasing the green appliances cause/would cause me to be admired. Purchasing the green appliances make/would make a good impression of me Purchasing the green appliances improve/would improve the way I am perceived. Most people who are important to me expect/would expect that I should buy the green appliances.	Spangenberg *et al.* (2010); Lorek and Fuchs (2013); Wang *et al.* (2014); Zhao *et al.* (2014); Sheth *et al.* (1991)

Emotional value	The perceived net utility acquired from an alternative's capacity to arouse feelings or affective states	Buying the green appliances feel/would feel like making a good personal contribution to something better Buying the green appliances feel/would feel like the morally right thing to do Buying the green appliances make/would make me feel like a better person Buying the green appliances make/would make me feel good	Biswas and Roy (2015); Suki and Suki (2015); Lin and Huang (2012); Sheth *et al.* (1991)
Conditional value	The perceived net utility derived from green appliance purchase based on their perceived willingness to have personal benefits in the form of discounts or perception about situational variables leading to such purchase	I buy/would buy the green appliances when my financial conditions are good I buy/would buy the green appliances when there is a subsidy for green products I buy/would buy the green appliances when there are discount prices for them I buy/would buy the green appliances when they are available	Saxena and Khandelwal (2010); Gadenne *et al.* (2011); Wang, Liao and Yang (2013); Sheth *et al.* (1991)
Epistemic value	The degree of fulfilment of consumer need by overall assessment of green purchase based on their perception about green product information or the disclosures made on the packaging of green appliance.	Before buying the green appliances, I obtain/would obtain substantial information about the different makes and models of the products I require/would require a great deal of information about the different makes and models before buying green appliances I am willing to ask for new information about the green appliances I like/would like to search for new and different types of green appliances	Mostafa (2009); Kaufmann *et al.* (2012); Suki (2013c); Sheth *et al.* (1991)

Relative advantage	The extent to which green appliance is considered better than product it supersedes	The green appliances have/would have significant benefits for me and the environment The green appliances decrease air pollution The green appliances decrease carbon footprint production Using green appliances reduces the pressure on energy (electricity) consumption	Kapoor *et al.* (2014); Alam *et al.* (2014); Dalton *et al.* (2008); Rogers (2003)
Compatibility	The extent to which green appliances are consistent with existing needs and values, past experiences of current and potential users	To buy the green appliances is/would be in line with my lifestyle It is easy to find shops that sell green appliances To use green appliances is/would be in line with my values Buying green appliances does not/would not differ from what I am used to in the past	Claudy *et al.* (2011); Ozaki (2011); Rogers (2003)
Complexity	The perception of complexity associated with the use of green appliance by consumers	It is/would be difficult to understand how green appliances work It is/would be difficult to use green appliances It is not/would not be simple to use green appliances Using the green appliances is not/would not be frustrating	Chou *et al.* (2012); Arkesteijn and Oerlemans (2005); Rogers (2003)
Observability	The extent to which the outcomes/results of using the green appliance can be observed or seen by the potential users	It is/would be easy to see the advantages of using green appliances It is/would be difficult to explain the benefits of using green appliances to others	Kapoor *et al.* (2014); Tapaninen *et al.* (2009a); Rogers (2003)

		By buying green appliances, I show/would show that I care about the environment The benefits of using green appliances is/would not be hidden	
Attitudes	The sum of perceived negative and positive outcomes of acquiring green appliances	I feel that green appliances' environmental conservation claims are generally trustworthy I feel that green appliances' environmental protection reputation is generally reliable Buying green appliances is/would be a good idea for me and the environment Buying green appliances is/would be a worthwhile purchase decision I have a favourable attitude towards purchasing the green version of the products If I can choose between green appliances and the conventional ones, I would prefer the green versions	Chen and Tung (2014); Zhou *et al.* (2013) Ramayah *et al.* (2010); Dean *et al.* (2012); Ha and Janda (2012); Ajzen (2002)
Perceived behavioural control	Individuals' perceived ease or difficulty in purchasing green appliances	I believe that I have the financial ability to purchase green appliances If it were entirely up to me, I am confident that I would purchase green appliances I see myself as capable of purchasing green appliances in future I have resources to purchase green appliances I have the time to purchase green appliances Green appliances are generally available in the	Moser (2015); Teng *et al.* (2014); Chang *et al.* (2014); Albayrak *et al.* (2013); Ajzen (2002)

		shops where I usually do my shopping	
Behavioural intention	The extent to which current or potential users are willing to buy green appliances	I intend to start/continue buying green appliances because of their environmental benefits I will consider switching to green appliances for ecological reasons I expect to start /continue to purchasing green appliances in the future because of their positive environmental contribution I definitely want to purchase green appliances in my next purchase	Wu and Chen (2014); Kim and Han (2010); Canniere *et al.* (2009) Gracia and Magistris (2007); Ajzen (2002)
Actual behaviour		I make a special effort to buy green appliances I have switched to buying green appliances because of the environmental benefits When I have a choice between the same types of products, I purchase the ones that use less electricity and are less harmful to the environment I make a special effort to buy home appliances that are green or environmentally friendly	Chen and Tung, (2014); Kim *et al.* (2013); Ha and Janda (2012); Kalafatis *et al.* (1999); Ajzen (2002)

Reliability and validity of measurement

For each scale employed in the study, validity and reliability analyses were performed.

Reliability

Reliability is concerned with evaluating the degree to which a construct's indicators are consistent in their measurements and if the indicators are measuring the same thing (Hair, Black, Babin and Anderson, 2010). Cronbach's alpha and composite reliability were used to assess the internal consistency of each scale. A number of researchers have found composite

reliability to be more suitable for PLS-SEM than Cronbach's alpha (Hair, Ringle and Sarstedt, 2011; Hair, Hult, Ringle and Sarstedt, 2014; Henseler, Ringle and Sinkovics, 2009). Values of composite reliability should exceed 0.700 to demonstrate internal consistency reliability (Iacobucci and Churchill, 2010:260; Bryman and Bell, 2011:158; Hair *et al.*, 2017).

Validity

According to Hair, Black, Babin and Anderson (2014:124), validity refers to the extent to which a scale or set of measures accurately represents the concept of interest. Clow and James (2014:269) indicate that validity is "the ability of a measurement scale to measure what it proposes to measure and the degree to which it is free of both systematic and random error". Zikmund and Babin (2013:258) and Churchill *et al.* (2010:257) indicate that validity is an important measure because its absence may result in invalid results. There are different ways of assessing validity, including construct and content validity.

Construct validity is considered to be "the true measure of accuracy; this involves the extent to which the test actually measures the hypothetical construct or behaviour it is designed to assess" (Maitland and Hannah, 2008:203). According to Clow and James (2014:271), construct validity is the most difficult to achieve, as it assesses how well the measurement captures the concept or construct that is being considered and also how logically it connects to the underlying theory.

There were two types of construct validity used in this study, namely, convergent validity and discriminant validity. Convergent validity is the degree to which the multiple items share a high proportion of variance (Hair *et al.*, 2013:167). This is another way of validating internal consistency because highly reliable scales usually hold convergent validity (Zikmund and Babin, 2010:337). Discriminant validity reflects the degree to which a scale does not correlate with other scales from which it is supposed to differ (Malhotra, 2010:321). This type of validity reflects how unique and distinctive a scale is (Zikmund and Babin, 2010:337).

Content or face validity refers to the measurement of a construct to ensure that it adequately covers the most important aspect of the construct (Churchill *et al.*, 2010:259). McDaniel and Gates (2013:291) point out that content validity can never be guaranteed as it is dependent on judgment. However, a systematic process may be followed to enhance it. For example, a

systematic process may start by considering available literature to determine how other researchers have measured the concept. Another option may be to consult experts in the field under study (Churchill *et al.*, 2010:260).

In this study, the research instruments were reviewed by two experts who were senior academics in the field of marketing management as well as by statisticians at the University of Johannesburg's Statistical Consultation Services unit, STATKON. One of these experts was from the University of the Witwatersrand while the other was from the University of Johannesburg. The objective of this process was to obtain advice from experienced professionals to review the data collection instruments. Based on the feedback received, some amendments were made and incorporated into the initial drafts of the survey instruments. Reliability and validity will be further discussed as part of the main analysis.

Questionnaire format and layout

The effectiveness of a questionnaire as a data collection instrument depends on its structure. For instance, Shiu, Hair, Bush and Ortinau (2009:327) contend that "a poorly written questionnaire will not provide the data that are required, or worse, will provide data that are incorrect." According to Wiid and Diggines (2011:171), a haphazardly developed questionnaire results in response bias with the potential of rendering the research findings worthless. A good questionnaire is one that is designed in a manner that motivates respondents to participate in the study as well as providing responses that address the research problem (Malhotra 2007:299). Given this background, considerable effort was given to the design of the questionnaire in the present study.

The questionnaire included an introductory letter explaining the purpose of the study and a consent letter advising participants of their rights should they wish to participate in the study. The letter also solicited the co-operation of respondents by providing the correct information when completing the questionnaire. The questionnaire consisted of closed-ended questions to save completion time for the respondents (Bryman and Bell, 2011:250). A closed-ended question is one that requires the respondent to select from a set of fixed responses, one response that best explains the construct under study (Wiid and Diggines, 2011:177). The questionnaire included clear instructions that directed the respondents in completing the questionnaire. Based

on the recommendation of Salkind (2012:149), the questionnaire started with basic demographic questions and later focused on specific questions related to the study.
In terms of structure, the questionnaire consisted of four sections. Section A requested the biographical and demographic information such as level of awareness, gender, age, education level, job status, income and economic status. The demographic variables were incorporated in order to obtain insights into the profile of green appliance users and non-users.

Section B comprised questions on consumer-related factors that could have a positive influence on green product purchase behaviour. The questionnaire measured constructs such as functional value, social value, emotional value, conditional value and epistemic value. These scales have been employed extensively in green behaviour studies and are considered reliable and valid in measuring their respective constructs. The responses to the items were measured on a seven-point Likert scale anchored by 'strongly disagree' (1) to 'strongly agree' (7) to express the degree of agreement or disagreement.

Section C requested information on product-related factors that could have a positive influence on green product purchase behaviour. The questionnaire items used to measure constructs such as relative advantage, compatibility, complexity and observability. These scales have been used in green innovation adoption studies and are considered reliable and valid in measuring their respective constructs. The responses to the items were also measured on seven-point Likert scales anchored by 'strongly disagree' (1) to 'strongly agree' (7) to express the degree of agreement or disagreement

Section D captured the attitudes, perceived behavioural control, behavioural intention and actual purchase behaviour of green product using a Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (7) to express the degree of agreement or disagreement.

Pre-testing the questionnaire

Once a questionnaire has been developed, the next step is to pre-test it (Saunders *et al.*, 2016:473). Pretesting a questionnaire involves testing the questionnaire on a small sample of respondents (Malhotra *et al.*, 2012:476). The main objective of conducting such pre-tests was to determine whether or not participants were able to understand the questions without difficulty. Feinberg, Kinner and Taylor (2013:287) indicate that it is still prudent to pre-test it

in order to ascertain areas for improvement, irrespective of the researcher's skill in questionnaire design. The questionnaire was pre-tested on 30 black middle class people residing in Gauteng. The pre-testing was conducted during the month of November 2017.

5.8.3 Data Analysis

Data analysis usually comprises the reduction of collected data to a manageable size, developing summaries, looking for patterns and applying statistical techniques. It moreover involves the interpretation of research findings in light of the research questions and concludes if the results are consistent with the research hypotheses and theories (Cooper and Schindler, 2011:87).

Descriptive statistics

Descriptive statistics are used to describe the characteristics of a population or a sample. Thus, it is logical to say that descriptive analysis is the first stage in data analysis. It aims to describe data by examining the spread of scores on each variable. In other words, descriptive analysis allows the researcher to present the data in a way that is easily interpretable.

Through the provision of statistical summaries, descriptive statistics present the data in a form that is easy to interpret (Struwig and Stead, 2001:4). Krommenhoek and Galpin (2012:54) suggest that tables, pie charts, bar graphs and histograms can be used to present the data in a descriptive manner.

Structural equation modelling (SEM)

According to Pallant (2010:12), structural equation modelling (SEM) is “a procedure for estimating a series of dependence relationships among a set of constructs represented by multiple measured variables and incorporated into an integrated model”. SEM enables researchers to simultaneously examine a series of interrelated dependence relationships between a set of constructs, represented by several variables (e.g. scales), while accounting for measurement error. SEM’s ability to simultaneously test relationships incorporated into an integrated model has contributed to its widespread application. When applying SEM, researchers must consider a covariance-based analysis (CB-SEM) or a variance-based approach, more commonly referred to as partial least squares (PLS) (Hair, Sarstedt, Ringle and

Mena, 2012), also referred to as PLS-SEM. These are the two primary techniques for estimating structural equation models (Dijkstra, 1983; Joreskog and Wold, 1982).

The selection of PLS-SEM as a method of choice for data analysis was based on several reasons. Whereas CB-SEM has been the predominant approach, in recent years PLS-SEM has been increasingly disseminated in a variety of disciplines such as strategic management (Hair *et al.*, 2012) and marketing (Hair *et al.*, 2012; Henseler, Ringle and Sinkovics, 2009). Much of the increased use of PLS-SEM may be credited to the method's ability to manage problematic modelling issues that routinely occur in the social sciences studies (Hair, Ringle and Sarstedt, 2013; Robins, 2012).

The PLS-SEM method has been designed as a prediction-oriented approach to SEM that relaxes the demands on data and specification of relationships set by CB-SEM (Wold, 2006; Dijkstra, 2010; Rigdon, 2012). For example, PLS-SEM is able to reliably estimate very complex models using only few observations without imposing distributional assumptions on the data. Its statistical properties make PLS-SEM particularly useful for exploratory research settings that are "simultaneously data-rich and theory-primitive" (Wold, 1985:589). However, its capabilities also support its use for theory testing (Hair, Ringle and Sarstedt, 2011), as it the case with this current study. As such, PLS-SEM meets the challenges faced by researchers who are confronted with an increasing complexity of theories and cause-effect models (Benavides-Velasco, Quintana-García and Guzman-Parra, 2013; Gedajlovic, Carney, Chrisman and Kellermans, 2012).

It is important to check for reliability and validity by assessing the measurement models before the evaluation of the structural model is conducted.

Measurement models

SmartPLS was used to conduct the confirmatory factor analysis, which is not based on goodness of fit indexes (commonly applied in CB-SEM), but on factor loading, internal consistency reliability and validity of the measurement model (Ringle, Wende and Becker, 2015). Confirmatory factor analysis specifies the relations of the observed measures to their posited underlying constructs, with the constructs allowed to inter-correlate freely (Hair *et al.*, 2006:773; Shmueli, Ray, Velasquez Estrada and Chatla, 2016:4558). The purpose of the factor

analysis is to investigate the underlying variance structure of a set of correlation coefficients (Dijkstra and Henseler 2015:302).

Reliability of the measurement scales

The extent to which results are consistent over time and are accurate representation of the total population under study is referred to as reliability. If the results of a study can be reproduced under similar methodology, then the research instrument is considered to be reliable (Zikmund and Babin, 2013:256). Saunders *et al.* (2012:131) identify three types of reliability in quantitative research, namely, i) the degree to which a measurement, given repeatedly, remains the same, ii) the stability of a measurement over time and iii) the similarity of measurement within a given time period. In particular, the factor loadings, Cronbach's coefficient alpha (α) and Composite Reliability (CR) values will be determined using Partial Least Squares (PLS) Structural Equation Modelling technique with the aid of the SmartPLS version 3.2.7 software in order to assess measurement items reliability.

Validity of measurement scales

Validity determines whether the research truly measures that which it is intended to measure or how truthful the research results are (Sekaran and Bougie, 2013:225). Convergent and discriminant validity will be among assessment tool to measure validity. Convergent validity measures the extent to which the scale correlates positively with other measures of the same constructs (Pallant, 2010:11; Chin, 2010:658). Discriminant validity measures the extent to which a measure does not correlate with other constructs from which it is supposed to differ. It involves demonstrating a lack of correlation among differing constructs (Pallant, 2010:11; Chin, 2010:658). Convergent and discriminant validity of the research constructs will be determined by checking the inter-correlation between the research constructs (convergent validity) and by comparing the Average Variance Extracted (AVE) and shared variance (discriminant validity)

Structural model

Following the assessment of the measurement model, the structural model efficiency was evaluated by following guidelines (or steps) as recommended by previous researchers (Henseler, Ringle and Sarstedt, 2012; Gason, 2016; Hair *et al.*, 2017).

The first step involved the assessment of the structural model for collinearity issues, which can occur when two indicators are highly correlated with one another. Hair *et al*., (2017) recommend assessing for collinearity of the structural model using a variance inflation factor (VIF) threshold value of five to predict the presence of collinearity. The second step assessed the significance and relevance of the path coefficients in the structural model. Path coefficients were reported in the PLS-SEM results. The significance of each path was tested using bootstrap t-values (5,000 sub-samples). This procedure was to ascertain whether the relationships between the various constructs under investigation were significant (Henseler, Ringle and Sarstedt, 2012; Hair *et al.*, 2017).

The third step involved the identification of the coefficients of determination (R^2) value. R^2 value is an inner model assessment that represents the amount of explained variance of each endogenous latent variable (Hair *et al.*, 2017). The fourth step involved the identification of the f^2 effect sizes. This is the effect of change in R^2 value when a specific construct is eliminated from the model (Hair *et al.*, 2017). The effect size of the omitted construct for a particular endogenous construct can be determined with values of 0.002, 0.15, and 0.35, which represent small, medium and large effects (Cohen, 1988; Henseler, Ringle and Sarstedt, 2012; Hair *et al.*, 2017). The last step assessed the structural model's predictive relevance (Q^2) which is used to determine if an omitted construct from the model had a significant impact on the endogenous constructs (Hair *et al.*, 2017).

5.9 CONCLUSION

This chapter addressed the research methodology followed in the study and outlined the research process as proposed by Saunders *et al.* (2016:124). A positivist philosophy was adopted and quantitative data using a survey technique was chosen as the data collection method aimed at the black middle class residing in Gauteng. Data collection modes involved interviewer-administered surveys in order to ensure the successful completion of the questionnaires. Although a variety of data analyses is utilised for this study, the key statistical technique used to test the hypotheses was the structural equation model.

CHAPTER 6:
PRESENTATION AND INTERPRETATION OF RESULTS

6.1 INTRODUCTION

The previous chapter discussed the methodology of the study. A survey involving 500 respondents representing the black middle class of South Africa provided empirical data for statistical analysis and hypothesis testing. The purpose of this chapter is to present and interpret the results of the statistical data analysis. The chapter commences with a presentation of the results of the descriptive statistics, which includes the profile of the sample and the characteristics of the measurement items and their corresponding constructs.

The chapter is then divided into two sections. The first part presents the partial least squares – structural equation modelling measurement model that will include the results of factor loading, construct reliability, convergent validity and discriminant validity. The second part will present the results from the structural model which will include results from the hypotheses testing.

6.2 DESCRIPTIVE STATISTICS

The following sub-sections present the results of the descriptive statistics of the participants' awareness of green appliance products, their rate of usage/purchase of green appliance products and overall participant profile. The results presented under this sub-section also include the descriptive statistics of the measurement of items and their corresponding constructs.

6.2.1 Green Appliance Product Awareness

The results are presented in Table 6.1.

Table 6.1: Awareness of green products

Are you aware of green appliances?		
	Frequency	Valid percentage
YES	500	100.0

The results in Table 6.1 indicate that all the 500 respondents were aware of green products.

6.2.2 Green Appliance Product Purchase/Usage

The results are presented in Table 6.2.

Table 6.2: Purchased/used green appliances

Have you purchased or used green appliance products in the past five years?		
	Frequency	Valid%
YES	250	50.0
NO	250	50.0

Table 6.2 shows that 250 respondents have purchased or used green appliance products in the past five years and the remaining 250 have not used or purchased any green appliances. Since this study was also aimed at assessing purchase intention of green appliances and the factors that drive the intention, 250 non-users of green appliances were retained in the study. For those, who have used green appliances in the past five years, the number of the green appliances used is presented in Table 6.3.

The results presented in Table 6.3 indicate the number of green appliance products used. The majority of the respondents (39.6+22.4+18=80%) have used between one and three green products. The results further show that the central tendency measure of number of products used by respondents, averages to two appliances per respondent.

Table 6.3: Number of green appliances used

NUMBER OF PRODUCTS USED		
	Frequency	Valid percentage
1	99	39.6
2	56	22.4
3	45	18.0
4	21	8.4
5	15	6.0
6	11	4.4
8	2	.8
9	1	.4
Total	250	100.0
NUMBER OF PRODUCTS USED – Mean and Standard Deviation		
Mean	Median	Std. Deviation
2.38	2	1.582

6.2.3 Participants' Profile

A demographic profile of the participants is summarised in Table 6.4.

Table 6.4: Demographic information

	Frequency	Valid percentage
Gender		
Male	231	46.2
Female	269	53.8
Total	500	100.0
Age category		
18-25	50	10.0
26-35	75	15.0
36-45	125	25.0
46-55	100	20.0
56-60	100	20.0
61+	50	10.0
Total	500	100.0
Level of Education		
Below high school	45	9.0
High School	94	18.8
Diploma	202	40.4
Degree	144	28.8
Master's degree	14	2.8
Doctorate degree	1	0.2
Total	500	100.0
Job status		
Student	13	2.6
Unemployed	55	11.0
Work part-time	189	37.8
Work full-time	225	45.0
Retired	18	3.6
Total	500	100.0
Level of income		
No income	2	0.4
Less than R6 999	25	5.0
R7 000-R14 999	31	6.2
R15 000-R24 999	336	67.2
R25 000-R49 999	106	21.2
Total	500	100.0
Ethnic group		
Black	500	100.0

The results presented in Table 6.4 show that 231 (46.2%) respondents were males, while 269 (53.8%) were females.

Up to 80% were within the working ages of 26-60 years, compared to the 10% who were between 18-25 years old and were mostly in university in South Africa in this age range. Having

up to 80% of the respondents within working age predicts their capability of buying a green appliance. This is reflected by 88.4% of respondents who reported that they earn incomes between R15 000 – R49 999. Earning this range of income is made possible by the fact that up to 90.8 % of the respondents had between a high school qualification to a Master's degree. With this level of education, the awareness and use of green appliances was probably made possible.

The results presented in Table 6.4 show that all the survey participants (500 in total) were Black in ethnicity.

6.2.4 Measurement Scales

This section presents the mean and standard deviation relating to the findings of each of the 13 constructs that were investigated in this study. Each of these are discussed in turn.

6.2.4.1 Functional Value

The measurement scale of functional value consisted of five items, measured on a seven-point scale. The mean and standard deviations are present in Table 6.5.

Table 6.5: Functional value

Description of item	Mean	Std. Deviation
The green appliances have good quality	5.87	1.247
The green appliances are well made	5.85	1.320
The green appliances have acceptable quality	5.68	1.454
The green appliances perform reliably	5.78	1.400
The green appliances perform their functions for a long time	5.77	1.420
Overall functional value	**5.79**	**1.368**

The mean values of the items ranged from 5.68 to 5.87, while those of the standard deviation ranged from 1.247 to 1.454. All the items used to measure functional value had mean values greater than 5. The highest mean value was 5.87 for the item pertaining to the good quality of green appliances. Therefore, the overall mean and standard deviation values of 5.79 and 1.368 respectively suggest that participants generally agreed with the statements.

6.2.4.2 Social Value

The descriptive statistics obtained for the items used to measure social value are presented in Table 6.6.

Table 6.6: Social value

Description of item	Mean	Std. Deviation
Purchasing the green appliances cause/would cause me to be admired.	5.18	1.645
Purchasing the green appliances make/would make a good impression of me	5.27	1.717
Purchasing the green appliances improve/would improve the way I am perceived	5.35	1.777
Most people who are important to me expect/would expect that I should buy the green appliances.	5.31	1.830
Overall social value	**5.28**	**1.744**

The computed overall mean and standard deviations for the construct were 5.28 and 1.744 respectively. On an item-by-item basis, all the items had a mean score of above 5. This suggest that participants generally agreed with the statements measuring the construct.

6.2.4.3 Emotional Value

The scale used to measure emotional value was made up of four items. The descriptive statistics obtained for the items measuring the constructs are presented in Table 6.7.

Table 6.7: Emotional value

Description of item	Mean	Std. Deviation
Buying green appliances feels/would feel like making a good personal contribution to something better.	5.43	1.655
Buying the green appliances feel/would feel like the morally right thing to do.	5.56	1.641
Buying the green appliances make/would make me feel like a better person.	5.40	1.783
Buying the green appliances make/would make me feel good.	5.81	1.438
Overall emotional value	**5.55**	**1.485**

The scores obtained for each item suggest that participants are positive about the feelings they get/will get when using green appliances. The overall mean and standard deviations computed for the construct were 5.55 and 1.485 respectively. This suggests that the participants generally agreed with the items used to measure this construct.

6.2.4.4 Conditional Value

Descriptive results of the measurement items for the conditional value construct are presented in Table 6.8.

Table 6.8: Conditional value

Description of item	Mean	Std. Deviation
I buy/would buy the green appliances when my financial conditions are good.	5.33	1.532
I buy/would buy the green appliances when there is a subsidy for green products.	4.80	1.681
I buy/would buy the green appliances when there are discount prices for them.	4.80	1.782
I buy/would buy the green appliances when they are available.	5.27	1.697
Overall conditional value	**5.05**	**1.673**

The mean of the items ranged from 4.80 to 5.33, with the standard deviations ranging from 1.532 to 1.782. The highest mean value was 5.33 for the item pertaining to buying green appliances when the participant's financial conditions are good. Overall, participants are generally in agreement with the items used to measure this construct.

6.2.4.5 Epistemic Value

Epistemic value was measured with six items. Descriptive statistics of the measurement items are presented in Table 6.9.

Table 6.9: Epistemic value

Description of item	Mean	Std. Deviation
Before buying the green appliances, I obtain/would obtain substantial information about the different makes and models of the products.	5.18	1.514
I prefer/would prefer to read green appliance product labels for further information before making a purchase.	5.78	1.275
I require/would require a great deal of information about the different makes and models before buying green appliances.	5.63	1.393
I am willing to ask for new information about the green appliances.	6.02	1.082
I like/would like to search for new and different information on different types of green appliances.	5.66	1.383
I search/would search useful information on green appliances	5.94	1.284
Overall epistemic value	**5.70**	**1.127**

The overall mean deviation of 5.70 and the standard deviation of 1.127 suggest that participants are in agreement with all the items measuring the construct. Item-by-item analysis show that participants are very much in favour of obtaining information and learn more about green appliances as the highest mean value of 6.02 pertains to willingness to ask for new information regarding green appliance products.

6.2.4.6 Relative Advantage

Relative advantage was measured with four items on a seven-point scale. The descriptive statistics obtained for the analysis of the items of this construct are presented in Table 6.10.

Table 6.10: Relative advantage

Description of item	Mean	Std. Deviation
Using green appliances helps/would help to decrease my home electricity bill.	5.32	1.575
Using green appliances helps/would help to decrease my home water bill.	5.90	1.260
The water and electricity cost saving I make/would make is worth buying and using green appliances.	5.59	1.402
Using green appliances would contribute to protecting the environment	5.84	1.330
Overall relative advantage	**5.66**	**1.263**

The overall mean of 5.66 and standard deviation of 1.263 indicate that the participants generally strongly agree and believe that using green appliance will provide an advantage in saving money and also will benefit the environment.

6.2.4.7 Compatibility

Descriptive results of the measurement items for compatibility construct are presented in Table 6.11.

Table 6.11: Compatibility

Description of item	Mean	Std. Deviation
To buy green appliances is/would be in line with my lifestyle.	5.81	1.446
It is easy to find shops that sell green appliances.	5.62	1.288
To use green appliances is/would be in line with my values.	5.60	1.502
Buying green appliances is/would be suitable for me.	4.78	1.839
Green appliances are/would be compatible with my existing appliances at home.	5.06	1.665
Overall compatibility	**5.37**	**1.548**

Scores obtained for each item as presented in Table 6.11 suggest that participants are positive about the compatibility of green appliances with their existing appliances, lifestyle and values. The overall mean and standard deviations computed for the construct were 5.37 and 1.548 respectively. This suggests that the participants generally agreed with the items used to measure this construct.

6.2.4.8 Complexity

With regard to complexity, the descriptive statistics (mean and standard deviations) are presented in Table 6.12.

Table 6.12: Complexity

Description of item	Mean	Std. Deviation
It is/would be difficult to understand how green appliances work	3.25	1.203
It is/would be difficult to use green appliances	3.12	1.134
It is not/would not be simple to use green appliances	3.22	1.149
Overall, I believe that green appliances are not/would not be easy to use.	3.14	1.903
Overall complexity	**3.18**	**1.347**

It should be noted that lower scores for this construct would mean that respondents disagree that green appliances are complex to use. The means of the item ranged from 3.12 to 3.25, with standard deviation ranging from 1.134 to 1.903. The overall mean and standard deviations computed for this construct were 3.18 and 1.347 respectively. On item-by-item basis, the results indicate that participants are in disagreement with the statements pertaining to the difficulty of understanding and usage of the green appliance products.

6.2.4.9 Observability

Descriptive results of the measurement items for observability construct are presented in Table 6.13.

Table 6:13: Observability

Description of item	Mean	Std. Deviation
It is/would be easy to see the advantages of using green appliances.	5.81	1.279
It is/would be possible to observe the benefits of using green appliances.	3.53	2.108
By buying green appliances, I show/would show that I care about the environment.	5.80	1.342
The benefits of using green appliances is/would not be hidden.	5.94	1.264
Overall, I feel the benefits of green appliances are/would be obvious to me.	5.80	1.270
Overall observability	**5.38**	**1.721**

The results in Table 6.13 suggest that participants generally agree with four out of five statements measuring the construct. The participants were neutral with the statement pertaining to the possibility of observing the benefits of using green appliances. The mean values of the items ranged from 3.53 to 5.94, while those of standard deviation ranged from 1.264 to 2.108. With an overall mean of 5.38, it can be said that they generally agreed that the benefits they gain from using green appliances can be observed.

6.2.4.10 Attitudes

The scale used to measure attitudes was made up of six items. The descriptive statistics obtained for the items measuring the constructs are presented in Table 6.14.

Table 6.14: Attitudes

Description of item	Mean	Std. Deviation
I feel that green appliances' environmental conservation claims are generally trustworthy.	5.73	1.408
I feel that green appliance's' environmental protection reputation is generally reliable.	5.78	1.342
Buying green appliances is/would be a good idea for me and the environment.	5.94	1.259
Buying green appliances is/would be a worthwhile purchase decision.	5.91	1.285
I have a favourable attitude towards purchasing the green version of the products.	5.67	1.503
If I can choose between green appliances and the conventional ones, I would prefer the green versions.	5.76	1.400
Overall attitude	**5.80**	**1.540**

Scores obtained for each item presented in Table 6.14 suggest that participants have very positive attitudes towards the purchase and usage of green appliances. The means of the individual items ranged from 5.73 to 5.94 and the standard deviation ranged from 1.259 to 1.503 respectively. With an overall mean of 5.80 there was strong general agreement as to the positive attitudes towards purchasing and using green appliances among the black middle class in South Africa.

6.2.4.11 Perceived behavioural control

The measurement scale of perceived behavioural control consisted of six items. The descriptive statistics obtained for items measuring the constructs are presented in Table 6.15.

Table 6.15: Perceived behavioural control

Description of item	Mean	Std. Deviation
I believe that I have the financial ability to purchase green appliances.	5.78	1.293
If it were entirely up to me, I am confident that I will purchase green appliances.	5.77	1.414
I see myself as capable of purchasing green appliances in future.	5.96	1.294
I have resources to purchase green appliances.	5.76	1.435
I have the time to purchase green appliances.	5.74	1.404
Green appliances are generally available in the shops where I usually do my shopping.	5.36	1.443
Overall perceived behavioural control	**5.73**	**1.774**

The results in Table 6.15 suggest that participants generally agreed with the statements measuring the construct. The means of the individual items ranged from 5.36 to 5.96. The overall mean and standard deviations computed for this construct were 5.73 and 1.774 respectively, indicating a general agreement with the items, which are measuring the individual's perceived ease or difficulty to engaging in green purchase behaviour.

6.2.4.12 Behavioural Intention

Four items were used to measure behavioural intention. The descriptive statistics of the analysis are presented in Table 6.16.

Table 6.16: Behavioural intention

Description of item	Mean	Std. Deviation
I intend to start/continue buying green appliances because of their environmental benefits.	5.78	1.349
I will consider switching to green appliances for ecological reasons.	5.88	1.277
I expect to start /continue to purchasing green appliances in the future because of their positive environmental contribution.	5.55	1.553
I definitely want to purchase green appliances in my next purchase.	5.91	1.279
Overall behaviour intention	**5.78**	**1.241**

The mean of the items ranged from 5.55 to 5.91, with the standard deviations ranging from 1.277 to 1.553. The highest mean value was 5.91 for the item pertaining to participants indicating whether they would definitely want to purchase green appliances in their next purchase. Overall, participants are generally in agreement with the items used to measure black middle class consumers' intention to purchase green appliances.

6.2.4.13 Adoption Behaviour

Six items were used to measure adoption behaviour. The descriptive statistics of the analysis are presented in Table 6.17.

Table 6.17: Adoption behaviour

Description of item	Mean	Std. Deviation
I am happy that I chose to buy green appliances.	6.09	1.077
I chose to buy green appliances because they use less electricity.	6.03	1.245
I chose to buy green appliances because they use less water.	5.68	1.465
I chose to buy green appliances as they are friendly to the environment.	6.24	.984
I choose to buy green appliance because they make economic sense.	6.32	.929
Overall, choosing to buy green appliances was a good decision.	6.20	1.023
Overall adoption behaviour	**6.09**	**1.121**

The overall mean of 6.09 and standard deviation of 1.121 indicate that the participants are generally in agreement with the statements regarding reasons for choosing to buy green appliances. Of particular note is their strong agreement that they purchased green appliances because they are friendly to the environment (M=6.24), make economic sense (M=6.32) and ultimately, that the decision to buy green appliances was a good one with (M=6.20). On an item-by-item basis therefore, the results indicate that participants are very much in agreement with the statements pertaining to choosing to buy green appliances.

6.3 MODEL ASSESSMENT

A structural equation modelling was used to assess the conceptual model proposed for the study. Consistent with the two-step approach proposed by Anderson and Gerbing (1988:411), the measurement model was first assessed to determine reliability and validity, and subsequently, the structural model was assessed to test the hypotheses and variance explained in the outcome variable.

6.3.1 Measurement Model

The evaluation of the measurement model consists of assessing the relationships between each construct to assess discriminant validity, the contribution of each indicator in representing its associated construct to test convergent validity and how well the combined set of indicators represents the constructs, thus assessing reliability or internal consistency. The measurement

model was assessed using Confirmatory Factor Analysis (CFA). The CFA was performed using Partial Least Squares (PLS) Structural Equation Modelling technique with the aid of the SmartPLS version 3.2.7 software. The PLS requires 10 times the number of indicators in the largest block (Chin, 1998). The largest number of indicators in the largest block is six, therefore the sample size of 500 usable responses is considerably above the minimum data requirement.

The assessment of the measurement model unfolds in four phases: i) factor loadings, ii) internal consistency, iii) assessment of convergent validity, and iv) assessment of discriminant validity (Hair *et al.,* 2017). Table 6.18 presents the appropriate measures that were used for assessing the measurement model and that are commonly used (Hair *et al.*, 2017:106).

Table 6.18: CFA analysis criteria for the measurement model

	Loadings
Factor loadings	Measurement loadings are the standardised path weights connecting the factors to the indicator variables. The loadings should be significant. In general, the larger the loading figures, the stronger and more reliable the measurement model (Garson, 2016:60). Indicator loadings should be equal or higher than 0.708 (Hair *et al.*, 2017).
	Internal Consistency Reliability
Cronbach's alpha	A high alpha value assumes that the scores of all items within a construct have the same range and meaning (Cronbach, 1951). It should be higher than 0.7, although in exploratory studies 0.6 is acceptable (Hair *et al.*, 2017).
Composite Reliability	Quantifies how well a construct is measured by its assigned indicators (Gotz *et al.*, 2010). Composite Reliability should preferably be between 0.7 and 0.90 (Bagozzi and Yi, 1988; Hair *et al.*, 2017). In exploratory research 0.60 to 0.70 is considered acceptable (Hair *et al.*, 2017).
	Convergent validity
Average Variance Extracted (AVE)	Measures the extent to which the average variance of the indicators is explained by the construct and should be above 0.5, meaning that the construct explains more than half of the variance of its indicators (Hair *et al.*, 2017).
	Discriminant validity
Fornell Larcker	"It compares the square root of AVE values with the latent variables correlations" (Hair *et al.*, 2017). The AVE of each construct should be higher than the squared correlations with all other constructs (Fornell and Larcker, 1981).
Cross-loadings	The loadings of each indicator are expected to be greater than all of its cross-loadings (Chin 1998b:315)

The first criterion measured was the factor loading for the thirteen constructs. Table 6.19 provides the factor loading values for each of the indicators for the thirteen constructs.

Table 6.19: Factor Loading for Initial Instrument

	Factor loading
Adoption behaviour	
AB1	0.848
AB2	0.889
AB3	0.822
AB4	0.870
AB5	0.829
AB6	0.902
Attitude	
AT1	0.902
AT3	0.907
AT6	0.911
Behaviour intention	
BI1	0.920
BI2	0.919
BI3	0.904
BI4	0.895
Compatibility	
CO1	0.892
CO2	0.765
CO3	0.914
Conditional value	
CV1	0.797
CV2	0.728
CV3	0.804
CV4	0.891
Complexity	
CX1	0.951
CX2	0.963
CX3	0.878
Emotional value	

EMV1	0.922
EMV4	0.921
Epistemic value	
EV1	0.848
EV2	0.899
EV4	0.839
EV6	0.835
Functional value	
FV1	0.864
FV2	0.873
FV3	0.897
FV4	0.900
FV5	0.896
Observability	
OB1	0.887
OB4	0.874
OB5	0.909
Perceived behavioural control	
PB1	0.854
PB2	0.875
PB3	0.875
PB4	0.874
PB5	0.887
PB6	0.776
Relative advantage	
RA1	0.898
RA2	0.921
RA4	0.894
Social value	
SV1	0.931
SV2	0.950
SV4	0.918

Following the recommendation of Hair *et al.* (2017) that the factor loadings should be equal to or greater than 0.7, some items loading into constructs which were lower than 0.7 were deleted. For example, out of the four items used to measure emotional value, two were deleted. Items were also deleted from attitudes, social value, conditional value, epistemic value relative advantage, compatibility, complexity and observability as they did not meet the threshold of 0.7 and above. All the retained indicators or items in Table 6.19 are now greater than the .70 threshold for the initial measurement instrument.

The next criterion that was evaluated was internal consistency reliability. Cronbach's alpha provides an evaluation of reliability based on the inter-correlation of the observed indicators variable and assumes that all indicators are similarly reliable (Cronbach, 1951). A number of researchers (; Kwong and Wong, 2013, Hair *et al.*, 2017) have stated that Cronbach's alpha tends to provide a conservative measurement in PLS-SEM and have advocated the use of Composite Reliability as a stricter measure of internal consistency since it takes into Henseler, Ringle and Sinkovics, 2009account the different outer loadings of the indicator variables. To ensure rigour and proper data validation, both methods were included in this study. The results are presented in Table 6.20.

Table 6.20: Internal Consistency Reliability

	Indicator	Cronbach's alpha	Composite reliability
Adoption behaviour	AB	0.930	0.945
Attitude	AT	0.891	0.932
Behaviour intention	BI	0.930	0.950
Compatibility	CO	0.821	0.894
Conditional value	CV	0.849	0.881
Complexity	CX	0.924	0.951
Emotional value	EMV	0.823	0.919
Epistemic value	EV	0.877	0.916
Functional value	FV	0.932	0.948
Observability	OB	0.869	0.919
Perceived behavioural control	PC	0.928	0.943
Relative advantage	RA	0.889	0.931
Social value	SV	0.925	0.953

Table 6.20 shows that for all the constructs, Cronbach's alpha had the required value of .70 and above, thus indicating reliability. With the composite reliability, values also falling between 0.70 and .90, all the constructs within the research model met and exceeded the recommended threshold of 0.7. All values were within the acceptable ranges for both internal consistency reliability methods and establishes reliability for each latent variable.

Discriminant validity was assessed through the Average Variance Extracted (AVE) as presented in Table 6.21.

Table 6.21: Average Variance Extracted

Construct	Average variance extracted (AVE)
Adoption behaviour	0.744
Attitude	0.821
Behaviour intention	0.827
Compatibility	0.739
Conditional value	0.651
Complexity	0.867
Emotional value	0.852
Epistemic value	0.732
Functional value	0.785
Observability	0.792
Perceived behavioural control	0.736
Relative advantage	0.818
Social value	0.871

With all the all values in Table 6.21 exceeding the recommended 0.50 threshold (Hair *et al.,* 2017) and ranging from 0.652 to 0.867, discriminant validity was proven

Discriminant validity was also assessed using Fornell-Larcker's criterion. Fornell-Larcker's measurement tool evaluates if a construct is truly distinct from other constructs both in terms of how much it correlates with other constructs and how distinctly indicators represent only this single construct (Garson, 2016:67; Hair *et al.*, 2017). The results obtained using Fornell-Larcker's criterion are in Table 6.22.

Table 6.22: Discriminant validity

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Adoption behaviour	0.860												
2	Attitude	0.433	0.898											
3	Behaviour intention	0.486	0.792	0.909										
4	Compatibility	0.400	0.753	0.750	0.860									
5	Complex	-0.257	-0.258	-0.234	-0.081	0.931								
6	Conditional value	-0.014	0.345	0.327	0.369	0.266	0.808							
7	Emotional value	0.431	0.772	0.748	0.790	-0.097	0.360	0.911						
8	Epistemic value	0.424	0.752	0.734	0.731	-0.255	0.337	0.728	0.853					
9	Functional value	0.383	0.776	0.757	0.652	-0.224	0.280	0.658	0.721	0.886				
10	Observability	0.414	0.785	0.750	0.750	-0.221	0.305	0.761	0.717	0.716	0.880			
11	Perceived behavioural control	0.390	0.781	0.773	0.771	-0.223	0.358	0.759	0.720	0.798	0.738	0.858		
12	Relative advantage	0.422	0.764	0.727	0.694	-0.304	0.279	0.729	0.710	0.728	0.750	0.712	0.908	
13	Social value	0.435	0.718	0.715	0.794	-0.064	0.382	0.790	0.727	0.631	0.713	0.711	0.675	0.931

Table 6.22 shows the correlations between constructs, where the diagonal elements are the square roots of the AVEs. As presented, the square root of each construct's AVE is larger than its correlations with any other construct. Therefore, each construct shares more variance with its own block of indicators than with another latent variable representing a different block of indicators (Chin, 2010; Henseler *et al.*,2015; Hair *et al.*, 2017), supporting the adequate discriminant validity of the scales.

Convergent validity was measured with item-factor loadings. The results are presented in Table 6.23.

Table 6.23: Factor Loadings and Cross Loadings

AB1	0.848	0.357	0.43	0.332	-0.228	-0.033	0.385	0.348	0.308	0.319	0.306	0.337	0.398
AB2	0.889	0.377	0.407	0.303	-0.267	-0.027	0.361	0.349	0.39	0.324	0.343	0.345	0.355
AB3	0.822	0.364	0.386	0.269	-0.357	-0.109	0.305	0.352	0.369	0.338	0.316	0.353	0.28
AB4	0.870	0.366	0.44	0.383	-0.129	0.049	0.404	0.354	0.318	0.362	0.348	0.346	0.422
AB5	0.829	0.344	0.398	0.39	-0.16	0.029	0.403	0.33	0.252	0.373	0.322	0.34	0.442
AB6	0.902	0.417	0.444	0.378	-0.204	0.016	0.383	0.38	0.343	0.39	0.376	0.392	0.394
AT1	0.374	0.902	0.777	0.691	-0.248	0.291	0.675	0.787	0.678	0.801	0.786	0.762	0.652
AT3	0.361	0.907	0.783	0.667	-0.163	0.309	0.67	0.734	0.664	0.755	0.759	0.772	0.624
AT6	0.436	0.911	0.838	0.667	-0.292	0.296	0.683	0.773	0.721	0.768	0.818	0.767	0.632
BI1	0.433	0.826	0.920	0.679	-0.2	0.316	0.706	0.776	0.749	0.781	0.832	0.766	0.661
BI2	0.396	0.792	0.919	0.685	-0.205	0.311	0.668	0.724	0.668	0.747	0.78	0.72	0.646

BI3	0.478	0.810	0.904	0.649	-0.321	0.252	0.647	0.759	0.683	0.753	0.784	0.766	0.619
BI4	0.461	0.782	0.895	0.715	-0.123	0.315	0.694	0.737	0.65	0.73	0.779	0.714	0.68
CO1	0.335	0.639	0.656	0.892	-0.008	0.298	0.756	0.652	0.548	0.647	0.689	0.622	0.756
CO2	0.251	0.548	0.535	0.765	-0.065	0.357	0.438	0.491	0.514	0.506	0.573	0.479	0.457
CO3	0.426	0.721	0.726	0.914	-0.129	0.312	0.764	0.702	0.615	0.716	0.717	0.661	0.784
CV1	-0.007	0.231	0.224	0.232	0.152	0.797	0.219	0.221	0.207	0.204	0.251	0.201	0.216
CV2	-0.108	0.061	0.062	0.106	0.346	0.728	0.049	0.087	0.069	0.025	0.094	-0.009	0.051
CV3	-0.088	0.177	0.184	0.164	0.269	0.804	0.128	0.190	0.145	0.137	0.193	0.124	0.148
CV4	0.039	0.382	0.380	0.457	0.220	0.891	0.457	0.388	0.321	0.353	0.413	0.350	0.487
CX1	-0.255	-0.249	-0.237	-0.104	0.951	0.242	-0.126	-0.241	-0.225	-0.221	-0.23	-0.284	-0.090
CX2	-0.254	-0.279	-0.244	-0.091	0.963	0.244	-0.124	-0.258	-0.238	-0.226	-0.233	-0.315	-0.089
CX3	-0.202	-0.178	-0.156	-0.013	0.878	0.260	-0.039	-0.166	-0.146	-0.159	-0.143	-0.22	-0.014
EMV1	0.406	0.69	0.696	0.715	-0.146	0.297	0.922	0.672	0.608	0.664	0.683	0.684	0.807
EMV4	0.397	0.685	0.681	0.709	-0.058	0.353	0.921	0.661	0.624	0.697	0.700	0.650	0.771
EV1	0.360	0.732	0.684	0.531	-0.379	0.188	0.581	0.848	0.613	0.648	0.677	0.723	0.575
EV2	0.306	0.724	0.677	0.628	-0.213	0.304	0.617	0.899	0.621	0.684	0.710	0.695	0.627
EV4	0.359	0.708	0.723	0.623	-0.111	0.279	0.615	0.839	0.594	0.681	0.701	0.647	0.606
EV6	0.375	0.721	0.736	0.694	-0.128	0.378	0.661	0.835	0.595	0.679	0.689	0.685	0.695
FV1	0.347	0.626	0.605	0.581	-0.201	0.220	0.583	0.580	0.864	0.576	0.642	0.570	0.574
FV2	0.297	0.655	0.677	0.594	-0.150	0.254	0.619	0.621	0.873	0.59	0.715	0.630	0.568
FV3	0.374	0.721	0.712	0.591	-0.237	0.265	0.594	0.673	0.897	0.641	0.746	0.676	0.595
FV4	0.352	0.689	0.700	0.577	-0.194	0.267	0.599	0.642	0.900	0.655	0.728	0.662	0.559
FV5	0.323	0.667	0.650	0.548	-0.211	0.239	0.566	0.616	0.896	0.633	0.701	0.621	0.551
OB1	0.373	0.788	0.774	0.674	-0.178	0.285	0.676	0.721	0.650	0.887	0.743	0.736	0.644
OB4	0.339	0.698	0.687	0.650	-0.105	0.283	0.644	0.649	0.563	0.874	0.685	0.682	0.607
OB5	0.375	0.789	0.745	0.633	-0.298	0.216	0.650	0.726	0.649	0.909	0.753	0.766	0.606
PB1	0.310	0.736	0.730	0.684	-0.098	0.291	0.690	0.684	0.656	0.697	0.854	0.674	0.676
PB2	0.419	0.808	0.815	0.694	-0.222	0.301	0.694	0.739	0.730	0.753	0.875	0.731	0.659
PB3	0.328	0.751	0.758	0.663	-0.148	0.293	0.661	0.714	0.666	0.708	0.875	0.688	0.603
PB4	0.320	0.711	0.708	0.680	-0.207	0.303	0.637	0.675	0.680	0.679	0.874	0.668	0.621
PB5	0.336	0.754	0.759	0.689	-0.226	0.304	0.669	0.724	0.701	0.734	0.887	0.733	0.646
PB6	0.281	0.707	0.714	0.553	-0.246	0.363	0.495	0.634	0.670	0.628	0.776	0.647	0.461
RA1	0.389	0.755	0.721	0.541	-0.424	0.162	0.614	0.733	0.636	0.716	0.699	0.898	0.554
RA2	0.360	0.765	0.723	0.667	-0.169	0.336	0.694	0.723	0.637	0.748	0.723	0.921	0.653
RA4	0.362	0.775	0.769	0.661	-0.220	0.27	0.655	0.725	0.666	0.759	0.764	0.894	0.615
SV1	0.435	0.657	0.661	0.698	-0.12	0.315	0.777	0.684	0.611	0.655	0.656	0.623	0.931
SV2	0.408	0.686	0.703	0.754	-0.068	0.367	0.816	0.715	0.617	0.662	0.698	0.656	0.950
SV4	0.403	0.617	0.639	0.754	-0.021	0.362	0.803	0.646	0.568	0.629	0.643	0.600	0.918

AB – Adoption behaviour; AT – Attitude; BI – Behaviour intention; CO – Compatibility; CV – Conditional value; CX - Complexity; EMV – Emotional value; EV – Epistemic value; FV – Functional value; OB – Observability; PB – Perceived behavioural control; RA – Relative advantage; SV – Social value.

Even though there were a number of cross-loadings, Table 6.23 result show that indicators loaded on their respective constructs more highly than on any other with factor loadings higher than the recommended 0.7. This confirms convergent validity.

With the findings from the measurement model, the CFA analysis indicated favourable results when subjected to factor loading, internal consistency reliability, convergent and discriminant validity. Following these results, all the thirteen constructs were retained for the analysis of the structural model, which will now be discussed.

6.3.2 Structural Model Analysis

After the measurement model evaluation provided evidence of reliability and validity, the structural model estimates were examined to assess the predictive capabilities and the relationships between the constructs (Hair *et al.*, 2017:4). In previous studies, Hair, Ringle and Sarsstedt (2011:139) reported that most PLS studies in marketing research assess the structural model by examining the significance of the path coefficients and R^2 values. However, they stress the importance of using other measures to assess the structural model's quality, especially because PLS-SEM, unlike other SEM, does not allow for the assessment of model fit. Therefore, the structural model in this study was evaluated using several measures as described in Table 6:24, following Hair *et al.*'s (2017:192) recommendations.

Table 6.24: Criteria for assessing structural model

Assessment of effects	
Path Coefficients	It represents the hypothesised relationships among the constructs (Henseler, Ringle and Sarsstedt, 2012). Path coefficients closer to 1 (-1 and +1) indicate a strong relationship between constructs (Garson, 2016:58; Hair *et al.*, 2017).
	Predictive Relevance
R^2	This coefficient gives the amount of explained variance of each endogenous latent variable (Garson, 2016:80). R^2 range from 0 to 1. Higher levels indicate higher levels of predictive accuracy (Henseler *et al.*, 2012; Hair *et al.*, 2017).
Effect size f^2	It calculates changes in the R^2 value when specific exogenous construct is omitted from the model (Garson, 2016:118). Values of 0.02, 0.15 and 0.35 can be viewed as a gauge of whether a predictor of latent variables has a small, medium or large effect at the structural level (Henseler *et al.*, 2012; Hair *et al.*, 2017).
Predictive Relevance Q^2	It represents a measure of how well observed values are reconstructed by the model and its parameter estimates (Garson, 2016:115). The proposed threshold value is Q^2>0 (Chin, 2010; Henseler *et al.*, 2012; Hair *et al.*, 2017).

6.3.2.1 Test of Collinearity

According to Hair *et al.* (2017:192), before starting the structural model results, an analysis of collinearity among the structural model latent variables should be performed. Collinearity analysis is recommended because the estimation of path coefficients in the structural model is based on ordinary least squares (OLS) regressions of each endogenous latent variable on its corresponding predecessor constructs. The path coefficients can be biased in OSL regressions if the estimation involves significant levels of collinearity (Hair *et al.*, 2017:142).

The variance inflation factor (VIF) is the metric used to assess collinearity. Although Pallant (2013:190) suggests that collinearity that is represented by a value greater than 10 would be a concern, Hair *et al.* (2017:194) stipulate that values above 5 should be considered as indicators of collinearity. Table 6.25 presents the VIF values, which are all lower than 5, showing that collinearity is not a problem within the independent variables.

Table 6.25: Collinearity statistic - Variance Inflation Factors (VIF)

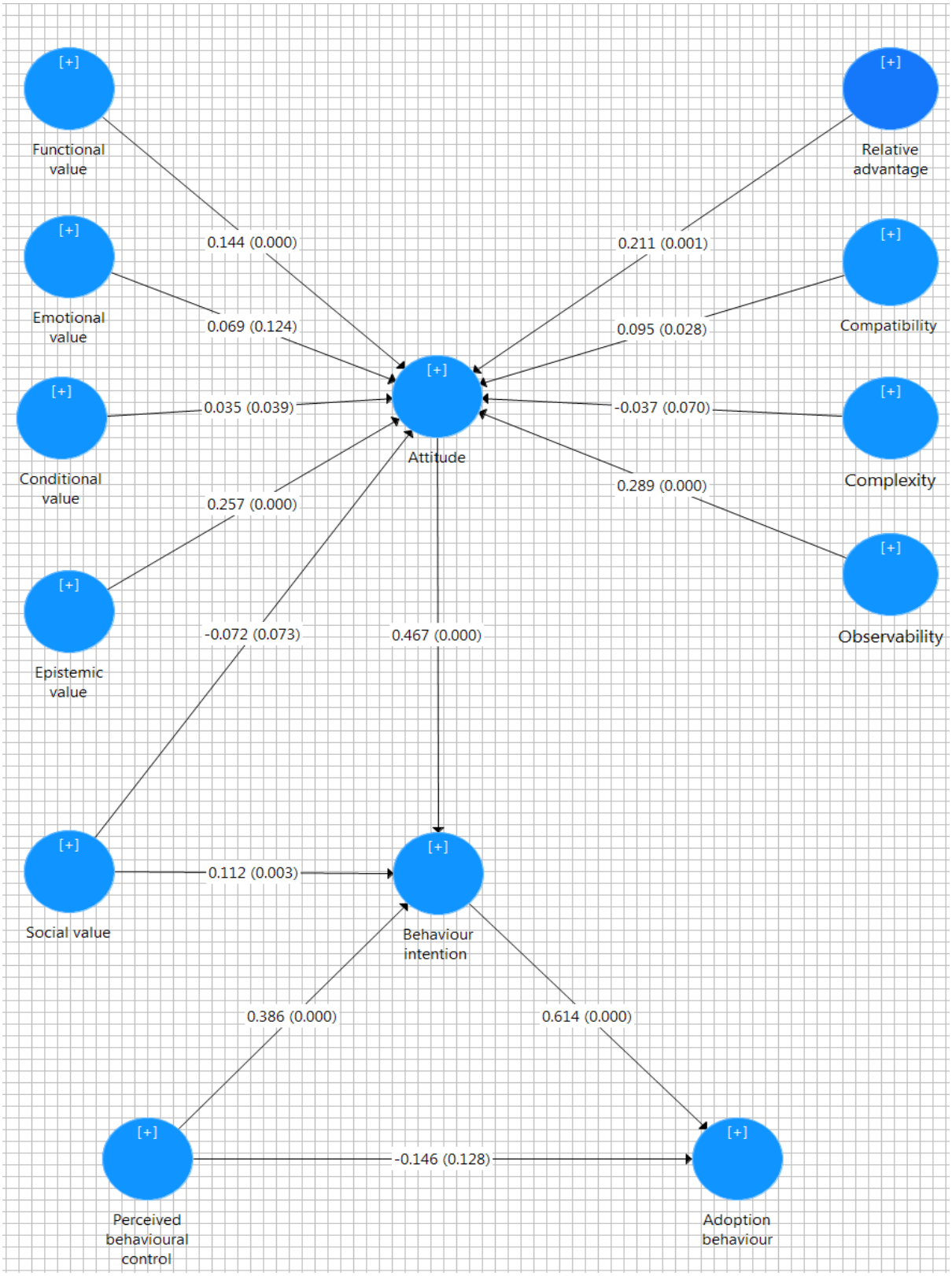
	Adoption behaviour	Attitude	Behaviour intention
Adoption behaviour			
Attitude			4.346
Behaviour intention	4.215		
Compatibility		3.448	
Complexity		1.338	
Conditional value		1.364	
Emotional value		4.730	
Epistemic value		4.003	
Functional value		2.494	
Observability		4.048	
Perceived behavioural control	4.215		4.505
Relative advantage		4.28	
Social value		4.657	2.159

The figures in Table 6.25 reveal that there was no collinearity found among the measurement constructs and the items. Therefore, collinearity was not regarded as an issue for this study based on the presented results.

6.3.2.2 Structural Model Results and Observation of Path Coefficients

Path coefficients assess the strength of the hypothesised relationships among the constructs. They have standardised values between -1 and +1. Estimated path coefficients close to +1 represent strong positive relationships. The closer the estimated coefficients are to 0, the weaker the relationships. The significance of a coefficient is ultimately determined via the calculation of the empirical *t*-values obtained by means of bootstrapping. According to Hair *et al.* (2017), the goal of PLS-SEM is to identify not only significant path coefficients in the structural model but also the significant and relevant effects (which is discussed further in this chapter). Bootstrapping was completed with 5,000 subsamples and a two-tailed significance at the 95% level was used to determine if path coefficients produced were accompanied by t-statistics over the cut-off point of 1.96 (Garson, 2016; Hair *et al.*, 2017). Figure 6.1 depicts graphically, all path coefficients and their significance. Table 6.26 summarises the structural model path coefficients, *t*-values, *p*-values and the hypotheses proposed in this study, which are further discussed in section 6.3.2.3.

Figure 6.1: Structural model with path coefficients and path significance



*The current study considers the value of p=0.05 the limit in judging whether the relationship is considered to be significant or not; based on 5,000 bootstrap samples.

Table 6.26: Summary of structural model analysis

	Original Sample*	T Statistics	P Values	Hypothesis Results
Functional value -> Attitude	0.144	3.986	0.000	Supported
Emotional value -> Attitude	0.069	1.538	0.124	Not supported
Conditional value -> Attitude	0.035	2.069	0.039	Supported
Epistemic value -> Attitude	0.257	5.581	0.000	Supported
Social value -> Attitude	-0.072	1.791	0.073	Not supported
Social value -> Behaviour intention	0.112	3.012	0.003	Supported
Relative advantage -> Attitude	0.211	3.362	0.001	Supported
Compatibility -> Attitude	0.095	2.194	0.028	Supported
Complexity -> Attitude	-0.037	1.812	0.070	Not supported
Observability -> Attitude	0.289	4.810	0.000	Supported
Attitude -> Behaviour intention	0.467	8.625	0.000	Supported
Perceived behavioural control -> Behaviour intention	0.386	6.918	0.000	Supported
Perceived behavioural control -> Adoption behaviour	-0.146	1.520	0.128	Not supported
Behaviour intention -> Adoption behaviour	0.614	6.077	0.000	Supported

*Total effects

The combined analysis of path coefficients, *t*-values, and *p*-values as presented in Table 6.26 indicate that Functional value -> Attitude; Conditional value -> Attitude; Epistemic value -> Attitude; Social value -> Behaviour intention; Relative advantage -> Attitude; Compatibility -> Attitude; Observability -> Attitude; Attitude -> Behaviour intention; Perceived behavioural control -> Behaviour intention; Behaviour intention -> Adoption behaviour have statistically significant path coefficients. The remaining path coefficients are not statistically significant, considering that their *t*-values were less that the recommended 1.96. This concludes that 10 out of the 14 hypotheses were supported. The following section discusses each relationship and the deriving hypothesis.

6.3.2.3 Discussions on Results from Hypotheses Testing

The first hypothesis (H1) posited that there would be a positive relationship between functional value and attitude towards green appliances. The empirical results in Figure 6.1 and Table 6.26 revealed that functional value exerts significant influence on attitudes of the South African black middle class towards green appliance product purchase (β= 0.144, t-value = 3.986, p < 0.00). The results from the study indicate a positive and significant relationship as

hypothesised. This finding is consistent with that of Lin and Huang (2012), Hur, Yoo and Chung (2012) and Barber, Bishop and Gruen (2014). Their studies were conducted in Taiwan, North-Eastern US and South Korea. All of them found that consumers have become value-oriented and will consider the costs, quality and general benefits of a green product before developing a positive attitude towards it.

The second hypothesis (H2) predicted that emotional value positively influences attitudes towards green appliance product purchase. The results of the study found no significant relationship with ($\beta = 0.069$, t-value = 1.538, $p < 0.124$, implying that hypothesis two was not supported by the data. This result supports the findings of Suki (2016) in Malaysia, where the impact of the emotional value from green products was found not to have any significant influence on attitudes the purchase of green products. Even though the relationship was positive as hypothesised, it is surprising that emotional value did not significantly drive attitude towards green appliances. This is especially so, considering that respondents did not only generally agree to enjoying emotional value with (M=5.55) but specifically stated that buying the green appliances make/would make them feel good with (M=5.83). This could stem from the nature of the product, whereby more functional benefits would drive attitude than emotional value. In China and Taiwan, however, Wang, Lo, Chi and Yang (2004) and Lin and Huang (2012) respectively found that the emotional values enjoyed from green products (i.e. household detergents and household air conditioners) could significantly generate positive attitude towards the purchase of the products

The third hypothesis (H3) posited a positive relationship between conditional value and attitude towards green appliance product purchase. The empirical results provided evidence that conditional value positively influence attitude towards green appliance product purchase with ($\beta = 0.035$, t – value = 2.069, $p < 0.039$). Thus, hypothesis three was supported. The results are inconsistent with the study of Biswas and Roy (2015a) in India on a sample of middle to high income earners. Prior studies by Lin and Huang (2012) in Taiwan appears to validate this finding, as they found that conditional value influenced consumer choice behaviour insofar as consumers took note of warnings about environmental consequences during their purchase decision-making.

The fourth hypothesis (H4) posited a positive relationship between epistemic value and attitude towards green appliance product purchase. As proposed in the study, hypothesis four

was supported with (β= 0.257, t – value = 5.581, p < 0.000). This finding suggests that the knowledge the South African black middle class gathers from information searches about green appliances significantly drives their attitude towards the appliances. This finding concurs with previous studies such as those of Mostafa (2009) and Suki (2013b). Their studies, which were conducted in Kuwait and Malaysia respectively, also found that consumers with product knowledge develop positive attitudes towards their new product adoption.

The fifth hypothesis (H5) predicted that social value positively influences attitude towards the purchase of green appliance products. The results of the study found no significant relationship between social value and attitude with (β = -0.072; t – value = 1.791, p < 0.073). This finding supports that of Biswas and Roy (2015a), who also found in their study in India that social value does not have a significant impact on attitude and ultimately, on green choice behaviour. Their results confirmed the findings of Lin and Huang (2012). This may be because some respondents did not feel that going green increases social approval or makes a good impression. An earlier study by Kalafatis, Pollard, East and Tsogas (1999) on green consumer behaviour in Greece showed that consumers based their actions more on personal beliefs rather than social pressure, and concluded that peer behaviour and social values (referred to as social norms) do not influence attitudes and consumer green choice behaviour. The negative coefficient obtained in the current study actually shows that when the social value increases, the attitude towards green appliances decreases.

The sixth hypothesis (H6) posited that there would be a positive relationship between social value and behavioural intention. This study found a significant relationship between social value and behavioural intention with (β = 0.112; t – value = 3.012; p < 0.003). This finding implies that even though social value failed to influence attitude or actually negatively affected attitude, consumers will still consider buying green appliances. This could be because of the functional value they would receive from it. This finding is consistent with a vast number of research studies that have found that social value, probably in terms of impression-making or social pressure, encourages consumers to develop the intention to purchase green products. This factor was one of the dominant factors influencing behavioural intention and subsequent sustainable purchase and consumption researchers found (e.g. Biswas and Roy, 2015; Zhao *et al.*, 2014; Lorek and Fuchs, 2013; Wang *et al.*, 2014; Ritter *et al.*, 2015). For example, Vermeir and Verbeke's (2008) study in Belgium revealed that social value positively influenced

behavioural intention towards purchasing sustainable products amongst young and educated adults.

The seventh hypothesis (H7) proposed that there would be a positive relationship between relative advantage and attitude. The empirical results show evidence for a positive and statistically significant relationship between relative advantage and attitude ($\beta = 0.211$, t-value = 3.362, $p < 0.01$), implying that hypothesis seven was supported by the data. The results indicate that the South African black middle class view the reduction in water and electricity bills as important when deciding on the purchase of green appliance products. This finding is consistent with earlier findings of Qureshi, Ullah and Arentsen (2017:754) who found a significant relationship between relative advantage and attitude among Pakistan residents on household solar appliances.

The eighth hypothesis (H8) posited that there would be a positive relationship between compatibility and attitudes. This result of the study found a significant relationship between compatibility and attitude ($\beta = 0.095$; t – value = 2.194; $p < 0.028$), implying that the hypothesis was supported by the data. This result suggests that the South African black middle class thinks that purchasing a green appliance will not require them to make any changes to their existing appliances at home, as the green appliance product will be compatible with their existing products, in turn, minimising their apprehension towards green adoption. This finding was also confirmed in related studies by Heutink, der Vooren and Alkemade (2010) and Ozaki (2011).

The ninth hypothesis (H9) predicted that there would be a negative relationship between complexity and attitudes. As predicted, the study found no relationship between complexity and attitude and hypothesis nine was therefore not supported ($\beta = -0.037$, t-value = 1.812, $p < 0.070$). This result suggests that the South African black middle class is not influenced by the complexity of green appliance products when forming attitudes on making a green appliance purchase decision. This finding is inconsistent with the findings of earlier studies where it was found that complexity (referred as difficulty/ease of use) had a strong, significant relationship with consumers' attitude and ultimately, their purchase intentions (i.e. Alam, Hashim, Rashid, Omar Ahsan and Ismail (2014) in Malaysia; Alam, Ali and Jani (2011) in Malaysia; Stephenson and Ioannou (2011) in New Zealand).

The tenth hypothesis (H10) posited that there would be a positive relationship between observability and attitude. The empirical results show strong evidence for a positive and statistically significant relationship between observability and attitude ($\beta = 0.289$, t-value = 4.810, $p < 0.00$), implying that hypothesis ten was supported by the data. This finding accords with that of Claudy *et al.* (2011) in Ireland and Chou *et al.* (2012) in Taiwan, who reported a significant influence of observability in influencing the purchasing of solar products. Their findings were also validated by Kapoor, Dwivedi and Williams (2014) in similar studies conducted in Swansea (United Kingdom) on household solar equipment.

The eleventh hypothesis (H11) predicted that there would be a positive relationship between attitude and behavioural intention. The empirical results revealed that relative advantage exerts a strong and significant influence on attitudes of the South African black middle class towards green appliance purchase ($\beta = 0.467$, t-value = 8.625, $p < 0.000$). Thus, hypothesis eleven was supported. The results corroborate the claim of Chekima, Wafa, Igau Chekima and Sondoh (2016) from their study conducted in Malaysia, that attitude and green purchase intention were positively related. This also confirms findings from other studies, suggesting that individuals who hold a positive attitude are more likely to engage in sustainable behaviour such as green purchase intention (Lee, 2014; Kozer and Cornell, 2013; Ha and Janda, 2012; Rahbar and Abdul Wahid, 2011; Chen and Chai, 2010). These finding imply fairly positive support for attitudes as a key influencer of green purchase intention.

The twelfth hypothesis (H12) proposed that there would be a positive relationship between perceived behavioural control and behavioural intention. The results of the study found a significant relationship between perceived behavioural control and behavioural intention ($\beta = 0.386$, t-value = 6.918, $p < 0.000$). Thus, hypothesis twelve was supported. This finding is in congruent with the research of Wang, Liu and Qi (2014) in China, who found perceived behavioural control to positively affect consumers' green purchase intention. Moreover, if consumers think that they are able to perform a particular behaviour, they would be more willing to do so (Kim and Chung, 2011). From their study in India, Joshi and Rahman (2016:128) conclude that the strong influence of perceived behavioural control on green purchase intention suggests that consumers are sensitive towards the effect of their consumption patterns on nature and society; they rationally evaluate the benefits of green

purchasing activities, and consider how their efforts can make a difference to nature and society.

The thirteenth hypothesis (H13) posited that there would be a positive relationship between perceived behavioural control and adoption behaviour. The results of the study found no significant relationship between perceived behavioural control and adoption behaviour (β = -0.146, t-value = 1.520, p < 0.128). Thus, hypothesis thirteen was not supported. Wang *et al.* (2014), on the other hand, found perceived behavioural control to positively affect consumers' green purchase intention and actual purchase behaviour. The result from this study is inconsistent with that finding and also the proposition of the Theory of Planned Behaviour that states that perceived behavioural control has a positive influence on adoption behaviour (Ajzen, 1991:181). Thus, the finding could suggest that the South African black middle class has lower levels of volitional control over themselves while taking decisions on actual purchase/adoption of green appliances.

The fourteenth hypothesis (H14) posited that there would be a positive relationship between behavioural intention and adoption behaviour. As predicted in the study, the empirical results show strong evidence of a significant relationship between behavioural intention and adoption behaviour (β = 0.614, t-value = 6.077, p < 0.00). This implies that hypothesis fourteen was supported. This finding corroborates the results of previous studies conducted in Hong Kong and in South Africa (North West province), where is was found that consumers with the intention to purchase products display greater concrete purchasing prevalence as opposed to customers who indicate they have no intention of making a purchase (Cheung, Lam and Lau, 2015:241; Bischof and Liebenberg, 2016:183). Agyeman (2014:188) further concludes from a study in India that purchase intention is a representative of what customers expect to purchase. Moreover, behaviour towards a specific item is estimated by the intention to execute that behaviour. The intention to purchase is a positive factor in the likelihood that a consumer will resolve to purchase a green/sustainable product. This view gains support from the main principles of the Theory of Planned Behaviour that posits that behavioural intention precedes actual behaviour (Ajzen, 1991:181).

The next criterion to assess the structural model is the coefficient of determination, also called R square (R^2).

6.3.2.4 Evaluating the Explanatory Power of the Predictors with the Coefficient of Determination $\boldsymbol{R^2}$

The coefficient of determination is a measure of the model's predictive accuracy and gives the amount of explained variance for each endogenous latent variable (Chin, 1998:323). R^2 values range from 0 to 1 with higher values indicating higher levels of predictive accuracy (Hair *et al.*, 2017). The range for acceptable R^2 depends on the type of study. For consumer behaviour studies, values of 0.20 are considered high. In marketing studies, R^2 values of 0.75, 0.50, and 0.25 for the endogenous construct can be described as substantial, moderate and weak respectively (Hair *et al.*, 2017:199). According to Henseler *et al.* (2014), values of 0.67, 0.33 and 0.19 are considered as substantial, moderate and weak. Figure 6.2 presents the R^2 values for the structural model.

Figure 6.2: Structural model with path coefficients and R^2

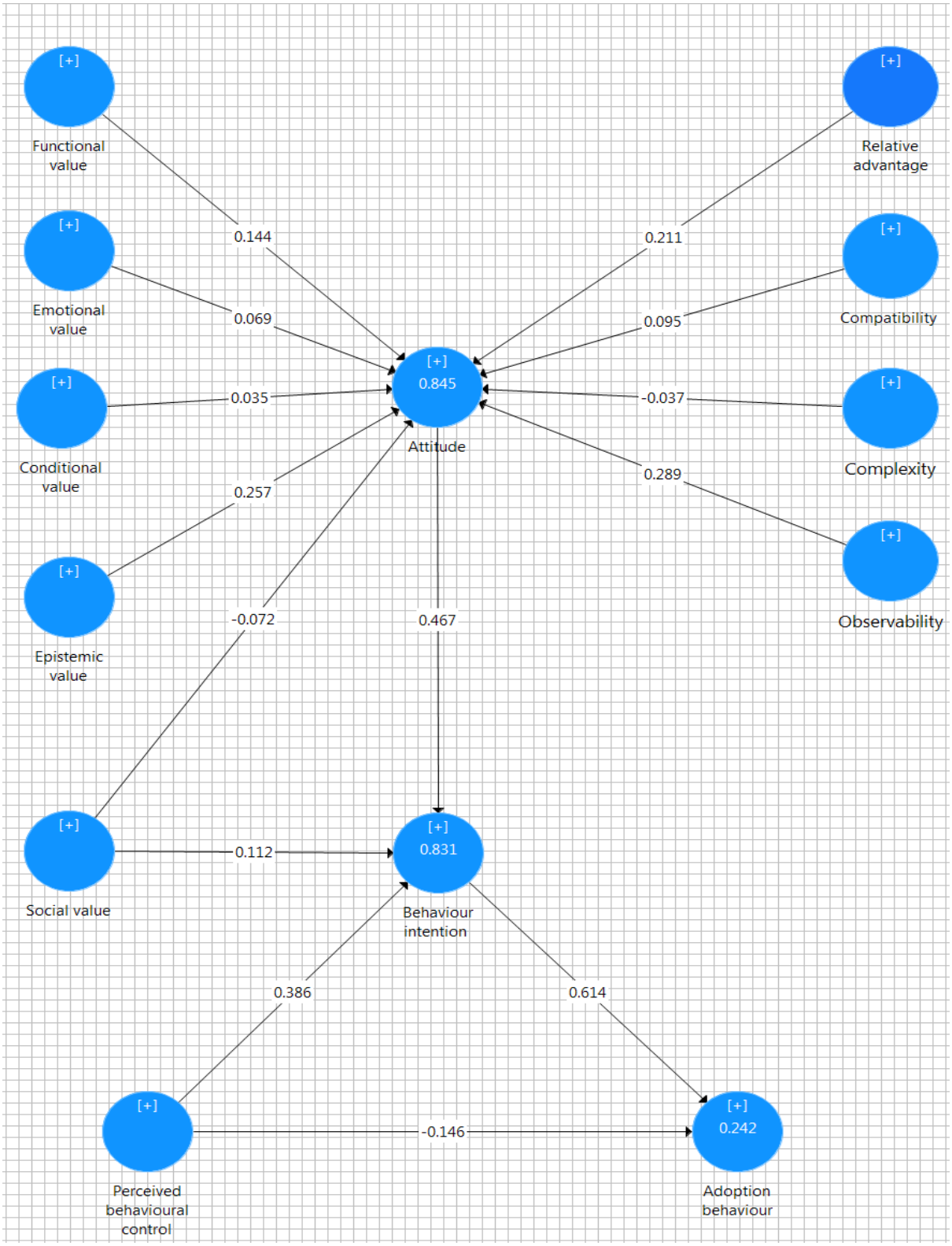


Figure 6.2 shows that consumer- and product-related factors explained 84.5% of black middle class South Africans' attitude towards purchasing green appliances. This indicates a substantial

level of predictive power. The attitude and social value could explain 83.1% (R^2 of 0.831) of behaviour intention to buy the green appliances. This also indicates a substantial level of predictive power. The actual adoption behaviour was explained by 24.2% and by behavioural intention and perceived behavioural control. This indicates a weaker level of predictive accuracy for marketing standards. Since, however, this study is based on consumer behaviour, the range of R^2 values in this structural model of 0.242 to 0.845 reflects a model with a solid predictive power.

6.3.2.5 Evaluation of the Effect Size (f^2)

In addition to evaluating the R^2 values for endogenous constructs, it is recommended to evaluate the effect size of each path in the structural model (Hair *et al.*, 2017). The f^2 effect size (also known as R-square change effect) is a measure that calculates changes in the R^2 value should a specific exogenous construct be omitted from the model (Garson, 2016:84). With this measure, it is possible to evaluate whether an omitted construct would have a substantive impact on the endogenous construct. Guidelines to interpret the effect size results are provided by Cohen (1988), where 0.02, 0.15 and 0.35 represent small, medium and large effects of the exogenous latent variable. Effect size values of less than 0.02 indicate that there is no effect. Table 6.27 presents the effect size in respect to the exogenous constructs of this study.

Table 6.27: Effect size (f^2)

	Adoption behaviour	Attitude	Behaviour intention
Adoption behaviour			
Attitude			0.297
Behaviour intention	0.118		
Compatibility		0.017	
Complexity		0.007	
Conditional value		0.006	
Emotional value		0.007	
Epistemic value		0.107	
Functional value		0.053	
Observability		0.134	
Perceived behavioural control	0.007		0.196
Relative advantage		0.067	
Social value		0.007	0.035

The results in Table 6.27 indicate that if compatibility, complexity, conditional value, and emotional value constructs were omitted, it would have no effect on how much endogenous

variables will be explained. If the epistemic value, functional value, observability, social value, behaviour intention, relative advantage constructs were to be omitted, they would have a small effect on the endogenous latent variable. If the attitude, perceived behavioural control constructs were to be omitted, they would have a medium effect on the endogenous latent variable. All in all, and according to Table 6.28, attitude towards the purchase of green appliances was most predicted by observability with an effect size of 13.4%, followed by epistemic value with an effect size of 10.7% and then functional value with an effect size of 5.3%

6.3.2.6 Assessment of Predictive Relevance (Q^2)

The final criterion measured was the predictive relevance or Q^2 value. Hair *et al.* (2017:202) recommend that the model's predictive relevance should be examined by means of the Stone-Geisser's Q^2 (Geisser, 1974; Stone, 1974). This is a predictive sample reuse technique that uses the blindfolding procedure. With blindfolding, a part of the data is omitted for a particular block of indicators during parameter estimations and then attempts to estimate the omitted part using the estimated parameters (Chin, 2010; Garson 2016:116). Q^2 value indicate the extent to which the prediction is successful. If Q^2 value is larger than 0, the model has predictive relevance and if Q^2 value less than 0, there is a lack of predictive relevance (Chin, 2010; Garson, 2016:116). Likewise, Q^2 value can be calculated using the cross-validated redundancy or the cross-validated communality approach (Hair *et al.*, 2017:202). This is because it builds on the path model estimates of both the structural model and the measurement model of data prediction, while the cross-validated redundancy uses only the construct scores estimated for the target endogenous construct.

Table 6.28 presents the predictive relevance of the endogenous constructs, obtained by using the blindfolding method used in SmartPLS.

Table 6.28: Predictive relevance (Q^2value)

	SSO	SSE	Q^2 (=1-SSE/SSO)
Adoption behaviour	3,000.000	2,506.051	**0.165**
Attitude	1,500.000	520.659	**0.653**
Behaviour intention	2,000.000	709.530	**0.645**
Compatibility	1,500.000	1,500.000	
Complexity	1,500.000	1,500.000	
Conditional value	2,000.000	2,000.000	
Emotional value	1,000.000	1,000.000	
Epistemic value	2,000.000	2,000.000	
Functional value	2,500.000	2,500.000	
Observability	1,500.000	1,500.000	
Perceived behavioural control	3,000.000	3,000.000	
Relative advantage	1,500.000	1,500.000	
Social value	1,500.000	1,500.000	

In general, values of 0.02, 0.15, and 0.35 are considered of small, medium or large predictive relevance (Hair *et al.*, 2013:185). According to Table 6.28, Adoption behaviour had a Q^2value of 0.165, Attitude had a Q^2value of 0.653 and lastly, Behaviour intention had a Q^2value of 0.645, indicating all the endogenous constructs' present values > 0, which are indicators of predictive relevance. This concludes the analysis of the structural model.

6.4 CONCLUSION

The aim of this chapter was to present and interpret the findings and empirically testing the proposed conceptual model. After presenting the results of the descriptive statistics, the partial least squares – structural equation modelling was used for the measurement model analysis and the structural model analysis, which included hypotheses testing. Both the structural model and the measurement model were created using SmartPLS version 3.2.7 software. The measurement model assessed the constructs reliability using Cronbach's alpha and composite reliability and construct validity in terms of convergent validity (factor loadings) and discriminant validity (AVE, correlation matrix).

The results demonstrated a measurement model that was good and acceptable. Structural model analysis started with the assessment of collinearity, which was found to be at acceptable levels as there was no significant amount of collinearity. Path coefficient statistical significance calculations indicated that out of fourteen relationships that were proposed in the conceptual model, ten were statistically significant while the remaining four were not. The coefficient of

determination or R^2 values revealed that the consumer- and product-related factors explained 84.5% of attitudes towards green appliances among black middle class South Africans. The attitude explained 83.1% of behavioural intention, while the intention and perceived behavioural control explained 24.2% of the adoption behaviour. The assessment of predictive relevance or Q^2 value confirmed that behavioural intention had a medium predictive relevance whilst attitude and adoption behaviour had a large predictive relevance.

Chapter 7, the next chapter, will provide the conclusions drawn from the research findings, discuss the implications of these findings, make recommendations, highlight the limitations of the study and suggests possible directions for future studies.

CHAPTER 7:
CONCLUSION AND RECOMMENDATIONS

7.1 INTRODUCTION

This research was undertaken in order to examine the consumer- and product-related factors impacting on attitudes towards green product purchase, intention and actual behaviour. The preceding chapter presented and discussed the results obtained from testing the hypotheses. This chapter summarises the extent to which the objectives were achieved, indicates the contribution of the study and recommends areas of future research. The chapter begins with an overview of the study. Thereafter, key findings and conclusions are presented, followed by the theoretical and practical contributions. The chapter concludes by discussing the limitations of the research and making recommendations for future research.

7.2 OVERVIEW AND RESEARCH OBJECTIVES OF THE STUDY

7.2.1 Overview of the Study

Due to growing concerns about global pollution levels and global warming, green behaviour is taking centre stage, not only in the minds of consumers but also in the way goods and services are produced. Azevedo, Carvalho and Machado (2011:850) posit that green products, especially green appliances, tend to consume less energy or water or both. They also have reduced toxic and hazardous substances, improved recyclability and above all, are environmentally friendly. Whether consumers, especially the large segment of the middle class, are keen to purchase these products, needs investigation. Thus, increasing our understanding of green purchase behaviour and the key factors that can have a positive effect by encouraging consumers to purchase green appliances is of importance. This is particularly so, because it is one of the ways of minimising harm to the environment.

7.2.2 Research Objectives

The primary objective of this study was to investigate the consumer- and product-related factors impacting on green products purchase behaviour among the black middle class in South Africa.

In line with the primary objective, a number of secondary research objectives were formulated, as follows:

- Examine the extent to which functional, emotional, social, conditional, and epistemic values (i.e. consumer-related factors) impact on consumer attitude towards green products;
- Examine the extent to which relative advantage, compatibility, complexity and observability (i.e. product-related factors) impact on attitude towards green products;
- Determine the extent to which green product attitude, social value (subjective norms) and perceived behavioural control affect the intention to buy green products;
- Examine the relationship between the intention to buy green products and the actual behaviour towards green products; and
- Empirically test the conceptual model developed to understand the consumer- and product-related factors that impact on green product purchase behaviour.

In order to achieve the objectives of the study, the study was divided into various chapters, which are summarised in the following sub-section.

7.2.3 Summary of the Chapters

Chapter 1 provided an introduction and background of the study. The research problem and objectives of the study were then outlined. The opening chapter also presented a preliminary literature review, the research methodology, the contribution of the study as well as the ethical considerations.

Chapter 2 described the concept of green products and green marketing. This was followed by an overview of the supply and demand of green appliance products in South Africa. The barriers facing companies involved in the supply and marketing of green products were also discussed. The chapter concluded by describing the South African black middle class as a potential and attractive market for green appliances.

Chapter 3 focused on the literature of green purchase behaviour and its reported drivers. A number of factors that have been researched in the past and found to contribute positively towards green purchase behaviour were discussed at length.

Chapter 4 proposed a comprehensive conceptual model that integrates three theories (Theory of Consumption Values, Diffusion of Innovation Theory and Theory of Planned Behaviour) to facilitate the understanding of consumer- and product-related factors that impact green

purchase behaviour. The conceptual model of the study was proposed and the hypotheses relating to the relationships between variables were also formulated.

Chapter 5 focused on the methodology and design that was followed to obtain the research data and test the hypotheses. Specifically, the research, sample and questionnaire designs were discussed. Also discussed were the procedures for data collection and data analysis as well as the reliability and validity measures.

Chapter 6 presented the results of the data that were analysed using partial least squares structural equation modelling. The interpretation of the results was provided, which included the descriptive statistics, measurement model and structural model analysis, together with the presentation of the results from the hypotheses that were tested.

The following section of the chapter summarises the key empirical findings of the study.

7.3 KEY EMPIRICAL FINDINGS AND CONCLUSIONS OF THE STUDY

In Tables 6.1 to 6.4, the information on green appliance awareness, usage and the demographic profile of the respondents was provided. Thus, the following summary of findings can be drawn:

- All the respondents (N = 500) who participated in the study were aware of green appliances.
- Fifty percent, i.e. 250 of the respondents, indicated that they had bought/used a green appliance while the remaining 50% (250) indicated that although they were aware, they had not bought or used green appliances in the past five years.
- On the question of average usage, the 250 respondents indicated that on average they used between one and three green appliances in their homes.
- In terms of gender, the study revealed that the percentage of female respondents (53.8%) who participated in the study was higher than the males (46.2%). The reason for this result could be more female respondents were willing to participate in this study compared to males. Previous studies have found that females are more willing to engage in green behaviours than males (do Paco and Raposo, 2010).
- The results also highlighted the demographic characteristics of the age of the participants. Sixty-five percent (65%) of the respondents were between the ages of 36

to 60. These results are similar to those of Chikweche and Fletcher (2014) who found that the majority of the South African black middle class was aged between 35 and 55. This implies that most of the black middle class is middle-aged.

- In terms of education, the largest proportion (69.2%) of the participants had obtained a college diploma or degree. These results correspond with the findings from the UCT Unilever Institute (2013), which noted that the majority of the South African black middle class tend to be better educated than the general black population. This also suggests that they may have well-paying jobs and may be able to purchase green appliances if they believe in their environmental and economic benefits.
- With regards to the participants' job status, the largest proportion (82.8%) was working either on a full-time or part-time basis and about 80% received a monthly income ranging between R15 000 – R49 999. These results mirror those of the UCT Unilever Institute (2013) which found that the average income of the South African black middle class to be between R16 000 and R50 000. This may also indicate that the sample used for this study came from black middle class consumers.
- Lastly, since the study was aimed at the South African black middle class, the ethnicity of all the study participants was black.

The main findings and conclusion for each of the secondary objectives that was to be achieved are discussed next.

7.3.1 Extent to which Consumer-related Factors Impact on Consumer Attitudes

Functional value

The findings indicated that functional value was a statistically significant predictor of attitudes towards green purchase behaviour. Sheth *et al*. (1991:160) describe functional value as the ability of a product to satisfy a consumer's utilitarian needs. Previous researchers have found that functional value plays a central role in stimulating green product purchase intentions (Chen and Chang, 2012:516; Kotler and Keller, 2012:193; Suki, 2013c:100).

The descriptive statistics' overall mean value was 5.79 (which is near to 6 on a 7-point scale), as shown in Table 6.5. This means that the respondents were in agreement with statements relating to green appliance product quality and performance. Thus, the study concludes that the South African black middle class considers the quality of the product, performance and

durability as important, to the extent that these perceptions positively influence their attitude towards the purchase of green appliances.

Social value

The study found that social value was an insignificant predictor of attitudes towards green appliance purchase. Social value for environmentally friendly/green products can be defined as the perceived net utility derived from the consumption of green products based on the perception about social pressure or prestige gain through engagement in pro-environmental behaviour (Sheth *et al.,* 1991:161; Biswas and Roy, 2015:465). Hence, the purchase of environmentally friendly/green products is said to be regarded as a socially acceptable gesture with a high social value attachment (Sheth *et al*., 1991:161; Arvola *et al*., 2008:452).

Previous studies have found that, social pressures and peer opinion are key factors in green purchase decision-making processes (Biswas and Roy, 2015:467; Mazar and Zhong, 2012:495; Wahid, Rahbar and Shyan, 2011:38). For the present study, the overall mean value was 5.28 (which is near to 5 on a 7-point scale) as shown in Table 6.6. This means that the respondents were somewhat in agreement with the statements relating to social approval being important to them when considering whether or not to purchase green appliances. However, the social value derived from green appliances was not one of the factors influencing their attitudes. Similar results were also found in studies by Lin and Huang (2012:17) and Laroche, Bergeron and Barbaro-Forleo (2001:503). This study concludes that social value does not have a positive influence on attitudes towards green purchase behaviour.

Emotional value

The study found that emotional value was not a predictor of attitudes towards green purchase behaviour. Sheth *et al.* (1991:161) describe emotional value as the perceived utility acquired from an alternative's capacity to arouse feelings or effective states. A few researchers have found in their studies that consumers who buy green products are often driven by feelings of doing something good for their own being and society at large (Goncalves *et al.,* 2016:1490; Lin and Huang, 2012:16; Liao and Wang, 2009:991).

The overall mean value was 5.55 (which is near to 6 on a 7-point scale) as shown in Table 6.7, which implies that the respondents were in general agreement with the statements relating to their feelings about purchasing a green appliance. However, the hypothesis results revealed that

this value did not have an impact on attitudes. This insignificant relationship could be attributed to the fact that the South African middle class buy green products for economic and utilitarian reasons and do not to feel good about being environmentally conscious. Based on these results, the study concludes that emotional value does not play a role in influencing attitudes towards green purchase behaviour.

Conditional value

The findings from the study indicated that conditional value was a statistically significant predictor of attitudes towards green purchase behaviour. Conditional value refers to the perceived utility resulting from a specific situation or circumstances faced by the decision-maker (Sheth *et al.,* 1991:161). Lin and Huang (2012:16) have suggested that conditional value is an influencing factor on consumer choice behaviour, with an important connection to product characteristics. It is further stated that situational environmental factors such as worsening environmental degradation can stimulate green purchase behaviour (Hur, Yoo and Chung 2012:692).

For this study, the overall mean value was 5.05 (which is near 7 on a 7-point scale) as shown in Table 6.8. This means that the respondents were somewhat in agreement with the statements relating to different conditions/situations that could induce them to purchase green appliances. It is, however, noted from the results that respondents believe that their purchase of green products will be dependent on those products being available as well as their financial situation. The hypothesis testing results confirmed the existence of a significant relationship between conditional value and attitudes. Based on these findings, it can be concluded that conditional value has a positive influence on attitudes towards green purchase behaviour.

Epistemic value

The findings from the study indicated that epistemic value was a statistically significant predictor of attitudes. It in fact had the second strongest impact on attitude. Sheth *et al*. (1991:162) describe epistemic value as the perceived utility acquired from an alternative's capacity to arouse curiosity, provide novelty and satisfy a desire for knowledge. A number of researchers have since concluded that consumers with product knowledge are influenced in their new product adoption by that knowledge (Sheth *et al.*, 1991:162; Laroche *et al.*, 2001; Lin and Huang, 2012:16).

The descriptive statistics overall mean score for epistemic value was 5.70 (which is close to 6 on a 7-point scale) meaning that the respondents were in agreement with statements relating to reading labels on products so as to make informed decisions; they were also willing to search for information on new green appliances. This promoted a positive attitude towards the purchase of green appliances. Thus, this study concludes that epistemic value has a strong influence on attitudes towards green purchase behaviour.

7.3.2 Extent to which Product-related Factors Impact on Attitudes Towards Green Products

Relative advantage

According to the results from this study, relative advantage was a statistically significant predictor of attitudes towards green purchase behaviour. Relative advantage is explained as the degree to which the innovation or new product is perceived to be better than existing products (Rogers, 2010:15). Alam *et al.* (2014: 257) further explain that relative advantage refers to the possible benefit from adopting a certain product, which can be an economic benefit, convenience or satisfaction from using such a product.

The descriptive statistics overall mean value was 5.66 (which is near to 6 on a 7-point scale), meaning that the respondents consider the advantages of using or adopting green appliances as high. Specifically, the respondents found savings in home electricity and water consumption and contributing positively to the environment as important to them. A number of researchers have suggested that when there is a greater advantage expected to be obtained from adopting a new product, the greater the likelihood of a positive attitude and that the new product will be adopted (Moons and De Pelsmacker, 2015:6212; Qureshi *et al.*, 2017:754). Thus, this study concludes that relative advantage has a significant relationship with attitudes towards green purchase behaviour.

Compatibility

The study findings indicated that compatibility was a statistically significant predictor of attitudes. Rogers (2010:15) describes compatibility as the degree to which an innovation/new product is viewed or perceived to consistently match existing values, past experiences and the needs of potential adopters or targeted consumers. The overall mean value was 5.37 (which is above 5 on a 7-point scale). This means that the respondents were somewhat in agreement with

the statements that green appliances will be in line with their lifestyles, values and that it will be easy to find shops that sell green appliances.

Prior studies have posited that when an innovation or a new product fits with existing values, lifestyle and the needs of the potential adopters, there is a strong likelihood that they will find it more appealing and develop a positive attitude towards its purchase (Ozaki, 2011:15; Claudy *et al.*, 2011:1459). The current study confirms this.

Complexity

The results found that complexity was not a predictor of attitudes towards green purchase behaviour. Complexity refers to the degree to which a certain innovation/idea/new product is seen to not match the needs and values of potential consumers, in that they believe that it will be difficult to use and consequently to adopt (Roger, 2010:16). It is, however, important to point out that this construct was measured using negatively worded items. The descriptive statistics overall mean was 3.18 (which is slightly above 3 on a 7-point scale), which means that the respondents did not agree with the statements measuring complexity. This could be attributed to the fact that many of the respondents had the knowledge of, and had used green appliances, and thus they did not consider their usage as being complicated. This therefore had no significant impact on their attitude towards purchase.

The current finding supports Rogers' (2010:16) and Chou *et al.*'s (2012:10) findings that the adoption of continuous innovations (which is the case with green appliances) is less likely to be affected by perceptions or beliefs regarding complexity.

Observability

The findings from the study indicated that observability was a statistically significant, and indeed, the strongest predictor of attitudes towards green purchase behaviour. Observability is explained by Rogers (2010:16) as the degree to which the results of an innovation are visible to others. Researchers have suggested that observability is based on the witnessed usage of an adopted innovation/new product by other adopters who are known to the observing adopter. This attribute is argued to be positively related to the adoption process as it lowers the perceived risk associated with new product adoption (Occhiocupo, 2011:189; Kapoor *et al.*, 2014:150).

The descriptive statistics overall mean value was 5.38 (which is above 5 on a 7-point scale), meaning that the respondents generally agree with the statements measuring this construct. However, one item measuring this construct had a mean of 3.53 suggesting that more should be done in creating ways for consumers to see the product in action. Four other items ranged between 5.80 and 5.94, which highlighted the importance of observability in the minds of the consumers.

Concluding this discussion on the extent to which consumer- and product-related factors impact on attitudes, it should be noted that functional value, conditional value, epistemic value, relative advantage, compatibility and observability are significant factors that have a positive influence on attitudes towards green purchase behaviour. These factors cumulatively explained **84.5%** of the variance in attitudes.

7.3.3 Extent to which Green Product Attitude, Social Value (Subjective Norm) and Perceived Behavioural Control Affect the Intention to Buy Green Products

The study findings showed that attitude was a statistically significant and the strongest predictor of behavioural intention. From the studies of green behaviour, attitudes are described as indicators of purchasing intent and inevitably buying behaviour. Thus, the more favourable the attitude, the more inclined the consumer will be to buy environmentally-friendly/green products as opposed to conventional products (Polonsky, Vocino, Grau, Garma and Ferdous, 2012:239; Greaves, Zibarras and Stride, 2013:111; Kim, Njite and Hancera, 2013:258). A number of researchers have identified attitudes as important indicators of behavioural intent and subsequent adoption of a product. They further posit that whenever the behavioural intention is influenced by the attitude, the greater the intention to execute the action will be (Ajzen, 1991:218; Laroche *et al.*, 2001:03).

The descriptive statistics overall mean was 5.80 (which is close to 6 on a 7-point scale), meaning that the respondents had a positive attitude towards green appliances and general environmental protection. Respondents also expressed their preference for green appliances if they had a choice between green appliances and conventional appliances.

The results of the study showed that whilst perceived behavioural control had a weak relationship with adoption behaviour, it was found to be a significant predictor of behavioural intention. Ajzen (1991:183) described perceived behavioural control as the extent to which

individuals perceive the ease or difficulty of engaging in a specific behaviour and their perceived capacity to produce a successful outcome when engaging in that behaviour. The overall mean value was 5.75 (which is near to 6 on a 7-point scale) meaning that the respondents were in agreement with statements measuring this construct. The results indicate that generally, the South African black middle class feels that they have the time, are capable and have the resources to buy green appliance products. These results further mirror those of previous studies which found that if people think that they are able to perform a particular action, they will be more willing to do so (Ajzen, 1991:183; Lai and Cheng, 2016:72).

Although social value was not found to be a predictor of attitudes, the results revealed subjective norms (referred to as social value) as a significant predictor of behavioural intention. As previously explained in this chapter, social value indicates the person's perception of whether people determine a certain behaviour acceptable or not, for example, it is the person's perception of the pressure of social norms or others' beliefs that determine whether the person should behave in a certain way or not (Ajzen, 1991:184; Jin and Kang, 2011:189; Kim and Chung, 2011:43; Greaves *et al.*, 2013:110). These results further suggest that the South African black middle class finds the opinions of society, family and friends important when considering whether or not to purchase green appliances. Previous researchers have also concluded studies that subjective norms positively influence green behavioural intention (Joshi and Rahman, 2017:117).

Overall, the study found that behavioural intention to green appliance purchase was mostly explained by the individuals' attitude, followed by the perceived behavioural control and lastly, the subjective norm (referred to as social value). It is thus important to note that **83.1%** of the variance in behavioural intention was explained by these three significant factors.

7.3.4 Relationship Between the Intention to Buy Green Products and Actual Behaviour Towards Green Products

Ajzen and Fishbein (1980) describes behavioural intention as the subjective probability to perform a specific behaviour. The role of behavioural intentions is suggested to be a function of the level of effort required to execute a behaviour such as purchasing a green product (Rashid and Ramli, 2009:134; Chen and Chang, 2012:507). In this study, the behavioural intention represented the readiness expressed by the South African black middle class to act by buying

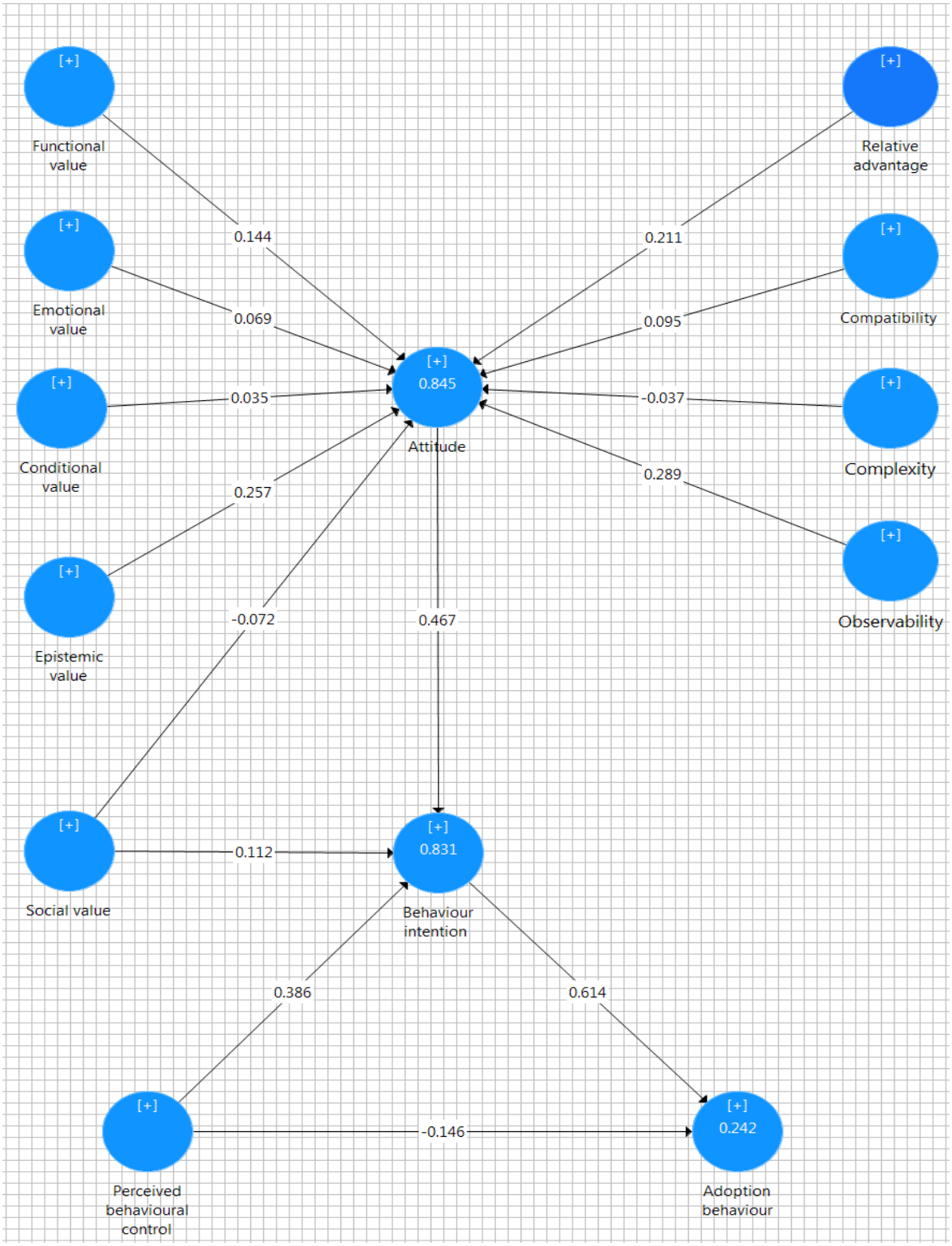
or continuing to buy green appliances for economic reasons and for the benefit of the environment.

The descriptive statistics overall mean value was 5.78 (which is near to 6 on a 7-point scale), meaning that the respondents were in general agreement with the items from this construct. In addition, the results showed a significant and positive relationship between behavioural intention and adoption behaviour. Behavioural intention was the single factor that explained **24.2%** of the variance in adoption of green appliances, even though intention was not, in many cases, translated into action in other pro-environmental studies (see for e.g., Moser, 2015). The current finding of the influence of behavioural intention on adoption behaviour of environmentally friendly/green products supports the research results from other researchers (Ajzen and Fishbein, 1980; Cheung *et al.*, 2015:241).

7.3.5 Observations on Testing the Integrated Conceptual Model for Understanding Consumer- And Product-related Factors that Impact on Green Product Purchase Behaviour

The integrated conceptual model was empirically tested by the partial least squares structural equation modelling (PLS-SEM). Although the model was shown in Chapter 6, Figure 6.2, for ease of reference the model is again shown in Figure 7.1.

Figure 7.1: The structural model with path coefficients and R2 estimates



Throughout the PLS-SEM process, the validity and the reliability of the measurement instrument were evaluated and found to be valid and reliable. The measurement model analysis was carried out to (i) determine its convergent validity using standardised factor loadings, composite reliability and average variance extracted and (ii), determine its discriminant validity using the Fornell-Larcker technique and cross loadings. The results of the measurement model analyses generally validated the psychometric properties of the scales used. Given the high psychometric properties evidenced in the measurement scales, future related studies, particularly in the context of emerging markets, could therefore use these measurement scales with some degree of certainty.

After ascertaining the reliability and validity of the measured constructs, this study empirically tested the integrated model of how consumer-related and product-related factors interact to predict green appliance adoption behaviour. The empirical findings of the study showed that consumer-related factors, including functional value, conditional value and epistemic value, exhibit a significant and positive association with consumers' attitudes towards green appliances. Moreover, the product-related factors consisting of relative advantage, compatibility and observability, exhibited significant and positive relationships with attitudes towards green appliance products. The results further show that attitudes, perceived behavioural control and subjective norm (referred to as social value) have a significant and positive relationship with behavioural intention. Finally, the results suggested that adoption behaviour is significant and positively predicted by behaviour intention. What is noteworthy is that the integrated conceptual model used in this study showed merit, as it explains **83.1%** and **24.2%** of the variances in behavioural intention and green product purchase behaviour respectively.

This high explanatory power from the integration of the TPB, the TCV and the DOI in this study makes a contribution, considering that future studies seeking to predict behavioural intentions and actual behaviour towards pro-environmental products can use the same model.

The current study's conceptual model is particularly useful, because an analysis of the literature presented in Table 7.1 revealed that in cases where TPB, TCV and DOI have been individually used or only two of them have been combined, lower variances in behaviour intention and actual adoption have been explained. Table 7.1 further shows that the majority of these studies

only measured up to the behavioural intention and that very few go further in measuring the actual adoption or actual behaviours.

Table 7.1: Summary of studies that have used either one or two theories (TPB, TCV, and DOI) to understand green consumer behaviour.

Theoretical framework(s)	Authors	Country	Variance explained in	
			Behaviour intention	Adoption behaviour
DOI	Taylor (2015)	USA (Iowa)	26.7% of the variance explained in behavioural intention.	
DOI	Jansson (2011)	Sweden	72.1% of the variance explained in behavioural intention.	
DOI and TPB	Chen (2014)	China	76% of the variance explained in behavioural intention.	
TCV	Lin and Huang (2012)	Taiwan	48% of the variance explained in behavioural intention.	
TCV	Chung (2012)	South Korea	32% of the variance explained in behavioural intention.	
TCV	Awuni and Du (2016)	China	41.5% of the variance explained in behavioural intention.	
TCV and TPB	Gugkang, Sondoh and Tanakinjal (2014)	Malaysia	47.4% of the variance explained in behavioural intention.	
TCV, contextual factors, willingness to pay	Biswas and Roy (2015)	India	40% of the variance explained in behavioural intention.	
TCV, environmental concern	Suki and Suki (2015)	Malaysia	31% of the variance explained in purchase intention.	
TBP	Yadav and Pathak (2017)	India	54% of variance explained in purchase intention.	21,8 % of variance explained in adoption.
TPB	Yazdanpanah and Forouzani (2015)	Iran	56% of the variance explained in behavioural intention.	

TPB	Moser (2015)	Germany	63.8% of the variance explained in behavioural intention.	
TPB	Wu and Chen (2014)	Taiwan	62% of the variance explained in behavioural intention.	
TPB, knowledge	Paul, Modi, Patel (2016)	Puerto Rico	55% of the variance explained in behavioural or purchase intention	
TPB and DOI	Chou, Chen, Wang (2012)	Taiwan	42% of the variance explained in behavioural intention	
TPB, environmental consciousness	Mishal, Dubey, Gupta and Luo (2017)	India	37.4% of the variance explained in behavioural intention	12.8% of the variance explained in adoption
TPB, values	Kim and Chung (2011)	USA (various geographical areas)	69% of the variance explained in behavioural / purchase intention	
TPB, knowledge and beliefs	Ha and Janda (2012)	South Korea	43% of the variance explained in behavioural intention	
TPB, perception	Lai and Cheng (2016)	Hong Kong	40.5% of the variance explained in behavioural intention	16.1% of variance explained in adoption
TPB, values	de Maya, Lopez and Munuera (2011)	Italy, Finland, Germany, Greece, UK	72% of the variance explained in behavioural intention.	

Table 7.1 further provides evidence that over seven years now, and in various countries, the integrated model used for this study, (which combined TPB, TCV and DOI), produced the greatest explanatory power of behavioural intention (83.1%) and actual adoption (24.2%) than previous studies using only one or two of these theories. The improved explained variance in the study supports and justifies the use of the tested integrated model.

7.4 CONTRIBUTION OF THE STUDY

The findings of this study have made both theoretical and practical contributions. These are discussed in the following sub-sections.

7.4.1 Theoretical Contribution

This study contributes to existing literature by examining green purchase behaviour based on a holistic approach which integrates the Theory of Consumption Values, Diffusion of Innovation and the Theory of Planned Behaviour. The study validates the integration of these theories in the context of green buying behaviour. The results contribute to the body of knowledge on the topic, as the proposed model assists in identifying and confirming the specific constructs that have significant effects on attitudes towards behavioural intention and ultimately, the adoption of green appliances in the context of the South African black middle class. The model testing process provided ample evidence of high levels of reliability and validity and further showed a significant explanatory power. This study's model can thus be used as a base for understanding pro-environmental behaviour in future research and in other developing countries or emerging markets.

Specifically, the study confirms consumer (functional value, conditional value, epistemic value) and product (relative advantage, compatibility and observability) related factors which drive attitudes towards green product purchase. The results also confirm attitudes, subjective norms (referred to as social value) and perceived behavioural control as predictors of behavioural intentions as postulated in the theory of planned behaviour (Ajzen, 1991). Unlike previous studies, behavioral intention emerged in the current study as a strong predictor of adoption, further supporting TPB.

Previous studies on green consumer behaviour, as listed in Table 7.1, have mostly studied determinants of behavioural intention with less attention given to understanding the actual behaviour as well. This study thus adds to literature by investigating factors that contribute to both behavioural intention and adoption.

This study has focused on a specific sample of the South African black middle class, which is considered to be a growing market with high spending power. Much of what is available in literature on green purchase/consumer behaviour has been based on student samples, most of

whom are not working. This study has contributed by using middle class consumers to confirm theories, especially in a cultural and socio-economically diverse country like South Africa. This study therefore provides new evidence of both consumer-related and product-related factors that influence the black middle class towards green purchase behaviour from a South African perspective.

This study also contributes to the field of green consumer behaviour which is very limited and lacks depth from the South African perspective, not to mention the rest of Africa.

7.4.2 Practical Contribution

The findings of this research are important for green home appliance manufacturers and marketers who are either targeting the South African black middle class or see them as their potential customers.

For the consumer-related factors, the results confirmed functional value, conditional value and epistemic value as having a positive impact on attitudes towards green purchase behaviour. Firstly, it is suggested that marketing managers who want to promote green purchase behaviour should ensure that their companies develop and promote green appliance products of good quality that meet the requirement of consumers. Secondly, businesses and marketers should emphasise the magnitude of environmental problems when designing their marketing campaigns and link that information to how using green appliance can lessen these problems. They should further lead by example, by taking responsibility for generating positive public awareness of the need for green purchase behaviour through effective promotions of green appliances and offering discounts to encourage green appliance purchase. Thirdly, marketers can enhance epistemic value by sharing more information with consumers about green appliances and their important contribution to public health and the environment. The power of communication through newspapers, television and the internet may help individuals and households to make better decisions for preserving the natural environment through product description, feedback and referral. As noted by previous researchers, education and information-sharing are one of the most effective strategies to promote positive messages and ideas (Barber, Bishop and Goodman, 2012:290; Corbett, 2013:375; Lai and Cheng, 2016:73).

The results also revealed that regarding product-related factors, South African black middle class attitudes towards green purchase behaviour are positively influenced by relative

advantage, compatibility and observation. Firstly, marketers are advised to emphasise the advantages of purchasing green appliances as well as taking into consideration the advantages that current and potential customers most value. The results from the study showed that financial advantages (such as savings from water and electricity bills) are very important. Secondly, in enhancing favourable attitudes towards green appliances, manufacturers and marketers should ensure to make and market green appliances that are more compatible with consumers' lifestyles. By doing so, consumers will be more likely to adopt them. The visibility of green products was also considered very important by the South African black middle class. This result suggests that marketers should create ways for these consumers to see the product being used by other people. This could include product demonstrations by salespeople inside stores, malls, television and electronic media.

The study revealed attitudes as having a very strong and significant role in influencing consumers' green purchase intentions. It is suggested that marketers enhance consumer attitudes towards green products by creating awareness in society. They should also place emphasis on how the use of green products lessens environmental degradation, which in turn may create a favourable image of the green appliances among the large and lucrative market segment of South African black middle class. Perceived behavioural control also emerged as a significant driver of behavioural intention. This indicates that the availability and accessibility of green appliances is important to this market. If green appliances are considered to be easily accessible to consumers, then the probability is high that they will opt for such products.

The results further showed that behavioural intention was positively influenced by social value. With this, marketers need to emphasise the central role of peer opinion and expert opinion in spreading positive word-of-mouth messages and encouraging their circle of friends and family to change their choice when purchasing appliances, such that they demonstrate more green purchase behaviour and care of the environment. It is envisaged that the use of peer reference would reduce consumers' perceived risk in terms of their choice to purchase green products, and improve behavioural intention and adoption of green appliance products.

Understanding how the South African black middle class responds to key factors in green purchase behaviour will enable marketers to develop customised strategies based on these key consumer- and product-related factors. This will increase the effectiveness and efficiency of green appliance purchase activities. This study has thus proposed a number of strategies that

can be applied successfully in the marketplace to overcome challenges relating to low sales growth of green products.

7.5 LIMITATIONS OF THE STUDY AND RECOMMENDATIONS FOR FUTURE RESEARCH

Notwithstanding the contribution of this study, there are a number of limitations that need to be taken into account when working with the findings. The limitations are the following:

- The sample used for this study is located in one geographical area namely, the Gauteng province in South Africa. While Gauteng, which is the economic capital of the country, has the greatest number of people classified as the black middle class, the findings could be generalised to the black middle class in the rest of South Africa if the study was extended to other, less affluent provinces.
- Even though various demographic characteristics of the black middle class were considered, the sample size used for this study may be relatively small compared to the total size of this market in the country. For the results to be more generalisable, a replication of this study could be done with a larger sample and from various provinces and cities.
- The green appliances in this study (fridges, washing machines, kettles, microwaves, etc) can be considered as medium to high involvement product(s). The characteristics of these products may limit the generalisability of the results to other types of green products such as green cleaning products and green or organic food, which are often characterized as low involvement products, costing less than appliances.
- The research data was analysed using PLS structural equation modelling on the total sample. Ringle *et al.* (2010) and Sarstedt (2008) have pointed out that this assumes that the data is homogenous, which may be unrealistic.

Based on the findings presented in Chapter 6 and the literature covered in Chapters 2, 3 and 4, the following recommendations are provided for marketers and organisations (profit and non-profit) that promote green practices.

- Research studies can explore the green purchase/consumption barriers through the use of qualitative research approaches (in-depth interviews, focus groups) to gain greater

insights into factors not covered in this study which can make a contribution in predicting green purchase behaviour.

- The current study was cross-sectional in nature; researchers could employ a longitudinal research design to investigate the drivers and barriers of green purchase behaviour in the South African black middle class over time. This study may include other variables such as cultural values and beliefs to gain deeper insights into the behaviours of this market segment. Moreover, a longitudinal study would more accurately show whether purchase intention leads to actual purchase.
- This study used a quantitative approach to identify the determinants of green purchase behaviour. A qualitative approach could be used in future studies to shed light on the hypotheses that were found to be insignificant. For example, it may be useful to better understand why social value does not influence attitudes (but influences behavioural intention).
- Research can consider using multi-group analyses as part of data analysis in order to identify segment level differences within the South African black middle class.
- A study could be done to explore the green purchase behaviours of Generation Y consumers in South Africa as they have been found to be one of the highest growing markets.
- Lastly, even though behavioural intention influenced actual adoption in the current study, further research is needed to identify the factors that will better close the gap between intention and actual behaviour, as revealed in other studies listed in Table 7.1). Given the importance of environmental sustainability, it is essential to understand which factors influence consumers to purchase green appliances and to improve the variance explained in adoption.

7.6 CONCLUDING REMARKS

This research study contributes to literature on green consumer behaviour by proposing a conceptual framework that integrates the Theory of Planned Behaviour (Ajzen, 1991), the Theory of Consumption Values (Sheth *et al.*, 1991) and the Diffusion of Innovation Theory (Roger, 2010). This was done with the aim of identifying the key drivers of behavioural intention and adoption/purchase of green appliance products. Using a survey that involved 500 South African black middle class consumers, this study empirically tested the proposed conceptual model of consumer- and product-related factors influencing green purchase

intention and behaviour among this large, lucrative and emerging consumer market in South Africa.

Overall, the research objectives for this study were achieved, considering that the integrated conceptual model provided a good explanation of the outcome constructs compared to other studies conducted over the last seven years in various countries.

From the proposed consumer-related factors, functional, conditional and epistemic values were found to be relevant predictors, with the exception of emotional and social values. Regarding product-related factors, relative advantage, compatibility and observability were found to be relevant, while complexity did not make a significant impact. Attitudes, perceived behavioural control and social value were found to be relevant predictors of behavioural intention while behavioural intention was found to be a significant predictor of adoption behaviour.

The integrated model was useful to explain 83.1% of the variance of behavioural intention to purchase green appliances and 24.2% of the variance in behaviour/actual adoption. This can be considered a good result in this field of consumer behaviour, bearing in mind that it is not always easy to predict drivers of consumer behaviour, especially green purchase behaviour.

It is therefore the researcher's belief that this study provides valuable theoretical contributions in the field of consumer behaviour and green marketing. Green marketers, healthy lifestyle practitioners and environmental lobbyists would therefore find its recommendations valuable and useful.

REFERENCES

Abeliotis, K., Koniari, C. and Sardianou, E. (2010). The profile of the green consumer in Greece. *International Journal of Consumer Studies*, 34(2):153-160.

Abdul Wahid, N., Rahbar, E. and Shyan, T. (2011). Factors influencing the green purchase behaviour of Penang environmental volunteers. *International Business Management*, 5(1):38-49.

Ader, C. R. (1995). A longitudinal study of agenda setting for the issue of environmental pollution. *Journalism and Mass Communication Quarterly*, 72(2):300-311.

Aertsens, J., Verbeke, W., Mondelaers, K. and Huylenbroeck, G. V. (2009). Personal determinants of organic food consumption: A review. *British Food Journal*, 111(10):1140-1167.

Agyeman, C. M. (2014). Consumers' Purchasing Behaviour towards Green Products: An Exploratory Study. *International Journal of Management Research and Business Strategy*, 3(1):188-197.

Ajzen, I. (1985). From intentions to actions: a theory of planned behaviour. In J. Kuhl and J. Beckmann (eds.) *Action Control: from Cognition to Behaviour* (pp. 11-39). Berlin, Heidelberg, New York: Springer-Verlag.

Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes,* 50(2):179-211.

Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology*, 52:27-58.

Ajzen, I. (2005). *Attitudes, Personality and Behaviour.* 2nd ed. Maidenhead: Open University Press.

Ajzen, I. and Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behaviour*. Englewood Cliffs, NJ: Prentice-Hall.

Akehurst, G., Afonso, C. and Goncalves, H. (2012). Re-examining green purchase behaviour and the green consumer profile: New evidences. *Management Decision*, 50(5):972-988.

Alam, S. S., Ali, M. Y. and Jani, F. F. M. (2011). An empirical study of factors affecting electronic commerce adoption among SMEs in Malaysia. *Journal of Business Economics and Management*, 12(2):375-399.

Alam, S. S., Hashim, N. H. N., Rashid, M., Omah, N. A., Ahsan, N. and Ismail, M. D. (2014). Small-scale households' renewable energy usage intention: Theoretical development and empirical settings. *Journal of Renewable Energy*, 68:255-263.

Albayrak, T., Aksoy, S. and Caber, M. (2013). The effect of environmental concern and scepticism on green purchase behaviour. *Marketing Intelligence and Planning*, 31(1):27-39.

Alkhidir, T. and Zailani, S. (2009). Going green in supply chain towards environmental sustainability. *Global Journal of Environmental Research*, 3(3):246-251.

Allport, G. W. (1935). Attitudes. In C. Murchison (ed.) *Handbook of social psychology* (pp. 798-844). Worcester, MA: Clark University Press.

Alshamaila, Y., Papagiannidis, S. and Li, F. (2013). Cloud computing adoption by SMEs in the north east of England: A multi-perspective framework. *Journal of Enterprise Information Management*, 26(3):250-275.

Aman, A. H. L., Harun, A. and Hussein, Z. (2012). The influence of environmental knowledge and concern on green purchase intention the role of attitude as a mediating variable. *British Journal of Arts and Social Sciences*, 7(2):145-167.

American Marketing Association (AMA). (2015). *Definition of Green Products*. Available from: https://www. ama.org/AboutAMA/Pages/Definition-of-Green Products.aspx]. Accessed 7 August 2016.

Anderson, J. C. and Gerbing, D. W. (1988). Structural equation modelling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103:411-423.

Anvar, M. and Venter, M. (2014). Attitudes and purchase behaviour of green products among generation Y consumers in South Africa. *Mediterranean Journal of Social Sciences*, 5(21):183-194.

Ariztia, T., Kleine, D., das Gracas, M., Brightwell, S. L., Agloni, N., Afonso, R. and Bartholo, R. (2014). Ethical consumption in Brazil and Chile: Institutional contexts and development trajectories. *Journal of Cleaner Production*. 63:84-92.

Arkesteijn, K. and Oerlemans, L. (2005). The early adoption of green power by Dutch households: An empirical exploration of factors influencing the early adoption of green electricity for domestic purposes. *Energy Policy*, 33(2):183-96.

Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lahteenmaki, L. and Shepherd, R. (2008). Predicting intentions to purchase organic food: the role of affective and moral attitudes in the theory of planned behaviour. *Appetite*, 50(2):443-454.

Aryal, K. P., Pashupati, C., Sangita, P. and Govinda, S. (2009). Consumers' willingness to pay for organic products: A case from Kathmandu Valley. *The Journal of Agriculture and Environment*, 10:12-22.

Ashworth, L. and Matear, M. (2009). The impact and accuracy of beliefs relating to impressions caused by products. *Advances in Consumer Research*, 8:128-129.

Autodealer. (2016). *Hybrids in South Africa*. Available from: https://www.autodealer.co.za/Motoring/Latest-News/Hybrids-in-South-Africa-2229.html. Accessed 4 July 2017.

Awad, T. A. (2011). Environmental segmentation alternatives: Buyers' profiles and implications. *Journal of Islamic Marketing*, 2(1):55-73.

Awuni, A. and Du, J. (2016). Sustainable Consumption in Chinese Cities: Green Purchasing Intentions of Young Adults Based on the Theory of Consumption Values. *Sustainable Development*, 24:124-135.

Azevedo, S., Carvalho, H. and Machado, V.-C. (2011). The influence of green practices on supply chain performance: a case study approach. *Logistics and Transportation Review*, 47(6):850-871.

Azizan, S. A. M. and Suki, N. M. (2014). The potential for greener consumption: Some insights from Malaysia. *Mediterranean Journal of Social Sciences*, 5(16):11-17.

Babbie, E. and Mouton, J. (2008). *The Practice of Social Research*. New York: Oxford University Press.

Babin, B. J. and Zikmund, W. G. (2016). *Exploring Marketing Research*. 11th ed. Mason: South-Western Cengage Learning.

Bagozzi, R. P. (1981). Attitudes, intentions, and behavior: A test of some key hypotheses. *Journal of Personality and Social Psychology*, 41(4):607-627.

Bagozzi, R.P. and Yi, T. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1):74-94.

Bamberg, S. (2003). How does environmental concern influence specific environmentally related behaviours? A new answer to an old question. *Journal of Environmental Psychology,* 23(1):21-32.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2):191-209.

Barbarossa, C. and De Pelsmacker, P. (2016). Positive and Negative Antecedents of Purchasing Eco-friendly Products: A Comparison between Green and Non-green Consumers. *Journal of Business Ethics*, 134:229-247.

Barber, N. A. (2010). Green wine packaging: targeting environmental consumers. *International Journal of Wine Business,* 22(4):423-444.

Barber, N. A., Bishop, M. and Gruen, T. (2014). Who pays more (or less) for pro-environmental consumer goods? Using the auction method to assess actual willingness-to-pay. *Journal of Environmental Psychology*, 40:218-227.

Barber, N. A., Kuo, P.-J., Bishop, M. and Goodman, R., Jr. (2012). Measuring psychographics to assess purchase intention and willingness to pay. *Journal of Consumer Marketing*, 29(4):280-292.

Barclay, D. W., Higgins, C. A. and Thompson, R. (1995). The partial least squares approach to causal modelling: Personal computer adoption and use as illustration. *Technology Studies*, (2):285-309.

Bartels, J. and Reinders, M. J. (2010). Social identification, social representations and consumer innovativeness in an organic food context: A cross-national comparison. *Food Quality and Preference*, 21:347-352.

Batra, S. and Kazim, S. H. H. (2008). *Consumer Behaviour: Text and Cases*. 2nd ed. New Delhi: Excel Books.

Baverstam, O. and Larsson, M. (2009). *Strategic green marketing: A comparative study of how green marketing affects corporate within business to business*. Dissertation. Lulea, Sweden: Lulea University of Technology.

BBMG. (2012). *Re-thinking Consumption: Consumers and the Future of Sustainability*. Available from: http://www.globescan.com/component/edocman/?task=document.viewdoc&id=51&Itemid=0. Accessed 18 February 2017.

Bearden, W. O., Netemeyer, R. G. and Teel, J. E. (1989). Measurement of consumer susceptibility to interpersonal influence. *The Journal of Consumer Research*, 15:473-481.

Beck, L. and Ajzen, I. (1991). Predicting dishonest actions using the theory of planned behaviour. *Journal of Research in Personality*, 25(3):286-301.

Beckford, C. L., Jacobs, C., Williams, N. and Nahdee, R. (2010). Aboriginal environmental wisdom, stewardship and sustainability: Lessons from the Walpole Island First Nations, Ontario and Canada. *The Journal of Environmental Education*, 41(4):239-248.

Bekhet, H. and Al-alak, B. (2011). *Measuring factors affecting the adoption of e-statements in Malaysia*. Paper presented at the 5th International Conference on Services Management, Gurgaon, India.

Benavides-Velasco, C. A., Quintana-García, C. and Vanesa F. Guzman-Parra, V. F. (2013). Trends in family business research. *Small Business Economics*, 40:41-57.

Beneke, J., Frey, N., Deuchar, F., Jacobs, A. and Macready L. (2010). Towards an understanding of the influences on attitude towards green cosmetics in South Africa. *Journal of Contemporary Management,* 7:477-491.

Bevan-Dye, A., Garnett, A. and De-Klerk, N. (2012). Materialism, status consumption and consumer ethnocentrism amongst black Generation Y students in South Africa. *African Journal of Business Management*, 6(16):5578-5586.

Bhate, S. (2005). An examination of the relative roles played by consumer behaviour settings and levels of involvement in determining environmental behaviour. *Journal of Retailing and Consumer Services,* 12(6):419-429.

BioFach. (2014). *BioFach Global: Successfully developing international organic markets.* Available from: http://www.biofach.de/en/press/press-releases/. Accessed 14 October 2014.

Bischof, C. and Liebenberg, P. (2016). *Identifying Factors that Influence Green Purchase Behaviour.* Proceedings of the Conference for Society for Marketing Advances.

Bissett, S., Wood, S., Cox, R., Scott, D. and Cassell, J. (2013). Calculating alcohol risk in a visualization tool for promoting healthy behavior. *Patient Education and Counseling*, 92(2): 167-173.

Biswas, A. and Roy, M. (2015a). Green products: An exploratory study on the consumer behaviour in emerging economies of the east. *Journal of Cleaner Production*, 87:462-468.

Biswas, A. and Roy, M. (2015b). Leveraging factors for sustained green consumption behaviour based on consumption value perceptions: testing the structural model. *Journal of Cleaner Production*, 95:332-340.

Bolero, J. (1995). The predictions of household recycling of newspapers: the role of attitudes, intentions and situational factors. *Journal of Applied Social Psychology*, 25:440-462.

Bose, I. and Pal, R. (2012). Do green supply chain management initiatives impact stock prices of firms? *Decision Support Systems*, 52(3):624-634.

Boztepe, A. (2012). Green marketing and its impact on consumer buying behaviour. *European Journal of Economic and Political Studies*, 5(1):5-21.

Bradley, N. (2010). *Marketing Research: Tools and Techniques*. Oxford: Oxford University Press.

Braun, P. (2010). Going green: Women entrepreneurs and the environment. *International Journal of Gender and Entrepreneurship*, 2(3):245-259.

Brecard, D., Hlaimi, B., Lucas, S., Perraudeau, Y. and Salladarre, F. (2009). Determinants of demand for green products: An application to eco-label demand for fish in Europe. *Ecological Economics*, 69:115-125.

Brezet, H. (1997). Dynamics in eco-design practice. *Industry and Environment*, 20(2):21-24.

Brother, C., Fortner, R. and Mayer, V. (1991). The impact of television news on public environmental knowledge. *Journal of Environmental Education*, 22(4):22-29.

Bryman, A. (2012). *Social research methods*. Oxford: Oxford University Press.

Bryman, A. and Bell, E. (2011). *Business Research Methods*. 3rd ed. New York, NY: Oxford University Press.

Burak, L. J., Rosenthal, M., and Richardson, K. (2013). Examining attitudes, beliefs, and intentions regarding the use of exercise as punishment in physical education and sport: An application of the theory of reasoned action. *Journal of Applied Social Psychology*, 43(7):1436-1445.

Burger, R., Steenkamp, C. L., van der Berg, S. and Zoch. A. (2015). The emergent middle class in contemporary South Africa: Examining and comparing rival approaches. *Development Southern Africa*, 32(1):25-40.

Burns, A. C. and Bush, R. F. (2014). *Marketing Research*. 7th ed. Harlow: Pearson.

Byrne, B. M. (2012). *Structural equation modelling with Mplus: Basic concepts, applications and programming.* New York, NY: Routledge.

Camison, C. and Lopez, A. V. (2012). On How Firms Located in an Industrial District Profit from Knowledge Spillovers: Adoption of an Organic Structure and Innovation Capabilities. *British Journal of Management*, 23(3):361-382.

Caruana, A. and Vassallo, R. (2003). Children's perception of their influence over purchases: The role of parental communication patterns. *Journal of Consumer Marketing*, 20(1):55-66.

Cassell, C. and Symon, G. (2006). Taking qualitative methods in organization and management research seriously. *Qualitative Research in Organizations and Management: An International Journal*, 1(1):4-12.

Chairy. (2012). Spirituality, self-transcendence and green purchase intention in college students. *Journal of Social Behavioural Science*, 57:243-246.

Chan, R. Y. K. and Lau, L. B. Y. (2000). Antecedents of green purchases: A survey in China. *Journal of Consumer Marketing*, 17(4):338-357.

Chan, R. Y. K., Wong, Y. H. and Leung, T. K. P. (2008). Applying ethical concepts to the study of 'green' consumer behavior: An analysis of Chinese consumers' intentions to bring their own shopping bags. *Journal of Business Ethics*, 79(4):469-481.

Cheah, I. and Phau, I. (2011). Attitudes towards environmentally friendly products: The influence of eco-literacy, interpersonal influence and value orientation. *Marketing Intelligence and Planning*, 29(5):452-472.

Chekima, B., Wafa, S. A. W. S. K., Igau, O. A., Chekima, S. and Sondoh, S. L. (2016). Examining green consumerism motivational drivers: Do premium price and demographics matter to green purchasing? *Journal of Cleaner Production*, 112:3436-3450.

Chen, A. and Peng, N. (2012). Green hotel knowledge and tourists' staying behaviour. *Annals of Tourism Research*, 39:2203-2219.

Chen, E. G., Kuo, W. G. and Hsiao, M. L. (2004). Green of marketing and research the green expense behaviour relations the environmental protection textile: For example Taipei City. *Journal of the Hwa Gang Textile*, 11(2):117-131.

Chen, K. K. (2014). Assessing the effects of customer innovativeness, environmental value and ecological lifestyles on residential solar power systems install intention. *Energy Policy*, 67(1):951-961.

Chen, M. F. and Tung, P. J. (2014). Developing an extended theory of planned behavior model to predict consumers' intention to visit green hotels. *International Journal of Hospitality and Management,* 36:221-230.

Chen, T. B. and Chai, L. T. (2010). Attitudes towards the environment and green products: Consumers' perspective. *Journal of Management Science*, 4:27-39.

Chen, Y. S. (2008). The driver of green innovation and green image – green core competence. *Journal of Business Ethics*, 81:531-543.

Chen, Y. S. and Chang, C.-H. (2012). Enhance green purchase intentions. The roles of green perceived value, green perceived risk and green trust. *Journal of Management Decisions*, 50(3):502-520.

Cherian, J. and Jacob, J. (2012). Green marketing: a study of consumers' attitude towards environment friendly products. *Asian Social Sciences,* 8:117-126.

Cheung, R., Lam, A. Y. C. and Lau, M. M. (2015) Drivers of green product adoption: The role of green perceived value, green trust and perceived quality. *Journal of Global Scholars of Marketing Science,* 25(3):232-245.

Chikweche, T. and Fletcher, R. (2014). 'Rise of the Middle of the Pyramid in Africa': Theoretical and Practical Realities for Understanding Middle Class Consumer Purchase Decision Making. *Journal of Consumer Marketing,* 31(1):27-38.

Chin, W. W. (1998). Issues and opinion on structural equation modeling. *MIS Quarterly,* 22(1):7-16.

Chin, W. W. (2010). *How to write up and report PLS analyses. Handbook of partial least squares: Concepts, methods and applications*. Heidelberg, Germany: Springer.

Chiou, T. Y., Chan, H. K., Lettice, F. and Chung, S. H. (2011). The influence of greening the suppliers and green innovation on environmental performance and competitive advantage in Taiwan. *Logistics and Transportation Review*, 47(6):822-836.

Cho, Y. N., Thyroff, A., Rapert, M. I., Park, S. Y. and Lee, H. J. (2013). To be or not to be green: Exploring individualism and collectivism as antecedents of environmental behaviour. *Journal of Business Research*, 66(8):1052-1059.

Chou, C. J., Chen, K. S. and Wang, Y. Y. (2012). Green practices in the restaurant industry from an innovation adoption perspective: Evidence from Taiwan. *International Journal of Hospitality Management*, 31(3):703-711.

Choudhary, A. and Gokarn, S. (2013). Green Marketing: A means for sustainable development. *Journal of Arts, Science and Commerce,* 3(3):26-32.

Chudry, F., Foxall, G. and Pallister J. (2011). Exploring Attitudes and Predicting Intentions: Profiling Student Debtors Using an Extended Theory of Planned Behavior. *Journal of Applied Social Psychology,* 41(1):119-149.

Churchill Jr, G. A., Brown, T. J. and Suter, T. A. (2010). *Basic marketing research.* 7th ed. Australia: South Western Cengage Learning.

Claudy, M. C., Michelsen, C. and O'Driscoll, A. (2011). The diffusion of microgeneration technologies – Assessing the influence of perceived product characteristics on home owners' willingness to pay. *Energy Policy*, 39(3):1459-1469.

Clow, K. E. and James, K. E. (2014). *Essentials of Marketing Research: Putting Research into Practice*. London: Sage.

Coghlan, D. and Brannick, T. (2014) *Doing Action Research in Your Own. Organization*. 4th ed. London: Sage.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates.

Conner, M. and Armitage, C.J. (1998). Extending the theory of planned behaviour. A review and avenues for further research. *Journal of Applied Social Psychology*, 28:1429-1464.

Cooper, D. and Schindler, P. (2011). *Business Research Methods.* 11th ed. Boston, MA: McGraw Hill.

Corbett, J. (2013). Designing and using carbon management systems to promote ecologically responsible behaviours. *Journal of the Association for Information Systems*, 14(7):339-378.

Costantini, V. and Mazzanti, M. (2012). On the green and innovative side of trade competitiveness? The impact of environmental policies and innovation on EU exports. *Research Policy*, 41:132-153.

Cotte, J. and Wood, S. L. (2004). Families and innovative consumer behaviour: A triadic analysis of sibling and parental influence. *Journal of Consumer Research*, 31(1):78-86.

Cottrell, S. P. (2003). Influence of socio-demographics and environmental attitudes on general responsible environmental behaviour among recreation boaters. *Environment and Behaviour*, 35(3):347-375.

Covary, T. (2013). South African appliance labelling programme: the pros and cons. *25 Degrees in Africa*, 8(2):1-4.

Creswell, J. W. (2014). *A concise introduction to mixed methods research*. Thousand Oaks, CA: Sage.

Creswell, J. W. and Plano Clark, V. L. (2011). *Designing and conducting mixed methods research.* Thousand Oaks, CA: Sage.

Dagher, G. K. and Itani, O. (2014). Factors influencing green purchasing behaviour: Empirical evidence from the Lebanese consumers. *Journal of Consumer Behaviour*, 13(3):188-195.

Dallas, N. (2015). *Green Business Basics: 24 Lessons for Meeting the Challenges of Global Warming.* New York, NY: McGraw-Hill.

Dangelico, R. M. and Pontrandolfo, P. (2010). From green product definitions and classifications to the Green Option Matrix. *Journal of Cleaner Production*, 18:1608-1628.

Davis, G., O'Callaghan, F. and Knox, K. (2009). Sustainable attitudes and behaviours amongst a sample of non-academic staff: A case study from an Information Services Department,

Griffith University, Brisbane. *International Journal of Sustainability in Higher Education*, 10(2):136-151.

De Groot, J. I. M. and Schuitema, G. (2012). How to make the unpopular popular? Policy characteristics, social norms and the acceptability of environmental policies. *Environmental Science and Policy*, 19(20):100-107.

De Groot, J. I. M. and Steg, L. (2008). Value orientations to explain beliefs related to environmental significant behavior: How to measure egoistic, altruistic and biospheric value orientations. *Environment and Behavior*, 40(3):330-54.

De Groot, J. I. M. and Steg, L. (2010). Relationships between value orientations, self-determined motivational types and pro-environmental behavioural intentions. *Journal of Environmental Psychology*, 30:368-378.

Deif, A. M. (2011). A system model for green manufacturing. *Journal of Cleaner Production*, 19:1553-1559.

De Leeuw, A., Valois, P., Ajzen, I. and Schmidt, P. (2015). Using the theory of planned behaviour to identify key beliefs underlying pro-environmental behaviour in high school students: Implications for educational interventions. *Journal of Environmental Psychology*, 42:128-138.

Deloitte. (2012). *The Rise and Rise of African Middle Class.* Available from: https://www2.deloitte.com/content/dam/Deloitte/au/Documents/international-specialist/deloitte-au-aas-rise-african-middle-class-12.pdf. Accessed 4 July 2017.

De Maya, S.R., López-López, I. and Munuera, J.L. (2011). Organic food consumption in Europe: International segmentation based on value system differences. *Journal of Ecological Economics*, 70:1767-1775.

De Mooij, M. and Hofstede, G. (2002). Convergence and divergence in consumer behavior: Implications for international retailing. *Journal of Retailing*, 78(1):61-69.

Department of Energy. (2014). *Annual report 2013/14*. Available from: http://www.gov.za/sites/www.gov.za/files/Deputy_Energy_Annual_Report_2013_14_0.pdf. Accessed 15 September 2016.

Department of Environmental Affairs. (2014). *About green economy*. Available from: https:// www.environment.gov.za/projectsprogrammes/greeneconomy/ about#definition. Accessed 11 August 2016.

De Pelsmacker, P., Janssens, W., Sterckx, E. and Mielants, C. (2005). Consumer preferences for the marketing of ethically labelled coffee. *International Marketing Review*, 22:512-530.

De Vos, A. S. (2011). *Research at grass roots: For social science and human services professions.* Pretoria: Van Schaik.

De Young, R. (2000). Expanding and evaluating motives for environmentally responsible behaviour. *Journal of Social Issues*, 56:509-526.

Dhurup, M. (2012). Victory may have a thousand supporters, but defeat may have none: Effects of team identification on BIRGing and CORFing, satisfaction and future behavioural intentions. *African Journal for Physical Health Education, Recreation and Dance*, 18(4):742-758.

Diamantopoulos, D., Schlegelmilch, B., Sinkovics, R. and Bohlen, G. (2003). Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation. *Journal of Business Research*, 56:465-480.

Dietz, T., Stern, P. C. and Guagnano, G. A. (1998). Social structural and social psychological bases of environmental concern. *Environment and Behaviour*, 30:450-471.

Dijkstra, T. K. (1983). Some comments on maximum likelihood and partial least squares methods. *Journal of Econometrics*, 22(2):67-90.

Dijkstra, T. K. (2010). Latent variables and indices: Herman Wold's basic design and partial least squares. In V. Esposito Vinzi, W. W. Chin, J. Henseler and H. Wang (eds.) *Handbook of partial least squares: Concepts, methods and applications* (pp. 23-46). Berlin: Springer.

Dijkstra, T. K. and Henseler, J. (2015). Consistent partial least squares path modelling. *Management Information Systems Quarterly*, 39:297-316.

Dillard, J. P. and Pfau, M. (2002). *The persuasion handbook: Developments in theory and practice*. Thousand Oaks, CA: Sage.

Donaldson, R., Mehlomakhulu, T., Darkey, D., Dyssel, M. and Siyongwana, P. (2013). Relocation: To be or not to be a black diamond in a South African township? *Habitat International*, 39:114-118.

Do Paco, A. M. F. and Raposo, M. L. B. (2010). Green consumer market segmentation: empirical findings from Portugal. *International Journal of Consumer Studies*, 34(4):429-436.

Dowd, K. and Burke, K. J. (2013). The influence of ethical values and food choice motivations on intentions to purchase sustainably sourced foods. *Appetite*, 69:137-144.

Drozdenko, R., Jensen, M. and Coelho, D. (2011). Pricing of green products: Premiums paid consumer characteristics and incentives. *International Journal of Business, Marketing and Decision Sciences*, 4(1):106-116.

Dubihlela, J. and Ngxukumeshe, T. (2016). Eco-friendly retail product attributes, customer attributes and the repurchase intentions of South African consumers. *International Business and Economics Research Journal*, 15(4):163-173.

Dunlap, R. E. and Van Liere, K. (1978). The new environmental paradigm: A proposed measuring instrument and preliminary results. *Journal of Environmental Education*, 9:10-19.

Eagly, A. H. and Chaiken, S. (1993). *The Psychology of Attitudes.* Fort Worth, TX: Harcourt Brace Jovanovich Publishers.

Economic Development Department. (2011). *New growth path framework*. Available from: http://www.economic.gov.za/publications/newgrowth-path-series/125-new-growth-path-framework. Accessed 4 March 2017.

Elliot, R. (2013). The taste for green: The possibilities and dynamics of status differentiation through green consumption. *Poetics*, 41:294-322.

Engelen, A. and Brettel, M. (2011). Assessing cross-cultural marketing theory and research. *Journal of Business Research*, 64:516-523.

Environmental Protection Agency. (2015). *Reducing Wasted Food and Packaging*. Available from: https://www.epa.gov/sites/production/files/20108/documents/reducing_wasted food_pkg_tool.pdf. Accessed 16 February 2017.

Eriksson, L., Garvill, J. and Nordlund, A. M. (2006). Acceptability of travel demand management measures: The importance of problem awareness, personal norm, freedom and fairness. *Journal of Environmental Psychology*, 26(1):15-26.

Euromonitor International. (2013a) *Consumer appliances in South Africa*. Available from: http://www.euromonitor.com. Accessed 28 August 2017.

Faiers, A. and Neame, C. (2006). Consumer attitudes towards domestic solar power systems. *Energy Policy*, 34(14):1797-1806.

Faiers, A., Cook, M. and Neame, C. (2007). Towards a contemporary approach for understanding consumer behaviour in the context of domestic energy use. *Energy Policy,* 35(8):4381-4390.

Fairtrade International. (2014). *Fairtrade delivering change.* Available from: https://www.fairtrade.org.uk/Media-Centre/News/September-2014/Fairtrade-International-Annual-Report-2013-to-2014. Accessed 11 May 2017.

Feinberg, F. M., Kinner, T. C. and Taylor, R. J. (2013). *Modern Marketing Research*. 2nd ed. Ohio: Cengage Learning.

Figueredo, F. R. and Tsarenko, Y. (2013). Is "being green" a determinant of participation in university sustainability initiatives? *International Journal of Sustainability in Higher Education,* 14(3):242-253.

Finlay, A. and Liechti, D. (2008). *e-Waste assessment South Africa*. Available from: http://ewasteguide.info/files/Finlay_2008_eWASA.pdf. Accessed 9 September 2017.

Fishbein, M. and Ajzen, I. (1975). *Belief, Attitude, Intention and Behaviour. An Introduction to Theory and Research.* Boston, MA: Addison-Wesley.

Fishbein, M. and Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach.* New York, NY: Psychology Press.

Flick, U. (2015). *Introducing Research Methodology*. 2nd ed. London: Sage.

Follows, S. B. and Jobber, D. (2000). Environmentally responsible purchase behaviour: A test of a consumer model. *European Journal of Marketing*, 34(6):723-746.

Fornell, C. and Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research.* 18:39-50.

Gadenne, D., Sharma. B., Kerr, D. and Smith T. (2011). The influence of consumers' environmental beliefs and attitudes on energy savings behaviours. *Energy Policy*, 39:7684-7694.

Gan, C., Wee, H., Ozanne, L. and Kao, T. (2008). Consumers' purchasing behaviour towards green products in New Zealand. *Innovative Marketing*, 4(1):93-102.

Gardner, G. T. and Stern, P. C. (2002). *Environmental Problems and Human Behaviour*. 2nd ed. Boston, MA: Pearson.

Garson, G. D. (2016). *Partial Least Squares: Regression and Structural Equation Models.* Asheboro, NC: Statistical Associates Publishers.

Gatersleben, B., Murtagh, N. and Abrahamse, W. (2014). Values, identity and pro-environmental behaviour. *Contemporary Social Science*, 9(4):374-392.

Gedajlovic, E., Carney, M., Chrisman, J. J. and Kellermans, F. W. (2012). The Adolescence of Family Firm Research: Taking Stock and Planning for the Future. *Journal of Management*, 38:1010-1037.

Gleim M. R., Smith J., Andrews D. and Cronin Jr, J. J. (2013). Against the green: A multi-method examination of the barriers to green consumption. *Journal of Retailing*, 89:44-61.

Godelnik, R. (2012). *Four Trends in Sustainable Consumption*. Available from: http://www.triplepundit.com/2012/12/sustainable-consumption-trends/. Accessed 10 December 2015.

Goh, K. and Balaji, M. S. (2016). Linking green scepticism to green purchase behaviour. *Journal of Cleaner Production*, 131:629-638.

Goncalves, H. M., Lourenco, T. F. and Silva, G. M. (2016). Green buying behaviour and the theory of consumption values: A fuzzy-set approach. *Journal of Business Research*, 69:1484-1491.

Gotz, O., Liehr-Gobbers, K. and Krafft, M. (2010). Evaluation of structural equation models using the partial least squares (PLS) approach. Springer, Heidelberg, Dordrecht, London.

Gracia, A. and Magistris, T. (2007). Organic food product purchase behaviour: A pilot study for urban consumers in the south of Italy. *Journal of Agricultural Research*, 5(4):439-451.

Grankvist, G. and Biel, A. (2007). Predictors of purchase of eco-labelled food products: A panel study. *Food Quality Preferences*, 18:701-708.

Greaves, M., Zibarras, L. D. and Stride, C. (2013). Using the theory of planned behavior to explore environmental behavioural intentions in the workplace. *Journal of Environmental Psychology*, 34(1):109-120.

Green Gauge Report. (2011). *Green sensibility continues to evolve*. Available from: https://www.prnewswire.com/news-releases/new-report-indicates-green-sensibility-continues-to-evolve-130267703.html. Accessed 9 August 2016.

Griskevicius, V., Tybur, J. M. and Van den Bergh, B. (2010). Going green to be seen: Status, reputation and conspicuous conservation. *Journal of Personality and Social Psychology*, 98(3):392-40

Guba, E. G. and Lincoln, Y. S. (1994). Competing Paradigms in Qualitative Research. In N. K. Denzin, and Y. S. Lincoln (eds.) *The Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.

Gugkang, A. S., Sondoh, S. L. and Tanakinjal, G. H. (2014). Consumption Values, Environmental Concern, Attitude and Purchase Intention in the Context of Green Products. *International Journal of Global Management Studies Professional*, 5(1):73-92

Gupta, S. and Ogden, D. T. (2009). To buy or not to buy? A social dilemma perspective on green buying. *Journal of Consumer Marketing*, 26(6):376-391.

Ha, H.-Y. and Janda, S. (2012). Predicting consumer intentions to purchase energy-efficient products. *Journal of Consumer Marketing*, 29 (7):461-469.

Hartmann, P. and Apaolaza-Ibanez, V. (2012). Consumer attitudes and purchase intention towards green energy brands: The roles of psychological benefits and environmental concern. *Journal of Business Research*, 65(9):1254-1263.

Hagger, M. S. and Chatzisarantis, N. L. D. (2005). First- and higher-order models of attitudes, normative influence, and perceived behavioural control in the theory of planned behaviour. *British Journal of Social Psychology*, 44:513-535.

Hair, J. F., Black, W. C., Babin, B. J. and Anderson, R. E. (2010). *Multivariate Data Analysis.* 7th ed. New York, NY: Pearson Prentice Hall.

Hair, J. F., Black, W. C., Babin, B. J. and Anderson, R. E. (2014). *Multivariate Data Analysis.* 7th ed. New international version. New York, NY: Pearson.

Hair, J. F., Hult, G. T. M., Ringle, C. M. and Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. [S.l.]: Sage.

Hair, J. F., Hult, G. T. M., Ringle, C. M., and Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling*. 2nd ed. Thousand Oaks, CA: Sage.

Hair, J. F., Ringle, C. M. and Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice,* 19(2):139-151.

Hair, J. F., Ringle, C. M., and Sarstedt, M. (2013). Partial Least Squares Structural Equation Modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning*, 46(2):1-12.

Hair, J. F., Sarstedt, M., Ringle, C. M. and Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modelling in marketing research. *Journal of the Academy of Marketing Science*, 40:414-433.

Hair, J. F., Wolfinbarger, M., Ortinau, D. J. and Bush R. P. (2013). *Essentials of Marketing Research.* 3rd ed. New York, NY: McGraw-Hill/Irwin.

Han, H. (2010). Application of the Theory of Planned Behaviour to green hotel choice: Testing the effect of environmentally friendly activities. *Tourism Management*, 31:325-334.

Han, H., Hsu, L. T. J. and Lee, J. S. (2009). Empirical investigation of the roles of attitudes towards green behaviours, overall image, gender, and age in hotel customers' eco-friendly decision-making process. *International Journal of Hospitality Management*, 28(4):519-528.

Han, H., Hsu, L. T. J. and Sheu, C. (2010). Application of the theory of planned behaviour to green hotel choice: Testing the effect of environmentally friendly activities. *Tourism Management*, 31(3):325-334.

Han, H., Hsu, L. T. J., Lee, J. S. and Sheu, C. (2011). Are lodging customers ready to go green? An examination of attitudes, demographics and eco-friendly intentions. *International Journal of Hospitality Management*, 30(2):345-355.

Hansla, A., Gamble, A., Juliusson, A. and Garling, T. (2008). The relationships between awareness of consequences, environmental concern and value orientations. *Journal of Environmental Psychology*, 28(1):1-9.

Hartmann, P. and Apaolaza-Ibanez, V. (2012). Consumer attitude and purchase intention toward green energy brands: The roles of psychological benefits and environmental concern. *Journal of Business Research*. 65(9):1254-1263.

Hassan, S. H. (2014). The role of Islamic values on green purchase intention. *Journal of Islamic Marketing*, 5(3):379-395.

Hauser, M., Nussbeck, F. W. and Jonas, K. (2013). The impact of food-related values on food purchase behaviour and the mediating role of attitudes: A Swiss study. *Psychology and Marketing*, 30(9):765-778.

Haws, K. L., Winterich, K. P. and Naylor, R. W. (2014). Seeing the world through Green-tinted glasses: Green consumption values and responses to environmentally friendly products. *Journal of Consumer Psychology*, 24(3):336-354.

Hazen, B. T., Wu, Y., Cegielski, C. G., Jones-Farmer, L. A. and Hall, D. J. (2012). Consumer reactions to the adoption of green reverse logistics. *The International Review of Retail, Distribution and Consumer Research*, 22(4):417-434.

Hennink, M., Hutter, I. and Bailey, A. (2011). *Qualitative research methods*. London: Sage.

Henseler, J. and Wang, H. (eds.) *Handbook of Partial Least Squares Concepts, Methods and Applications*, Springer Handbooks of Computing Statistics, Heidelberg.

Henseler, J., Ringle, C. M. and Sarstedt, M. (2012). Using partial least squares path modelling in international advertising research: Basic concepts and recent issues. In S. Okazaki (ed.) *Handbook of Research in International Advertising*. Cheltenham: Edward Elgar Publishing.

Henseler, J., Ringle, C. M. and Sarstedt, M. (2015). A New Criterion for Assessing Discriminant Validity in Variance-Based Structural Equation Modeling. *Journal of the Academy of Marketing Science*, 43(1):115-135.

Henseler, J., Ringle, C. M. and Sinkovics, R. (2009). The use of partial least squares path modelling in international marketing. *Advances in International Marketing*, 20(1):277-319.

Heyns, E., Herbst, F. and Bruwe, J. (2014). The relevance and acceptance of green wines in South Africa: Some marketing insights. *Journal of Wine Research*, 25(4):243-264.

Hill, J. and Lee, H. H. (2012). Young Generation Y consumers' perceptions of sustainability in the apparel industry. *Journal of Fashion Marketing and Management*, 16(4):477-491.

Hjelmar, U. (2011). Consumers' purchase of organic food products: A matter of convenience and reflexive practices. *Appetite*, 56(2):336-344.

Ho, J. C., Shalishali, M. K., Tseng, T. and Ang, D. S. (2009). Opportunities in Green Supply Chain Management: *The Coastal Business Journal*, 8(1):1-14.

Ho, S. S., Liao, Y. and Rosenthal, S. (2015). Applying the theory of planned behaviour and media dependency theory: Predictors of public pro-environmental behavioural intentions in Singapore. *Environmental Communication*, 9(1):77-99.

Hofstede G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. 2nd ed. Thousand Oaks, CA: Sage.

Huang, H. (2016). Media use, environmental beliefs, self-efficacy and pro-environmental behaviour. *Journal of Business Research*, 2206-2212.

Huang, H. C., Lin, T. H., Lai, M. C. and Lin, T. L. (2014). Environmental consciousness and green customer behavior: An examination of motivation crowding effect. *International Journal of Hospitality Management*, 139-149.

Huang, Y. C., Yang, M. and Wang, Y. C. (2014). Effects of green brand on green purchase intention. *Marketing Intelligence and Planning*, 32(3):250-268.

Hsu, M. (2013). *A survey on Taiwan climate change awareness*. Available from http://lowestc.blogspot.tw/2013/09/2013.html. Accessed 10 September 2017.

Huetink, F. J., der Vooren, A. V. and Alkemade, F. (2010). Initial infrastructure development strategies for the transition to sustainable mobility. *Technological Forecasting and Social Change*, 77(8):1270-81.

Hughes, A., McEwan, C. and Bek, D. (2015). Mobilising the ethical consumer in South Africa. *Journal of Geoforum*, 67:148-157.

Hunt, S. D. and Vitell, S. (1986). A General Theory of Marketing Ethics. *Journal of Macromarketing*, 6(1):5-16.

Hur, W. M., Yoo, J. J. and Chung, T. L. (2012). The consumption values and consumer innovativeness on convergence products. *Industrial Management and Data Systems*, 112(5):688-706.

Hwang, J. (2016). Organic food as self-presentation: the role of psychological motivation in older consumers' purchase intention of organic food. *Journal of Retailing and Consumer Services*, 28:281-287.

Iacobucci, D. and Churchill, G. A. (2010). *Marketing Research: Methodological Foundations.* 10th ed. Boston, MA: South-Western, Cengage Learning.

IPCC. (2014). *Climate Change 2014: Mitigation of Climate Change*. Available from: https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/WGIIIAR5_SPM_TS_Volume.pdf. Accessed 13 September 2016.

Islam, T. and Meade, N. (2013). The impact of attribute preferences on adoption timing: The case of photo-voltaic (PV) solar cells for household electricity generation. *Energy Policy*, 55:521-530.

Jackson, T. (2005). Live better by consuming less? Is there a double dividend in sustainable consumption? *Journal of Industrial Ecology*, 9(2):19-36.

Jamilah, A., Ali, I., Grigore, G. F. and Stancu, A. (2012). Studying consumers' ecological consciousness: A comparative analysis of Romania and Pakistan. *Amfiteatru Economic,* 14:84-98.

Janssen, M. A. and Jager. W. (2002). Stimulating diffusion of green products, co-evolution between firms and consumers. *Journal of Evolutionary Economics*, 12(3):283-306.

Jansson, J. (2011). Consumer eco-innovation adoption: Assessing attitudinal factors and perceived product characteristics. *Business Strategy and the Environment,* 20(3):192-210.

Jansson, J., Marell, A. and Nordlund, A. (2010). Green consumer behavior: determinants of curtailment and eco-innovation adoption. *Journal of Consumer Marketing*, 27(4):358-70.

Jiang, M. R. and Kim, H. A. (2014). Determinants of Chinese consumers' green purchase behavior. *Psychology and Marketing*, 18:308-335.

Jin, B. and Kang, J. H. (2011). Purchase intention of Chinese consumers toward a US apparel brand: A test of a composite behavior intention model. *Journal of Consumer Marketing*, 28: 187-199.

Jonker, J. and Pennink, B. (2010). *The essence of research methodology: A concise guide for Master's and PhD students in management science*. Berlin: Springer Science and Business Media.

Jonsson, B., Baker, S.R., Lindberg, P., Oscarson, N. and Öhrn, K. (2012). Factors influencing oral hygiene behaviour and gingival outcomes 3 and 12 months after initial periodontal

treatment: An exploratory test of an extended Theory of Reasoned Action. *Journal of Clinical Periodontology*, 39(2):138-144.

Joreskog, K. G. and Wold, H. O. A. (1982). *Systems under indirect observation: Causality, structure, prediction*. Amsterdam: North-Holland.

Joshi, Y. and Rahman, Z. (2015). Factors Affecting Green Purchase Behaviour and Future Research Directions. *International Strategic Management Review*, 3:128-143.

Joshi, Y. and Rahman, Z. (2016). Predictors of young consumer's green purchase behaviour. *Management of Environmental Quality: An International Journal*, 27(4):452-472.

Joshi, Y. and Rahman, Z. (2017). Investigating the determinants of consumers' sustainable purchase behaviour. *Sustainable Production and Consumption*, 10:110-120.

Kaiser, F. G., Hubner, G. and Bogner, F. X. (2005). Contrasting the theory of planned behavior with the value-belief-norm model in explaining conservation behavior. *Journal of Applied Social Psychology*, 35(10):2150-2170.

Kalafatis, S. P., Pollard, M., East, R. and Tsogas, M. H. (1999). Green marketing and Ajzen's theory of planned behaviour: A cross-market examination. *Journal of Consumer Marketing,* 16(5):441-460.

Kanchanapibul, M., Lacka, E., Wang, X. and Chan, H. K. (2014). An empirical investigation of green purchase behaviour among the young generation. *Journal of Cleaner Production*, 66:528-536.

Kannan, G., Noorul Haq, A., Sasikumar, P. and Arunachalam, S. (2008). Analysis and selection of green suppliers using interpretative structural modeling and analytic hierarchy process. *International Journal of Management and Decision Making*, 9(2):163-182.

Kapoor, K. K., Dwivedi, Y. K. and Williams, M. D. (2014*).* Examining consumer acceptance of green innovations using innovation characteristics: A conceptual approach. *International Journal of Technology Management and Sustainable Development*, 13(2):135-160.

Karakaya, E., Hidalgo, A. and Nuur, C. (2014). Diffusion of eco-innovations: A review. *Renewable and Sustainable Energy Reviews*, 33:392-399.

Kash, D. and Rycoft, R. W. (2000). Patterns of innovating complex technologies: A framework for adaptive network strategies. *Research Policy*, 29(8):819-831.

Kaufmann, H. R, Panni, M. F. A. K. and Orphanidou, Y. (2012). Factors affecting consumers' green purchasing behaviour: an integrated conceptual framework. *Amfiteatru Economic Journal*, 14(31):50-69.

Kaufmann, P., Stagl, S. and Franks, D. W. (2009). Simulating the diffusion of organic farming practices in two new EU member states. *Ecological Economics*, 68(10):2580-2593.

Kemp, E. and Bui, M. (2011). Healthy brands: Establishing brand credibility, commitment and connection among consumers. *Journal of Consumer Marketing*, 28(6):429-437.

Khare, A. (2014). Consumers' susceptibility to interpersonal influence as a determining factor of ecologically conscious behaviour. *Marketing Intelligence and Planning*, 32(1):2-2.

Kijek, T. (2015). Modelling of eco-innovation diffusion: The EU eco-label. *Comparative Economic Research*, 18(1):65-77.

Kim, H. Y. and Choi, S. M. (2005). Antecedents of green purchase behaviour: an examination of collectivism, environmental concern and PCE. *Advances in Consumer Research*, 32:592-599.

Kim, H. Y. and Chung, J. E. C. (2011). Consumer purchase intention for organic personal care products. *Journal of Consumer Marketing*, 28(1):40-47.

Kim, Y. and Han, H. (2010). Intention to pay conventional-hotel prices at a green hotel: A modification of the theory of planned behaviour. *Journal of Sustainable Tourism*, 18(8):997-1014.

Kim, Y. J., Njite, D. and Hancera, M. (2013). Anticipated emotion in consumers intentions to select eco-friendly restaurants: Augmenting the theory of planned behaviour. *International Journal of Hospitality Management,* 34(1):255-262.

Kline, R. B. (2011). *Principles and practice of structural equation modelling.* New York, NY: Guilford Press.

Koenig-Lewis, N., Palmer, A., Dermody, J. and Urbye, A. (2014). Consumers' evaluations of ecological packaging: Rational and emotional approaches. *Journal of Environmental Psychology*, 1:1-55.

Koller, M., Floh, A. and Zauner, A. (2011). Further insights into perceived value and loyalty: A green perspective. *Psychology and Marketing*, 28:1154-1176.

Kotler, P. and Armstrong, G. (2013). *Principles of Marketing*. 15th ed. New Jersey, NJ: Pearson Education Limited.

Kotler, P. and Keller, K. L. (2012). *Marketing Management, Global Edition*. New York, NY: Pearson Education Limited.

Kozar, J. M. and Connell, K. Y. H. (2013). Socially and environmentally responsible apparel consumption: Knowledge, attitudes and behaviours. *Social Responsibility Journal*, 9(2):315-324.

Kreidler, N. B. and Joseph-Mathews, S. 2009. How green should you go? Understanding the role of green atmospherics in service environment evaluations. *International Journal of Culture, Tourism and Hospitality Research*, 3(3):228-245.

Kroeker, L. L. (2014). Kenya's emerging middle class(es). *European Association of Development Research and Training Institute*, 1-12.

Krommenhoek, R. E. and Galpin, J. S. (2012). *Course Notes for Statistical Research Design and Analysis*. Johannesburg: University of the Witwatersrand.

Kronrod, A., Grinstein, A. and Wathieu, L. (2012). Go green! Should environmental messages be so assertive? *Journal of Marketing*, 76(1):95-102.

Kruger, M. and Saayman, M. (2013). How green are visitors at a green wine destination in South Africa? *Acta Academica*, 45(3):63-98.

Kumar, B. (2012). Theory of Planned Behaviour approach to understand the purchasing behaviour for environmentally sustainable products. Working Paper Series. *Indian Institute of Management*, 1:1-43.

Kumar, P. and Ghodeswar, B. M. (2015). Factors affecting consumers' green product purchase decisions. *Marketing Intelligence and Planning*, 33(3):330-347.

Kumar, S., Chattopadhyaya, S. and Sharma, V. (2012). Green Supply Chain Management: A Case Study from Indian Electrical and Electronics Industry. *International Journal of Soft Computing and Engineering*, 1(6):275-281.

Labay, D. G. and Kinnear, T. C. (1981). Exploring the Consumer Decision Process in the Adoption of Solar Energy Systems. *Journal of Consumer Research*, 8(3):271-278.

Lai, C. K. M. and Cheng, E. W. L. (2016). Green purchase behaviour of undergraduate students in Hong Kong. *The Social Science Journal,* 53:67-76.

Laitala, K., Boks, C. and Grimstad Klepp, I. (2011). Potential for environmental improvements in laundering. *International Journal of Consumer Studies*, 35:254-264.

Laroche, M., Bergeron, J. and Barbaro-Forleo, G. (2001). Targeting consumer who are willing to pay more for environmentally friendly products. *Journal of Consumer Marketing*, 18(6):503-520.

Lazenby, H. (2012). *SABS introduces energy efficiency labelling standard for appliances*. Available from: http://www.engineeringnews.co.za/article/sabs-introduces-energy-efficiency-labelling-standard-for-appliances-2012-03-15. Accessed 27 August 2018.

Lee, J., Ham, C. D. and Kim, M. (2013). Why people pass along online video advertising: From the perspectives of the interpersonal communication motives scale and the theory of reasoned action. *Journal of Interactive Advertising*, 13(1):1-13.

Lee, K. (2008). Opportunities for green marketing: Young consumers. *Marketing Intelligence and Planning*, 26(6):573-586.

Lee, K. (2009). Gender differences in Hong Kong adolescent consumers' green purchasing behaviour. *Journal of Consumer Marketing*, 26(2):87-96.

Lee, K. (2011). The green purchase behaviour of Hong Kong young consumers: The role of peer influence, local environmental involvement and concrete environmental knowledge. *Journal of International Consumer Marketing*, 23:21-44.

Lee, K. (2011). The role of media exposure, social exposure and biospheric value orientation in the environmental attitude-intention-behaviour model in adolescents. *Journal of Environmental Psychology*, 31:301-308.

Lee, K. (2014). Predictors of sustainable consumption among young educated consumers in Hong Kong. *Journal of International Consumer Marketing*, 26:217-238.

Leedy, P. D. and Ormrod, J. E. (2013). *Practical Research: Planning and Design*. New Jersey, NJ: Merrill Prentice Hall.

Leibenstein, H. (1950). Bandwagon, Snob and Veblen Effects in the Theory of Consumer's Demand. *Journal of Economics*, 1:183-207.

Leonidou, C. L., Constantinos, N. L. and Olga, K. (2010). Antecedents and outcomes of consumer environmentally friendly attitudes and behaviours. *Journal of Marketing Management*, 26(13):1319-1344.

Leonidou, C. L., Leonidou, C. N. and Kvasova, O. (2010). Antecedents and outcomes of consumer environmentally-friendly attitudes and behaviour. *Journal of Marketing Management*, 1(1):1-39.

Leonidou, C. L., Leonidou, C. N., Palihawadana, D. and Hultman, M. (2011). Evaluating the green advertising practices of international firms: A trend analysis. *International Marketing Review*, 28(1):6-33.

Leonidou, C. N., Katsikeas, C. S. and Morgan, N. A. (2013). Greening the marketing mix: Do firms do it and does it pay off? *Journal of the Academy of Marketing Science*, 41(2):151-170.

Levine, D. S. and Strube, M. J. (2012). Environmental Attitudes, Knowledge, Intentions and Behaviors among College Students. *The Journal of Social Psychology*, 152:308-326.

Liao, J. and Wang, L. (2009). Face as a mediator of the relationship between material value and brand consciousness. *Psychology and Marketing*, 26(11):987-1001.

Lin, C. Y. (2009). Adoption of green supply in Taiwan logistic industry. *Journal of Management Study,* 14:90-98.

Lin, C. Y and Ho, Y. H. (2009). An empirical study on logistics services provider, intention to adopt Green Innovations. *Journal of Technology, Management and Innovation.* 3(3):17-26.

Lin, P. C. and Huang, Y. H. (2012). The influence factors on choice behaviour regarding green products based on the theory of consumption values. *Journal of Cleaner Production*, 22:11-18.

Lin, R.-J., Tan, K.-H. and Geng, Y. (2013). Market demand, green product innovation and firm performance: Evidence from the Vietnam motorcycle industry. *Journal of Cleaner Production,* 40:101-107.

Lincoln, Y. S., Lynham, S. A. and Guba, E. G. (2011). *Paradigmatic controversies, contradictions, and emerging confluences*. London: Sage.

Lindenberg, S. and Steg, L. (2007). Normative, gain and hedonic goal frames guiding environmental behaviour. *Journal of Social Issues*, 63(1):117-137.

Liobikiene, G., Mandravickaite, J. and Bernatoniene, J. (2016). Theory of planned behaviour approach to understand the green purchasing behaviour in the EU: A cross-cultural study. *Journal of Ecological Economics*, 125:38-46.

Liu, X., Vedlitz, A. and Alston, L. (2008). Reginal news portrayals of global warming and climate change. *Environmental Science and Policy*, 11(5):379-393.

Lorek, S. and Fuchs, D. (2013). Strong sustainable consumption governance precondition for de-growth path? *Journal of Cleaner Production*, 38:36-43.

Loureiro, M. L. and Hine, S. (2002). A comparison of consumer willingness to pay for a local, organic and GMO-free product. *Journal of Agricultural and Applied Economics*, 34(3):477-487.

Lu, L. C., Bock, D. and Joseph, M. (2013). Green marketing: What the millennials buy. *Journal of Business Strategy*, 34(6):3-10.

Lu, L. C., Chang, H. H. and Chang, A. (2015). Consumer personality and green buying intention: The mediate role of consumer ethical beliefs. *Journal of Business Ethics*, 127(1):205-219.

MacVaugh, J. and Schiavone, F. (2010). Limits to the diffusion of innovation: A literature review and integrative model. *European Journal of Innovation Management*, 13(2):197-221.

Mahajan, V. (2011). *Africa rising: How 900 million African consumers offer more than you think*. Upper Saddle River, NJ: Pearson Prentice Hall.

Maheshwari, A. and Malhotra, G. (2011). Green marketing study on Indian youth. *International Journal of Management Strategy*, 2(3):31-46.

Maio, G. and Haddock, G. (2010). *The psychology of attitudes and attitude change*. London: Sage.

Malhotra, G. and Maheshwari, A. (2011). Green marketing: A study on Indian youth. *International Journal of Management Strategy,* 2(3):1-15.

Malhotra, N. K. (2010). *Marketing research: An applied orientation*. 6th ed. Upper Saddle River, NJ: Pearson Education.

Malhotra, N. K., Birks, D. F. and Wills, P. (2012). *Marketing research: An applied approach.* 4th ed. London: Pearson Education.

Malhotra, N. K. and Dash, S. (2014). *Marketing Research: An Applied Orientation*. 7th ed. New Delhi: Pearson Prentice Hall.

Mancha, R. M. and Yoder, C. Y. (2015). Cultural antecedents of green behavioral intent: An environmental theory of planned behaviour. *Journal of Environmental Psychology,* 43:145-154.

Maniatis, P. (2015). Investigating factors influencing consumer decision-making while choosing green products. *Journal of Cleaner Production*, 132:215-228.

Manjunath, G. and Manjunath, G. (2013). Green marketing and its implementation in Indian business organisations. *Asia Pacific Journal of Marketing and Management Review*, 2(7):75-86.

Marx, K. (1972). Economic and philosophic manuscripts of 1844: Selections. In R. C. Tucker (ed.) *The Marx-Engels Reader*. New York NY: W.W. Norton.

Mashaba, N. and Wiese, M. (2016). Black middle class township shoppers: A shopper typology, *The International Review of Retail, Distribution and Consumer Research*, 26(1):35-54.

Matthes, J., Wonneberger, A. and Schmuck, D. (2013). Consumers' green involvement and the persuasive effects of emotional versus functional ads. *Journal of Business Research*, 1:1-9.

Matthes, J., Wonneberger, A. and Schmuck, D. (2014). Consumers' green involvement and the persuasive effects of emotional versus functional ads. *Journal of Business Research*, 67: 1885-1893.

Mazar, N. and Zhong, C. B. (2012). Do green products make us better people? *Psychological Science*, 21(4):494-498.

McDaniel, C. and Gates, R. (2010). *Marketing Research Essential*. 7th ed. Hoboken, NJ: John Wiley and Sons.

McDaniel, C. and Gates, R. (2016). *Marketing Research Essential*. 9th ed. Hoboken, NJ: John Wiley and Sons.

McEwan, C., Hughes, A. and Bek, D. (2015). Theorising middle class consumption from global South: A study of everyday ethics in South Africa's Western Cape. *Journal of Geoforum*, 67:233-243.

Milfont, T. L. (2012). Cultural differences in environmental engagement. In S. Clayton (ed.) *Handbook of Environmental and Conservation Psychology*. Oxford: Oxford University Press.

Milfont, T. L. and Duckitt, J. (2010). The environmental attitudes inventory: A valid and reliable measure to assess the structure of environmental attitudes. *Journal of Environmental Psychology* 30:80-94.

Millan, E., De Pelsmacker, P. and Wright, L. T. (2013). Clothing consumption in two recent EU Member States: A cross-cultural study. *Journal of Business Research*, 66(8):975-982.

Minton, A. P. and Rose, R. L. (1997). The effect of environmental concern on environmentally friendly consumer behaviour: An exploratory study. *Journal of Business Research*, 40(1):37-48.

Mishal, A., Dubey, R., Gupta, O. K. and Luo, Z. (2017). Dynamics of environmental consciousness and green purchase behaviour: An empirical study. *International Journal of Climate Change Strategies and Management*, 9(5):682-706.

Moisander, J. (2007). Motivational complexity of green consumerism. *International Journal of Consumer Studies* 31(4):404-409.

Momberg, D., Jacobs, B. and Sonnenberg, N. (2012). The role of environmental knowledge in young female consumers' evaluation and selection of apparel in South Africa. *International Journal of Consumer Studies,* 36:408-415.

Montague, J. and Mukherjee, A. (2010). Marketing green products: What really matters? *Proceedings of the Northeast Business and Economics Association,* 433-441.

Moons, I. and De Pelsmacker, P. (2015). An Extended Decomposed Theory of Planned Behaviour to Predict the Usage Intention of the Electric Car: A Multi-Group Comparison. *Sustainability*, 7:6212-6245.

Mora, M., Gelman, O., Steenkamp, A. and Raisinghani, M.S. (2012). *Research methodologies: Innovations and philosophies in software system engineering and info systems.* Hershey, PA: IGI Global.

Morel, M. and Kwakye, F. (2012). *Green marketing: Consumers' attitudes towards eco-friendly products and purchase intentions in the Fast-Moving Consumer Goods (FMCG) sector.* Available from: https://www.semanticscholar.org. Accessed 16 May 2017.

Morelli, J. (2011). Environmental Sustainability: A definition for environmental professionals. *Journal of Environmental Sustainability*, 1:19-27.

Moser, A. K. (2015). Thinking green, buying green? Drivers of pro-environmental purchasing behavior. *Journal of Consumer Marketing*, 32(3):167-175.

Mostafa, M. M. (2006). Antecedents of Egyptian consumers' green purchase intentions: A hierarchical multivariate regression model. *Journal of International Consumer Marketing*. 19(2):97-126.

Mostafa, M. M. (2007). Gender differences in Egyptian consumers' green purchase behaviour: The effects of environmental knowledge, concern and attitude. *International Journal of Consumer Studies*, 31:220-229.

Mostafa, M. M. (2009). Shades of green: a psychographic segmentation of the green consumer in Kuwait using self-organizing maps. *Expert Systems Application*, 36:11030-11038.

Mouton, J. (2011). *How to succeed in your Master's and doctoral studies: A South African guide and resource book*. Pretoria: Van Schaik.

Muller, S. and Rode, J. (2013). The adoption of photovoltaic systems in Wiesbaden, Germany. *Economics of Innovation and New Technology*, 22(5):519-535.

Murthy, S. N. and Bhojanna, U. (2010). *Business Research Methods*. New Delhi: Excel Books India.

Mvubu, M. (2016). *Green supply chain management challenges in the South African Fast-Moving Consumer Good Industry: A case at FMCG Factory X*. Durban: University of KwaZulu-Natal.

Mvubu, M. and Naude, M. J. (2016). Green supply chain management constraints in the South African fast-moving consumer goods industry: A case study. *Journal of Contemporary Management*, 13:271-297.

Narula, S. A. and Desore, A. (2016). Framing green consumer behaviour research: Opportunities and challenges. *Social Responsibility Journal*, 12(1):1-22.

Nassimbeni, G. (2003). Local manufacturing systems and global economy: Are they compatible? The case of the Italian eyewear district. *Journal of Operations Management*, 12(2):151-171.

National Geographic and GlobeScan. (2012). *Greendex 2012: Consumer Choice and the Environment - A Worldwide Tracking Survey*. Available from: https://www.scirp.org/(S(351jmbntvnsjt1aadkposzje))/reference/ReferencesPapers.aspx?ReferenceID=1590701. Accessed 16 August 2016.

Ndanga, L. Z. B., Louw, A. and Van Rooyen, J. (2010). Increasing domestic consumption of South African wines: Exploring the market potential of the "Black Diamonds". *Agrekon,* 49(3):293-315.

Neuman, W. L. (2011). *Social Research Methods: Qualitative and Quantitative Approaches.* 7th ed. Whitewater: University of Wisconsin.

Newton, J. D., Tsarenko, Y., Ferraro, C. and Sands, S. (2015). Environmental concern and environmental purchase intentions: The mediating role of learning strategy. *Journal of Business Research*, 68(9):1974-1981.

Nguyen, T. N., Lobo, A. and Greenland, S. (2016). Pro-environmental purchase behaviour: The role of consumers' biospheric values. *Journal of Retailing and Consumer Services*, 33:98-108.

Nielsen Global Report. (2015). *The Sustainability Imperative*. Available from: https://www.nielsen.com/us/en/insights/reports/2015/the-sustainability-imperative.html. Accessed 8 July 2016.

Ninlawan, C., Seksan, P., Tossapol, K. and Pilada, W. (2010). *The implementation of green supply chain management practices in the electronics industry.* Proceedings of the International Multi-Conference of Engineers and Computer Scientists, Hong Kong.

Nordlund, A. M. and Garvill, J. (2002). Value structures behind pro-environmental behaviour. *Environment and Behaviour*, 34(6):740-756.

Occhiocupo, N. (2011). Innovation in foodservice: The case of a world leading Italian company. *The Marketing Review*, 11(2):189-201.

Olckers, C. (2011). *A multi-dimensional measure of psychological ownership for South African organisations*. Doctoral dissertation. Pretoria: University of Pretoria.

Oliver, H., Volschenk, J. and Smit, E. (2011). Residential consumers in the Cape Peninsula's willingness to pay for premium priced green electricity. *Energy Policy*, 39:544-550.

Oliver, J. D. (2007). Increasing the adoption of environmentally friendly products: Who are the non-adopters and what will get them to buy green? *Journal of Consumer Marketing*, 3(1):156-201.

Olson, E. L. (2013). Perspective: The green innovation value chain: a tool for evaluating the diffusion prospects of green products. *Journal of Product Innovation Management*, 30(4):782-793.

Onwezen, M. C., Bartels, J. and Antonides, G. (2014). Environmentally friendly consumer choices: Cultural differences in the self-regulatory function of anticipated pride and guilt. *Journal of Environmental Psychology*, 40:239-248.

Organisation for Economic Co-operation and Development (OECD). (2009). *Sustainable manufacturing and eco-innovation: Towards a green economy*. Available from: https://www.oecd.org/env/consumption-innovation/42957785.pdf. Accessed 10 December 2015.

Orten, T. and Atik, D. (2009). Environmentally friendly consumption preferences: Understanding the impact of consumption routines. *Advances in Consumer Research*, 36:822-824.

Ottman, J. A. (2011). *The New Rules of Green Marketing: Strategies, Tools and Inspiration for Sustainable Branding.* San Francisco: Greenleaf Publishing.

Otto, R., Ruminy, A. and Mrotzek, H. (2006) *Assessment of the environmental impact of household appliances.* Available from: http://www.appliancemagazine.com/print.php?article+1393&zone=215&first=1. Accessed 28 August 2017.

Ozaki, R. (2011). Adopting sustainable innovation: What makes consumers sign up to green electricity? *Business Strategy and the Environment*, 20(1):1-17.

Ozaki, R. and Sevastyanova, K. (2011). Going hybrid: An analysis of consumer purchase motivations. *Energy Policy*, 39:2217-2227.

Paço, A., Alves, H., Shiel, C. and Leal Filho, W. (2013). Development of a green consumer behaviour energy policy model. *International Journal of Consumer Studies*, 37:414-421.

Palevich, R. (2012). *The Lean Sustainable Supply Chain: How to Create a Green Infrastructure with Lean Technologies*. London: Pearson Education.

Pallant, J. (2010). *SPSS survival manual: A step by step guide to data analysis using SPSS*. 4th ed. Maidenhead, UK: McGraw-Hill.

Pallant, J. (2013). *SPSS Survival Manual*. Maidenhead, UK: McGraw-Hill.

Pannell, D. J., Marshall, G. R., Barr, N., Curtis, A., Vanclay, F. and Wilkinson, R. (2006). Understanding and promoting adoption of conservation practices by rural landholders. *Australian Journal of Experimental Agriculture*, 46(11):1407-24.

Papista, E. and Krystallis, A. (2013). Investigating the types of values and cost of green brands: Proposition of a conceptual framework. *Journal of Business Ethics*, 115(1):75-92.

Park, J. and Ha, S. (2012). Understanding pro-environmental behavior. *International Journal of Retail and Distribution Management*, 40(5):388-403.

Parment, A. (2013). Generation Y vs. Baby Boomers: Shopping behaviour, buyer involvement and implications for retailing. *Journal of Retailing and Consumer Services*, 20:189-199.

Paul, J., Modi, A. and Patel, J. (2016). Predicting green product consumption using theory of planned behaviour and reasoned action. *Journal of Retailing and Consumer Services*, 29:123-134.

Paul, J. and Rana, J. (2012). Consumer behaviour and purchase intention for organic food. *Journal of Consumer Marketing*, 29(6):412-422.

Peattie, K. (2001). Towards sustainability: The third age of green marketing. *The Marketing Review*, 2(2):129-146.

Peattie, K. (2010). Green consumption: Behaviour and norms. *Annual Review of Environment and Resources,* 35(8):195-228.

Peloza, J., White, K. and Shang, J. (2013). Good and guilt-free: The role of self-accountability in influencing preferences for products with ethical attributes. *Journal of Marketing*, 77:104-119.

Pemer, F., Sieweke, J., Werr, A., Birkner, S. and Mohe, M. (2014). The cultural embeddedness of professional service purchasing — A comparative study of German and Swedish companies. *Journal of Purchasing and Supply Management*, 20:273-285.

Phipps, M., Ozanne, L. K., Luchs, M. G. C., Subrahmanyan, S. R., Kapitan, S., Catlin, J. R., Gau, R., Naylor, R. W., Rose, R. L., Simpson, B. and Weaver, T. (2013). Understanding the inherent complexity of sustainable consumption: A social cognitive framework. *Journal of Business Research*, 66:1227-1234.

Pickett-Baker, J. and Ozaki, R. (2008). Pro-environmental products: Marketing influence on consumer purchase decision. *Journal of Consumer Marketing*, 25(5):281-293.

Plotz, P., Gnann, T. and Weitschel, M. (2014). Modelling market diffusion of electric vehicles with real world driving data d part I: Model structure and validation. *Journal of Ecological Economics,* 107:411-421.

Pollock, W. K. (2010). Driving return process directly to the bottom line. *Reverse Logistics Magazine,* 3(5):12-16.

Polonsky, M. J. (2011). Transformative green marketing: Impediments and opportunities. *Journal of Business Research*, 64:1311-1319.

Polonsky, M. J., Vocino, A., Grau, S. L., Garma, R. and Ferdous, A. S. (2012). The impact of general and carbon-related environmental knowledge on attitudes and behaviour of US consumers. *Journal of Marketing Management*, 28(4):238-263.

Pooe, R. I. D. and Mhelembe, K. (2014). Exploring the challenges associated with the greening of supply chains in the South African manganese and phosphate mining industry. *Journal of Transport and Supply Chain Management,* 8(1):1-9.

Poortinga, W., Steg, L. and Vlek, C. (2004). Values, environmental concern and environmental behavior: A study into household energy use. *Environment and Behavior,* 36(1):70-93.

Porter, M. E. and Van der Linde, C. (1995). Green and competitive – Ending the stalemate. *Harvard Business Review*, 73(5):120-134.

Pothitou, M., Kolios, A. J., Varga, L. and Gu, S. (2016). A framework for targeting house-hold energy savings through habitual behavioural change. *International Journal of Sustainable Energy*, 35(7):686-700.

PricewaterhouseCoopers (PwC). (2012). *South African Retail and Consumer Products Outlook 2012-2016*. Available from: http://www.pwc.co.za/en/publications/retail-and-consumeroutlook.jhtml. Accessed 8 July 2016.

Pujari, D. (2009). Eco-innovation and new product development: Understanding the influences on market performance. *Technovation,* 26(1):76-85.

Qader, L. K. and Zainuddin, Y. (2011). The impact of media exposure on intention to purchase green electronic products amongst lecturers. *International Journal of Business and Management*, 6(3):240-248.

Quinlan, C. (2011). *Business Research Methods*. Andover, Hampshire, UK: South-Western Cengage Learning.

Qureshi, T. M., Ullah, K. and Arentsen, M. J. (2017). Factors responsible for solar PV adoption at household level: A case of Lahore, Pakistan. *Renewable and Sustainable Energy Reviews*, 78:754-763.

Rahbar, E. and Wahid, N. A. (2011). Investigation of green marketing tools' effect on consumers' purchase behaviour. *Business Strategy Series*, 12(2):73-83.

Ramayah, T., Lee, J. W. C. and Mohamad, O. (2010). Green product purchase intention: Some insights from a developing country. *Resources, Conservation and Recycling*, 54(12):1419-1427.

Rashid, N. A. and Ramli, K. (2009). Awareness of eco-labels in a Malaysia green marketing initiative. *International Journal of Business Management*, 4(8):132-141.

Ravi, V. and Shankar, R. (2012). Analysis of interactions among the barriers of reverse logistics. *International Journal of Technological Forecasting and Social Change,* 72(2):1011-1029.

Rehman, Z. and Dost, M. K. B. (2013). Conceptualizing Green Purchase Intention in Emerging Markets: An Empirical Analysis on Pakistan. WEI International Academy.

Reinhardt, F. L. (1998). Environmental Product Differentiation: Implications for Corporate Strategy. *California Management Review*, 40(4):43-73.

Reser, J. P. and Bentrupperbaumer, J. M. (2005). What and where are environmental values? Assessing the impacts of current diversity of use of environmental and world heritage values. *Journal of Environmental Psychology*, 25(2):125-46.

Rezai, G., Teng, P. K., Mohamed, Z. and Shamsudin, M. N. (2013). Consumer willingness to pay for green food in Malaysia. *Journal of International Food and Agribusiness Marketing*, 25(1):1-18.

Riefer, A. and Hamm, U. (2008). *Changes in families' organic food consumption*. Proceedings of the 12th Congress of the European Association of Agricultural Economists, University of Kassel, Ghent.

Rigdon, E. E. (2012). Rethinking partial least squares path modelling: In praise of simple methods. *Long Range Planning*, 45(5):341-358.

Ringle, C. M., Sarstedt, M. and Mooi, E. A. (2010). Response-based segmentation using finite mixture partial least squares: Theoretical foundations and an application to American Customer Satisfaction Index data. *Annals of Information Systems*, 8:19-49.

Ringle, C., Wende, S. and Becker, J. (2015). *SmartPLS 3 (Version 3.2.3)*. Boenningstedt, Germany: SmartPLS GmbH.

Ritter, A. M., Borchardt, M., Vaccaro, G. L. R., Pereira, G. M. and Almeida, F. (2015). Motivations for promoting the consumption of green products in an emerging country: Exploring attitudes of Brazilian consumers. *Journal of Cleaner Production*, 106:507-520.

Rodriguez-Barreiro, L. M., Fernandez-Manzanal, R., Serra, L. M., Carrasquer, J., Murillo, M. B., Morales, M. J., Calvo, J. M. and Valle, J. D. (2013). Approach to a causal model between attitudes and environmental behaviour: A graduate case study. *Journal of Cleaner Production*, 48:116-125.

Rogers, E. M. (1995). *Diffusion of Innovations*. New York, NY: Free Press.

Rogers, E. M. (2003). *Diffusion of Innovations*. New York, NY: Free Press.

Rogers, E. M. (2010). *Diffusion of Innovations*. New York, NY: Free Press.

Sarstedt, M. (2008). A review of recent approaches for capturing heterogeneity in partial least squares path modelling. *Journal of Modelling in Management.* 3(2):140161.

Sarstedt, M., Ringle, C. M., Smith, D., Reams, R. and Hair, J. F. (2014). Partial least squares structural equation modelling (PLS-SEM): A useful tool for family business researcher. *Journal of Family Business Strategy,* 5:105-115.

Sahin, E. (2013). Predictors of Turkish elementary teacher candidates' energy conservation behaviours: An approach on Value-Belief-Norm Theory. *International Journal of Environmental and Science Education*, 8(2):269-283.

Saleki, Z. S. and Seyedsaleki, S. M. (2012). The main factors influencing purchase behaviour of organic products in Malaysia. *Interdisciplinary Journal of Contemporary Research in Business*, 4(1):101-116.

Salkind, N, J. (2012). *Exploring Research*. 8th ed. New Jersey, NJ: Pearson Education.

Samad, S. (2012). The influence of innovation and transformational leadership on organization performance. *Procedia Social and Behavioral Sciences*, 57:486-493.

Samarasinghe, R. (2012). The influence of cultural values and environmental attitudes on green consumer behaviour. *International Journal of Behavioural Science*, 7(1):83-98.

Sammer, K. and Wüstenhagen, R. (2006). The influence of eco-labelling on consumer behaviour: Results of a discrete choice analysis for washing machines. *Business Strategy and the Environment*, 15(3):185-199.

Sang, Y. N. and Bekhet, H. A. (2015). Modelling electric vehicle usage intentions: An empirical study in Malaysia. *Journal of Cleaner Production*, 92:75-83

Sardianou, E. and Genoudi, P. (2013). Which factors affect the willingness of consumers to adopt renewable energies? *Renewable Energy*, 57(1):1-4.

Sarkar A. N. (2013). Promoting Eco-innovations to Leverage Sustainable Development of Eco-industry and Green Growth. *European Journal of Sustainable Development*, 2(1):171-224.

Sarkis, J. (2012). A boundaries and flows perspective of green supply chain management. *Supply Chain Management: An International Journal*, 17(2):202-216.

Sasikumar, N. and Jayasubramaniam, P. (2013). Solar Energy System in India. *Journal of Business Management*, 7(1):61-68.

Saunders, M., Lewis, P. and Thornhill, A. (2012). *Research Methods for Business Students.* 6th ed. London: Pearson Education.

Saunders, M., Lewis, P. and Thornhill, A. (2016). *Research Methods for Business Students.* 7th ed. Harlow, Munich: Pearson Education.

Schmieding, S. (1992). *Changing course: a global business perspective on development and the environment*. Cambridge, MA: MIT Press.

Scott, L. and Vigar-Ellis, D. (2014). Consumer understanding, perceptions and behaviour with regard to environmentally friendly packaging in a developing nation. *International Journal of Consumer Studies*, 38:642-649.

Sekaran, U. and Bougie, R. (2013). *Research Methods for Business: A Skills-building Approach*, 6th ed. London: John Wiley & Sons.

Shamdasani, P., Chon Lin, G. and Richmond, D. (1993). Exploring green consumers in an oriental culture: Role of personal and marketing mix. *Journal of Consumer Research*, 20:488-493.

Shandu, H. S., Wratten, S. D. and Cullen, R. (2010). Organic products and ecosystem services. *Environmental Science and Policy*, 13:1-7.

Sheth, J. N., Newman, B. I. and Gross, B. L. (1991a). Why we buy what we buy: A theory of consumption values. *Journal of Business Research*, 22(2):159-170.

Sheth, J. N., Newman, B. I. and Gross, B. L. (1991b). *Consumption Values and Market Choices: Theory and applications*. Cincinnati: South-Western.

Sheth, J. N., Sethia, N. K. and Srinivas, S. (2011). Mindful consumption: A customer-centric approach to sustainability. *Journal of Academic Marketing Science*, 39:21-39.

Shih, L. H. and Chou, T. Y. (2011). Customer concerns about uncertainty and willingness to pay in leasing solar power systems. *International Journal of Environmental Science and Technology,* 8(3):523-532.

Shiu, E., Hair, J., Bush, R. and Ortinau, D. (2009). *Marketing Research.* European edition. London: McGraw-Hill.

Shmueli, G., Ray, S., Velasquez Estrada, J. M. and Chatla, S. B. (2016). The elephant in the room: Evaluating the predictive performance of PLS models. *Journal of Business Research*, 69(10):4552-4564.

Silverman, D. (2011). *Interpreting Qualitative Data: A Guide to the Principles of Qualitative Research*. Los Angeles: Sage.

Singh, N. and Gupta, K. (2013). Environmental attitude and ecological behaviour of Indian consumers. *Social Responsibility Journal*, 9(1):4-18.

Sinnappan, P. and Rahman, A. (2011). Antecedents of green purchasing behaviour among Malaysian consumers. *Medwell Journal*, 5(3):129-139.

Smil, V. (2013). Reducing the carbon and sulfur load of the atmosphere: Assessing global decarbonisation and desulfurization and the future of a low-carbon world. *GAIA – Ecological Perspectives for Science and Society*, 22(4):255-262.

Smith, K.T. (2012). Longitudinal study of digital marketing strategies targeting millennials. *Journal of Consumer Marketing*, 29(2):86-92.

Smith, P. (2013). Delivering food security without increasing pressure on land. *Global Food Security*, 2(1): 18-23.

Smith, K. T. and Brower, T. R. (2012). Longitudinal study of green marketing strategies that influence millennials. *Journal of Strategic Marketing,* 20(6):535-551.

Smith, S. and Paladino, A. (2010). Eating clean and green? Investigating consumer motivations towards the purchase of organic food. *Australasian Marketing Journal*, 18(2):93-104.

Sniehotta, F., Presseau, J. and Araujo-Soares, V. (2014). Time to retire the theory of planned behaviour. *Health Psychology Review*, 8(1):1-7.

Sparks, P., Hindis, J., Curnock, S. and Pavey, L. J. (2014). Connectedness and its consequences: A study of relationships with natural environment. *Journal of Applied Social Psychology*, 44(3):166-174.

Squires, L., Juric, B. and Cornwell, T. B. (2001.) Level of market development and intensity of organic consumption: Cross-cultural study of Danish and New Zealand consumers. *Journal of Consumer Marketing*, 18(5):392-409.

Srivastava, S. (2011). Green supply state of the art literature review. *International Journal of Management Review,* 9(1):53-80.

Steg, L., Bolderdijk, J. W., Keizer, K. and Perlaviciute, G. (2014). An integrated framework for encouraging pro-environmental behaviour: The role of values, situational factors and goals. *Journal of Environmental Psychology*, 38:104-115.

Steinert, Y. (2014). *Faculty Development in the Health Professions: A Focus on Research Practice*. Montreal, QC: Springer.

Stenzel, P. L. (2011). Mainstreaming Fair Trade: From Coffee and Chocolate to Clothing and Beyond. *Global Edge Business Review*, 1-5.

Stephenson, J. and Ioannou, M. (2010). *Social Acceptance of Renewable Electricity Developments in New Zealand.* Otago: Centre for the Study of Agriculture, Food and Environment, University of Otago.

Stern, P. C. (2000). Toward a coherent theory of environmentally significant behaviour. *Journal of Social Issues*, 56(3):407-424.

Stern, P. C., Dietz, T. and Guagnano, G. A. (1995). The New Ecological Paradigm in Social-Psychological Context. *Environment and Behavior*, *27*(6):723-743.

Steyn, L. (2013). *March of the black middle class has promising spin-offs*. Available from: http://mg.co.za/article/2013-05-03-00-march-of-the-black-middle-class-has-promising-spin-offs. Accessed 9 August 2016.

Struwig, F. W. and Stead, G.B. (2001). *Planning, designing and reporting research*. Cape Town: Pearson Education.

Sue, V. M. and Ritter, L. A. (2011). *Conducting online surveys,* 2nd ed. Thousand Oaks, CA: Sage.

Suki, N. M. (2016). Consumer environmental concern and green product purchase in Malaysia: Structural effects of consumption values. *Journal of Cleaner Production*, 132: 204-214.

Suki N. M. (2013a). Young consumer ecological behaviour: Effects of environmental knowledge, healthy food, and healthy way of life with the moderation of gender and age. *International Journal of Management Environmental Quality*, 24:726-737.

Suki, N. M. (2013b). Consumer ecological behaviour: Structural relationships of environmental knowledge, healthy food and healthy way of life. *Journal of Sustainability Science* and *Management*, 8:100-107.

Suki, N. M. and Suki, N. M. (2015). Consumption values and consumer environmental concern regarding green products, *International Journal of Sustainable Development and World Ecology*, 22(3):269-278.

Sustainlabour. (2013). *Green jobs and related policy frameworks: An overview of South Africa.* Available from: http://www.tips.org.za/files/green_jobs_and_ relatedpolicy_ _frameworks_-_overview_south_africa.pdf. Accessed 14 July 2018.

Swanson, A. R. and Chermack, J. T. (2013). *Theory building in applied disciplines*. San Francisco, CA: Berrett-Koehler Publishers, Inc.

Synodinos, C., Bevan-Dye, A. L. and De Klerk, N. (2013). Influence of conative attitudes towards green advertising on black Generation Y students' environmental behaviour. *Mediterranean Journal of Social Sciences*, 4(3):17-24.

Tan, B. C. (2011a). The role of perceived consumer effectiveness on value-attitude-behaviour model in green buying behaviour context. *Australian Journal of Basic and Applied Sciences*, 5(12):1766-1771.

Tan, B. C. (2011b). The roles of knowledge, threat and PCE on green purchase behaviour. *International Journal of Business Management*, 6 (12):14-27.

Tan, S. K., Chong, S. C., Lin, B. and Eze, U. C. (2008). Internet-based ICT adoption: Evidence from Malaysian SMEs. *Industrial Management and Data Systems*, 109:224-44.

Tanner, C. and Kast, S. W. (2003). Promoting sustainable consumption: Determinants of Green purchases by Swiss consumers. *Psychology and Marketing*, 20(10):883-902.

Tapaninen, A., Seppanen, M. and Makinen, S. (2009a). Characteristics of innovation: A customer-centric view of barriers to the adoption of a renewable energy system. *International Journal of Agile Systems and Management,* 4 (1):98-113.

Taylor, S. and Todd, P. (1995). An Integrated Model of Waste Management Behavior: A Test of Household Recycling and Composting intentions. *Environment and Behavior*, 27(5):603-630.

Thøgersen, J. (2011). Green shopping: For selfish reasons or the common good? *American Behavioural Scientist,* 55(8):1052-1076.

Thøgersen, J., De Barcellos, M. D., Perin, M. G. and Zhou, Y. (2015). Consumer buying motives and attitudes towards organic food in two emerging markets. *International Marketing Review,* 32(3/4):389-413.

Thulasimani, P. (2012). Green marketing and green products. *International Journal of Research in Finance and Marketing*, 2(2):448-453.

Tjärnemo, H. and Dodahl, T. (2015). Swedish food retailers promoting climate smarter food choices – Trapped between vision and reality? *Journal of Retailing and Consumer Services*, 24:130-139.

Triandis, H. C. (1979). Values, attitudes, and interpersonal behavior. *Nebraska Symposium on Motivation,* 27:195-259

Tsai, W. and Ghoshal, S. (2008). Social capital and value creation: The role of intra-firm networks. *Academy of Management Journal* 41:464-476.

Tsarenko, Y., Ferraro, C., Sands, S. and McLeod, C. (2013). Environmentally conscious consumption: The role of retailers and peers as external influences. *Journal of Retail Consumer Services,* 20:302-310.

Tsai, C. W. and Tsai, C. P. (2008). Impacts of Consumer Environmental Ethics on Consumer Behaviors in Green Hotels. *Journal of Hospitality and Leisure Marketing*, 17:284-313.

Tsay, Y. Y. (2010). *The Impact of Economic Crisis on Green Consumption in Taiwan*. Proceedings of the Portland International Conference in Management of Engineering and Technology (PICMET), Taiwan.

Tseng, S.-C. and Hung, S.-W. (2013). A framework identifying the gaps between customers' expectations and their perceptions in green products. *Journal of Cleaner Production*, 59:174-184.

Turel, O., Serenko, A. and Bontis, N. (2010). User acceptance of hedonic digital artefacts: A theory of consumption value perspective. *Information and Management,* 47(1):53-59.

United Nations Environment Program. (UNEP). (2007). *Global Environmental Outlook: GEO 4 Environment for development.* Available from: https://na.unep.net/atlas/datlas/sites/default/files/GEO-4_Report_Full_en.pdf. Accessed 8 August 2016.

United Nations Environment Programme (UNEP). (2010). *Assessing the Environmental Impacts of Consumption and Production: Priority Products and Materials*. Available from: http://www.unep.org/resourcepanel/Portals/24102/PDFs/PriorityProductsAndMaterials_Report.pdf. Accessed 9 August 2016.

United Nations Environment Program (UNEP). (2011). *South Africa's Pathway to a Green Economy, The United Nations.* Available from: http://www.unep.org/greeneconomy/portals/88/documents/advisory_services/South%20Africa.pdf. Accessed 3 December 2015.

United Nations Environment Programme (UNEP). (2013). *Green Economy Scoping Study: South African Green Economy Modelling Report (SAGEM) – Focus on Natural Resource Management, Agriculture, Transport and Energy Sectors.* Available from: http://www.unep.org/greeneconomy/portals/88/Modelling%20Report%20SA/SAModellingReport.pdf. Accessed 3 December 2015.

United Nations Environment Programme (UNEP). (2014a). *The Adaptation Gap Report 2014*. Available from: http://web.unep.org/adaptationgapreport/2014. Accessed 5 December 2015.

United Nations Environment Programme (UNEP). (2014b). *New Global Alliance for Energy-Efficient Appliances and Equipment Launched*. Available from: http://web.unep.org/newscentre/new-global-alliance-energy-efficient-appliances-and-equipment-launched. Accessed 5 December 2015.

United Nations Environment Programme (UNEP). (2014c). *2014 Annual Report*. Available from: https://wedocs.unep.org/bitstream/handle/20.500.11822/9420/. Accessed 5 December 2015.

United Nations Environment Programme (UNEP). (2015). *Annual Report 2015.* Available from: https://www.unenvironment.org/annualreport/2015/en/index.html. Accessed 18 July 2016.

University of Cape Town Unilever Institute of Strategic Marketing. (2013). *4 million and RISING Presentation.* Available from: http://www.uctunileverinstitute.co.za/research/4-million-rising/. Accessed 15 December 2015.

Vaccaro, V. L. (2011). B2B green marketing and innovation theory for competitive advantage. *Journal of Systems and Information Technology*, 11(4):315-330.

Van Doorn, J. and Verhoef, P. C. (2011). Willingness to pay for organic products: Differences between virtue and vice foods. *International Journal of Research in Marketing*, 28:167-180.

Vergragt, P., Akenji, L. and Dewick, P. (2014). Sustainable production, consumption and livelihoods: Global and regional research perspectives. *Journal of Cleaner Production*, 63:1-2.

Vermeir, I. and Verbeke, W. (2008). Sustainable food consumption among young adults in Belgium: Theory of planned behaviour and the role of confidence and values. *Ecology Economics*, 64:542-553.

Vermeulen, H. and Bienabe, E. 2010. *The quality turn in South Africa: Insights from a comprehensive investigation into the food quality behaviours, perceptions and knowledge of South African consumers with a focus on middle and upper socioeconomic groups.* Proceedings of the 48th Conference of the Agricultural Economists Association of South Africa (AEASA), Cape Town, South Africa, September 19-23.

Vermillion, L. and Peart, J. (2010). *Green marketing: Making sense of the situation*. Proceedings of the Academy of Marketing Studies Allied Academies International Conference.

Verrain, M. C. D., Bartels, J., Dagevos, H., Sijtsema, S. J., Onwezen, M. C. and Antonides, G. (2012). Segments of sustainable food consumers: A literature review. *International Journal of Consumer Studies*, 36:123-132.

Visagie, J. (2013). *Who Are the Middle Class in South Africa? Does It Matter?* Available from: http://www.econ3x3.org/article/who-are-middle-class-south-africa-does-it-matter-policy. Accessed 1 March 2017.

Visagie, J. and Posel, D. (2013). A Reconsideration of What and Who is Middle Class in South Africa. *Development Southern Africa*, 30(2):149-167.

Voldnes, G., Gronhaug, K. and Nilssen, F. (2012). Satisfaction in buyer-seller relationships: Influence of cultural differences. *Industrial Marketing Management*, 41:1081-1093.

Vollink, T., Meertens, R. E. E. and Midden, C. J. (2002). Innovating diffusion of innovation theory: Innovation characteristics and the intention of utility companies to adopt energy conservation interventions. *Journal of Environmental Psychology*, 22(4):333-344.

Wahid, N. A., Rahbar, E. and Shyan, T. S. (2011). Factors influencing the green purchase behaviour of Penang environmental volunteers. *International Business Management*, 5(1):38-49.

Wan, C., Cheung, R. and Shen, G. (2012). Recycling attitude and behaviour in university campus: A case study in Hong Kong. *Facilities*, 30(13):630-646.

Wang, P., Liu, Q. and Qi, Y. (2014). Factors influencing sustainable consumption behaviours: A survey of the rural residents in China. *Journal of Cleaner Production*, 63(15):143-151.

Wang, Y., Lo, H. P., Chi, R. and Yang, Y. (2004). An integrated framework for customer value and customer-relationship-management performance: A customer-based perspective from China. *Managing Service Quality: An International Journal*, 14(2/3):169-182.

Webb, D. J., Mohr, L. A. and Harris, K. E. (2008). A re-examination of socially responsible consumption and its measurement. *Journal of Business Research*, 61:91-98.

Weber, M. (1961). *Essays in Sociology*. London: Routledge and Kegan Paul.

Werff, E. V., Steg, L. and Keizer, K. (2013). The value of environmental self-identity: The relationship between biospheric values, environmental self-identity and environmental preferences, intentions and behaviour. *Journal of Environmental Psychology*, 34:55-63.

White, K. and Simpson, B. (2013). When do (and don't) normative appeals influence sustainable consumer behaviours? *Journal of Marketing*, 77(2):78-95.

White, K., MacDonnell, R. and Dahl, D. W. (2011). It's the mindset that matters: The role of construal level and framing in influencing consumer conservation behaviours. *Journal of Marketing Research*, 48(3):472-485.

Wiid, J. and Diggines, C. (2011). *Marketing Research*. Cape Town: Juta & Company.

Wilson, A. (2012). *Marketing Research: An Integrated Approach*, 3rd ed. Essex, UK: Pearson Education.

Woersdorfer, J. S. and Kaus, W. (2011). Will non-owners follow pioneer consumers in the adoption of solar thermal systems? Empirical evidence for north-western Germany. *Ecological Economics,* 70(12):2282-2291.

Wold, H. O. A. (2006). *Partial Least Squares, Encyclopedia of Statistical Sciences*. New York, NY: Wiley & Sons.

Wong, S.K. (2012). The influence of green product competitiveness on the success of green product innovation. *European Journal of Innovation Management*, 15(4):468-490.

Wood, W. and Neal, D. T. (2009). The habitual consumer. *Journal of Consumer Psychology*, 19(4):579-592.

Wu, S.-I. and Chen, J.-Y. (2014). A model of green consumption behaviour constructed by the theory of planned behaviour. *International Journal of Marketing Studies*, 6(5):119-132.

Xiao, G. (2005). *The Chinese consumers' changing value system, consumption values and modern consumption behaviour.* Doctoral dissertation. Auburn, NZ: Auburn University.

Yadav, R. and Pathak, G. S. (2016). Intention to purchase organic food among young consumers: Evidence from a developing nation. *Appetite*, 96:122-128.

Yadav, R. and Pathak, G. S. (2017). Determinants of Consumers' Green Purchase Behavior in a Developing Nation: Applying and Extending the Theory of Planned Behavior. *Ecological Economics,* 134:114-122.

Yau, Y. (2012). Eco-labels and willingness to pay: A Hong Kong study. *Smart and Sustainable Built Environment,* 1(3):277-290.

Yazdanpanah, M. and Forouzani, M. (2015). Application of the theory of planned behaviour to predict Iranian students' intention to purchase organic food. *Journal of Cleaner Production*, 107:342-352.

Yeow, P., Dean, A. and Tucker, D. (2014). Bags for life: The embedding of ethical consumerism. *Journal of Business Ethics*, 125:87-99.

Yim, C. K., Tse, D. K. and Chan, K. W. (2008). Strengthening customer loyalty through intimacy and passion: Roles of customer-firm affection and customer-staff relationships in services. *Journal of Marketing Research,* 45(6):741-756.

Young, W., Hwang, K., McDonald, S. and Oates, C. J. (2010). Sustainable consumption: Green consumer behaviour when purchasing products. *Sustainable Development,* 18:20-31.

Yuan, X. and Zuo, A. (2013). A critical assessment of the Higher Education for Sustainable Development from students' perspectives – a Chinese study. *Journal of Cleaner Production*, 48:108-115.

Yue, C., Grebitus, C., Bruhn, M. and Jensen, H. H. (2008). *Potato marketing: Factors affecting organic and conventional potato consumption patterns*. Proceedings of the 12th Congress of the European Association of Agricultural Economists, Ghent.

Zabkar, V. and Hosta, M. (2013). Willingness to act and environmentally conscious consumer behaviour: Can prosocial status perceptions help overcome the gap? *International Journal of Consumer Studies*, 37(3):257-264.

Zagata, L. (2012). Consumers' beliefs and behavioural intentions towards organic food: Evidence from the Czech Republic. *Appetite*, 59:81-89.

Zander, K., Stolz, H. and Hamm, U. (2013). Promising ethical arguments for product differentiation in the organic food sector. A mixed methods research approach. *Appetite,* 62:133-142.

Zhao, H., Gao, Q., Wu, Y., Wang, Y. and Zhu, X. (2014). What affects green consumer behaviour in China? A case study from Qingdao. *Journal of Cleaner Production,* 63:143-151.

Zhao, X. (2009). Media use and global warming perceptions: A snapshot of the reinforcing spirals. *Communication Research*, 36(5):698-723.

Zhao, X., Leiserowitz, A. A., Maibach, E. W. and Roser-Renouf, C. (2011). Attention to science/environment news positively predicts and attention to political news negatively predicts global warming risk perceptions and policy support. *Journal of Communication*, 61(4):713-731.

Zhu, K., Dong, S., Xu, S. X. and Kraemer, K. L. (2006). Innovation diffusion in global contests: Determinants of post-adoption digital transformation of European companies. *European Journal of Information Systems*, 15(6):601-616.

Zhu, Q. H., Sarkis, J. and Lai, K. H. (2012). Examining the effects of green supply chain management practices and their mediations on performance improvements. *International Journal of Production Research*, 50:137713-94.

Zhuang, W., Cumiskey, K. J., Xiao, Q. and Alford, B. L. (2010). The impact of perceived value on behaviour intention: An empirical study. *Journal of Global Business Management*, 6(2):1-7.

Zikmund, W. G. and Babin, B. J. (2010). *Essentials of Marketing Research*. 4th ed. Mason, OH: South-Western Cengage Learning.

Zikmund, W. G. and Babin, B. J. (2013). *Essentials of Marketing Research*. 5th ed. Australia: South-Western Cengage Learning.

Zsoka, A., Szerenyi, Z. M., Szechy, A. and Kocsis, T. (2013). Greening due to environmental education? Environmental knowledge, attitudes, consumer behaviour and everyday pro-environmental activities of Hungarian high school and university students. *Journal of Clean Production,* 48:126-138.

ANNEXURE A:

QUESTIONNAIRE COVER LETTER



Participant Information Sheet

Good day,

My name is Nombulelo Dilotsotlhe student number 1599140 and I am currently completing my Doctor of philosophy (PhD) in Marketing at the University of the Witwatersrand, Johannesburg. My current research is titled "Consumer and Product related factors impacting on Green Product Purchase Behaviour". Through my research, I aim to investigate, to what extent do the consumer and product related factors impact on attitudes towards green products and the ultimate intention and actual purchase behaviour. The American Marketing Association (2015) defines green products as products that do not harm the environment, consume less electricity and can be recycled.

The findings of this study will contribute to the literature in green marketing and sustainability. I am inviting you to be a participant in my current research study.

By being a participant in this research study I would request you to complete the questionnaire attached to this information sheet. With your permission, I ask that you complete this questionnaire and kindly hand it back to the researcher. This should take approximately 30 minutes of your time.

Your participation in this research is voluntary and I can guarantee that your personal details will remain anonymous throughout this research study as well as in the final research dissertation. You as the participant may refuse to answer any questions which you feel uncomfortable with and may also feel free to withdraw from this study at any time. By being a participant in this research you will not receive payment of any form and the information you disclose will be used in the research report.

This research will be written into a Doctor of philosophy in marketing dissertation and will be available through the University's website. Should you require a summary of the research; the researcher can make it available to you.

Should you have any further questions or queries you are welcome to contact the researcher or the Supervisors, Dr Helen Duh at any time at the contact details provided below.

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ANNEXURE B:

RESEARCH QUESTIONNAIRE

Section A: General Biographical Information

This section is asking about your background information. Please indicate your answer by ticking (X) on the appropriate box.

A1 Are you aware of green products? (*Green products are defined as products that do not harm the environment, consume less electricity or water and can be recycled).* The green products under study include: any home electrical appliances such as TV, washing machine, washing dryer, microwave, stove, fridge, freezer, kettle, iron, hair dryer, heater and light bulbs.

YES	1

NO	2

A2 Have you purchased or used green appliance products in the past five years?

YES	1

NO	2

A3 If your answer is YES, please indicate how many (approximate number) home green appliance(s) have you purchased in the past five years.

A4 Please indicate your gender.

Male	1

Female	2

A5 Please indicate your age category

18 – 25	1
26 – 35	2

36 – 45	3
46 – 55	4
56 – 60	5
61+	6

A6 Please indicate your level of education completed.

Below high school	1
High School	2
Diploma	3
Degree	4
Master's degree	5
Doctorate degree	6

A7 Please indicate your job status.

Student	1
Unemployed	2
Work part-time	3
Work full-time	4
Retired	5

A8 Please indicate your level of income you earn per month.

No income	1
Less than R6999	2
R7000 – R14,999	3
R15,000 – R24,999	4
R25,000 – R49,999	5
R50,000 +	6

A9 Please indicate your ethnic group

Blacks	1

White	2
Coloured	3
Indian/Asian	4

SECTION B: Perception towards Green Products Purchase

Below is a list of statements measuring your perception towards green products purchase that is home electrical appliances such as TV, washing machine, washing dryer, microwave, stove, fridge, kettle, iron, hair dryer and light bulbs. Please indicate the extent to which you agree or disagree with each of the statements listed below by crossing (x) on the number that corresponds to your answer. **(Please note that 1 = strongly disagree; 2 = disagree; 3 = somewhat disagree; 4 = neither agree nor disagree; 5 = somewhat agree 6 = agree; 7 = strongly agree)**

Statement number	Statement	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
FV1	The green appliances have good quality	1	2	3	4	5	6	7
FV2	The green appliances are well made	1	2	3	4	5	6	7
FV3	The green appliances have acceptable quality	1	2	3	4	5	6	7
FV4	The green appliances perform reliably.	1	2	3	4	5	6	7
FV5	The green appliances perform their functions for a long time	1	2	3	4	5	6	7
SV1	Purchasing the green appliances cause/would cause me to be admired.	1	2	3	4	5	6	7
SV2	Purchasing the green appliances make/would make a good impression of me	1	2	3	4	5	6	7
SV3	Purchasing the green appliances improve/would improve the way I am perceived	1	2	3	4	5	6	7
SV4	Most people who are important to me expect/would expect that I should buy the green appliances.	1	2	3	4	5	6	7
EMV1	Buying green appliances feels/would feel like making a good personal contribution to something better.	1	2	3	4	5	6	7

EMV2	Buying the green appliances feel/would feel like the morally right thing to do.	1	2	3	4	5	6	7
EMV3	Buying the green appliances make/would make me feel like a better person.	1	2	3	4	5	6	7
EMV4	Buying the green appliances make/would make me feel good.	1	2	3	4	5	6	7

Statement number	Statement	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
CV1	I buy/would buy the green appliances when my financial conditions are good.	1	2	3	4	5	6	7
CV2	I buy/would buy the green appliances when there is a subsidy for green products.	1	2	3	4	5	6	7
CV3	I buy/would buy the green appliances when there are discount prices for them.	1	2	3	4	5	6	7
CV4	I buy/would buy the green appliances when they are available.	1	2	3	4	5	6	7
EV1	Before buying the green appliances, I obtain/would obtain substantial information about the different makes and models of the products.	1	2	3	4	5	6	7
EV2	I prefer/would prefer to read green appliance product labels for further information before making a purchase.	1	2	3	4	5	6	7
EV3	I require/would require a great deal of information about the different makes and models before buying green appliances.	1	2	3	4	5	6	7
EV4	I am willing to ask for new information about the green appliances.	1	2	3	4	5	6	7
EV5	I like/would like to search for new and different information on different types of green appliances.	1	2	3	4	5	6	7
EV6	I search/would search useful information on green appliances	1	2	3	4	5	6	7
RA1	Using green appliances helps/would help to decrease my home electricity bill.	1	2	3	4	5	6	7
RA2	Using green appliances helps/would help to decrease my home water bill.	1	2	3	4	5	6	7
RA3	The water and electricity cost saving I make/would make is worth buying and using green appliances.	1	2	3	4	5	6	7

RA4	Using green appliances would contribute to protecting the environment	1	2	3	4	5	6	7
CO1	To buy the green appliances is/would be in line with my lifestyle.	1	2	3	4	5	6	7
CO2	It is easy to find shops that sell green appliances.	1	2	3	4	5	6	7
CO3	To use green appliances is/would be in line with my values.	1	2	3	4	5	6	7
CO4	Buying green appliances is/would be suitable for me.	1	2	3	4	5	6	7
CO5	Green appliances are/would be compatible with my existing appliances at home.	1	2	3	4	5	6	7
CX1	It is/would be difficult to understand how green appliances work.	1	2	3	4	5	6	7
CX2	It is/would be difficult to use green appliances.	1	2	3	4	5	6	7
CX3	It is not/would not be simple to use green appliances	1	2	3	4	5	6	7

Statement number	Statement	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
CX4	Overall, I believe that green appliances are not/would not be easy to use.	1	2	3	4	5	6	7
OB1	It is/would be easy to see the advantages of using green appliances.	1	2	3	4	5	6	7
OB2	It is/would be possible to observe the benefits of using green appliances.	1	2	3	4	5	6	7
OB3	By buying green appliances, I show/would show that I care about the environment.	1	2	3	4	5	6	7
OB4	The benefit of using green appliances is/would not be hidden	1	2	3	4	5	6	7
OB5	Overall, I feel the benefits of green appliances are/would be obvious to me.	1	2	3	4	5	6	7
AT1	I feel that green appliances' environmental conservation claims are generally trustworthy.	1	2	3	4	5	6	7
AT2	I feel that green appliance's' environmental protection reputation is generally reliable.	1	2	3	4	5	6	7
AT3	Buying green appliances is/would be a good idea for me and the environment.	1	2	3	4	5	6	7
AT4	Buying green appliances is/would be a worthwhile purchase decision.	1	2	3	4	5	6	7

AT5	I have a favourable attitude towards purchasing the green version of the products.	1	2	3	4	5	6	7
AT6	If I can choose between green appliances and the conventional ones, I would prefer the green versions.	1	2	3	4	5	6	7
PB1	I believe that I have the financial ability to purchase green appliances.	1	2	3	4	5	6	7
PB2	If it were entirely up to me, I am confident that I will purchase green appliances.	1	2	3	4	5	6	7
PB3	I see myself as capable of purchasing green appliances in future.	1	2	3	4	5	6	7
PB4	I have resources to purchase green appliances.	1	2	3	4	5	6	7
PB5	I have the time to purchase green appliances.	1	2	3	4	5	6	7
PB6	Green appliances are generally available in the shops where I usually do my shopping.	1	2	3	4	5	6	7
BI1	I intend to start/continue buying green appliances because of its environmental benefits	1	2	3	4	5	6	7

Statement number	Statement	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
BI2	I will consider switching to green appliances for ecological reasons.	1	2	3	4	5	6	7
BI3	I expect to start /continue to purchasing green appliances in the future because of its positive environmental contribution.	1	2	3	4	5	6	7
BI4	I definitely want to purchase green appliances in my next purchase.	1	2	3	4	5	6	7
AB1	I am happy that I chose to buy green appliances.	1	2	3	4	5	6	7
AB2	I chose to buy green appliances because they use less electricity.	1	2	3	4	5	6	7
AB3	I chose to buy green appliances because they use less water.	1	2	3	4	5	6	7
AB4	I chose to buy green appliances as they are friendly to the environment.	1	2	3	4	5	6	7
AB5	I choose to buy green appliance because they make economic sense.	1	2	3	4	5	6	7

AB6	Overall, choosing to buy green appliances was a good decision.	1	2	3	4	5	6	7

If you have any comments please write them below

_____

_____

_____

Thank you for completing the questionnaire.

ANNEXURE C:

ETHICAL CLEARANCE LETTER

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Dilotsotlhe

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: H17/05/05**
PROJECT TITLE	Consumer and product related factors impacting on green product purchase behaviour
INVESTIGATOR(S)	Mrs N Dilotsotlhe
SCHOOL/DEPARTMENT	Economic and Business Sciences/
DATE CONSIDERED	19 May 2017
DECISION OF THE COMMITTEE	Approved
EXPIRY DATE	28 June 2020

DATE 29 June 2017 **CHAIRPERSON** J Knight
(Professor J Knight)

cc: Supervisor : Dr H Duh

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

_____ _____/_____/_____
Signature **Date**

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES