



**Nelson Mandela  
Metropolitan  
University**

**Business School**  
*Leaders for tomorrow*

**A MODEL FOR GREEN PRODUCT PURCHASING  
BEHAVIOUR**

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**A treatise submitted in partial fulfilment of the requirements for the degree of**

**MASTERS IN BUSINESS ADMINISTRATION**

**in the Faculty of Business and Economic Sciences**

**at the Nelson Mandela Metropolitan University**

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**April, 2016**

## **DECLARATION BY CANDIDATE**

**I, Bruce Vervliet, hereby declare that:**

- This work has not been previously accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.
- This dissertation is being submitted in partial fulfilment of the requirements for the degree of Masters in Business Administration.
- This dissertation is the result of my independent work and investigation, except where otherwise stated. Other sources are acknowledged by complete referencing. A reference list is attached.
- I hereby give consent for my treatise, if accepted, to be available for photocopying and for interlibrary loan, and for the title and summary to be made available to outside organisations.

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## **ACKNOWLEDGMENTS**

I would like to thank all those who supported me and by their contributions have made this study a success. In particular I would like to thank and acknowledge the following:

- God and his precious Son, Jesus Christ, for giving me the grace in letting me know who I am and what I am capable of.
- My mother and father and entire family for their constant encouragement, motivation and support while pushing me to give of my best at all times and to finish what I had begun through this process.
- NMMU statistician, Dr Kayode Ayankoya, for the provision of the statistics used in this study while at the same time providing advice and assistance in the interpretation of the results.
- My supervisors for this treatise, Prof. Margaret Cullen and Prof. Andre Calitz, who adopted the appropriate management style in allowing me the time, space and capacity to work harder for longer together while always making time to accommodate me through this process.

## ABSTRACT

The global warming phenomenon and its environmental impacts have seen the emergence of the green consumer who has become more aware of their power of demand through their consumption choices as they express their own attitudes, values, thoughts, feelings and behaviours in this regard. Organisations have taken cognisance of these trends and taken steps to exploit the opportunity by developing goods and services aimed at meeting the demands of the new consumer. This, in spite of the fact that knowledge of the variables, specifically green consumer profiles, awareness, knowledge and trust in influencing purchasing behaviour remains incomplete.

The purpose of this treatise was to determine a clearer understanding of the relevance of these variables to enable marketers to craft more effective marketing strategies, thereby unlocking the profit potential of the green consumer. A model for green product purchasing behaviour was proposed based on extant literature and an empirical evaluation. An empirical analysis was conducted on a sample of 597 consumers over the age of 18 within the Fast Moving Consumable Goods (FMCG) sector in South Africa. The main goal was to establish the relationships of the hypothesised model between the independent variables of green consumer profiles, green product trust, green product awareness and green product knowledge with the dependant variable green product purchase behaviour.

There was a high prevalence of African and European female respondents in the 26 to 55 age group, living and working in the coastal areas of South Africa, predominantly Port Elizabeth, earning an income between 10 000 and 30 000 rand per month. The sample was consistent with the psychographic profile of the green consumer as described in the literature, which is characterised as a consumer that takes personal responsibility for environmental solutions, who believes they can make a contribution to solving environmental issues, incorporates green living into daily lives, considers environmental issues when making purchasing decisions, is knowledgeable of, deliberately seeks out and is prepared to pay a premium for environmentally friendly products. When analysing the relationships and the significances of the differences of the independent variables to the dependant variable in the hypothesised model, it was established that the independent variables green consumer profiles, green product awareness and green product trust were significantly related to the dependent variable

green product purchase behaviour. This was in line with and supported the reviewed literature in this regard. It was also established that green product knowledge did not reflect any significant relationship to green product purchase behaviour. This finding did not correspond with the literature as significant relationships with green product knowledge and general environmental behaviour including green product purchase behaviours have been established therein.

The findings further demonstrated that the independent variable green consumer profiles displayed the most significant relationship to green product purchase behaviour, followed by green product awareness and then green product trust. When considering the significance in the differences in strengths of these relationships it was noted that although green product awareness and trust may influence green product purchase behaviours it was a combination of psychographic variables reflecting a consumer's general attitudes and beliefs towards the green agenda that displays the most significant relationship to green product purchase behaviour. Despite the fact that the study was limited to the South African FMCG sector, the profile of the green consumer in the literature was dated, the cause and effect relationships between the variables were not tested and the fact that the hypothesised model was limited to only four independent variables, the above findings may, from a marketing perspective, have practical application for marketing strategies aimed at increasing green product purchasing behaviour.

The results imply that directing green marketing initiatives to consumers that are most inclined to purchase and consume green goods or services being those that fall within the biographical and psychographic parameters outlined in this treatise will result in the desired outcomes. Furthermore, marketers should also pursue initiatives that are known to support and increase the amount of green product trust that consumers have in green products, green communications and the organisation. Marketers can also benefit from well formulated green awareness campaigns as the success of these campaigns will yield greater green product awareness which could increase green product purchase behaviours and purchases of green products still further.

**Keywords:** Fast Moving Consumer Goods (FMCG), Green Purchasing Behaviour, Green Product Awareness, Green Consumer Profiles, Green Product Trust, Green Product Knowledge.

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## **CHAPTER 1 INTRODUCTION AND PROBLEM STATEMENT**

### **1.1 Introduction**

Environmental research supports the view that our environment and the planet is adversely impacted by humanities lifestyle choices, which are primarily based on the consumption of goods and services (Caradona, 2014; Soyka, 2012). As a result of these revelations consumers have noted their power of demand in satisfying their individual consumption needs, wants and desires and their potential to positively impact the environment (Weybrecht, 2010). In view of these environmental concerns and the negative impact of deleterious consumption patterns, consumers have demonstrated a willingness to support companies engaged in sustainable business practises and additionally adopt environmentally friendly product alternatives (Sanders & Wood, 2014).

In order to successfully target and exploit the profit potential of this emerging consumer segment, marketers are feverishly engaged in gaining greater insight and understanding into drivers of green consumer behaviour and green buying decision processes (Weybrecht, 2010). Marketers are in turn using these insights to reconfigure their baskets of goods and services to best satisfy the needs of the green consumer (Ottman, 2010). These marketing efforts however occur in the light of numerous reports that still identify an attitude-behaviour gap between consumer pro-environmental attitudes and green purchasing behaviours as well as the fact that knowledge of the variables, specifically green consumer profiles, green product awareness, green product knowledge and green product trust in influencing green product purchasing behaviour remains incomplete (Forsberg & Löfvenberg, 2012; Brady, 2011). This treatise attempts to contribute to the body of knowledge and insight into green product purchasing behaviour in an attempt to assist marketers develop effective green marketing strategies to capitalise on these phenomena.

This chapter will proceed with the following chapter outline. Sub-section 1.1 sets out an introduction to this chapter. This introduction will provide a brief context within which this study was conducted. Sub-section 1.2 provides the main problem statement upon which this treatise is based. Sub-section 1.3 indicates the main research objective for this treatise. Secondary objectives to be satisfied in order to

achieve the main objective will also be identified. Sub-section 1.4 lists the main research questions for this treatise. Secondary research questions which need to be satisfied in order to achieve the main research question are also identified. Sub-section 1.5 outlines the delimitations of this treatise. Sub-section 1.6 provides a research alignment plan. This plan will demonstrate the links between the research questions with the relating research objectives. This sub-section will also provide insight as to which chapters of the treatise address the various research questions and satisfy the various research objectives.

Sub-section 1.7 indicates the significance of this treatise. This sub-section will highlight some of the contributions that this treatise can make to the existing literature. Sub-section 1.8 provides information on the specific research methodology and design. In so doing this sub-section will refer to the research approach, literature review, data collection and data analysis. Sub-section 1.9 highlights the key assumptions upon which this treatise is based. Sub-section 1.10 provides the structure of this treatise. This structure will cover the entire treatise from Chapter 1 to its conclusions in Chapter 5. Sub-section 1.11 defines key concepts and terminology. The key concepts and terminology are those that will appear in and are referred to throughout this treatise. Sub-section 1.12 concludes this chapter with a chapter summary. This summary will contain the main topics that were addressed in each of the main sub-sections therein.

An overview of this chapter can be seen in Figure 1.1.



**Figure 1.1: Overview of Chapter 1.**

## 1.2 Problem statement

Organisations, whilst taking cognisance of a new green consumer, are taking steps to exploit the opportunities they present by developing goods and services aimed at satisfying their demands (Ottman, 2010). It has been established that knowledge of the variables which may influence these demands, specifically green consumer profiles, awareness, knowledge and trust in influencing purchasing behaviour remains incomplete (Forsberg & Löfvenberg, 2012). As a result company's marketing strategies may not adequately capture the opportunities inherent within this new consumer (Forsberg & Löfvenberg, 2012; Brady, 2011).

Problem statement: Companies within the FMCG sector do not leverage the impact on green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge through effective marketing strategies.

## 1.3 Research objectives

The Main Research Objective (**RO<sub>M</sub>**) of this study is as follows:

- **RO<sub>M</sub>**: To determine the significance of the relationships to green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge in the FMCG sector.

In order to achieve the above stated main research objective the following secondary objectives need to be achieved:

- **RO<sub>1</sub>**: Conduct a literature review in order to identify and establish the related variables with green product purchasing behaviour with specific reference to green consumer profiles, green product awareness, green product trust and green product knowledge;
- **RO<sub>2</sub>**: Develop a hypothesised model for green product purchasing behaviour in the FMCG sector;
- **RO<sub>3</sub>**: Identify and explain the research methodology used for this treatise enabling reproduction in the future;
- **RO<sub>4</sub>**: Empirically evaluate the hypothesised model of green product purchase behaviour in order to accept or reject the formulated hypotheses;

- **RO<sub>5</sub>:** Establish which of the identified variables in the hypothesised model of green product purchase behaviour are significantly related to green product purchasing behaviour in the FMCG sector; and
- **RO<sub>6</sub>:** Establish the significance of the difference in relationships of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector.

## 1.4 Research questions

The Main Research Question (**RQ<sub>M</sub>**) was formulated based on the Main Research Objectives (**RO<sub>M</sub>**) and is stated as follows:

- **RQ<sub>M</sub>:** *What is the significance of the relationships to green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge in the FMCG sector?*

In order to address the main research question effectively, the following secondary research questions, based on the secondary research objectives, need to be addressed:

- **RQ<sub>1</sub>:** *What is the significance of the relationships between green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour in the FMCG sector?*
- **RQ<sub>2</sub>:** *What variables are to be included in the hypothesised model of green product purchase behaviour in the FMCG sector?*
- **RQ<sub>3</sub>:** *How can a detailed description of the research methodology be provided in order to understand and reproduce this treatise in future?*
- **RQ<sub>4</sub>:** *What relationships between independent and dependent variables can be verified through the empirical evaluation of the hypothesised model for green product purchase behaviour in the FMCG sector?*
- **RQ<sub>5</sub>:** *Which independent variables in the hypothesised model of green product purchasing behaviour have a significant relationship to green product purchasing behaviour in the FMCG sector?*
- **RQ<sub>6</sub>:** *What is the significance of the difference in the relationship of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector?*



## 1.5 Research delimitation

The research will be limited to select geographical areas of the South African FMCG sector namely Cape Town, East London, George, Johannesburg and Port Elizabeth.

## 1.6 Research alignment plan

This research aims to address the main and subordinate research questions by satisfying corresponding main and subordinate research objectives. The specific research questions and objectives together with the chapters in which each will be covered are set out in

Table 1.1 below.

Research Question (RQ)	Research Objective (RO)	Chapter
<b>RQ<sub>1</sub>: What is the significance of the relationships between green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour in the FMCG sector?</b>	<b>RO<sub>1</sub>:</b> Conduct a literature review in order to identify and establish the related variables with green product purchasing behaviour with specific reference to green consumer profiles, green product awareness, green product trust and green product knowledge.	<b>Chapter 2:</b> Green product purchase behaviour.
<b>RQ<sub>2</sub>: What variables are to be included in the hypothesised model of green product purchase behaviour in the FMCG sector?</b>	<b>RO<sub>2</sub>:</b> Develop a hypothesised model for green product purchasing behaviour in the FMCG sector.	<b>Chapter 2:</b> Green product purchase behaviour.
<b>RQ<sub>3</sub>: How can a detailed description of the research methodology be provided in order to understand and reproduce this research study in future?</b>	<b>RO<sub>3</sub>:</b> Identify and explain the research methodology used for this treatise enabling reproduction for the future.	<b>Chapter 3:</b> Research design and methodology.
<b>RQ<sub>4</sub>: What relationships between independent and dependent variables can be verified through the empirical evaluation of the hypothesised model for green product purchase behaviour in the FMCG sector?</b>	<b>RO<sub>4</sub>:</b> Empirically evaluate the hypothesised model of green product purchase behaviour in order to accept or reject the formulated hypotheses.	<b>Chapter 4:</b> Results and analysis of the empirical study.
<b>RQ<sub>5</sub>: Which independent variables</b>	<b>RO<sub>5</sub>:</b> Establish which of the	<b>Chapter 4:</b> Results and

<i>in the hypothesised model of green product purchasing behaviour have a significant relationship to green product purchasing behaviour in the FMCG sector?</i>	identified variables in the hypothesised model of green product purchase behaviour are significantly related to green product purchasing behaviour in the FMCG sector.	analysis of the empirical study.
<b>RQ<sub>6</sub>:</b> <i>What is the significance of the difference in the relationship of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector?</i>	<b>RO<sub>6</sub>:</b> Establish the significance of the difference in relationships between of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector.	<b>Chapter 4:</b> Results and analysis of the empirical study.
<b>RQ<sub>M</sub>:</b> <i>What is the significance of the relationships to green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge in the FMCG sector?</i>	<b>RO<sub>M</sub>:</b> To determine the significance of the relationship to green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge in the FMCG sector.	<b>Chapter 5:</b> Findings, recommendations and conclusions.

Table 1.1: Research alignment plan.

## 1.7 Research significance

This treatise is significant for the following reasons:

- The current growth of the green economy implies an increased incidence for green consumerism and thus the importance and value in determining the drivers that will enable or restrict this incidence.
- Identifying and gaining a better understanding of green consumer behaviour will facilitate the development of strategies needed to capitalise on this phenomenon.
- Greater knowledge and understanding of green consumerism and the variables that influence it will facilitate a greater understanding of a products price, consumer quality preferences as well as social, moral and environmental values.

- This treatise will facilitate a greater understanding of how consumers make purchasing decisions whilst being influenced by environmental values and attitudes.
- This treatise will facilitate a greater understanding of how sustainability credentials of companies influence the willingness of consumers to purchase or avoid certain products based on their environmental attitudes and beliefs.
- Understanding more about the attitude-behaviour gap is important as this knowledge will facilitate ways in which to narrow it and in turn increase the positive impacts of green consumption behaviours on our environment.
- The information gleaned from this research could assist companies to better configure their marketing strategies to take advantage of the many opportunities that the green economy offers.
- This treatise can provide insights that could increase the incidence of green consumption patterns still further and thus will contribute to the satisfaction of the consumers need to feel he is making a contribution to environmental sustainability.

## **1.8 Research methodology and design**

### *1.8.1 Research approach*

Guided by the nature of the research aims and objectives a research design that is positivistic, quantitative and descriptive has been selected for the purposes of the current study. This selection is justified as it is accepted that the incidence of green consumption patterns and their variables, mediators, moderators and predictors form part of objective reality capable of quantitative analysis through statistical and other numerical measures.

The treatise is further considered to be descriptive as it aims to describe the relationships between green consumer profiles, green product awareness, knowledge and trust and green product purchase behaviours in the FMCG sector. The treatise further aims to describe the positive or negative influences that these variables may have on the attitude behaviour gap that exists between pro-environmental attitudes and intentions to purchase environmentally friendly FMCG products.

### *1.8.2 Literature review*

The literature review was performed on green product purchase behaviour to establish the key and related concepts such as green consumer profiles, green product awareness, green product trust and green product knowledge as well as to determine their relationships thereto.

### *1.8.3 Data collection*

A sample from the population of consumers from the FMCG sector in South Africa was chosen. Quantitative data on the incidence on green product purchasing behaviours, green consumer profiles, green product attitudes, awareness, knowledge and trust were collected and analysed identifying statistically significant relationships. The primary data were collected by means of a survey questionnaire (Appendix A). The questionnaire used in this research was constructed partly where the participants had to rate their responses to questions based on a 5-point Likert scale (1 = Strongly Disagree and 5 = Strongly Agree) and partly with questions requiring the respondents to agree or disagree with certain statements.

### *1.8.4 Data analysis*

The primary data were analysed descriptively and inferentially by means of quantitative statistical techniques. Specifically, the treatise tested the relationship of green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour. The strength and direction of these relationships were not measured.

## **1.9 Key assumptions**

The key assumptions are that the literature review, combined with the results obtained from the statistical analysis of the primary data collected from the representative sample of FMCG consumers, will provide relevant and valid information capable of reliably addressing the research questions and satisfying the research objectives outlined for this study.

## 1.10 Treatise structure

An overview of the treatise chapters, RO's and RQ's can be seen in

Figure 1.2. The treatise is arranged as follows:

### *1.10.1 Chapter 1: Introduction and problem statement*

Chapter 1 outlines the scope of the study, the problem statement, the research objectives, questions, key assumptions and the research methodology. The significance of the topic, the delimitations, a research alignment plan and the proposed chapter headings of this treatise were further provided.

### *1.10.2 Chapter 2: Green product purchase behaviour*

Chapter 2 addresses research questions RQ<sub>1</sub>, stating, *“What is the significance of the relationships between green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour in the FMCG sector?”* and RQ<sub>2</sub>, stating, *“What variables are to be included in the hypothesised model of green product purchase behaviour in the FMCG sector?”*.

### *1.10.3 Chapter 3: Research design and methodology*

Chapter 3 will discuss and outline the research methodology for this study. In so doing the specific research paradigm, the sampling design, the measuring instrument, the collection and analysis methods as well as the measures employed to insure the validity, reliability and generalisability of the research findings are determined and discussed. This chapter addresses RQ<sub>3</sub> which states, *“How can a detailed description of the research methodology be provided in order to understand and reproduce this research study in future?”*.

### *1.10.4 Chapter 4: Data analysis and interpretation*

Chapter 4 presents and discusses the results of the empirical study. This chapter addresses RQ<sub>4</sub> which states, *“What relationships between independent and dependent variables can be verified through the empirical evaluation of the hypothesised model for green product purchase behaviour in the FMCG sector?”*, RQ<sub>5</sub> which states, *“Which independent variables in the hypothesised model of green*

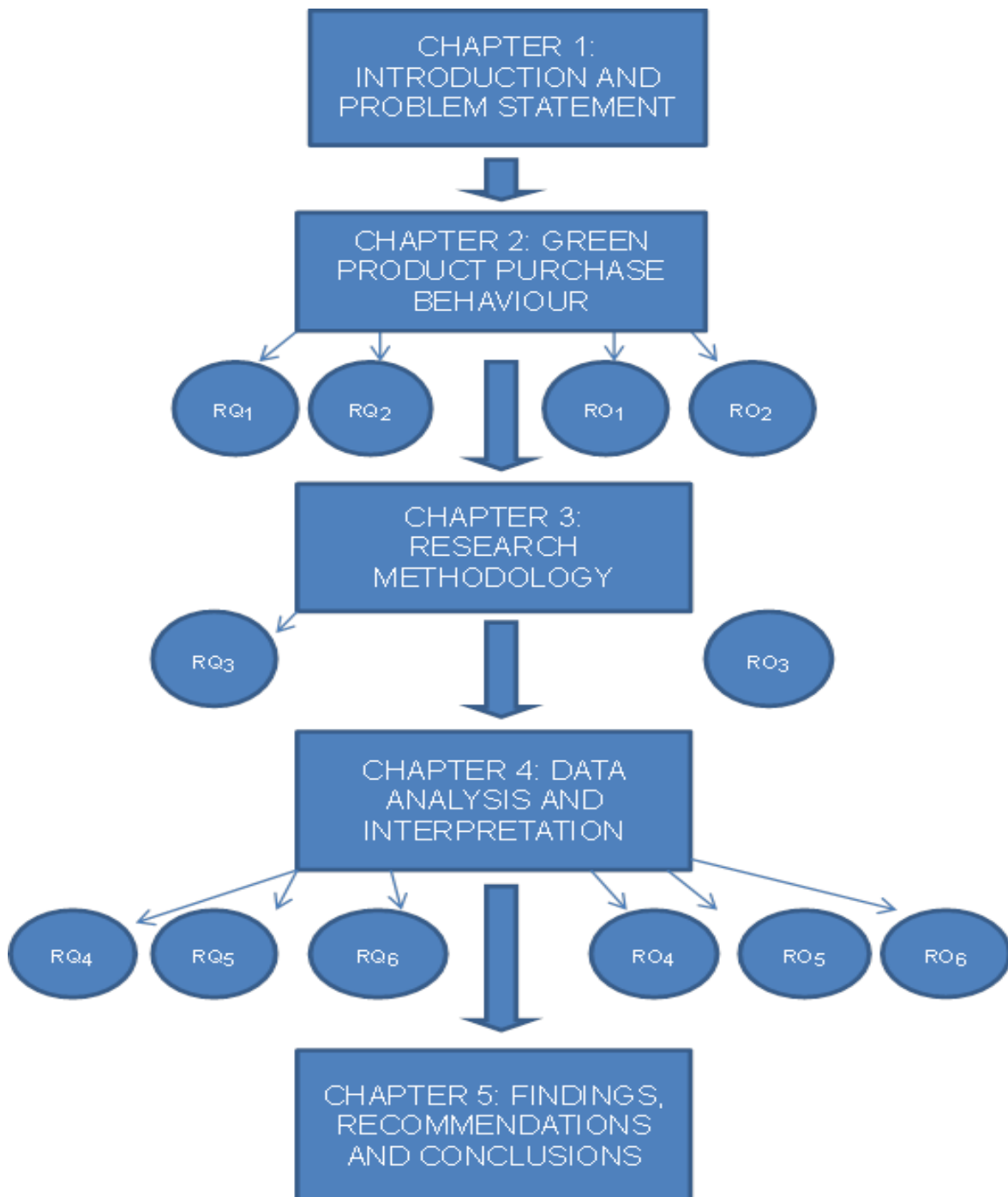
*product purchasing behaviour have a significant relationship to green product purchasing behaviour in the FMCG sector?” and RQ<sub>6</sub> which states, “What is the significance of the difference in the relationship of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector?”.*

#### *1.10.5 Chapter 5: Findings, recommendations and conclusions*

Chapter 5 will provide a summary of the research by discussing each research question and the resultant findings. The contributions of this study, opportunities for future research and limitations of the study are discussed. Suitable managerial and practical recommendations are suggested.

The RQ's and RO's dealt with in this chapter are depicted in

Figure 1.2.



**Figure 1.2: Chapter RQ's and RO's.**

### 1.11 Definitions

In order to provide a better understanding of the key concepts contained within this treatise, the following definitions and their meanings are provided.

The following terms and concepts will be discussed in this chapter.

### ***Attitude-behaviour gap***

The attitude-behaviour gap refers to the unpredictable and often conflicting consumer behaviour patterns relative to the green philosophies adopted by consumers (Young, Hwang, McDonald & Oates, 2010).

### ***Consumer behaviour***

Consumer behaviour refers to the behaviours of consumer as they purchase, use and dispose of goods in an economy (Jeddi, Atefi, Jalali, Poureisa & Haghi, 2013).

### ***Consumer buying decision process***

The consumer buying decision process refers to the sequence of steps embarked upon by a consumer in order to satisfy a buying need (Awan & Raza, 2011).

### ***Environmental awareness***

Environmental awareness refers to having an awareness of how human behaviour impacts the environment (Forsberg & Löfvenberg, 2012).

### ***Environmental knowledge***

Environmental knowledge refers to what people know about the environment and the relationships it requires to develop in a sustainable way (Rokicka & Słomczyńska, 2002).

### ***Fast moving consumer goods (FMCG)***

Fast moving consumer goods (FMCG) are goods that generally include a wide range of frequently purchased and heavily marketed consumer products including pharmaceuticals, food products, drinks and electronics (Purohit, 2010).

### ***Green***

The term green is used to indicate concern for the environment (Shrum, McCarty & Lowrey, 1995). Synonyms for green include eco-friendly, environmentally friendly or nature friendly (Goyal, 2014).



### ***Greenwashing***

Greenwashing refers to the making of false or misleading claims about the environmentally friendly attributes of products and the effects on both the environment and consumers (Visser, Matten, Pohl & Tollhurst, 2010).

### ***Green product***

A green product refers to goods and services considered to cause minimal or no harm to the environment due to being developed, manufactured, marketed and sold to consumers in environmentally friendly ways that eliminate or at least reduce the negative environmental impacts resulting therefrom (Goyal, 2014).

### ***Green consumer***

The green consumer is considered to be a person whose consumption patterns are influenced by environmental concerns (Siringi, 2012).

### ***Green consumption behaviour***

Green consumption behaviour refers to all the actions or omissions of consumers concerning searching, purchasing, using, evaluating and disposing of products believed to be environmentally friendly (Mahalingam & Kumar 2012).

### ***Green marketing***

Green marketing is the marketing of products that are presumed to be environmentally desirable by incorporating into the marketing process a broad range of activities, including product modification, changes to the production process, sustainable packaging, as well as modifying advertising practises (Weybrecht, 2010).

### ***Green product awareness***

Green product awareness relates to a consumer's awareness of an environmentally friendly product for the purposes of including it within his choice set in the buying decision process (Ottman 2010).

### ***Green product knowledge***

Green product knowledge refers a consumer's familiarity with and expertise in an environmentally friendly product (Kaufmann, Fateh, Panni & Orphanidou, 2012).

### ***Green product trust***

Green product trust refers to the tendency of consumers to accept and believe as truthful the direct, indirect, express or tacit informational messages and promises regarding pro-environmental attributes and credentials of green products (Chen & Chang, 2013a).

### ***Reverse greenwashing***

Reverse greenwashing refers to the making of false or deceptive claims by a company about the negative environmental impacts of a competitor's product, such as the detrimental effects it may have on the environment (Lane, 2013).

## **1.12 Chapter summary**

This chapter covered the following topics:

Sub-section 1.1 provided an introduction where the context within which this research study is undertaken was provided. The main research study aims which are to contribute to the knowledge and insights of green product purchasing behaviour in an attempt to assist marketers develop effective green marketing strategies to capitalise on the green economy were provided. Sub-section 1.2 provided a problem statement. The problem statement was identified as the fact that companies within the FMCG sector do not leverage the impact on green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge through effective marketing strategies.

Sub-section 1.3 highlighted the main research objective of this study. The main research objective is to determine the significance of the relationships of green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge in the FMCG sector. The secondary objectives that are to support this main research objective were further set out. Sub-section 1.4 described the main research question of the study being,

*“What is the significance of the relationships of green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge in the FMCG sector?”*. The secondary research questions that support this main research question were further set out. Sub-section 1.5 explained the delimitations of this research. It was stated that this research will be limited to select geographical areas of the South African FMCG sector being Cape Town, East London, George, Johannesburg and Port Elizabeth.

Sub-section 1.6 provided a research alignment plan. This research alignment plan explained the research objectives and research questions in a table format along with an illustration of the treatise which explained how they will be achieved and addressed. Sub-section 1.7 highlighted the significance of this research. Amongst other things it was stated that this research is significant as the current growth of the green economy implies an increased incidence for green consumerism and thus the importance and value for organisations in determining the variables and relationships that will enable or restrict this incidence. Sub-section 1.8 provided information on the research methodology and design of this research study. Specifically, information on the research approach, the literature review to be undertaken, the data collection and data analysis were provided. Sub-section 1.9 emphasised the key assumptions of this study. The key assumption are that this treatise, combined with the results obtained from the statistical analysis of the primary data collected from the representative sample of FMCG consumers, will provide relevant and valid information capable of reliably addressing the research questions and satisfying the research objectives generated for the current study.

Sub-section 1.10 explained the structure of this report. It was stated that this report will be structured in the following manner: Chapter 1: Introduction and problem statement; Chapter 2: Green product purchase behaviour; Chapter 3: Research design and methodology; Chapter 4: Results and analysis of the empirical study; Chapter 5: Findings, recommendations and conclusion. Sub-section 1.11 provided the important definitions for this research study. Definitions were provided for concepts such as Attitude-behaviour gap, Consumer behaviour, Consumer buying decision process, Environmental awareness, Environmental knowledge, FMCG, Green, Greenwashing, Green product, Green consumer, Green consumption

behaviour, Green marketing, Green product awareness, Green product knowledge, Green product trust and Reverse greenwashing. Sub-section 1.12 concluded with a summary of this chapter. This summary contained the main topics that were addressed in each of the chapter's main sub-sections.

In the following chapter, Chapter 2, green product purchase behaviour will be discussed. In so doing the relationships, specifically green consumer profiles and green product trust, awareness and knowledge will be identified from the extant literature. In so doing Chapter 2 will address research questions RQ1, stating, *“What is the significance of the relationships between green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour in the FMCG sector?”* and RQ2, stating, *“What variables are to be included in the hypothesised model of green product purchase behaviour in the FMCG sector?”*.

Chapter 2 will address these research questions through achieving research objectives RO<sub>1</sub>, “Conduct a literature review in order to identify and establish the related variables with green product purchasing behaviour with specific reference to green consumer profiles, green product awareness, green product trust and green product knowledge” and RO<sub>2</sub>, “Develop a hypothesised model for green product purchasing behaviour in the FMCG sector”. These research questions and objectives will therefore be addressed and achieved by performing a literature review on green product purchase behaviour and specifically the variables green consumer profiles, green product awareness, green product knowledge and green product trust.

## CHAPTER 2 GREEN PRODUCT PURCHASE BEHAVIOUR

### 2.1 Introduction

An outline of this treatise was given in Chapter 1 where the research questions and research objectives to be investigated were introduced. Through a review of the literature this chapter will address the following research questions:

- **RQ<sub>1</sub>:** *What is the significance of the relationships between green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour in the FMCG sector?*
- **RQ<sub>2</sub>:** *What variables are to be included in the hypothesised model of green product purchase behaviour in the FMCG sector?*

These research questions will be addressed by satisfying the following research objectives:

- **RO<sub>1</sub>:** Conduct a literature review in order to identify and establish the related variables with green product purchasing behaviour with specific reference to green consumer profiles, green product awareness, green product trust and green product knowledge.
- **RO<sub>2</sub>:** Develop a hypothesised model for green product purchasing behaviour in the FMCG sector.

In delivering these outcomes this chapter will proceed with the following chapter outline. Sub-section 2.1 provides a brief review of what was covered in chapter one and introduces the research questions and objectives that will be addressed and satisfied in Chapter 2. A brief chapter layout and topics to be covered within each proceeding Sub-sections will be provided. Sub-section 2.2 reviews green product purchase behaviour with reference to the current economic context, the predictors, the role of the demographics and psychographics, the role of product attributes and situational variables, the role of perceived value and the roles of green product trust, knowledge and awareness. Sub-section 2.3 reviews the profile of the green consumer with reference to demographic variables, psychographic variables and consumer descriptions. The sub-section concludes with the formulation of a hypothesis on the green consumer profiles. Sub-section 2.4 reviews green product

trust by conceptualising and contextualising the concept. Thereafter, the casual influences are determined followed by the formulation of a hypothesis on green product trust. Sub-section 2.5 reviews green product knowledge with reference to perspectives, concept, types, sources and influences. A hypothesis on green product knowledge is then formulated. Sub-section 2.6 reviews green product awareness from two perspectives, firstly, from the perspective of environmental awareness and secondly, from the perspective of green product awareness. Thereafter, their influences are considered followed by the formulation of a hypothesis on green product awareness.

Sub-section 2.7 reviews the attitude-behaviour gap by conceptualising and explaining the phenomenon. Ways in which the gap can be narrowed are thereafter explored. Sub-section 2.8 reviews greenwashing with reference its conceptualisation, importance, drivers and influences. Thereafter, possible solutions to greenwashing are considered. Sub-section 2.9 reviews the statistical incidence of green consumer attitudes, awareness, knowledge, trust, behaviours and purchase intentions from 2006 through to 2012. The sub-section concludes with a brief summary of the statistical incidence over this period. Sub-section 2.10 provides a hypothesised model of green product purchasing behaviour in the FMCG sector. Sub-section 2.11 concludes the chapter with a brief summary of the main deductions drawn from each sub-section.

Figure 2.1 depicts the research questions and objectives that will be addressed and achieved in Chapter 2.

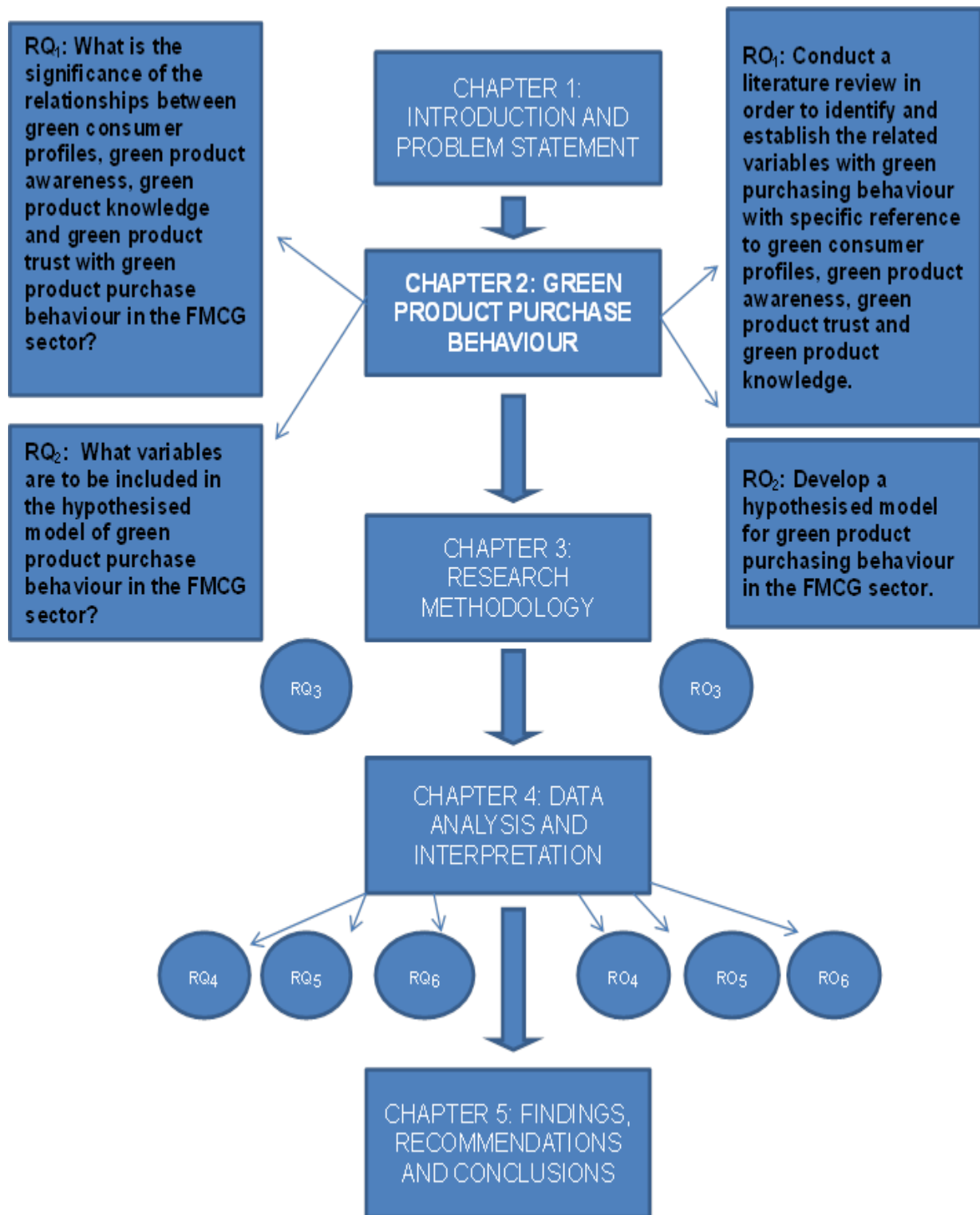


Figure 2.1: Chapter RQ's and RO's.

An overview of this chapter can be seen in Figure 2.2.

CHAPTER 1: INTRODUCTION AND PROBLEM STATEMENT
CHAPTER 2: GREEN PRODUCT PURCHASE BEHAVIOUR
2.1 Introduction
2.2 Green product purchase behaviour
2.3 The profiles of the green consumer
2.4 Green product trust
2.5 Green product knowledge
2.6 Green product awareness
2.7 The attitude-behaviour gap
2.8 Greenwashing
2.9 Statistical incidence of green consumer attitudes, purchase intentions and behaviours
2.10 A conceptual model of green product purchase behaviour
2.11 Chapter summary
CHAPTER 3: RESEARCH METHODOLOGY
CHAPTER 4: DATA ANALYSIS AND INTERPRETATION
CHAPTER 5: FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

**Figure 2.2: Overview of Chapter 2.**



## **2.2 Green product purchasing behaviour**

### *2.2.1 Introductory context*

As environmental issues have gained importance, marketers have been quick to capitalise on the green phenomenon by accessing new markets, gaining competitive advantages and increasing profit potential (Polonsky, 1994). This is especially true as the green consumer has become more aware of their power of demand by preferring products or avoiding others based on their environmental impact and credentials (Siringi, 2012; Laroche, Molson, Bergeron & Barbaro-Forleo, 2001).

Research conducted by Neff (2009) suggests that the growth in the green economy is robust and may even prove recession proof according to other researchers. This research proves promising since green movements, markets and consumer behaviours have lost momentum during periods of past economic contractions (Ali & Adil, 2014).

This is however refuted by sceptics who according to Padel and Foster (2005) suggest that not all environmentally friendly consumers actually purchase green products. Reasons posited for this include low levels of environmental awareness, knowledge and education, a lack of green product alternatives, a lack of credible green marketing initiatives and general consumer scepticism in the green movement (Albayrak, Aksoy & Caber, 2013; Rex & Baumann, 2006).

Notwithstanding, consumers are generally manifesting their environmental consciousness attitudes and values through their thoughts, feelings and behaviours (Lane, 2012, Costa, Nique, Edar da Silva & Herter, 2011). Companies are as a result, increasingly marketing environmentally friendly products and practices to capitalise on these attitudes and values (Fraj-Andrés, Martinez-Salinas & Matute-Vallejo, 2009).

To inform these marketing initiatives, stakeholders in the green economy are focussed on gaining a better understanding of green consumer behaviour (Piettie, 2001). This, especially, as it is known that green consumerism not only reflects on product prices and quality attributes but also the social, moral and environmental considerations (Singh & Singh, 2013; Modi & Patel, 2013).

This sub-section broadly aims to provide more information through the literature on these topics by reviewing green product purchase behaviour with reference to its antecedents, the roles of demographics and psychographics, product attributes, situational variables, perceived values and green product trust, knowledge and awareness. The information obtained herewith will form the basis for the formulation of a hypothesised model on green product purchase behaviour.

### *2.2.2 The predictors of green product purchasing behaviour*

This sub-section will review the literature on the predictors of green product purchasing behaviour by briefly introducing the notion and focusing on the role of demographics, psychographics, product attributes, situational variables, perceived value, trust, knowledge and awareness. A brief summary will highlight the main points reviewed in this sub-section.

Gupta and Ogden (2009) show that 77% of people believe that responsible behaviour is partly expressed through sustainable consumption patterns. The study of green consumer behaviour involves assessing the motivation for environmentally responsible behaviour and in turn to express these through green purchasing behaviours (Grundey, 2003). Academics and researchers alike have thus attempted to identify the antecedents of green consumer behaviour and green purchase intentions (Hanson, 2013; Papista & Krystallis, 2013; Baqer, 2012; Kaufmann, Fateh, Panni & Orphanidou, 2012; Durif, Roy & Boivin, 2012; Michaud & Llerena, 2011; Griskevicius *et al.*, 2010; Mostafa, 2007; Hartmann & Apaolaza Ibáñez, 2006; Kim & Choi, 2005; Nordlund & Garvill, 2002).

Hartmann and Apaolaza Ibáñez (2006) suggest that consumers undertake a cost-benefit analysis when making purchase decisions, and behave environmentally responsible if they perceive sufficient real or perceived benefits. These cost-benefit analyses are generally considered to be more complex than with traditional products (Ryan, 2012; Abdul-Muhmin, 2007; Alexov, 2011).

The literature confirms that the degree to which consumers demonstrate environmental responsibility depends partly on demographic variables such as gender, age, education, occupation and income and psychographic variables such as individual attitudes, values, beliefs and predispositions (Park & Ha, 2012; Karp,

1996). This is confirmed by Straughan and Roberts (1999) who assert that demographic variables have both a direct and an indirect relationship with green product purchase behaviours. Specifically, Fisher, Bashyal and Bachman (2012) found that there is a tendency for younger, white, highly educated females, earning above average incomes to engage in environmentally responsible behaviour. In contrast, Tan and Lau (2011) found younger males with lower education levels engage in the least environmentally responsible behaviour. Indirectly, demography mediates the relationship between green consumer behaviours and its other predictors (Kaufmann *et al.*, 2012).

Psychographically, environmental attitudes refer to the enduring feelings of environmental wellbeing, while personal values refer to what one perceives as important in life. These are significant predictors of environmentally responsible behaviour (Aoyagi-Usui, Vinken & Kuribayashi, 2003; Bamberg, 2003). In this regard, there is a higher proclivity to purchase environmentally friendly products when individuals share a community based value system, harbour an attitude of concern for the environment and believe their environmental behaviours are effective in contributing to environmental sustainability (De Groot & Steg, 2008). The proclivity is reduced however by the demographic characteristics of the consumer and the specific nature of the green purchase concerned (Shrum, McCarty & Lowrey, 1995).

Environmental concern, an attitude regarded as a sense of discomfort in the potential environmental impact on all spheres of life, has one of the strongest positive relationships to environmentally responsible behaviour (András, 2007). This relationship is influenced by consumer perceptions of the dangers within the environment and the perceived ability to be in control should they manifest (Majláth, 2010; Scholder, Wiener & Cohb-Walgren, 1999). The relationship between environmental concern and pro-environmental behaviours is further mediated by age, education, occupation, income, personal values and social class through their influence on, amongst other things, consumer perceptions (Hanson, 2013; Poortinga, Steg & VlekValues, 2004; Schultz & Zelezny, 1999). This, at times, gives rise to similar or different levels of environmental concern leading to similar or different environmental behaviours (Bord & Fisher, 1999). It has thus been established that environmental concern is directly correlated to green purchasing

behaviours but the strength thereof is mediated further by the symbolic meanings of product bundles generally transmitted to the consumer through both tangible and intangible product attributes (Elliot & Wattanasuwan, 1998). When tangible product attributes are less differentiated, the importance of these symbolic meanings as a predictor of pro-environmental purchase behaviour increases (Padel & Foster, 2005).

Critically, however, the strength of the relationship between pro-environmental attitudes, such as environmental concern and actual behaviours are being questioned with some studies attempting to determine why the suggested correlations do not result in the desired behaviours (Lin, Xia & Hung, 2013; Albayrak, Aksoy & Caber, 2013; Carrington et al., 2010; Durif, Roy & Boivin, 2012; Forsberg & Löfvenberg, 2012; Moraes, Carrigan, & Szmigin, 2012; Tan & Lau, 2011; Padel & Foster, 2005; Jackson, 2005). Reasons posited for this include the fact that the strength of the correlation is weak and fails to consider the effects of many interrelated variables in the purchase decision namely the demographic, psychographic, psychological, social and product considerations (Carrington *et al.*, 2010; Gupta & Ogden, 2009; Wheale & Hinton, 2007). Demographic and psychographic variables will be explored in greater detail in Sub-section 2.3 which deals with green consumer profiles.

When considering the influence of product attributes and situational variables on green product purchasing behaviour, it has been stated that environmental behaviours and green purchasing patterns should not be viewed solely as an expression of a consumer's environmental attitudes, values and beliefs but rather as a multi-stage process influenced by the evaluations of both tangible and intangible product attributes (Papista & Krystallis, 2013). These evaluations, whilst being influenced by situational variables, entail, predominantly, the weighing up of what is perceived by the consumer to be positive or negative variables during the purchasing decision (Rokka & Ursitalo, 2008; Tanner & Kast, 2003). The result being that tangible and intangible product attributes together with psychographic, behavioural, economic and social phenomena mutually predict green product purchase behaviours (Baquer, 2012; Griskevicius *et al.*, 2010; Belz, 2009). The strengths of these relationships are mediated by the personal characteristics of the consumer

such as gender, age, education, occupation and income (Smith, 2012; Khare, Mukerjee & Goyal, 2013).

Upon review of the role of perceived value on green product purchasing behaviour it has been noted that perception mediates the antecedent relationships of green product purchasing behaviour (Sánchez-Fernández & Iniesta-Bonillo, 2007). Perceived product value refers to a consumer's subjective valuation of an environmentally friendly product bundle resulting from a product evaluation process in which both tangible and intangible product attributes are weighted for the purpose of executing a green product purchase intention (Kim *et al.*, 2005). Perceptions of green product value are positively.

to general environmental attitudes, knowledge and trust through its influence on the consumer's product evaluation process (Rokicka & Słomczyńska, 2002). Perceptions of green product value are further predicted by perceptions of the effectiveness of product attributes and the levels of trust in green product claims (Moisande, 2007). Through the same mechanism, the perceptions of value are negatively associated to perceptions of the risk of having to pay more for a green product due to limited availability, the risk of wasting time finding unavailable green products and the environmental risk inherent within the green product (Durif, Roy & Boivin, 2012; Vermeir, Ugent & Verbeke, 2008).

When considering the notion of trust and more specifically the role of trust as a predictor of green product purchasing behaviour, it seems trust plays an increasing role given an increase in green product exchanges, stricter international environmental regulations and widespread environmentalism within the green economy (Tucker, Rifon, Lee & Reece, 2012). Green product trust is a significant variable influencing the equity of a green brand (Obermiller, Spangenberg & MacLachlan, 2005). A consumer's desire to trust green products and the companies that produce them confirms the need for honest and transparent green product exchange relationships (Matthesa & Wonneberger, 2014). Green product trust is positively correlated with overall trust within the green economy, general green behaviours and green purchase intentions through its positive effect on environmental awareness, environmental knowledge, perceptions of product value, perceptions of product quality and the willingness of the consumer to pay a premium

for green products (Chen & Chang, 2012). Green product trust will be further explored in Sub-section 2.4.

In considering the influence of knowledge and awareness on green product purchasing behaviour it has been noted that consumer product knowledge and consumer product awareness are two important aspects of the consumer buying decision process as both affect the consumers search for information and processing of that information (Lin & Chen, 2006). In this context, consumer product knowledge refers to a consumer's understanding of a product while consumer product awareness refers to a consumer's familiarity with a product. Both variables are a result of consumer learning which refers to the area of marketing that studies the learning processes of consumers (Purohit, 2010). Environmental marketers attempt to develop product knowledge and awareness by disseminating product related information through marketing communications (Schlossberg, 1992). Green product knowledge and green product awareness are both positively correlated to green product purchase behaviours through their positive impact on consumer perceptions and product attribute evaluation processes (Rao & Monroe, 1998; Kim & Choi, 2005; Bei & Widdows, 2005; Tan, 2011). Green product knowledge and green product awareness, as independent variables, will be further elaborated upon in Sub-sections 2.5 and 2.6 respectively.

### *2.2.3 Summary*

The literature indicates that that green product purchase behaviour it is a complex variable being both positively and negatively impacted by many variables. The above literature shows that green product purchase behaviour is directly predicted by consumer demographics such as gender, age, education, occupation and income. Psychographics in the form of environmental attitudes, personal values and beliefs serve as further predictors. Green product awareness, green product knowledge and green product trust also directly predict green product purchase behaviours but are, indirectly, mediated by demographic, psychographic, social, political and economic variables.

## 2.3 The profiles of the green consumer

This sub-section will review the profiles of the green consumer with reference to demographic variables, psychographic variables, profile descriptions and the casual influences thereof. The sub-section will conclude with the formulation of a hypothesis on consumer profiles.

### 2.3.1 *Conceptualising demographic and psychographic profiling*

Consumer profiling is a method of describing and categorising consumer behaviour primarily for marketing purposes where consumers with similar traits and behaviours are grouped together to form segments within a market (Grewal & Levy, 2013). The process involves identifying consumers exhibiting common characteristics in terms of geographic, demographic and psychographic behaviour (Grewal & Levy, 2013; Banytė, Brazionienė & Gadeikienė, 2010). Demographic profiling distinguishes consumer behaviour and purchasing patterns according to age, gender, income, education, religion and life-cycle stage (Kotler & Armstrong, 2014). Once a popular method of segmenting markets, it has fallen out of favour in recent years as it has been shown to be an unreliable measure of consumer behaviour and a poor indicator of consumer attitudes and beliefs (Diamantopoulos, *et al.*, 2003). Psychographic profiling, segments consumer behaviour and purchasing patterns according to criteria such as attitudes, values, lifestyles, opinions, social class, political orientation and personality characteristics (Sarli & Tat, 2011), which provides a stronger basis on to predict consumer behaviour than demographics as it provides a clearer insight into consumer motives and beliefs when engaging in consumer behaviours (Modi & Patel, 2013).

### 2.3.2 *Demographic and psychographic profiles of green consumers*

In terms the profiles of the green consumer and specifically demographic dimensions (such as race, gender, age, income, education and occupation) studies conducted in America and Europe demonstrate that the tendency is white female consumers, aged between 25 and 35 or 45 and 55 years old, earning above average incomes in white collared jobs, with higher education, working in middle management within specialist fields (Fisher, Bashyal & Bachman, 2012; Ottman, 2011). The least

environmentally conscious of these being described as younger males with a lower education (Ottman, 2011).

Upon reviewing the literature on the psychographic profiles of green consumers it becomes evident that the green consumers tend to be influential, informed and environmentally concerned thought leaders, willing to take concrete steps to contribute to environmental sustainability (Goyal, 2014; Baqer, 2012). Chitra (2007) further identifies four segments of consumers in relation to green purchasing behaviours, namely: Aspirants, Addicts, Adjusters and Avoiders. He describes Aspirants to be consumers wishing to purchase green products at reasonable prices; Addicts to be consumers who feel compelled to purchase green products; Adjusters to be consumers who vacillate between green and non-green product purchases depending on the need to be fulfilled at the time and Avoiders who are averse to green purchases as a result of scepticism in the overall green philosophy (Chitra, 2007).

The LOHAS Report: Consumers and Sustainability, a study conducted by The Natural Marketing Institute (NMI) in 2009 provides a further segmentation of green consumers into five distinct consumer segments, namely: Lifestyles of Health and Sustainability (LOHAS); Naturalites; Drifters; Conventionals and Unconcerneds (Natural Marketing Institute, 2009). The report provides the following profiles of each segment.

The LOHAS segment refers to consumers that are personally connected to global and environmental concerns, are engaged in a green lifestyle, who tend to be a married, educated, middle-aged females. They are additionally socially active, consider environmental solutions as a personal responsibility, are knowledgeable of and can identify and deliberately seek out environmentally friendly products. Finally, they advocate sustainable practises and are prepared to pay a premium for green products (Natural Marketing Institute, 2009).

The Naturalites segment refers to consumers who are generally not well educated, earn low incomes, personalise achieving a health conscious lifestyle. They are typically committed to sustainability in general and will purchase greener products



but are not as eager to adopt additional green behaviours or to learn more about the environmental agenda (Natural Marketing Institute, 2009).

The Drifters segment refers to younger consumers with average incomes, large young families, located in coastal cities who are not strongly influenced by values but rather fads and trends. They will typically engage in green behaviours that they understand through information obtained from others (Natural Marketing Institute, 2009).

The Conventional segment refers to male consumers with higher incomes, middle aged who are generally environmentally. They are typically aware but will engage in green behaviours for practical reasons such as cost and utility (Natural Marketing Institute, 2009). The Unconcerned segment refers to young consumers with low education, low incomes. This group typically demonstrates low environmental responsibility and behaviours (Natural Marketing Institute, 2009).

The Green Gauge Roper Global Report (2012) compiled by GFK and Roper Consulting, a market research company, offered a further green market consumer segmentation based on various psychographic predispositions. The Glamour Green's segment sees a green way of living as a status symbol, has only an average awareness of environmental concerns and make up approximately 30% of consumers worldwide (Gesellschaft für Konsumforschung & Roper Consulting, 2012).

The Jaded segment refers to green sceptics believing that green concerns are less important and make up 23% of the consumers worldwide (Gesellschaft für Konsumforschung & Roper Consulting, 2012). The Green in Deed segment refers to consumers with the highest concern for the environment and are the most likely to consider the environment when buying products (Gesellschaft für Konsumforschung & Roper Consulting, 2012).

The Carbon Cultured segment refers to consumers who have higher environmental awareness but fall behind in their environmental behaviours (Gesellschaft für Konsumforschung & Roper Consulting, 2012). The Green in Need segment refers to consumers who have the will to be environmentally conscious but do not have the

tools and know-how to put this into action (Gesellschaft für Konsumforschung & Roper Consulting, 2012).

When attempting to describe the green consumer with reference to both the demographic and psychographic dimensions discussed above, the profile has been argued to be a dynamic one which is expected to change as the green economy continues to grow (Ottman, 2011). Be this as it may, as per the above literature, green product purchase behaviours will be mostly predicted, demographically, by socially active, younger to middle-aged, highly educated, white professional females who earn above average incomes.

The green consumer will be described psychographically as individuals who care about their position within society, who are environmentally concerned, aware and knowledgeable, are personally connected to and take personal responsibility for environmental solutions. Furthermore, the green consumer believes they can make a contribution to solving environmental issues and will consider environmental issues when making purchasing decisions. To add to this description, green consumers are knowledgeable of, deliberately seek out and are prepared to pay a premium for environmentally friendly products while incorporating green living into their daily lives. This psychographic profile will be generally supported by an altruistic value system expressing itself in the green consumer being neither self-absorbed nor self-centred.

### *2.3.3 The influences of demographics and psychographics*

Demographically, there is a positive relationship between pro-environmental consumer behaviours and age, income, gender and education with females in general showing a greater tendency toward such behaviour (Finisterra do Paco *et al.*, 2009; D'Souza *et al.*, 2007; Mostafa, 2007). Furthermore, education shows a significant positive relationship with pro-environmental behaviours and is more highly consistent in its predictive nature than the other demographic variables (Mostafa, 2007; Jaina & Kaura, 2006). All the above relationships are mediated by social class due to its influence on education, income and occupation (Chan, 1999). Psychographically, pro-environmental behaviours are positively predicted by lifestyle, materialism, egoism, social-altruism, perceptions of the ability to affectively

contribute to environmental solutions and perceptions of freedom and democracy (Singh & Singh, 2013; Sinnappan & Rahman, 2011; Sarli & Tat, 2011; Scholder, Wiener & Cohb-Walgren, 1999). The strength of the above relationships is mediated by gender, age, education, income and occupation (Diamantopoulos, *et al.*, 2003).

#### *2.3.4 Formulation of hypothesis*

As a result of the above literature on the demographic and psychographic characteristics of the green consumer, this study hypothesises that green consumer profiles is significantly related with green product purchase behaviours in the FMCG sector and thus proposes the following hypothesis:

- H<sub>1</sub>: Green consumer profiles is significantly related to green product purchasing behaviour.

## **2.4 Green product trust**

This sub-section reviews green product trust by, firstly conceptualising and contextualising the concept. Thereafter, the casual influences are determined followed by the formulation of a hypothesis.

#### *2.4.1 The concept green product trust*

Green product trust refers to the tendency of consumers to accept and believe as truthful the direct, indirect, express or tacit informational messages and promises made by pro-environmental attributes of green products (Chen & Chang, 2013a). Trust, within these exchange relationships, is considered to be a vital component. Being an antecedent of commitment in general, trust forms the basis upon which *prima facie* information is transmitted within the green economy (Caldwell & Clapham, 2003).

Trust becomes even more pertinent as the size of consumer investment in a green transaction is generally considered to be larger than with traditional products. This necessitates consumers undergoing a trust dependant, trade-off between the environmental benefits and the costs of a green transaction (Sheehan & Atkinson, 2012). This trade-off results in greater consumer sensitivity to variables affecting trust such as being misled or cheated (Pedro, Luzio & Lemke, 2013). This sensitivity

is heightened further by the reality that the green market is built upon scientific information delivered through products in good faith (Mckinsey & Company, 2007). A failure of trust in any phase of the product delivery process will destroy the bedrock upon which it is based (Tucker, Rifon, Lee & Reece, 2012).

Green product trust is positively correlated to levels of involvement in green behaviours and green products, levels of brand equity, loyalty and image, perceptions of product value, perception of deliverability of product attributes, perceptions of informational value, perceptions of green marketing believability and perceptions of company expertise, competence, honesty and credibility (Sekhon *et al.*, 2014, Chen & Chang, 2013b). Green product trust is negatively correlated to levels of consumer scepticism (Chen & Chang, 2013b; Changa, 2011). Consumer scepticism negatively influences perceptions of value of green marketing communications, degrees of reliance on green information and the risks of environmental harm inherent within green products (Obermiller, Spangenberg & MacLachlan, 2005). Consumer scepticism is positively influenced by low levels of credibility and misleading information (Sweeney & Swait, 2008).

#### *2.4.2 Formulation of hypothesis*

As a result of the above literature on green product trust this treatise hypothesises that green product trust is significantly related to green product purchase behaviours in the FMCG sector and thus proposes the following hypothesis:

- H<sub>2</sub>: Green product trust is significantly related to green product purchasing behaviour.

### **2.5 Green product knowledge**

This sub-section covers the concept green consumer knowledge from two perspectives, firstly, with reference to environmental knowledge and secondly, with reference to green product knowledge. This sub-section will introduce environmental knowledge with reference to the concept and its influences. Thereafter green product knowledge will be reviewed with reference to its types, sources and influences. This sub-section will conclude with the formulation of a hypothesis on green product knowledge.

### 2.5.1 *Conceptualising green product knowledge and environmental knowledge*

Environmental knowledge includes a general or specific knowledge of the natural environment and its ecosystems resulting in an appreciation of what the environment needs in order to exist sustainably (Ehrlich *et al.*, 1999; Suki, 2013). There is a positive correlation between environmental knowledge and pro-environmental behaviours with the strength being determined, in part, by the specific environmental behaviour concerned as stronger correlations are associated with more complex behaviours (Tan & Lau, 2011; Mostafa, 2007). Environmental knowledge is further positively correlated to consumer's intentions to purchase green products, perceptions of product value, willingness to pay a premium for green products and green product trust (Flamm, 2009; Tilikidou, 2007; Walton, Thomas & Dravitzki, 2004; Schlegelmilch, Bohlen and Diamantopoulos, 1996). Environmental knowledge is negatively associated with consumer scepticism of environmentally friendly products and marketing communications (Albayrak, Aksoy & Caber, 2013).

Product knowledge consists of two facets being, familiarity, referred to as the number of product-related experiences a consumer has had with a specific product, and expertise, referred to as the ability to perform product-related tasks as a result of product experiences (Rao & Monroe, 1998; Johnson, Russo & Edward, 1981). Product knowledge can be further segmented into general product class knowledge, referring to the knowledge about the attributes of a product irrespective if they influence the purchase decision or not, and specific brand familiarity, referring to product knowledge of a brand that exists in a specific product category (Phau & Suntornnond, 2006). As consumer characteristics differ, levels of product knowledge differ accordingly, resulting in each consumer's buying decision process being unique in some way (Bettman & Park, 1980; Sujan, 1985).

The types of product knowledge that a consumer may possess or rely on in order to inform his product evaluations are not classified in the same manner (Capraro, Broniarczyk & Srivastava, 2003). Objective product knowledge, being product facts stored in memory and subjective product knowledge, being what consumers perceive they know but which may not necessarily be a fact, both have an influence on the purchase decision (Aertsens *et al.*, 2011; House, Lusk, Jaeger, Traill, Moore, Valli, Morrow & Yee, 2012). The extent of the influence of each is determined by the

type of product being purchased and the amount of knowledge required in the evaluation thereof (Mattila & Wirtz, 2002). Typically, green products are considered to be credence goods containing environmental attributes which cannot be evaluated tangibly and which rely more on subjective knowledge in the product evaluation process (Brown & Minor, 2012; Abrams, Meyers & Irani, 2010). The sources of product knowledge include internal sources such as memory developed through experience, word-of-mouth communications from known friends or acquaintances, neutral impersonal independent sources such as books, articles and mass media and knowledge transfers obtained from similar products used within the same product family (Brucks, 1985).

Green product knowledge, in general, is positively correlated to motivations to purchase of green products, perceptions of product quality, value and effectiveness, product familiarity, product expertise, product trust, consumer confidence and access to and availability of product information (Tan & Lau, 2011; Brown, Dury & Holdsworth, 2009; Bonini & Oppenheim, 2008; Moreau, Lehmann & Markman, 2001; Scholder, Wiener & Cohb-Walgren, 1999). Green product knowledge is furthermore positively correlated to a consumer's ability to gauge product price as a reliable indicator of value (Bei & Widdow, 2005). These correlations are mediated, however, by the level of the understanding and relative importance of product information, the product attributes being evaluated, the amount of product knowledge needed in the evaluation process and consumer scepticism (Aertsen *et al.*, 2011; D'Souza, *et al.*, 2007).

The ability of green product knowledge to predict specific environmental behaviours is further mediated by a consumer's levels of environmental concern, perceptions of environmental responsibility and perceptions of control over environmental issues (Bei & Widdow, 2005). Specifically, with reference to the types of product knowledge, the use of subjective product knowledge is positively correlated to consumer confidence and the perceptions of risk inherent within the product purchase, whilst objective product knowledge is positively correlated to the use of independent sources of information to evaluate purchases (Gregan-Paxton & Roedder-John, 1997). The above relationships are mediated by levels of consumer intellect (Gregan-Paxton & Roedder-John, 1997; Naderi, 2011).

### *2.5.2 Formulation of hypothesis*

Due to the findings of the above literature this treatise hypothesises that green product knowledge is significantly related to green product purchase behaviours in the FMCG sector and thus proposes the following hypothesis:

- H<sub>3</sub>: Green product knowledge is significantly related to green product purchase behaviour.

## **2.6 Green product awareness**

This sub-section reviews green product awareness from two perspectives. Firstly, from the perspective of environmental awareness and secondly, green product awareness. The influences of environmental and green product awareness will be considered, followed by the formulation of the hypothesis on green product awareness.

### *2.6.1 Conceptualising green product awareness and environmental awareness*

Environmental awareness is defined as a general awareness of current environmental issues and related concerns together with having knowledge of how human behaviour impacts the environment (Cherian & Jacob, 2012). Consumers are generally aware that human activities are rapidly consuming both renewable and non-renewable environmental resources with negative impacts on current and future generations (Laroche, Molson, Bergeron & Barbaro-Forleo, 2001). As a consequence land, air, water, population growth, urbanisation and industrialisation have been noted as areas of most concern to consumers (Ottman, 2011). There is a positive correlation between environmental awareness and environmental knowledge, concern for the environment, pro-environmental behaviours, intentions to purchase and willingness to pay a premium for green products, but the extent thereof is dependent on the specific levels of environmental awareness concerned, which in itself is influenced by the age, gender, occupation and consumer income levels (Hessami, Yousefi & Goudarz, 2013; Kim & Choi 2005; Gatersleben, Steg & Vlek, 2002; Soutar, Ramaseshan & Molster, 1994).

Green product awareness relates to a consumer's awareness of green products for the purposes of including it within his choice set in the buying decision process

(Purit, 2010). It has increased substantially over time with a large majority of consumers now specifically requesting and buying green product alternatives (Bodo, Schlegelmilch, Bohlen & Diamantopoulos, 1996). This phenomenon is placing pressure on product suppliers to provide greener alternatives necessitating greater capital flows into renewable and environmentally friendly manufacturing processes (Rajan, 2012).

There is a positive correlation between green product awareness and levels of pro-environmental behaviour, willingness to incorporate green products into choice sets, willingness to pay a premium for green products and green purchase intentions (Kotchen & Reiling, 2000). These relationships are mediated however by social influence, environmental attitude, environmental concern, perceived seriousness of environmental problems, perceived environmental responsibility, perceived effectiveness of environmental behaviour, levels of involvement in the green economy and concern for self-image in environmental protection (Lee, 2008; Yeung, 2004; Kotchen & Reiling, 2000; Lai, 2000). Levels of green product awareness are further determined by demographic variables, social variables, economic variables and the availability of and access to green product and green market information (Mannetti, Pierro & Livi, 2004).

#### *2.6.2 Formulation of hypothesis*

As a result of the above literature on green product awareness this study hypothesises that green product awareness is significantly related to green product purchase behaviours in the FMCG sector and thus proposes the following hypothesis:

- H<sub>4</sub>: Green product awareness is significantly related to green product purchase behaviour.

### **2.7 The attitude-behaviour gap**

This sub-section reviews the attitude-behaviour gap by conceptualising and explaining the phenomenon. Thereafter, ways in which the gap can be narrowed are explored.



There is a discontinuity between pro-environmental attitudes and pro-environmental behaviours (Padel & Foster, 2005). This is supported by the literature which explains this phenomenon as the attitude-behaviour gap, specifically referring to the unpredictable and often conflicting consumer behaviour patterns relative to green philosophies adopted by consumers (Kollmuss & Agyeman, 2002). There seems to be statistical support for these views as a study conducted by Young *et al.*, (2010) found that 30% of consumers reported that they were very concerned about environmental issues but they were struggling to translate these attitudes into purchases (Young *et al.*, 2010). In another study conducted by Hughner, McDonagh, Prothero, Shultz and Stanton (2007), 67% of the respondents surveyed had favourable attitudes towards green products but only 4% translated this into concrete purchasing behaviours (Hughner *et al.*, 2007). To add to these findings Durif, Roy & Boivin, (2012) tested the gap in six categories namely energy, food, recycling, reuse, fuel performance and green product preferences with the findings reflecting a disparity of 40% between environmental attitudes and concrete actions taken by respondents to improve the environment (Durif, Roy & Boivin, 2012).

The gap between pro-environmental attitudes and behaviours is caused by many variables including the weak correlation between environmental attitudes and pro-environmental behaviours, unrealistic green consumption expectations, general environmental apathy and a lack of environmental awareness and knowledge (Rex & Baumann, 2006). It has been argued further that a lack of environmental responsibility, perceptions of green product risk, an unwillingness to pay a premium for green products and the fact that consumers generally employ an irrational decision making process when purchasing green products also play a significant role in the gap between environmental attitudes and corresponding behaviours (Peattie & Collins, 2009; Jackson, 2005; Rex & Baumann, 2006; Carrington *et al.*, 2010). The variables that may narrow the gap include cultivating strong environmental attitudes, increasing environmental awareness and knowledge, making green products more affordable, accessible and available together with increasing the use of transparent and credible green marketing communications (Kennedy, Beckley, McFarlane & Nadeau, 2009).

## 2.8 Greenwashing

This sub-section reviews greenwashing with reference to its conceptualisation, importance, drivers and influences. Thereafter, possible solutions to greenwashing are explored.

Genc (2013) states that once a company decides to enter the green market it confronts the critical question of whether to adopt environmentally sustainable practises in the manufacture of its goods, as they have claimed to do, or rather as an alternative, to greenwash (Genc, 2013). Greenwashing, a proliferating unethical practice, refers to the making of false or misleading claims about pro-environmental product attributes (Matthesa & Wonneberger, 2014). Greenwashing is predominantly practised through marketing communications of green companies and their green products (Fernandoa, Suganthia & Sivakumaranb, 2014; Lane, 2012; Delmas & Burbano, 2011). Greewashing refers to practises such as using misleading words; visuals or graphics; vagueness; exaggerating environmental and green product claims and failing to provide thorough product information to consumers (Ross, Deck & William, 2011).

The proclivity of consumers to accept and believe as truthful the direct, indirect, express or tacit informational messages regarding pro-environmental product attributes, also known as green product trust, is regarded as critical for the growth and longevity of the green economy (Sekhon, Ennew, Kharouf & Devlin, 2014; Hult, Pride & Ferral, 2012; Caldwell & Clapham, 2003; Chen & Chang, 2013). One of the main eroders of this trust is greenwashing which expresses itself, predominantly through consumer scepticism, in green companies and their products (Nordlund & Garvill, 2002). It is this scepticism that is believed to be the reason why not all companies are able to capitalise on the green economy due to its negative impacts on green brand equity, green behaviours and green purchase intensions (Butt, Ng, Khong & Ong, 2014).

There are both internal and external organisational level drivers of greenwashing (Ross, Deck & William, 2011). Externally, they include pressures created by industry regulators, non-governmental organisations, consumers, investors and competitors to conform to sustainability demands, whilst internally they include a company's

incentive structure, ethical climate and culture (Delmas & Burbano, 2011). The specific outcomes of greenwashing include the desire to improve company perception, obtain or maintain a competitive advantage and to save financially on the large investment costs required to authentically green a company's product offerings (Laufer, 2003; Parguel, Moreau & Larceneux, 2011). Greenwashing has become a lucrative practice giving rise to reverse greenwashing being the making of false or deceptive claims by a company about the negative environmental impact of a competitor's product, such as the detrimental effects it may have on the environment (Lane, 2012).

Empirical studies have found that greenwashing is positively associated with consumer scepticism, confusion and perceptions of risk of environmental harm inherent within green product purchases (Matthesa & Wonneberger, 2014; Chen & Chang, 2013a). There is furthermore a negative relationship between greenwashing, green product trust and perceptions of value, which is mediated by the level of consumer confusion in green product claims and the perceptions of risk inherent within green product purchases (Nordlund & Garvill, 2002).

There are ways in which greenwashing can be curbed and even reduced, which include *inter alia*, providing access to enough complete, trustworthy and credible information on green products and manufacturing practises; providing a knowledge platform upon which consumers can compare green product information; using eco-labels to provide relevant, accurate and meaningful information; creating credible third party certification associations; eliminating the informational asymmetry within the industry; introducing stricter regulations in the green economy; introducing strict penalties for industry norm transgressors and introducing an industry charter where all companies commit to playing a positive role within the industry (Pedro, Luzio & Lemke, 2013).

## **2.9 Statistical incidence of green consumer attitudes, purchase intentions and behaviours**

This sub-section aims to review the existing literature on the statistical incidence of green consumer attitudes, awareness, knowledge, trust and behaviours through the years 2006 to 2012. From the outset one must contemplate the comments of Öhman

(2010) who argues that caution is warranted when attempting to measure consumer intentions statistically as they tend to be a misleading indicator of environmental consciousness. This is in part due to the presence of social pressures seen by society to being environmentally conscious and the fact that surveys cannot measure if consumer intentions actually translate into related environmentally friendly behaviours (Öhman, 2010).

#### *2.9.1 Statistical incidence in 2006*

In earlier streams of literature, the belief was held that the incidence of green consumerism is not that prevalent. A 2006 study conducted in the United States by market research consultants J.D. Power and Associates specifically measured the incidence of green product purchasing behaviour in the FMCG sector. The study reported that FMCG purchases of organic foods accounted for less than 3% of all food sales with green laundry detergents and household cleaners making up less than 2% of sales in this sector (J.D. Power & Associates, 2006). The study further reported that less than 3% of the United States automobile market purchased hybrid vehicles (J.D. Power & Associates, 2006).

#### *2.9.2 Statistical incidence in 2007*

In order to determine whether the results of the above 2006 report are supported and confirmed by 2007 studies on green consumer awareness, knowledge, attitudes, trust and behaviours, the following studies were reviewed: Chain Store Age (2007) conducted by Chain Store Age Publishing Corporation and the McKinsey and Company (2007).

The Chain Store Age study of 822 United States consumers measured both green attitudes and behaviours (Chain Store Age Publishing Corporation, 2007). Regarding the actual incidence of green purchases, the study reported that 25% of the respondents interviewed had in fact purchased a green product before (Chain Store Age Publishing Corporation, 2007). Furthermore, with reference to consumer attitudes towards environmentally responsive behaviours it was noted that 61% of consumers believed that it was not their responsibility to act in environmentally friendly ways and believed that companies must take the initiative in dealing with the global environmental issues (Bonini & Oppenheim, 2008).

In a further study conducted by McKinsey and Company (2007), consumers were surveyed in Europe and the United States of America on questions relating to green awareness, knowledge, attitudes, trust and behaviours. On the score of consumer awareness of the environmental impacts of purchase behaviours, 87% of respondents considered the environmental and social impacts when purchasing products (McKinsey & Company, 2007). In spite of this majority the report indicated further that only 33% of these actually purchased a green product and would be willing to continue to do so (McKinsey & Company, 2007).

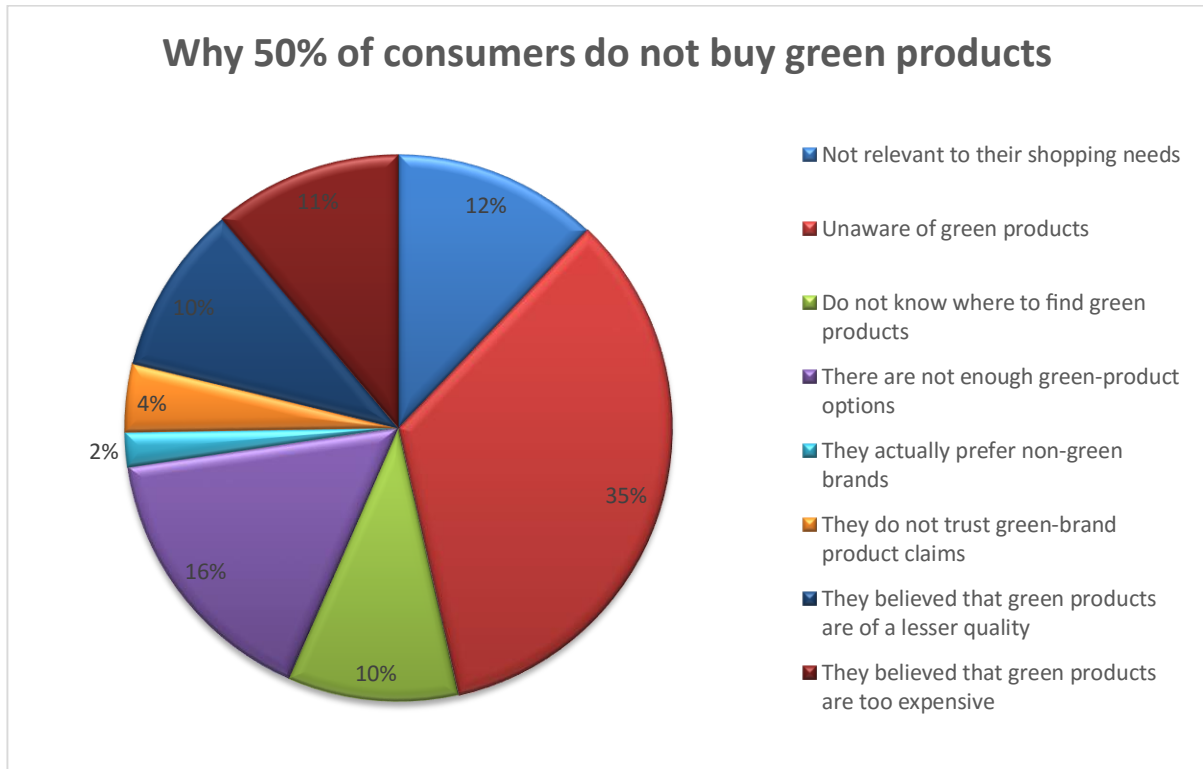
On questions testing consumer attitudes of green products and their attributes, the majority of consumers still considered product value for money, performance, reliability and durability as the most important considerations in green purchases (McKinsey & Company, 2007). With reference to consumer awareness, knowledge, attitudes and trust, in general, 50% of the consumers surveyed were not aware of or could not locate green alternatives in many product categories, believed that green products were of a lower quality than traditional products, did not fully understand environmental issues, were distrustful of environmental claims and believed that green products were too expensive (McKinsey & Company, 2007). The majority of the respondents also indicated that they did not have the knowledge of how to align their consumption behaviours in a way that contributed to a sustainable environment (McKinsey & Company, 2007).

The reviewed literature during 2007 seems to suggest that the works of Kim and Choi, (2005), Rex and Baumann, (2006), to name but a few, were correct in reporting that the green economy was indeed not as robust as all the hype had suggested. Some of the reasons that they posited for this scenario also seem correct as the statistical incidence confirms, at this time, that results show a mismatch between attitudes and behaviour and furthermore low levels of green product awareness, knowledge and trust (J.D. Power & Associates, 2006, McKinsey & Company, 2007; Bonini & Oppenheim, 2008). The results also indicate that the consumer may not have been willing to delay some of the benefits received from green products as a high importance on the tangible and immediate product attributes such as quality and reliability were shown (Chain Store Age Publishing Corporation, 2007).

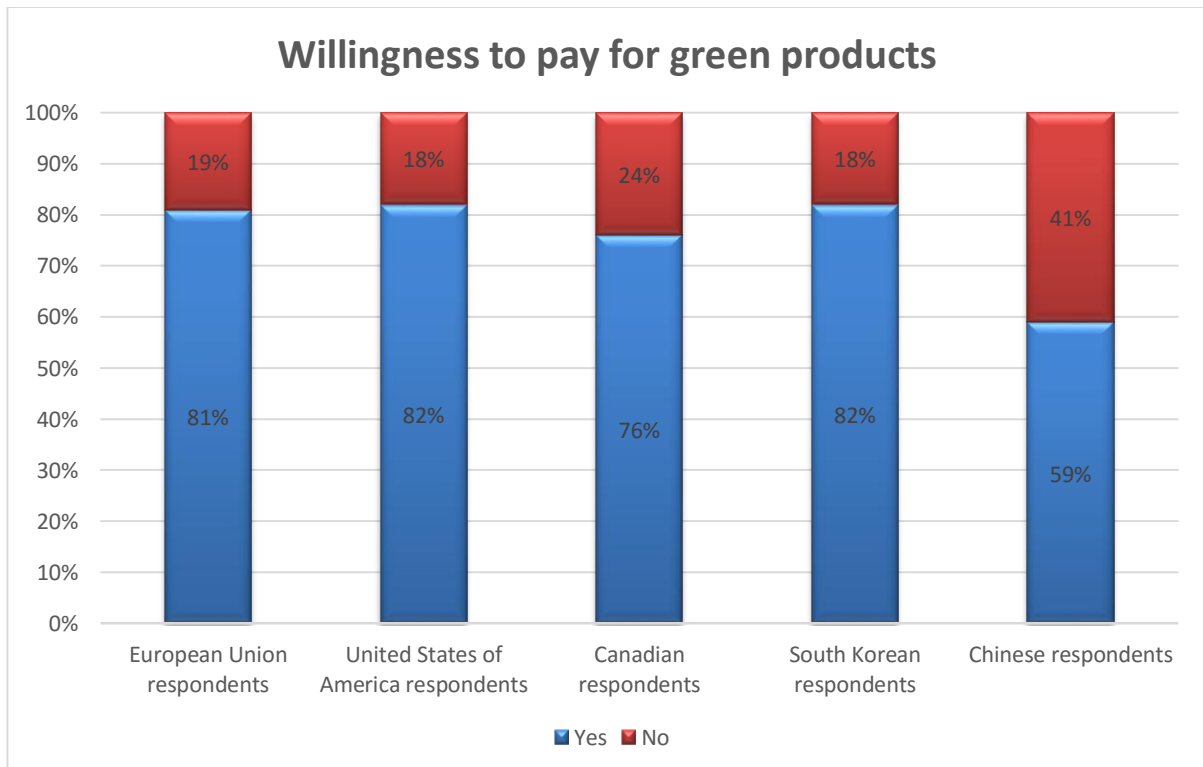
### 2.9.3 *Statistical incidence in 2008*

A 2008 study called the Global Green Consumer Survey conducted by the Boston Consulting Group will be reviewed for this time period. The study surveyed 9,000 adults, aged 18 to 65, in nine countries including Canada, France, Germany, Italy, Japan, Spain, United Kingdom and the United States, on issues related to green product attitudes, awareness, knowledge, trust and behaviours (Boston Consulting Group, 2008). Specific questions in the survey tested amongst other things: consumer awareness of environmental issues, green purchasing behaviours and willingness to pay a premium for green products. The following statistical responses were significant. Regarding the actual purchase of green products, 50% of the respondents indicated that they were not purchasing green products at the time of the study (Boston Consulting Group, 2008). The report further noted the reasons why this was the case and the responses are captured in Figure 2.3. Of further noteworthy significance was the indication that 34% cent of the 50% of respondents not purchasing green products stated that it was because they were unaware of green products (Boston Consulting Group, 2008).

Upon consideration of the attitudes and perceptions of green product quality, 41% of respondents from European Union countries; 43% from the United States; 45% from Canada; 40% of South Korea and 60% of Chinese respondents all perceived green products to be of higher quality than traditional products (Boston Consulting Group, 2008). The study also attempted to determine consumer attitudes towards price on green purchase intentions by determining if the respondents were willing to pay more for green products (Boston Consulting Group, 2008). The responses are presented in Figure 2.4.

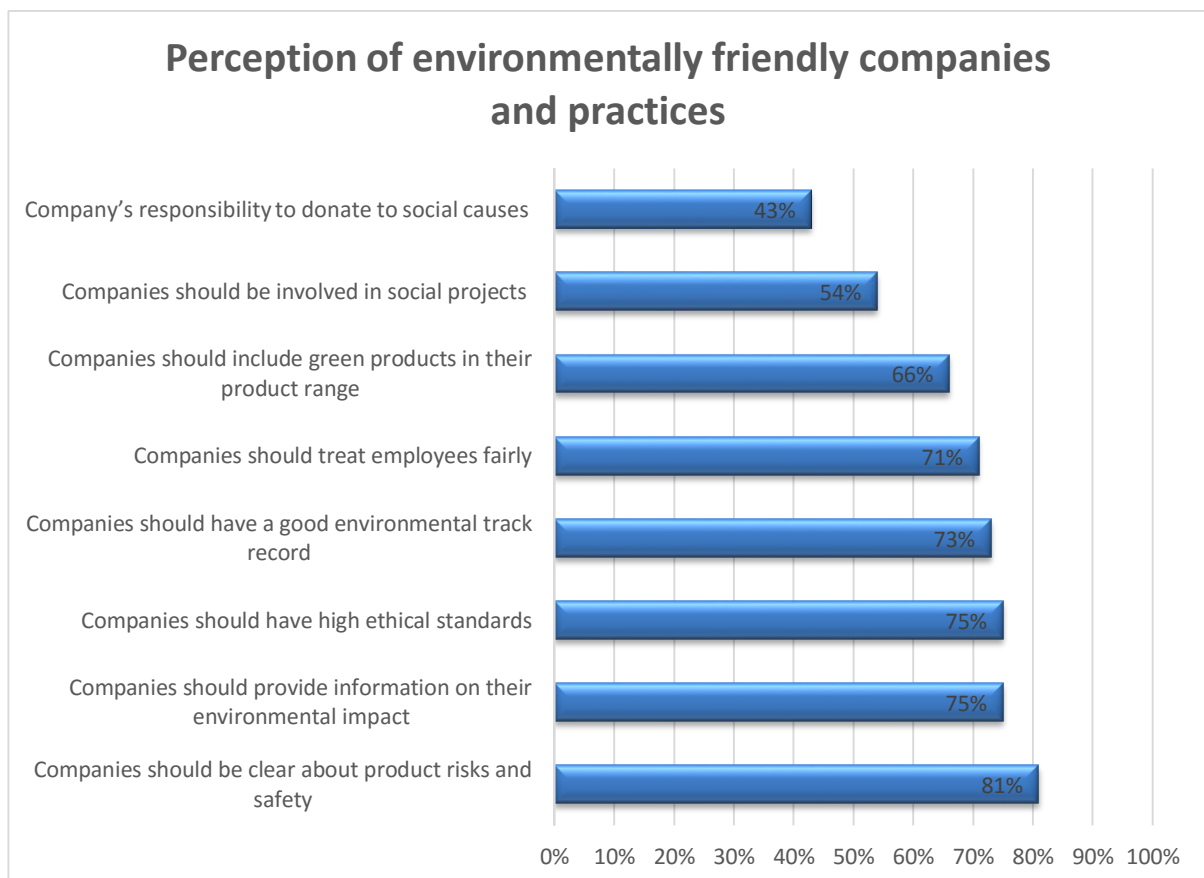


**Figure 2.3: Why 50% of consumers do not buy green products (Boston Consulting Group, 2008).**



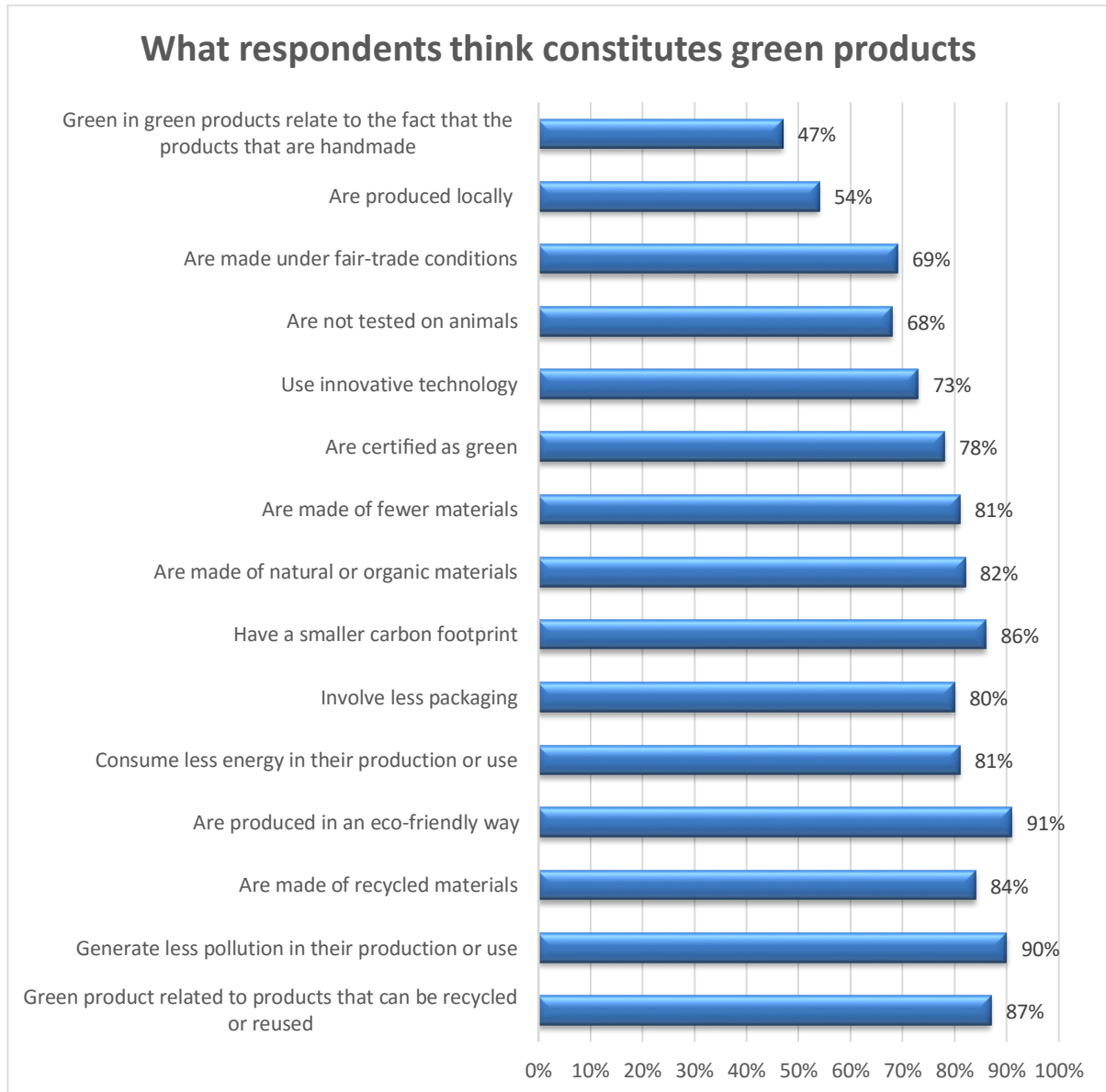
**Figure 2.4: Willingness to pay for green products (Boston Consulting Group, 2008).**

75% of respondents from the European Union, United States, Canada and South Korea indicated a willingness to pay a premium for green products (Boston Consulting Group, 2008). Although high numbers were recorded it was however further noted that this only showed a positive attitude toward the price premium and not necessarily an incidence of actually paying a premium for green products (Boston Consulting Group, 2008). Further questions aimed at testing what consumers perceived environmentally friendly companies and behaviours to be were posed (Boston Consulting Group, 2008). The responses are illustrated in Figure 2.5. Of significance was the fact that more than 75% of respondents believed that green behaviours by companies incorporated being clear about product risks and product safety, providing information on their environmental impact and practising high ethical standards. Respondents felt that a company's green behaviours were less expressed through a company's involvement in social projects and its responsibilities to donate to social causes (Boston Consulting Group, 2008).



**Figure 2.5: Perceptions of environmentally friendly companies and practises (Boston Consulting Group, 2008).**





**Figure 2.6: What respondents think constitutes green products (Boston Consulting Group, 2008).**

At this time, the perception of green by consumers were more closely associated with goods and services that were natural or organic, were recycled or reused, involved less pollution, materials and packaging and that resulted in a lower carbon footprint (Boston Consulting Group, 2008). When analysing what green activities and behaviours consumers had been engaged in daily, the responses presented in Table 2.1.

## A MODEL FOR GREEN PRODUCT PURCHASING BEHAVIOUR

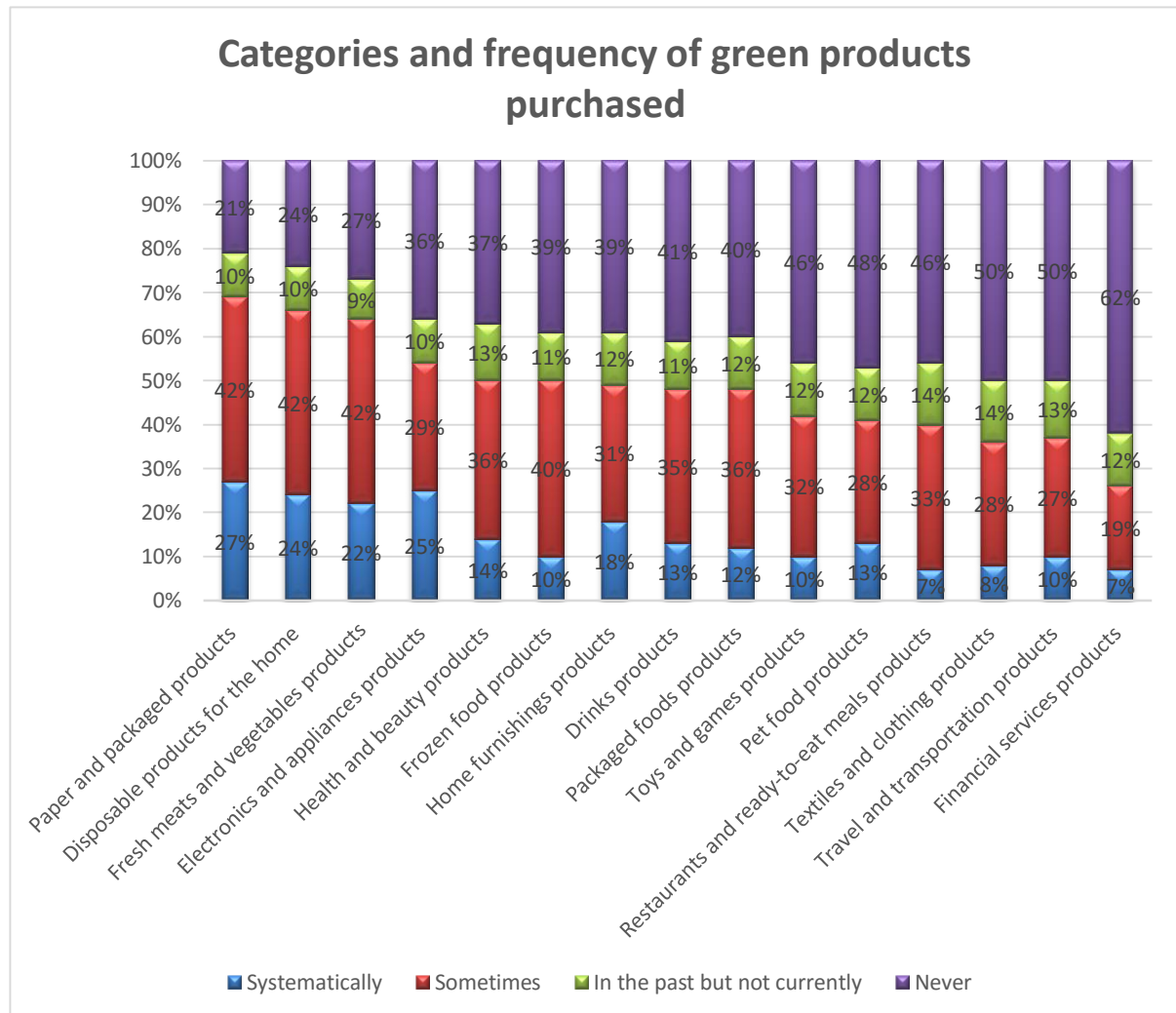
	1% to 25%	25% to 50%	50% to 75%	75% to 100%
Claim to turn off home electronics when not in use.				
Claim to recycle or reuse products, use low-energy light bulbs, use less water, bring my own bags to the grocery store, use energy-efficient appliances, use a car as little as possible and purchase locally produced products.				
Claim to improve insulation in a home, buy products without packaging, buy fewer products, spend vacations at or near home, travel less for work and travel by train whenever possible, buy organic food, drive a more fuel-efficient car, eat less meat, shop more often at green stores.				
Claim that they don't own a car and invest in environmentally friendly financial funds.				

**Table 2.1: Green activities engaged in daily (Boston Consulting Group, 2008).**

It was noted that although the results are spread across a broad range of activities, of note in these statistics was that more than 75% are claiming to engage in green habits that may result in less money being spent through the cost savings obtained from those behaviours (Boston Consulting Group, 2008).

The respondents were also posed questions regarding what is being purchased and the frequency thereof and were asked specifically to indicate within which purchase categories they had purchased green products in (Boston Consulting Group, 2008). The results are illustrated in Figure 2.7. The results indicate the highest frequencies of green purchases as recorded were in product categories such as paper, packaged products, disposable products for the home and fresh meats and vegetables (Boston Consulting Group, 2008). The lowest frequencies thereof were recorded in product

categories such as ready to eat meals, textiles and clothing, frozen foods, toys and gaming products and financial services (Boston Consulting Group, 2008).



**Figure 2.7: Categories and frequency of green products purchased (Boston Consulting Group, 2008).**

In an analysis and commentary on the above Global Green Consumer Survey conducted by Boston Consulting Group in 2008, Manget, Roche and Münnich (2009) made the following broad observations regarding green awareness, knowledge, attitudes, trust and behaviours: The majority of consumers have a high level of environmental awareness and concern for the environment. Consumers understand green as being environmentally consciousness in some way or another; geography partly influences consumer green expectations. The majority of consumers are confused about what they are entitled to when purchasing green products. Green

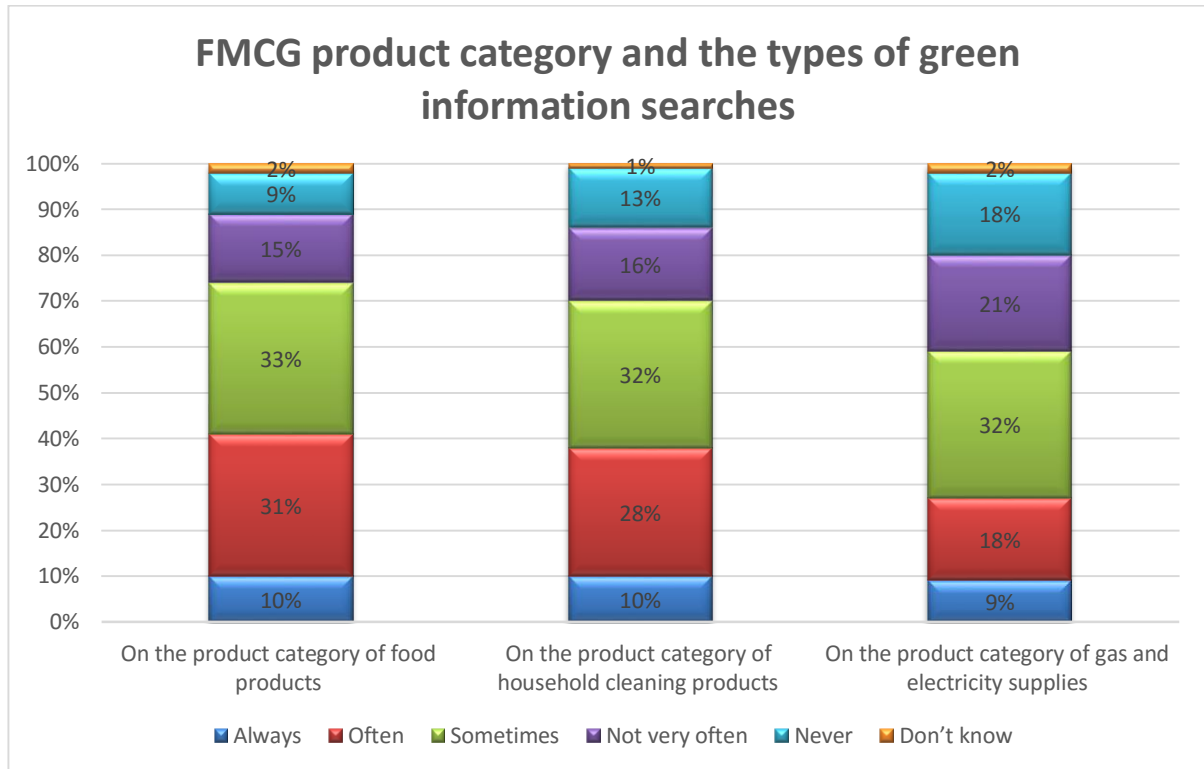
consumers are willing to pay more but how much more depends on the product, product category and how much green value is expected in return. The majority of consumers receive green product information from product labels; consumers are sceptical of certain green claims; consumers generally lack awareness of green products and their alternatives and consumers lack access to credible green product information (Boston Consulting Group, 2008).

#### *2.9.4 Statistical incidence in 2009*

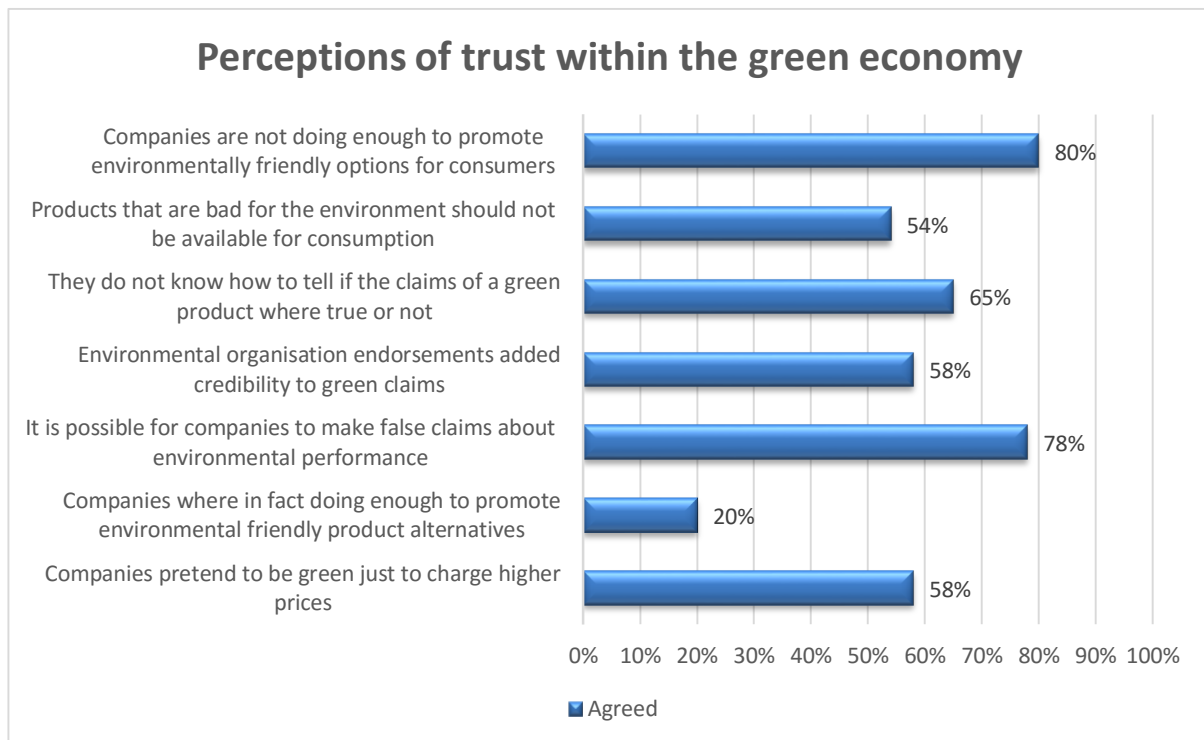
The above trends seem to be confirmed in studies conducted in 2009. In a report by Yates (2009), green awareness, knowledge, attitudes, trust and behaviours were further measured. On the issue of consumer trust in green companies and products, 58% of consumers surveyed believed that many companies are pretending to be green in order to charge higher prices for their product offerings (Yates, 2009).

The report, amongst other things, specifically measured the degree of consumer interest in green products by determining the products on which green information was being sought and the frequency thereof (Yates, 2009). The responses relevant to the FMCG sector are displayed in Figure 2.8. Of noteworthy significance was that more than 28% of the all respondents indicated they often sought green product information when purchasing food products and household cleaning products (Yates, 2009). This was opposed the fact that it was revealed that when it came to the purchase of gas and electricity 32% of the respondents indicated they only sometimes sought green product information (Yates, 2009).

Upon consideration of the perceptions of green product or company trust the responses are displayed in Figure 2.9. Of noteworthy significance was the fact that more than 75% of all respondents believed that it was possible for companies to make false claims about environmental performance and that companies are not doing enough to promote environmentally friendly options for consumers (Yates, 2009). Furthermore, more than 50% of all respondents believed that many companies pretend to be green just to charge higher prices and products that were bad for the environment should not be available for consumption by companies (Yates, 2009).



**Figure 2.8: FMCG product category and the types of green information searches (Yates, 2009).**



**Figure 2.9: Perceptions of trust within the green economy (Yates, 2009).**

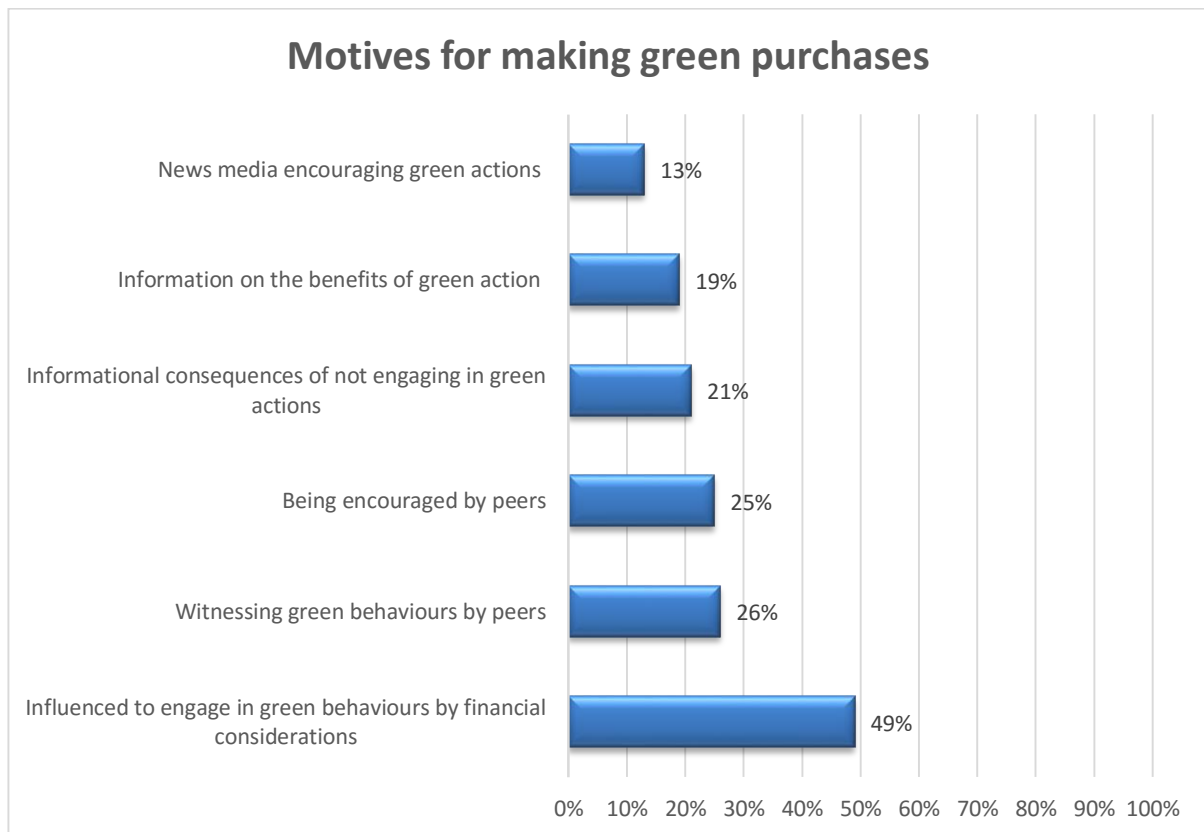
Supporting these findings was the Eurobarometer 2009 study where it was established that, on the whole, green consumers struggle to make informed green product choices due to vague and confusing environmental communications (Eurobarometer, 2009). Furthermore, with reference to a company's claims about the environmental performance of their own green products, 49% said they trust such claims and 48% stated the claims were untrustworthy (Eurobarometer, 2009).

Although the above literature and findings on green awareness, knowledge, attitudes, trust and behaviours until 2009 appear dated there seems to be some statistical support for a rather sceptical view of the green economy with, on the whole, fairly low numbers on the actual incidence of green product purchasing behaviour in spite of positive trends that are evident in certain studies. To determine whether the above position still holds true, a statistical review of more recent studies becomes necessary.

#### *2.9.5 Statistical incidence in 2011*

The GFK and Roper Consulting Green Gauge Report (2011) report will be briefly reviewed for this period. The 2011 GFK and Roper Consulting Green Gauge report surveyed 2,000 adults age 18 and over in the United States. The following information regarding green attitudes, awareness knowledge, trust and behaviours can be gleaned from this report.

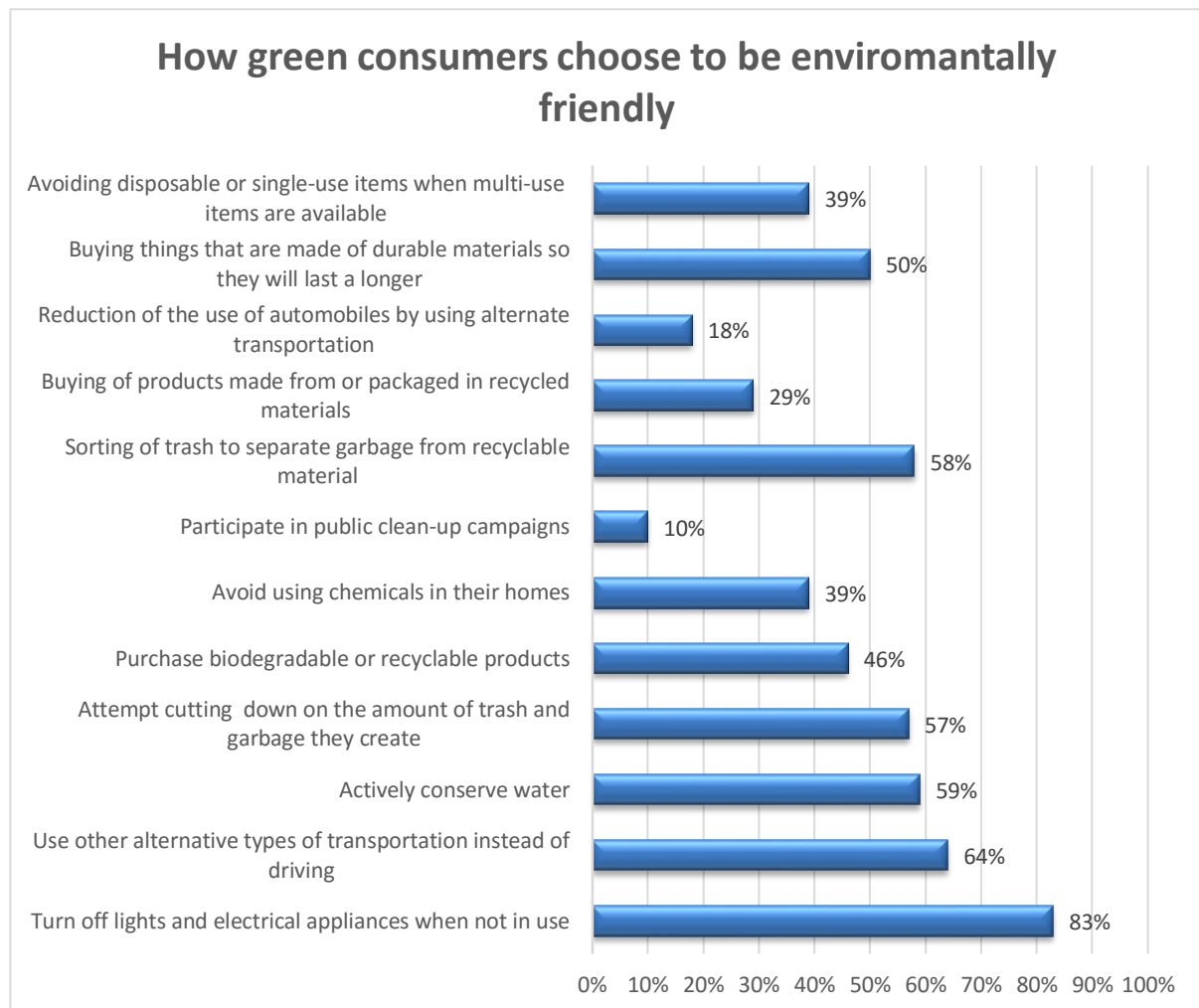
On the score of environmental awareness, the consumer was more informed and aware of environmental issues than ever before with 73% of respondents saying they knew a lot about environmental issues (Gesellschaft für Konsumforschung & Roper Consulting, 2011). Furthermore, only 18% of the respondents stated that they were still confused with environmental issues (Gesellschaft für Konsumforschung & Roper Consulting, 2011). On the questions related to the willingness to make environmentally responsible behavioural changes, the majority of respondents indicated in the affirmative but it was noted that motives for making such changes were not all directly related to the environment (Gesellschaft für Konsumforschung & Roper Consulting, 2011). Prominent motives for making green purchases also included financial considerations and peer pressure through peer instruction and peer example. The results are displayed in Figure 2.10.



**Figure 2.10: Motives for making green purchases (Gesellschaft für Konsumforschung & Roper Consulting, 2011).**

A further relevant and noteworthy statistic from the 2011 survey was the perceptions of the respondents of who is responsible for the solutions to our environmental issues. In this regard a shift occurred from previous reports with only 45% believing the main causes of environmental issues were companies and their practises (Gesellschaft für Konsumforschung & Roper Consulting, 2011). The majority of respondents now believed that the main reasons for the environmental problems were consumer consumption patterns (Gesellschaft für Konsumforschung & Roper Consulting, 2011). With reference to the question of which specific green behaviours the consumer chose to contribute to environmental sustainability, the survey indicated the following responses displayed in Figure 2.11. 83% of respondents indicated that they turn off lights and electrical appliances when not in use (Gesellschaft für Konsumforschung & Roper Consulting, 2011). Furthermore, more than half of all respondents indicated that they contributed to environmentally friendly behaviours by using alternative types of transportation instead of driving, actively conserving water, attempting to cut down on the amount of trash and garbage they

create and sorting of trash to separate garbage from recyclable material (Gesellschaft für Konsumforschung & Roper Consulting, 2011).



**Figure 2.11: How green consumers choose to be environmentally friendly (Gesellschaft für Konsumforschung & Roper Consulting, 2011).**

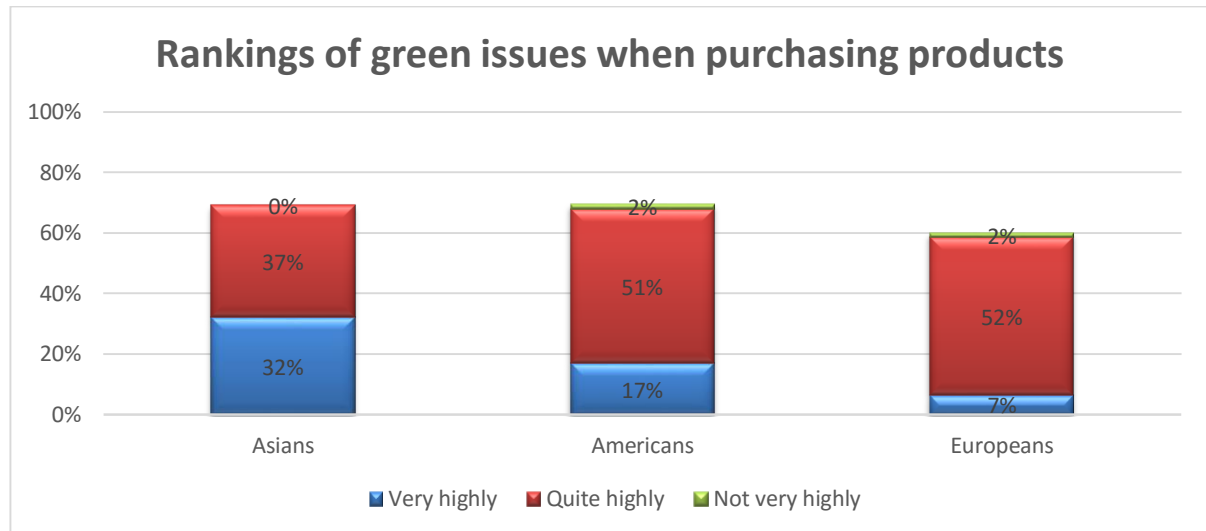
#### 2.9.6 Statistical incidence in 2012

In a study conducted in 2012, by DuPont, called the, Sustainability Survey, 418 industry experts from all over the world where surveyed at exhibitions and conferences across the world, including Europe, Asia and North America. The experts were presented with questions aimed at determining environmental attitudes, awareness, knowledge, trust and green product purchase behaviour (DuPont, 2012).

When analysing how consumers rank of green issues when making purchases decisions, the following responses were noted and are displayed in Figure 2.12.

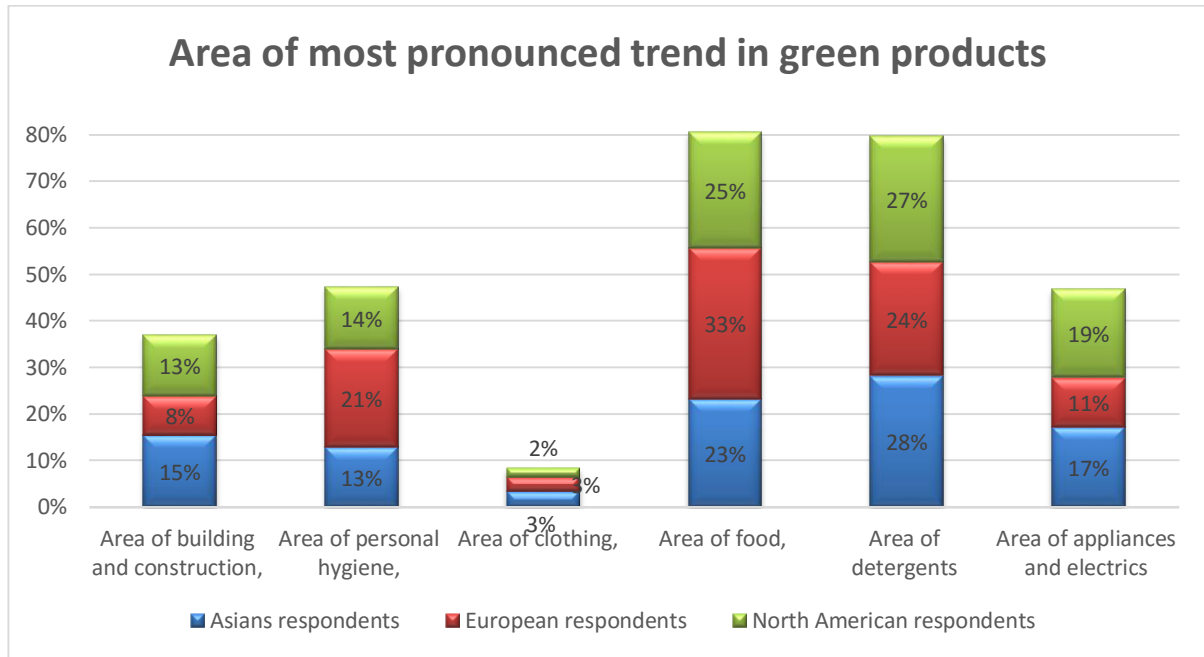


Asians at 32%, ranked green issues as very high as opposed to only 17% of North Americans and 7% of Europeans (DuPont, 2012). It was further noted that the respondents from more developed countries seem to view environmental issues less highly (DuPont, 2012).



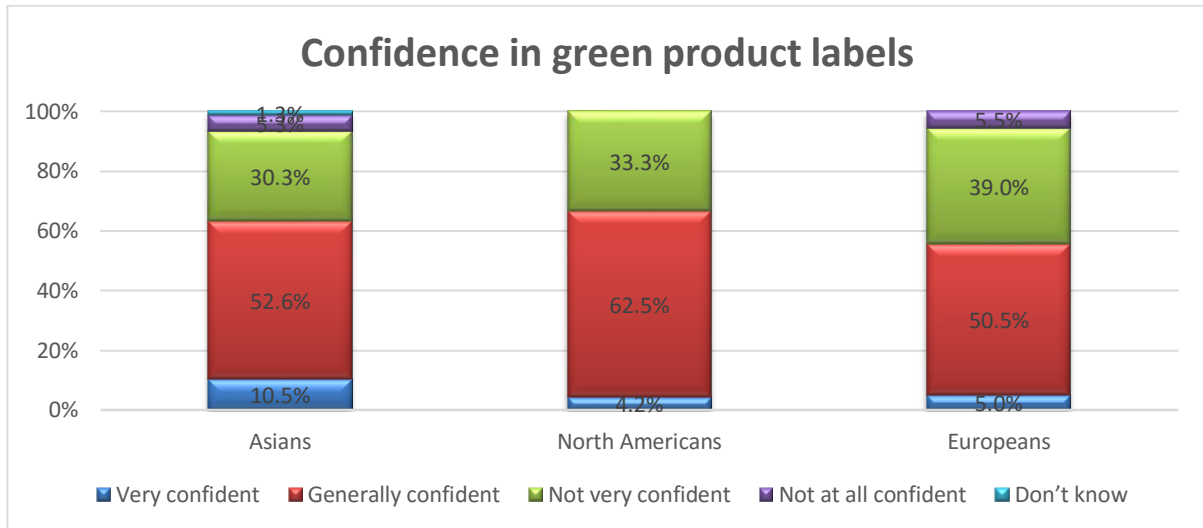
**Figure 2.12: Rankings of green issues when purchasing products (DuPont, 2012).**

When perusing the results on which products the trend towards purchasing green was most pronounced the responses which are displayed in Figure 2.13. The results indicated that approximately 15% of Asians, 8% of Europeans and 13% of North American respondents believed this to be in the area of building and construction (DuPont, 2012). Furthermore, approximately 12% of Asians, 21% of Europeans and 14% of North American respondents believed this to be in the area of personal hygiene. 3% of Asians, 3% of Europeans and 2% of North American respondents believed this to be in the area of clothing (DuPont, 2012). To add to this approximately 23% of Asians, 33% of Europeans and 23% of North American respondents believed this to be in the area of food (DuPont, 2012). Approximately 28% of Asians, 24% of Europeans and 27% of North American respondents believed this to be in the area of detergents and approximately 17% of Asians, 10% of Europeans and 19.1% of North American respondents believed this to be in the area of appliances and electrics (DuPont, 2012).



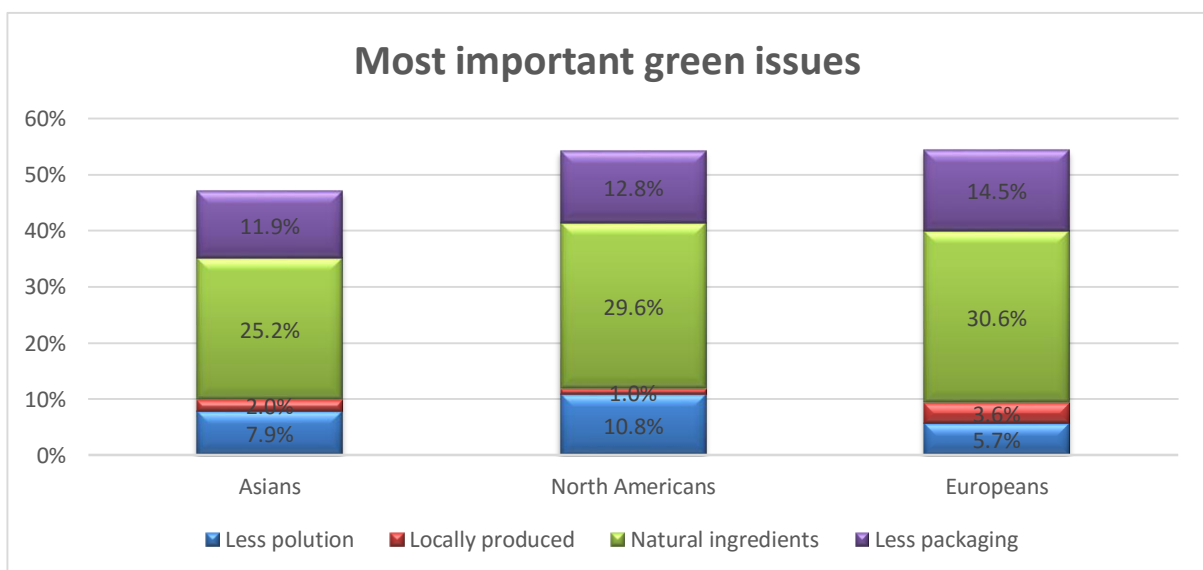
**Figure 2.13: Areas of most pronounced trend in green products (DuPont, 2012).**

In the measurement of trust and specifically how confident consumer's felt products labelled green lived up to their environmental claims the following responses displayed in Figure 2.14. Of noteworthy significance was that 52.6% of Asians, 62.5% of North Americans and 50.5% of Europeans indicate they were generally confident that green products lived up to their environmental claims (DuPont, 2012). This opposed to the fact that 30.3% of Asians, 33.3% of North Americans and 39% of Europeans stated that were not very confident that green products lived up to their claims (DuPont, 2012).



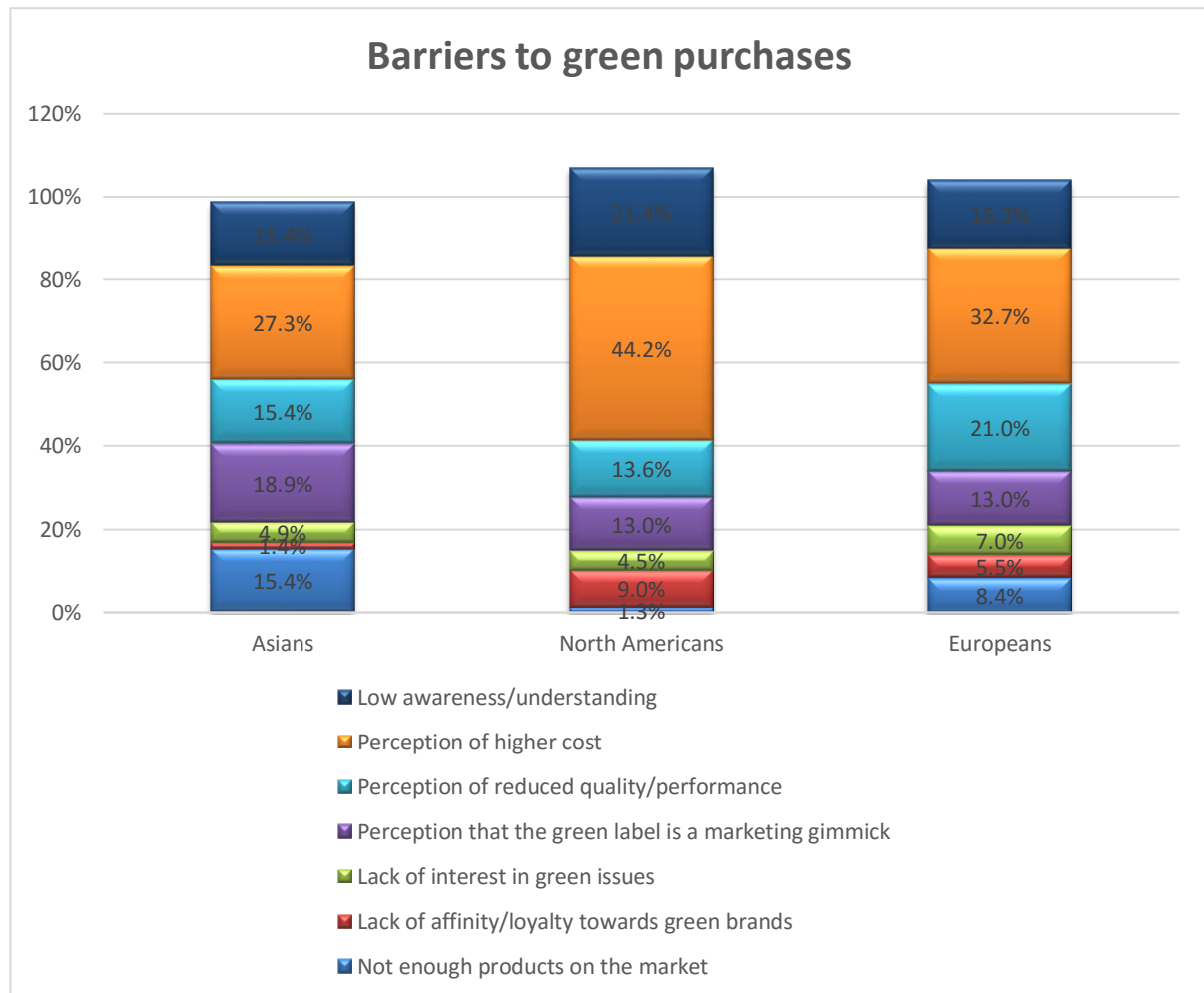
**Figure 2.14: Confidence in green product labels (DuPont, 2012).**

Upon consideration of which green issues consumers found most important when considering purchasing green products the following, displayed in Figure 2.15 were the response. Approximately 7.9% of Asians, 10.8% of North Americans and 5.7% of Europeans answered this question to be less pollution, 2% of Asians, 1% of North Americans and 3.6% of Europeans answered this to be locally produced, 25.2% of Asians, 29.6% of North Americans and 30.6% of Europeans answered this to be natural ingredients and 11.9% of Asians, 12.8% of North Americans and 14.5% of Europeans answered this to be less packaging (DuPont, 2012).



**Figure 2.15: Most important green issues (DuPont, 2012).**

On the question of what consumers believed to be the biggest barriers to purchasing green products the following, displayed in Figure 2.16 were the responses. Of noteworthy significance was the fact that 15.4% of Asians, 13.6% of North Americans and 21% of Europeans believed the most pressing green issue to be the perception of reduced quality/performance in green product while 27.3% of Asians, 44.2% of North Americans and 32.7% of Europeans felt it was the perceptions of higher costs associated with green goods and services (DuPont, 2012). Lastly, respondents also believed that low awareness/understanding of green products and the green agenda to be an important green issue with 15.4% of Asians, 21.4% of North Americans and 16.3% of Europeans indicating the response (DuPont, 2012).



**Figure 2.16: Barriers to green purchases (DuPont, 2012).**

The main observations made by the Sustainability Survey (2012) included the fact that respondents from more developed countries seem to view environmental issues

less highly while generally seeming more confident in green product claims supported by moderate levels of green trust (DuPont, 2012). Consumers also felt that the biggest issue in purchasing green was related to natural ingredients in food purchases (DuPont, 2012). Consumers generally had a better awareness and knowledge of what environmental issues encompassed and displayed a willingness to pay a premium for green products (DuPont, 2012). Consumers did however perceive a higher price for green products together with a perception of inferior quality. These variables were also seen by consumers as barriers by to engaging in green product purchases (DuPont, 2012).

#### *2.9.7 Statistical summary*

In summary, this sub-section has reviewed the literature on the statistical incidence of green product attitudes, awareness, knowledge, trust and general environmental behaviours from 2006 to 2012. During this review a division in the literature has been noted with earlier studies from around 2006 to 2007 seeming to show relatively low levels of the above variables (J.D. Power & Associates, 2006, Chain Store Publishing Corporation, 2007, McKinsey & Company, 2007). However, later studies from 2009 to 2012 seem to show higher incidence of green attitudes, awareness, knowledge, trust and overall environmental behaviour (Yates, 2009, Gesellschaft für Konsumforschung & Roper Consulting, 2011, DuPont, 2012). In this regard the studies from 2009 to 2012 thus seem to support some authors' views, including Neff (2009), Durif, Roy, and Boivin (2012), Ottman, (2011) and many more, who believe that the green economy is robust, growing, has great potential and is in fact poised to explode. These views are supported by the marked increases demonstrated in the literature in the levels of green product attitudes, awareness, knowledge, trust and general environmental behaviours during this time period.

### **2.10 A hypothesised model of green product purchase behaviour in the FMCG sector**

This sub-section proposes a hypothesised model of green product purchase behaviour for the South African FMCG sector based upon the reviewed literature and the hypothesis that have been formulated in this regard.

During the literature review on green product purchasing behaviour and its antecedents' green consumer profiles, green product awareness, green product knowledge and green product trust in the FMCG sector the following hypotheses were formulated:

- H<sub>1</sub>. Green consumer profiles is significantly related to green product purchase behaviours.
- H<sub>2</sub>. Green product trust is significantly related to green product purchase behaviours.
- H<sub>3</sub>. Green product knowledge is significantly related to green product purchase behaviours.
- H<sub>4</sub>. Green product awareness is significantly related to green product purchase behaviours.

As a result of these formulated hypothesis the following hypothesised model for green product purchase behaviour encompassing green consumer profiles, green product awareness, green product knowledge and green product trust as separate variables as per Figure 2.17 has been developed:

Hypothesised green product purchase behaviour model in the FMCG sector.

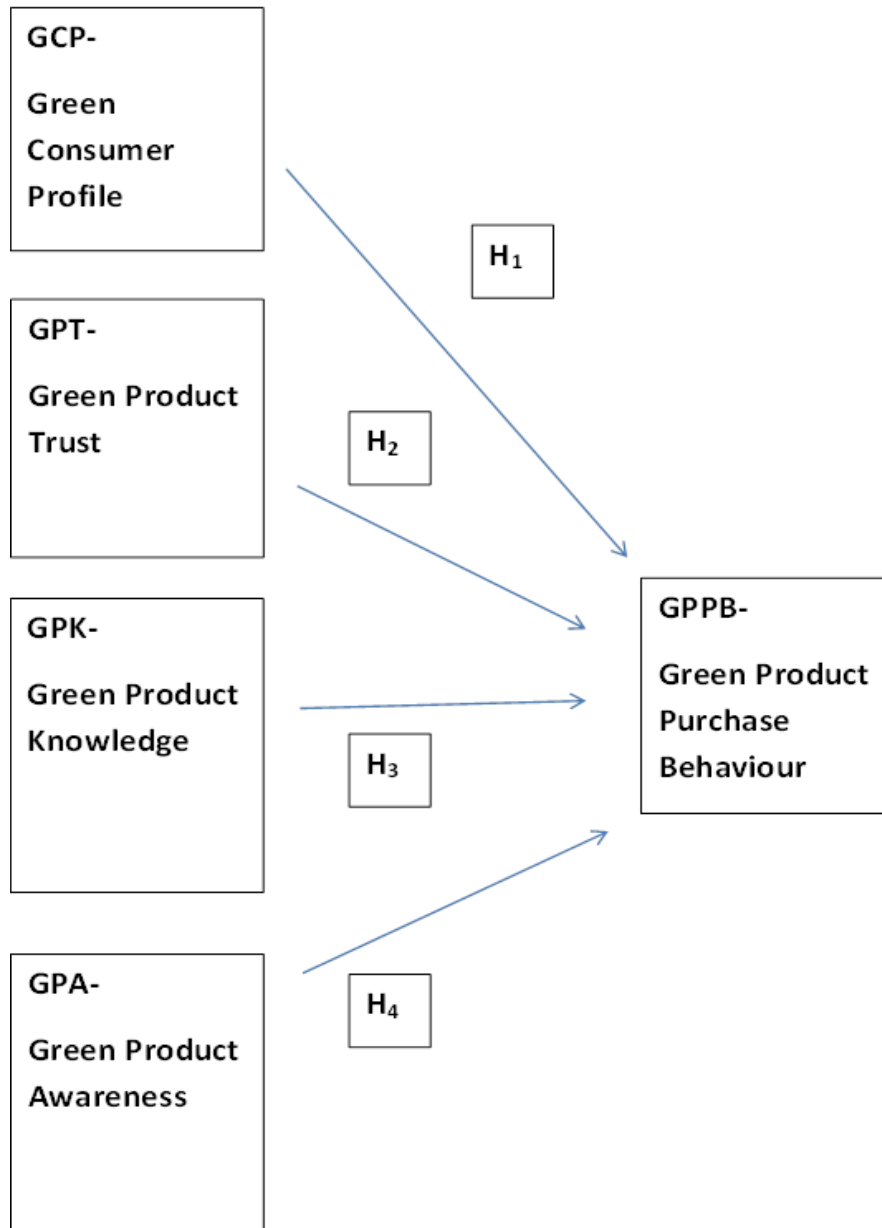


Figure 2.17: Hypothesised green product purchasing behaviour model in the FMCG sector.

H<sub>1</sub> - GCP is significantly related to GPPB

H<sub>2</sub> - GPT is significantly related to GPPB

H<sub>3</sub> - GPK is significantly related to GPPB

H<sub>4</sub> - GPA is significantly related to GPPB

## 2.11 Chapter summary

Through a review of the literature, this chapter addressed the RQ<sub>1</sub> and RQ<sub>2</sub> namely, *“What is the significance of the relationships between green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour in the FMCG sector?”* and *“What variables are to be included in the hypothesised model of green product purchase behaviour in the FMCG sector?”*. In so doing the RO<sub>1</sub> and RO<sub>2</sub> namely, “Conduct a literature review in order to identify and establish the related variables with green product purchasing behaviour with specific reference to green consumer profiles, green product awareness, green product trust and green product knowledge” and “Develop a hypothesised model for green product purchasing behaviour in the FMCG sector” were achieved.

These outcomes were achieved by addressing specified topics within sub-sections outlined within the chapter. Sub-section 2.1 discussed what had been achieved in Chapter 1 and set the objectives for Chapter 2. Sub-section 2.2 discussed green product purchase behaviour and highlighted the green economic context within which green product purchase behaviour currently finds itself. The literature revealed that green product purchase behaviour is a complex variable being both positively and negatively impacted by many variables. It was established that green product purchase behaviour is directly predicted by consumer profile being both demographic and psychographic characteristics, environmental attitudes and awareness, green product awareness, green product knowledge and green product trust. Furthermore, the literature indicated that the strength of the relationships between green product purchase behaviour and environmental attitudes and awareness, green product awareness, green product knowledge and green product trust are further indirectly mediated by demographic, psychographic, social, political and economic variables.

Sub-section 2.3 discussed the profiles of the green consumer with reference to the demographic and psychographic characteristics. The description of the green consumer was further provided. It was established demographically that green product purchase behaviours are predicted by socially active, younger to middle-aged, highly educated, White professional females who earn above average



incomes. The green consumer was described psychographically as individual who care about their position within society, who are environmentally concerned, aware and knowledgeable, are personally connected to and take personal responsibility for environmental solutions. Furthermore, the green consumer believes they can make a contribution to solving environmental issues and will consider environmental issues when making purchasing decisions. Green consumers are knowledgeable of, deliberately seek out and are prepared to pay a premium for environmentally friendly products while incorporating green living into their daily lives. This psychographic profile was said to be generally supported by an altruistic value system expressing itself in the green consumer being neither self-absorbed nor self-centred. As a result of the above literature on green consumer profiles the first hypothesis was formulated as it is believed that the green consumer profile is significantly related to green product purchase behaviours.

Sub-section 2.4 discussed green product trust with reference to its conceptualisation, its economic context and causal influences. This sub-section further established green product trust as a critical variable in the context of the green economy. The literature revealed positive correlations between green product trust and green product purchase behaviour through its positive influence on levels of involvement in green behaviours and green products, levels of brand equity, loyalty and image, perceptions of product value, perception of deliverability of product attributes, perceptions of informational value, perceptions of green marketing believability and perceptions of company expertise, competence, honesty and credibility. As a result of the above literature on green product trust the second hypothesis was formulated in that it is believed that green product trust is significantly related to green product purchase behaviour.

Sub-section 2.5 discussed green product knowledge by conceptualising both environmental knowledge and green product knowledge. Furthermore, their influence on green product purchase behaviour was determined. The literature revealed that both variables are positively correlated to green product purchase behaviour but are mediated by both demographic and psychographic variables. Specifically, green product knowledge was positively correlated to green product purchase behaviours through its positive influences on consumer motivations to

purchase green products, perceptions of product knowledge, quality, value and effectiveness, product familiarity, product expertise, product trust, consumer confidence and the consumer's ability to gauge product price as reliable indicator of value. It was further established that the influence of green product knowledge on green product purchase behaviours is mediated by the level of the understanding and importance of product information, the product attributes being evaluated, the amount of product knowledge needed in the evaluation process, consumer scepticism, levels of environmental concern, perceptions of environmental responsibility and perceptions of control over environmental issues. As a result of the above literature on green product knowledge the third hypothesis was formulated in that it is believed that green product knowledge is significantly related to green product purchase behaviour.

Sub-section 2.6 reviewed the green product awareness with reference to conceptualising both environmental awareness and green product awareness. Furthermore, their influence on green product purchase behaviour was determined. The literature revealed that both variables are positively correlated to green product purchase behaviour. Specifically, green product awareness is positively correlated to green product purchase behaviours through its influence on general levels of pro-environmental behaviour, willingness to incorporate green products into choice sets and a willingness to pay a premium for green products. It was further established that this relationship is mediated by environmental attitude and specifically environmental concern.

Perceptions were also shown to have a mediating effect thereon. Specifically, the perceived seriousness of environmental problems, perceived environmental responsibility and the perceived effectiveness of environmental behaviour was seen to be prominent in this regard. A host of other variables displaying a mediating effect on the ability of green product awareness to predict green product purchasing behaviour were also noted. These included levels of involvement in the green economy, concern for self-image in environmental protection, demographic variables, psychographic variables, social variables, economic variables and the availability of and access to green product and green market information. As a result of the above literature on green product awareness the fourth hypothesis was

formulated in that it is believed that green product awareness is significantly related to green product purchase behaviour.

Sub-section 2.7 discussed the attitude behaviour-gap by formulating and explaining the concept. The literature provided statistical evidence of the gap. Thereafter, ways of narrowing the gap were presented. The literature revealed that not all commentators are in agreement as the extent or even the existence of this phenomenon. In instances where writers agree on the gap they often disagree on the reasons therefore. The literature revealed that the gap is caused due to weak correlations between attitudes and behaviours together with unrealistic expectations of the growth in the green economy. Providing greater access to and availability of green product information and product alternatives were considered to be methods of narrowing this gap.

Sub-section 2.8 discussed the concept of greenwashing with reference to its conceptualisation, drivers and casual influences. The sub-section further noted why it is important for the green economy to take this phenomenon seriously and possible solutions to overcome this phenomenon where presented. The literature revealed that greenwashing is positively correlated to levels of distrust within the green economy. It was further found that greenwashing negatively impacts green product purchasing behaviour through its negative impact on green product trust. The literature further revealed that tougher regulations on product labelling and product certifications would help to reduce the negative consequences of false and misleading claims on green purchasing behaviour.

Sub-section 2.9 discussed the statistical incidence of green consumer attitudes, green product awareness, green product knowledge, green product trust and green behaviours. This incidence was gleaned from reports that measured these variables from 2006 through to 2012. The literature revealed that earlier studies, from 2006 to 2008, showed relatively low levels of the above variables. Later studies, from 2009 to 2012, however showed higher incidences of green attitudes, awareness, knowledge, trust and overall environmental behaviour. The literature was consistent in the finding that the statistical incidence of the above variables varied across nations, regions and cultures with the more economically developed western cultures

displaying higher levels of green product awareness, knowledge, trust and behaviours than those of less developed countries, regions and cultures.

Sub-section 2.10 proposed a hypothesised model of green product purchase behaviour for the South African FMCG sector based upon the reviewed literature. The model identified and hypothesised that the dependant variable, green product purchase behaviour, will be related to the independent variables green consumer profiles, green product trust, green product knowledge and green product awareness. It was shown that this model resulted from the hypothesis that were formulated during the literature review namely: H1. Green consumer profiles is significantly related to green product purchase behaviours, H2. Green product trust is significantly related to green product purchase behaviours, H3. Green product knowledge is significantly related to green product purchase behaviours and H4. Green product awareness is significantly related to green product purchase behaviours.

Chapter 3 will address RQ<sub>3</sub> namely, *“How can a detailed description of the research methodology be provided in order to understand and reproduce this research study in future?”* Chapter 3 will address these research questions through achieving research objectives RO<sub>3</sub>, “Identify and explain the research methodology used for this treatise enabling reproduction for the future” This will be done by firstly and in general explaining the concept of research, research methodology, research paradigms, sample design and measuring instruments will be discussed. Secondly, the chapter will set out the chosen research methodology and paradigm to address the main primary and secondary research questions. Furthermore, the specific sampling design and measuring instruments used will be discussed.

## CHAPTER 3 RESEARCH METHODOLOGY

### 3.1 Introduction

In Chapter 2, a literature review on green product purchase behaviour, green consumer profiles, green product awareness, green product knowledge, green product trust, greenwashing and the attitude-behaviour gap was conducted. As a result RQ<sub>1</sub> and RQ<sub>2</sub> namely, *“What is the significance of the relationships between green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour in the FMCG sector?”* and *“What variables are to be included in the hypothesised model of green product purchase behaviour in the FMCG sector?”* respectively, were addressed. Furthermore, the RO<sub>1</sub> and RO<sub>2</sub> namely, *“Conduct a literature review in order to identify and establish the related variables with green product purchasing behaviour with specific reference to green consumer profiles, green product awareness, green product trust and green product knowledge”* and *“Develop a hypothesised model for green product purchasing behaviour in the FMCG sector”* respectively were achieved.

This chapter will address RQ<sub>3</sub> namely, *“How can a detailed description of the research methodology be provided in order to understand and reproduce this treatise in future?”*. This research question will be addressed by satisfying RO<sub>3</sub> namely to, *“Identify and explain the research methodology used for this treatise enabling reproduction for the future”*.

In delivering the above outcomes each sub-section will cover the following topics:

Sub-section 3.1 provides a brief review of what was covered in chapter two and introduces the research questions and objectives that will be addressed in Chapter 3. A brief chapter layout and topics to be covered within each proceeding sub-sections will be provided. Sub-section 3.2 provides a definition of research. Thereafter, the context of the research problem is briefly explained setting the basis for this treatise. Sub-section 3.3 provides an explanation of the types of research with specific reference to concepts such as research methodology and research paradigms. Thereafter, specific classifications of the types of research follows

referring to and explaining concepts such as quantitative and qualitative research, inductive and deductive research, exploratory, descriptive and explanatory research, basic and applied research, cross-sectional and longitudinal research and mixed method, multi-method or mono-method research. Sub-section 3.4 proceeds with an explanation of the specific research philosophy, approach, strategy, choices, time horizons and reasoning to apply in this study. Sub-section 3.5 provides an explanation of specific research procedures and techniques relating to sample design with reference to the process of sampling, the concept of a sample frame and the types of available sampling methods. Thereafter, the specific sampling design chosen for this study is established and explained.

Sub-section 3.6 provides an explanation of further research procedures and techniques relating to data collection with reference first to its conceptualisation. It thereafter follows with an explanation of the data collection methods applied and specific measuring instrument used in this study. Sub-section 3.7 continues to explore research procedures and techniques specifically referring to data analysis. In so doing the concept of data analysis is explained followed by an explanation of what data analysis techniques were carried out on the research data obtained in this study. Thereafter, the concepts of validity, reliability and generalisability are explored. Sub-section 3.8 provides a short explanation of the general ethics requirements for research and thereafter explains the manner in which these requirements were satisfied in this study. Sub-section 3.9 provides a summary of the chapter highlighting the most important deductions that can be drawn therefrom.

Figure 3.1 depicts the research questions and research objectives that will be addressed and achieved in Chapter 3.

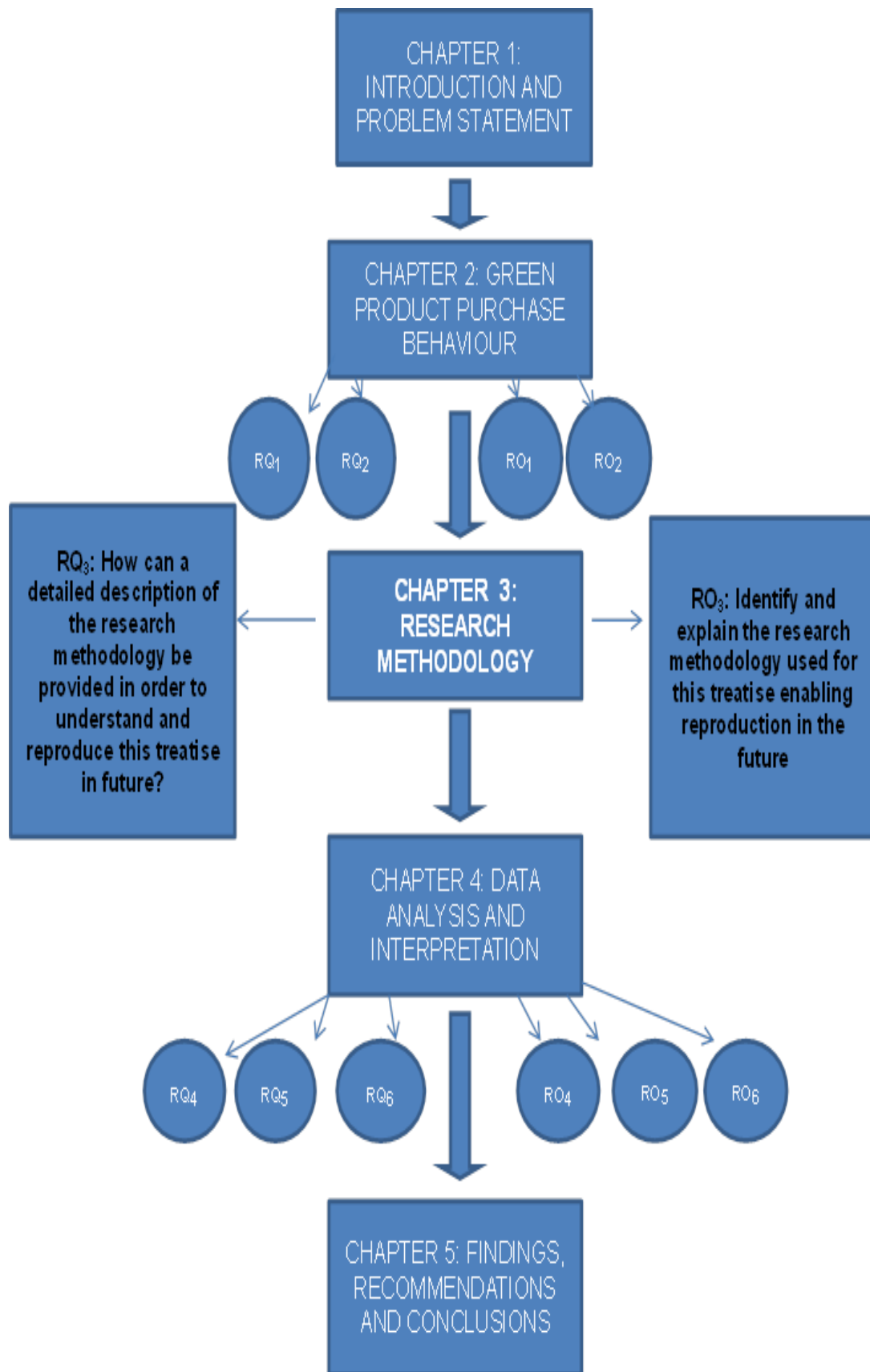
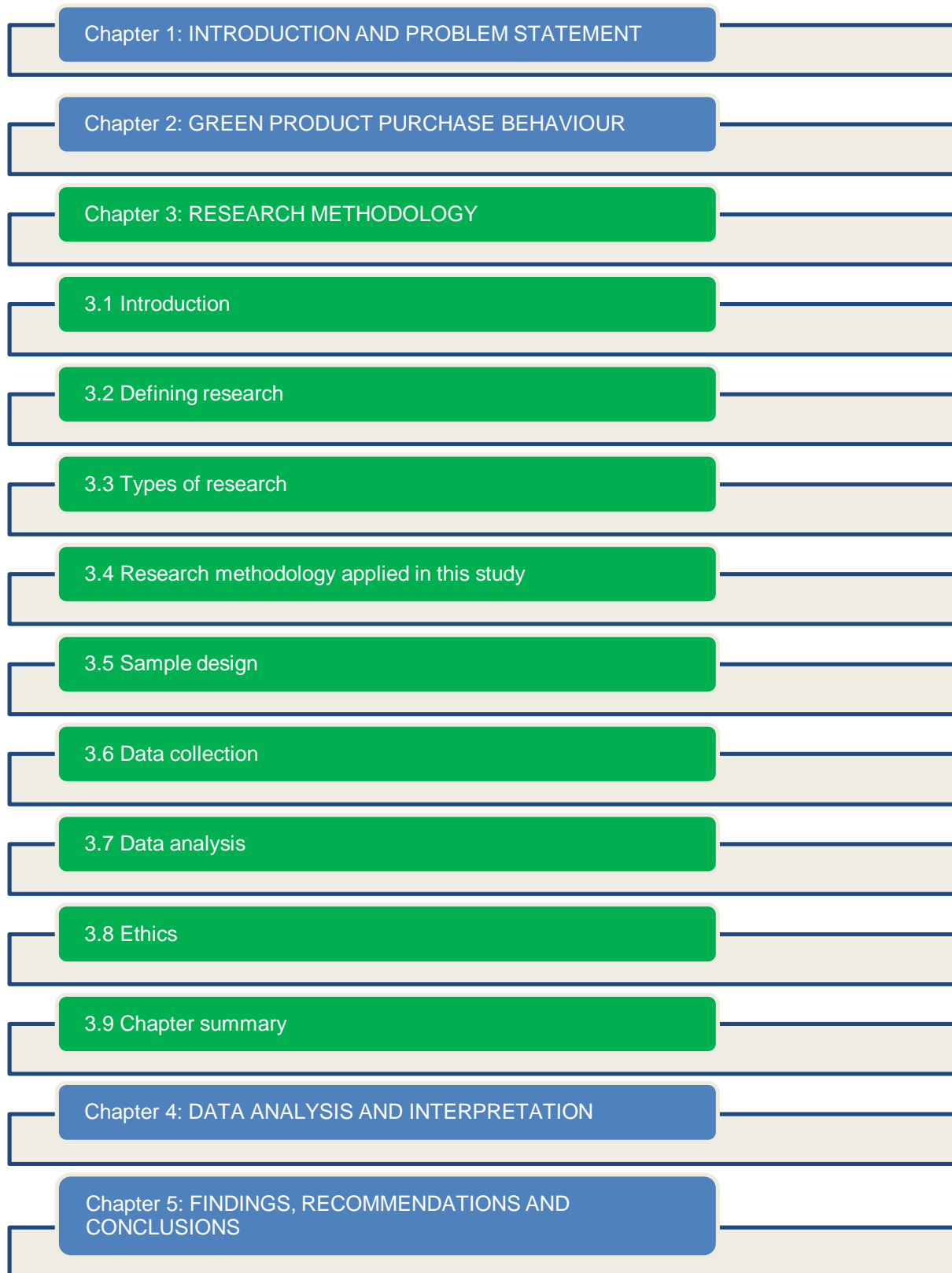


Figure 3.1: Chapter RQ's and RO's.

An overview of the chapter is presented in Figure 3.2.



**Figure 3.2: Overview of Chapter 3.**



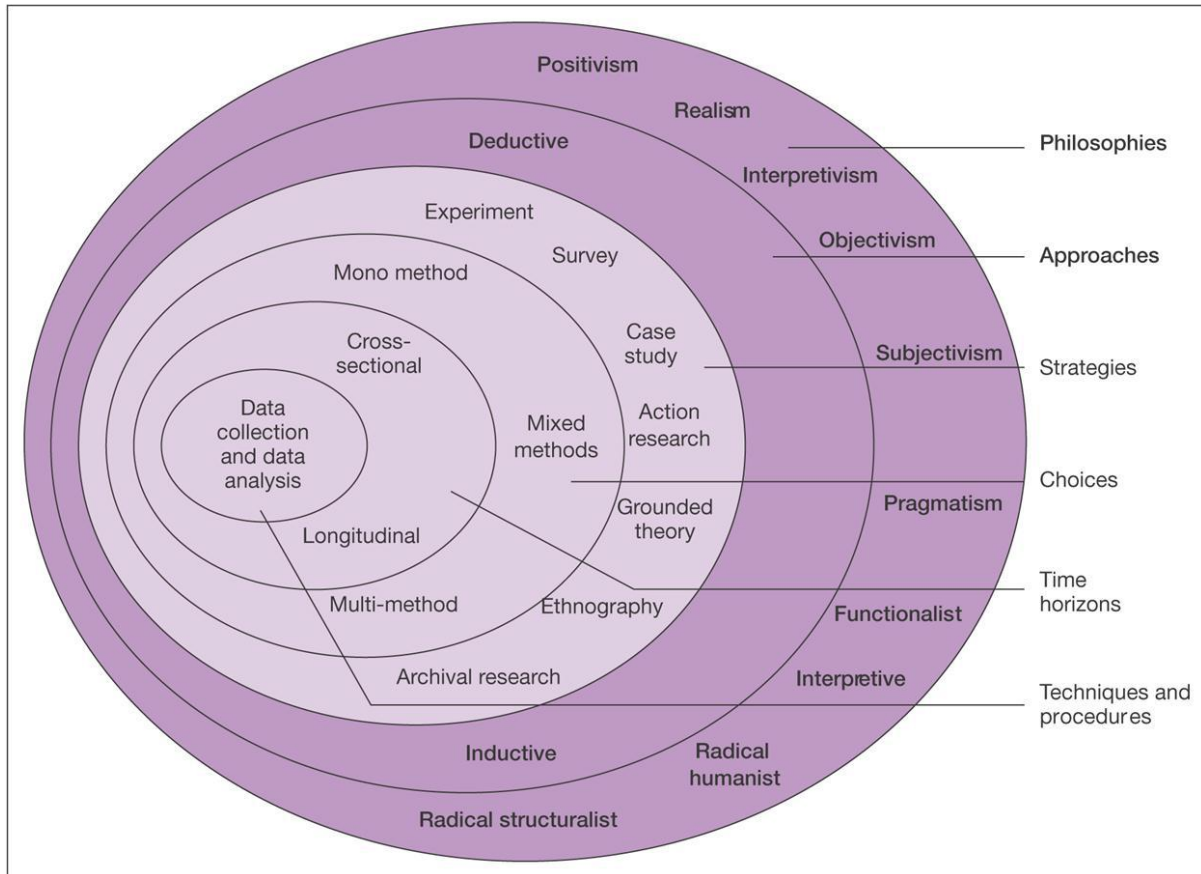
## 3.2 Defining research

This sub-section provides a definition of research. Thereafter, the context of the research problem is briefly explained setting the purpose for this treatise.

### 3.2.1 *The concept of research*

Sound business research is a vital requirement for any business or industry providing reliable and valid knowledge generation through systematic, methodical and rigorous processes (Cooper & Schindler, 2014). The process of business research involves identifying a research problem and investigating this problem through the gathering and analysing of data (Jackson, 2011). In order to address research design questions in a treatise, researchers make many critical decisions in justifying a chosen research methodology (Collis & Hussey, 2014). For scientific research to be conducted with the required rigour it must aim to address questions or solve problems, be goal directed, follow a predetermined plan, formulate hypotheses and collect, analyse and interpret data in a manner that promotes validity and reliability (Jackson, 2011).

Saunders, Lewis and Thornhill (2007) use an onion metaphor, commonly referred to as the research onion, depicting selections consisting of progressive layers that the researcher must make during the research process (Saunders, et al., 2007). The first layer of the research process begins by the researcher choosing a research philosophy which forms the outer most layer of the depicted research onion (Saunders, et al., 2007). Thereafter, moving inwardly and making up the second, third, fourth, fifth and sixth layer of the research onion the researcher must make selections relating to the research approach, the research strategy, the research choices, the time horizons and techniques and procedures to be adhered to within the study (Saunders, et al., 2007). The research onion is illustrated in Figure 3.3 below.



**Figure 3.3: Research Onion by Saunders et.al. (2007).**

### 3.2.2 Research in the context of this study

In spite of the well reported consumer concern for the environment and at times increased incidence of pro-environmental behaviours the current literature still reports an attitude-behaviour gap between a consumer's pro-environmental attitudes and purchasing behaviours (Albayrak, Aksoy, Caber, 2013; Rex & Baumann, 2006). This problem is exacerbated by the fact that knowledge of variables such as consumer profiles, consumer awareness, knowledge and trust and their influence on green product purchasing behaviour remains incomplete (Padel & Foster, 2005). This research aims to determine the roles played by these variables with specific reference to the FMCG sector in South Africa.

### 3.3 Types of research

This sub-section provides an explanation of the types of research with specific reference to concepts such as research methodology and research paradigms while further elaborating on the concept of the research onion. Specific classifications of the types of research follows referring to and explaining concepts such as quantitative and qualitative research, inductive and deductive research, exploratory, descriptive and explanatory research, basic and applied research, cross-sectional and longitudinal research and mixed method, multi-method or mono-method research. The sub-section ends with an explanation of the specific research philosophy, approach, strategy, choices, time-horizons and reasoning to apply in this study.

#### 3.3.1 *Research methodology*

Research methodology is a field of study that focuses on the analysis of the methods applied to research (Kumar, 2011). Before choosing the appropriate methodology the researcher must choose the appropriate research paradigm that will underpin the phenomenological assumptions of the study (Cooper & Schindler, 2006).

#### 3.3.2 *Research paradigms*

A research paradigm, a philosophical framework considered to be a way of thinking and of accepting reality, underpins and prescribes the methods that are used in conducting research (Wahyuni, 2012). According Saunders, et al. (2007) choosing this philosophical framework is the initial step in the research process which comprises the first and most outer most layer of the research onion.

Although there are more than two paradigms from which a researcher can select, the two predominant paradigms, forming two opposite ends of a continuum, are Positivism and Interpretivism (Mitchell & Jolley, 2010). The positivistic paradigm, used mostly in the natural and social sciences, aims to create scientifically verifiable knowledge through observation and experimentation, accepts that reality exists outside of the individual, uses theories to provide the basis for explanations, establishes relationships between variables and generally uses quantitative methods in data analysis assuming that social constructs and their variables can be measured

statistically and numerically (Krauss, 2005). The Interpretavistic paradigm, on the other hand, explores the complexity of social constructs to increase meaning, contains data that are generally not easily reduced to numbers and being more subjective, it uses qualitative methods of data analysis such as opinions, views and experiences (Goldkuhl, 2012).

### *3.3.3 Classification of the types of research*

As a result of the above literature it becomes clear that research can be classified according to its purposes, methods, logic and outcomes (Sekaran & Bougie, 2009). In this regard, research can be classified as qualitative or quantitative, deductive or inductive, descriptive, exploratory or explanatory, basic or applied, cross-sectional or longitudinal and mixed, multi or mono-method research (Sekaran & Bougie, 2009).

The above selections will be influenced by the researchers chosen research approach which selection when referring to the onion metaphor advanced by Saunders, et al. (2007) comprises its second layer. A research approach refers to the chosen research principles that will achieve the purpose and objectives of the research (Saunders, et al., 2007). According to the research approach to be selected research can also be classified according to the type of reasoning that will be applied by the researcher being either a deductive or an inductive approach thereto (Collis & Hussey, 2009). The deductive approach to research involves the researcher beginning with the formulation of a hypothesis and testing its validity through data collection and analysis techniques chosen specifically for the study in question (Trochim, 2006). The inductive approach to research on the other hand begins with the results of data analysis and thereafter attempts to explain the findings through postulating theories and explanations (Trochim, 2006).

The third layer of the research onion depicted by Saunders, et al. (2007) inherently will comprise choices relating to amongst other things between exploratory, descriptive and explanatory research and basic and applied research. Exploratory research, using techniques such as case studies and observations, aims to provide knowledge of areas that have not been thoroughly researched (Sreejesh, Mohapatra & Anusree, 2014). Descriptive research, using techniques such as statistical and numerical analysis, aims to describe existing phenomena through describing and

measuring the causal relations within its variables (Sreejesh, Mohapatra & Anusree, 2014). Explanatory research aims to provide explanations as to why certain variables cause moderations or mediations in other interrelated variables (Sreejesh, Mohapatra & Anusree, 2014). Basic research aims to increase knowledge of the social world through the testing of beliefs of how the world functions. Applied research aims primarily to practically contribute towards problem solving in specific fields of study (Roll-Hansen, 2009).

According Saunders, et al. (2007) the researcher must further select either a multi-method, mixed or a mono-method research approach which choice will comprise the fourth layer of the research onion. The multi-method research approach includes the use of more than one method of data collection or research in a research study (Tashakkori & Teddlie, 2003). A mixed method research approach involves the researcher mixing qualitative and quantitative data, data collection methods and methodologies in a single research study (Johnson & Onwuegbuzie, 2004). A mono-method research approach occurs where the researcher pursues only a single research interest by selecting only a single type of data, data collection method and methodology in a research study for example by selecting only a quantitative data obtained from only survey questionnaire (Tashakkori & Teddlie, 2003). Making up the fifth layer of the research onion, research can be further classified with reference to a time dimension as either cross-Sub-sectional or Longitudinal (Kumar, 2011; Saunders, et al., 2007). Cross-sectional research is conducted on a specific phenomenon at a specific point in time whereas longitudinal research aims to do so over an extended period of time in order to observe any changes in the phenomenon as they may occur (Cooper & Schindler, 2014).

Quantitative research aims address questions about relationships between variables that are measured numerically with the purpose of explaining and predicting phenomena (Collis & Hussey, 2009). This type of research thus attempts to establish statistical relationships between variables by determining the amount of variation contained in the quantitative data gathered and measured on quantitative variables (Mitchell & Jolley, 2010). The variables that are identified and studied are classified as either dependent, as the statistical values connected therewith are influenced by the independent variables or independent as the statistical values connected

therewith are influenced independently of the characteristics of the dependant variable (Collis & Hussey, 2009; Salkind, 2000).

Correlation analysis is one of the statistical methods commonly used by researchers to analyse the relationship between these two classes of variables. A correlation exists if, when one variable increases, another variable either increases (positive correlation) or decreases (negative correlation) in a fairly predictable fashion (Collis & Hussey, 2009). The strength of such correlations is expressed statistically by what is termed the correlation coefficient (Salkind, 2000). This correlation coefficient ( $r$ ) can be any value from -1 (a perfect negative correlation) to +1 (a perfect positive correlation). The various strengths of correlation are described in Table 3.1:

Correlation Coefficient	Interpretation
<b>+1.00</b>	Perfect positive linear association
<b>+0.90 to +0.99</b>	Very high positive correlation;
<b>+0.70 to +0.89</b>	High positive correlation;
<b>+0.40 to +0.69</b>	Medium positive correlation;
<b>+0.01 to +0.39</b>	Low positive correlation;
<b>0</b>	No linear association
<b>-0.01 to -0.39</b>	Low negative correlation
<b>-0.40 to -0.69</b>	Medium negative correlation;
<b>-0.70 to -0.89</b>	High negative correlation;
<b>-0.90 to -0.99</b>	Very high negative correlation; and
<b>-1.00</b>	Perfect negative linear association

**Table 3.1: Strengths of Correlation, Collis and Hussey (2009).**

Research on the other hand can also qualify as qualitative aiming to interpret and understand social phenomenon primarily from the standpoint of those participating in the study and the researcher who interprets the research outcomes (Creswell, 2003).

### **3.4 Research methodology applied in this study**

This sub-section discusses the research methodology to be applied in this study along with providing the rationale for the specific choices made in this regard. Guided by the nature of the research aims and objectives a research design that is positivistic, quantitative, and deductive has been selected for the purposes of the current study. Furthermore, a mono-method research approach which is cross-sectional has been chosen. This selection is justified as it is accepted that the incidence of green consumption patterns and its variables, mediators, moderators and predictors form part of objective reality capable of quantitative analysis through statistical and other numerical measures. The treatise is further considered to be descriptive as it aims to describe the relationships between green consumer profiles, green product awareness, knowledge and trust and green product purchase behaviours in the FMCG sector. The study also aims to describe the positive or negative influences that these variables may have on the attitude behaviour gap that exists between pro-environmental attitudes and intentions to purchase environmentally friendly products.

In order to achieve these ends, a sample from the population of consumers in the FMCG sector in South Africa was chosen. Quantitative data on the incidence on green purchasing behaviours, green consumer profiles, green product attitudes, awareness, knowledge and trust were collected by administering survey questionnaires and identifying statistically significant relationships. These relationships were further analysed for significant mediators, moderators and predictors without observing changes in these relationships over time. Specifically, the study tested the relationships of green product awareness, knowledge and trust to green purchase intentions and environmental behaviours. The strength of these relationships was measured with a further view to providing knowledge, insights and understanding of the attitude behaviour gap.

### **3.5 Sample design**

This sub-section provides an explanation of sample design with reference to the process of sampling, the concept of a sample frame and the types of available sampling methods. Thereafter, the specific sampling design chosen for this study is

established and explained thereby addressing research design question two. According to Saunders, et al. (2007) choices by the researcher relating to the sample design for the research comprise the sixth layer of the research onion referred to as techniques and procedures (Saunders et al., 2007).

### *3.5.1 What is sampling?*

Sampling is the process of selecting and studying parts of a group, the sample, with the aim of generalising the findings back to the entire group, the population, from which it was chosen (Banning, Camstra & Kottnerus, 2012). Sampling, a deliberately strategic undertaking, uses the most practical methods to gather relevant data from within a sampling frame, being the designated area from which the data will be collected (Maree, 2012).

### *3.5.2 The types of sampling methods*

Sampling methods can be classified under two main categories such as random also known as probability or non-random also known as non-probability sampling (Mitchell & Jolley, 2010). Random sampling includes techniques such as simple random sampling, systematic random sampling, convenience sampling, stratified random sampling, cluster sampling, random walk sampling, staged sampling and snowball sampling (Goddard & Melville, 2001). Simple random sampling occurs where a group of people are selected at random from a complete list of a given population whereas systematic random sampling takes place where a group of people are selected in a systematically random manner from a complete list of a given population (Westfall, 2009).

Convenience sampling takes place where subjects are selected because of their convenient accessibility and proximity to the researcher (Kumar, 2011). Stratified random sampling, occurs where samples are drawn from populations that are divided into subgroups depending on particular characteristics (Lohr, 2010). Cluster sampling, where clusters are randomly selected and all individuals in particular clusters are selected is differentiated from random walk sampling. In this case an interviewer selects sample respondents whilst following a random route (Banning, Camstra & Kottnerus, 2012). Staged sampling occurs where samples are selected



within samples (Lohr, 2010). Snowball sampling occurs where existing sample members recruit future members from among their acquaintances (Kumar, 2011).

Non-random sampling occurs where not all participants have the same likelihood of being selected for the sample (Banning, Camstra & Knottnerus, 2012). Non-random sampling includes quota sampling, where quotas for certain types of people are selected for the sample, purposive sampling, where respondents within predetermined quotas are selected to represent diversity, chain sampling, where a first contact is selected and sampled and then asked to suggest other candidates for the same sample, genealogy sampling, where entire families and their relatives may be selected and matched sampling, where similar pairs of types of respondents are selected for comparison (Cooper & Schindler, 2014).

### *3.5.3 The sampling methods and sampling frame chosen for this study*

The sampling method employed in this treatise incorporated non-probability sampling in the form of convenience and snowball sampling as the respondents were chosen due to their accessibility and proximity to the researcher and assisted in gathering new sample members from their own network of acquaintances. All respondents furthermore had an equal opportunity of being selected for the study. The sampling frame included all FMCG consumers within the national centres of South Africa including Cape Town, East London, George, Johannesburg and Port Elizabeth. A representative sample of 597 respondents from this population was chosen.

## **3.6 Data collection**

This sub-section provides an explanation of data collection with reference to its conceptualisation and available methods. The specific data collection methods and measuring instrument used in this study are then discussed. According to Saunders, et al. (2007) choices by the researcher relating to the data collection methods employed for the research also comprise the sixth layer of the research onion referred to as techniques and procedures.

### 3.6.1 *The concept of data collection*

Researchers face a choice from where to source data in a study. From these sources there are both primary data and secondary data (Wegner, 2011; Hox & Boeije, 2005). Primary data, referring to original data collected by the researcher for the study in question, can be collected by techniques such as survey questionnaires, interviews, observations, action research, case studies, ethnographic research and longitudinal studies, whilst secondary data, referring to data that existed prior to the study, can be obtained from resources such as previous research, official statistics and historical data (Malhotra & Birks, 2006). The specific choice of which above listed techniques to employ to gather the data comprise the third layer of the research onion referred to as research strategies (Saunders, et al., 2007).

The researcher's chosen approach in addressing the research questions will generally determine the data collection techniques that will be used to gather the necessary data (Goddard & Melville, 2001). The techniques resolved upon must however be appropriate to the research having due regard also to practical considerations such as data quality, costs, responses, errors and collection parameters (Hox & Boeije, 2005).

### 3.6.2 *Gathering data by means of a questionnaire*

General rules of practise have been established to ensure and preserve the integrity of the data collected when the data has been collected by means of a questionnaire (Malhotra & Birks, 2006). A questionnaire in this context generally refers to designed questions used to gather information from a sample of a general population (Collis & Hussey, 2014). In order to satisfy the rigor required of proper research questionnaires used to gather data they must be properly structured, provide clear guidelines on how it is to be completed, contain closed, objective, relevant, clear and concise questions and must be of a measured length (Kelly, Clark, Brown and Sitzia, 2003).

### *3.6.3 Data collection and measuring instrument used in this study*

#### *3.6.3.1 Data collection*

The data collected in this study were primary data as they did not exist prior to this research being conducted. The sampling method employed in this study incorporated non-probability sampling in the form of convenience and snowball sampling. The primary data were collected from the sample by means of a survey questionnaire (Appendix A) distributed to the respondents through students at the NMMU Business School contact sessions. The survey questionnaires were distributed by the researcher manually to every first year MBA student in Cape Town, East London, George, Johannesburg and Port Elizabeth. Each student thereafter was responsible for manually distributing, administering and submitting 40 completed questionnaires from consumers in the FMCG sector over the age of 18 within the area in which they were located. Each student was individually responsible to manually collect a hardcopy of the completed survey questionnaire from the respondent in that area. Thereafter, the student submitted the completed survey questionnaire at the following designated business school contact sessions within that specific region being, Cape Town, East London, George, Johannesburg or Port Elizabeth. The NMMU business school liaison officer at that contact session collected all the completed questionnaires from that region and delivered them to the researcher in Port Elizabeth upon return.

#### *3.6.3.2 Measuring instrument*

Primary research on green consumer profiles, green product awareness, green product knowledge, green product trust and green product purchase behaviour was collected by way of a questionnaire. The questionnaire was divided into five Sub-sections consisting of 46 questions in total.

Section 1, of the questionnaire (Appendix A) captured biographical details of the respondents. Section 1 further measured the independent variable green consumer profiles. This independent variable was measured both biographically with information collected from Section 1 and psychographically by variables comprising questions Q2, Q3, Q4, Q5, Q38, Q39, Q40, Q4, Q42, Q43 and Q52 of the questionnaire. For the purposes of this profile, this study followed certain American

and European streams of literature referring to persons who demographically are socially active, younger to middle-aged, highly educated, European professional females who earn above average incomes (Fisher, Bashyal & Bachman, 2012; Ottman, 2011). Psychographically, following similar streams of the literature, referring to persons who care about their position within society, who are environmentally concerned, aware and knowledgeable, are personally connected to and who take personal responsibility for environmental solutions (Goyal, 2014; Baqer, 2012).

Furthermore, the green consumer believes they can make a contribution to solving environmental issues and will consider environmental issues when making purchasing decisions (Chitra, 2007). Green consumers are knowledgeable of, deliberately seek out and are prepared to pay a premium for environmentally friendly products while incorporating green living into their daily lives (Gesellschaft für Konsumforschung & Roper Consulting, 2012; Natural Marketing Institute, 2009; Chitra, 2007).

Section 2 of the questionnaire (Appendix A), covering questions 1 to 7, concerns the independent variable green product awareness. In this study green product awareness refers to a consumer's awareness of a product for the purposes of including it within his choice set in the buying decision process (Purohit, 2010). Green product awareness was measured with 7 questions. Questions 1 through to 5 being anchored with a 5-point Likert scale (1 = Strongly Disagree and 5 = Strongly Agree). Question 6 was anchored with an ordinal scale from 1 being most important and 6 being least important. Question 7 was anchored by a nominal scale where the respondents had to indicate full agreement, partial agreement or disagreement with the given statement.

Section 3 of the questionnaire (Appendix A), covering questions 8 through to 13, concerned the independent variable green product trust. Green product trust for the purposes of this study refers to the willingness of the consumer to believe the green and sustainability credentials of products and companies (Chen & Chang, 2012). Green product trust was measured with questions 8 through to 13 being anchored with a 5-point Likert scale (1 = Strongly Disagree and 5 = Strongly Agree). Question

Section 4 of the questionnaire (Appendix A), covering questions 14 through to 37, covered the independent variable green product knowledge. In this study green, product knowledge refers to two facets being product familiarity and expertise regarding products regarded as pro-environmental (Rao & Monroe, 1998). Green product knowledge was anchored by a nominal scale 1 representing an agreement to statement posed and 2 representing disagreement thereto whilst 3 indicates that the respondents is not sure of the answer to the statement posed.

Section 5 of the questionnaire (Appendix A), covering questions 38 to 46, concerned the dependant variable green product purchasing behaviour. For the purposes of this study green product purchase behaviour refers to the conversion of a consumer's green purchase intentions into the acquisition of green goods or services (Ali & Adil, 2014). Green product purchase behaviour was measured by with questions 38 to 43 being anchored with a 5-point Likert scale (1 = Strongly Disagree and 5 = Strongly Agree). Question 44 was anchored by a nominal scale from 1 to 2, 1 indicating an agreement to statement posed and 2 representing disagreement thereto Furthermore, question 45 is anchored by an ordinal scale ranking alternatives from 1, being most important, to 6 being least important.

### **3.7 Data analysis**

This sub-section explores the concept of data analysis, validity, reliability and generalisability. Therein an explanation of what data analysis techniques were carried out in this study as well how validity, reliability and generalisability are catered for appears.

#### *3.7.1 The concept of data analysis*

Data analysis, one of the stages in a treatise, refers to the process of evaluating data using both analytical and logical reasoning (Wegner, 2011). According Saunders, et al. (2007) choices by the researcher relating to the data collection methods employed for the research also comprise the sixth layer of the research onion referred to as techniques and procedures. Successful data analysis is dependent upon the types of data being analysed and proper data preparation processes such as sorting, categorising and cleaning research data (Wegner, 2011). Quantitative

data, referring to nominal, ordinal, interval and ratio scaled data, can be analysed descriptively and inferentially with statistical techniques such as measures of central tendency, measures of variability, correlation analysis, regression analysis and hypothesis testing while qualitative data, referring to categorical non-numerical data not generally capable of extensive statistical analysis, uses alternative analysis tools such as ethnographic analysis, narrative analysis, phenomenological analysis, interpretative analysis and grounded theory analysis (Healey, 2012; Ratcliff, 2002).

### *3.7.2 Data analysis methods used in this study*

As the purpose of this study is predominantly to support or refute the hypotheses proposed herein by using statistical analysis of gathered numeric data it can be accepted that it is an empirical one and quantitative in nature (Maree, 2012). In order to facilitate this purpose, the quantitative data were sorted, categorised and cleaned by a statistician. Quantitative statistical analysis was performed on the data using the STATITICA computer software package. The data were analysed using the following techniques: descriptive statistics such as measures of central tendency being the mean, median and the mode and inferential statistics specifically using the Pearson's Chi-Square analysis.

Depending on the specific variable being analysed and the question being posed tables and figures are used interchangeably to analyse the data descriptively. For ease of reference the tables contain various acronyms which must be given a specific meaning and interpretation. Table 3.2 contain a list of the acronyms used and the meaning that must be adopted with each. The processes and findings of the application of these techniques are discussed further in Chapter 4 covering data analysis.

Acronyms	Interpretation
<b>SD</b>	Strongly Disagree
<b>D</b>	Disagree
<b>N</b>	Neutral
<b>A</b>	Agree
<b>SA</b>	Strongly Agree
<b>EI</b>	Extremely Important
<b>VI</b>	Very important
<b>MI</b>	Moderately Important
<b>SI</b>	Slightly Important
<b>NI</b>	Not Important
<b>EU</b>	Extremely Unimportant

**Table 3.2: Data analysis acronyms and meanings.**

### 3.7.3 *Validity*

Validity is an important consideration as research conclusions, in order to contribute to the existing body of knowledge, must accurately reflect the variables measured in a manner that lends itself to applications outside of the research environment (Maree, 2012). Validity refers to the level or the strength of certainty that can be employed when making deductions, inferences or suggestions as result of the findings in a treatise (McKinnon, 1988). There are different kinds of validity namely conclusion validity, which confirms relationships between variables, internal validity, which confirms the causal directions of relationships amongst variables, construct validity, which confirms that the scales employed actually measured the variables in question and external validity, which confirms the ability to generalise the findings of the study to a population (Onwuegbuzie & McLean, 2003).

### 3.7.4 Reliability

Reliability refers to the level of consistency that can be attached to a measurement instrument in its ability to accurately measure the variables under investigation. It is said to exist when the instrument yields the same or similar results under the same or similar circumstances (Roberts, 2006). Reliability can be measured using two techniques namely by applying measures of internal consistency or repeating an event to determine if the same or similar results are recorded, also known as test and retest reliability (Ihantola & Kihn, 2011).

A popular and well used internal consistency reliability measure in quantitative research involves the use of the statistical technique Cronbach's Alpha, where questions within a questionnaire are tested statistically to determine how reliably they measure predetermined variables (Tavakol & Dennick, 2011). This study, in determining the reliability of the measuring instrument, applied measures of internal consistency reliability through the use of the Cronbach's Alpha. The Cronbach's alpha coefficient is used to measure this internal consistency. A high coefficient value indicates a high internal consistency while a low value indicates the opposite. Researchers have defined the following guidelines presented in Table 3.3:

Reliability Coefficient	Interpretation
<b>Cronbach Alpha <math>\geq 0.90</math></b>	high reliability
<b>Cronbach Alpha <math>\geq 0.80</math></b>	moderate reliability
<b>Cronbach Alpha <math>\geq 0.70</math></b>	low reliability
<b>Cronbach Alpha <math>&lt; 0.70</math></b>	unacceptable reliability

**Table 3.3: Cronbach Alpha Coefficient, Collis and Hussey (2009); Nunnally (1978).**

A Cronbach Alpha value of between 0.50 and 0.69 has been deemed acceptable for new and experimental research (Collis & Hussey, 2009; Nunnally, 1978).



### *3.7.5 Generalisability*

Generalisability refers to the ability to apply past deductions, inferences and suggestions from a treatise on a sample of a population to the whole population from which it was selected (Carter & Hurtado, 2007). In order to be able to generalise accurately the requirements of both validity and reliability must be met along with matching the contextual nuances of the original sample to the generalised population (Carter & Hurtado 2007).

The conclusions, inferences and predictions drawn from this treatise of 597 respondents from the FMCG sector in the major centres of South Africa being Cape Town, East London George, Johannesburg and Port Elizabeth were able to be generalised to the entire population, being all national FMCG consumers, as the requirements of validity and reliability, as determined by the above measures, were satisfied.

### *3.7.6 Descriptive statistics*

Descriptive statistics are used to describe and summarise the data. Measures of central tendency such as the mean, median and mode are three types of measures of central tendency which will be used to describe the data.

### *3.7.7 Inferential statistics*

This study tests the relationships between the independent variables green consumer profiles, green product awareness, trust and knowledge and the dependant variable green product purchasing behaviour by applying and analysing the results of the Pearson's Chi-Square test.

#### *3.7.7.1 Pearson's Chi-Square statistic*

A Chi-Square statistic is used to investigate whether distributions of categorical variables differ from one another (Satorra & Bentler, 2001). The Chi-Square statistic compares the tallies or counts of categorical responses between two (or more) independent groups (Satorra & Bentler, 2001). The Chi-Square test is intended to test how likely it is that an observed distribution is due to chance. It is also called a "goodness of fit" statistic, because it measures how well the observed distribution of

data fits with the distribution that is expected if the variables are independent (Satorra & Bentler, 2001).

As in other statistical tests, the starting point is the formulation of a null hypothesis ( $H_0$ : there is no significant difference between observed and expected frequencies) and an alternative hypothesis ( $H_1$ : there is a significant difference) (Wegner, 2011). Based on the outcome of the Chi-Square test the null hypothesis is either rejected or failed to be rejected (Wegner, 2011). Chi-Square tests enable observed and expected frequencies to be compared objectively, since it is not always possible to tell by looking at them whether they are "different enough" to be considered statistically significant. Statistical significance in this case implies that the differences are not due to chance alone, but instead may be indicative of other processes at work (Wegner, 2011).

### **3.8 Ethics**

It is a generally accepted practise to obtain ethics clearance if research involves human or animal subjects (Collis & Hussey, 2009). The main purpose of obtaining ethical clearance is to ensure the research process embarked upon adheres to certain acceptable standards (Cooper & Schindler, 2014). These standards amongst other things specifically relate to the issue of the rights and welfare of research subjects around issues such as informed consent, confidentiality of data and limitation of possible risks to people involved in research (Collis & Hussey, 2009).

The Ethics Clearance approval documentation (Appendix B) was submitted to the NMMU Business School, however, as there were no vulnerable groups involved full ethics clearance was not a prerequisite and thus not applied for in the current study.

### **3.9 Chapter summary**

This chapter addressed RQ<sub>3</sub> namely, *"How can a detailed description of the research methodology be provided in order to understand and reproduce this treatise in future?"* This research question was addressed by satisfying RO<sub>3</sub> namely to, "Identify and explain the research methodology used for this treatise enabling reproduction in the future".

In so doing this chapter covered the following Sub-sections.

Sub-section 3.1 outlined what was covered in Chapter 2 and thereby confirmed that a literature review on green product purchase behaviour, green product awareness, green product knowledge, green product trust, greenwashing and the attitude-behaviour gap was conducted. As a result of this review it was further confirmed that RQ<sub>1</sub> and RQ<sub>2</sub> namely, *“What is the significance of the relationships between green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour in the FMCG sector?”* and *“What variables are to be included in the hypothesised model of green product purchase behaviour in the FMCG sector?”* respectively were addressed. Furthermore, the RO<sub>1</sub> and RO<sub>2</sub> namely, *“Conduct a literature review in order to identify and establish the related variables with green product purchasing behaviour with specific reference to green consumer profiles, green product awareness, green product trust and green product knowledge”* and *“Develop a hypothesised model for green product purchasing behaviour in the FMCG sector”* were achieved. This sub-section further confirmed the RQ’s and RO’s to be addressed in Chapter 3 namely RQ<sub>3</sub>, *“How can a detailed description of the research methodology be provided in order to understand and reproduce this treatise in future?”* and RO<sub>3</sub>, *“Identify and explain the research methodology used for this treatise enabling reproduction in the future”*. An overview of the chapter was further provided.

Sub-section 3.2 described and defined research as a multi-stage process, being vital to any business or industry, requiring rigour, addressing questions or solving problems, being goal directed, following a predetermined plan, formulating hypotheses and collecting, analysing and interpreting data in a manner providing valid and reliable solutions whilst allowing for accurate generalisations to be made therefrom. This sub-section further characterised the research process, referred to as a research onion, as consisting of various stages resembling the layers of an onion. This sub-section highlighted that principles of research will be applied in this study to determine the relationships between green consumer profiles, consumer awareness, knowledge and trust and their influence on green product purchasing behaviour with specific reference to the FMCG sector.

Sub-section 3.3 explained the concepts research methodology and research paradigms were described as the first stage of the research process and forming the outer most layer of the research onion. The two predominant paradigms being Positivism and Interpretivism were thereafter identified and detailed. The sub-section explained further the research process by expounding upon the second, third, fourth and fifth layers of the illustrated research onion. In this regard it was further established that research can be classified according to its purposes, methods, logic and outcomes as being qualitative or quantitative, inductive or deduction, descriptive, exploratory or explanatory, basic or applied and cross-sectional or longitudinal. Guided by the nature of the research aims and objectives the sub-section established a selection of research design for the current study that is positivistic, quantitative, deductive, descriptive and cross-sectional whilst also incorporating a mono-method research approach. This selection was justified as it was accepted that the incidence of green consumption patterns and its variables, mediators, moderators and predictors form part of objective reality and are scientifically capable of description through quantitative analysis by means of statistical and other numerical measures.

Sub-section 3.4 provided a general explanation on sample design, sample frame and sampling processes as forming part the research process comprising the sixth layer of the illustrated research onion. The predominant types of sampling methods were identified. It was established that sampling methods generally fall into two main categories being random or probability sampling and non-random or non-probability sampling. Within these many types of specific sampling methods were identified and explained. The sampling methods chosen for this study were thereafter described as non-probability convenience and snowball sampling as the respondents were chosen due to their proximity to the researcher, had an equal opportunity of being selected for the study and facilitated by adding more members to the sample by them leveraging their existing acquaintances. Furthermore, the sampling frame was identified to include all FMCG consumers within the national centres of South Africa including, Cape Town, East London, George, Johannesburg and Port Elizabeth. A representative sample was identified to include 597 respondents from this population.

Sub-section 3.5 provided an explanation of specific research procedures and techniques relating to sample design with reference to the process of sampling, the concept of a sample frame and the types of available sampling methods. In so doing it was established that the sampling method employed in this treatise incorporated non-probability sampling in the form of convenience and snowball sampling as the respondents were chosen due to their accessibility and proximity to the researcher and assisted in gathering new sample members from their own network of acquaintances. All respondents furthermore had an equal opportunity of being selected for the study. Lastly, the sub-section identified the sampling frame to include all FMCG consumers within the national centres of South Africa including Cape Town, East London, George, Johannesburg and Port Elizabeth. A representative sample of 597 respondents from this population was chosen.

Sub-section 3.6 provided an explanation of data collection as forming part the research process as also comprising the sixth layer of the illustrated research onion. A distinction between primary and secondary data and the sources of which were identified. It was established that the researcher's chosen approach to addressing the research questions will generally determine the data collection techniques that will be used to gather the necessary data. The techniques resolved upon must however be appropriate to the research having due regard also to practical considerations such as data quality, costs, responses, errors and collection parameters. Guided by the above it was further established that the data collection methods used in this study involved the collection of primary data by means of a survey questionnaire divided into 5 sections consisting of 46 questions, distributed to and collected from the respondents manually by students at the NMMU Business School. Thereafter the NMMU business school liaison officer at regional contact sessions collected all the completed questionnaires manually from that region and delivered them to the researcher in Port Elizabeth on return.

Sub-section 3.7 provided an explanation of data analysis, validity, reliability and generalizability as forming part the research process and also comprising the sixth layer of the illustrated research onion. Regarding data analysis the concept thereof was explained and the data analysis methods used in this study were identified. This sub-section identified the data in this study as quantitative in nature thus lending

itself to quantitative analysis techniques. It was established that the data were prepared by a statistician and quantitative statistical analysis was performed thereon through STATISTICA. Thereafter, the sub-section discussed validity and reliability as requirements of the research with reference to their concepts and types. It was established that Cronbach's Alpha was used as a measure of internal consistency reliability. Lastly, the sub-section explained the concept of generalisability and established that the conclusions, inferences and predictions drawn from this research on the sample of 597 respondents from the FMCG sector in the major centres of South Africa being Cape Town, East London, George, Johannesburg and Port Elizabeth and George are able to be generalised to the entire population being, all national FMCG consumers as the requirements of validity and reliability were, as indicated above, satisfied.

Sub-section 3.8 provides a short explanation of the general ethics requirements for research and thereafter explains the manner in which these requirements were satisfied in this study. It was established that the necessary Ethics Clearance approval documentation (Appendix B) was submitted to the NMMU Business School, but as there were no vulnerable groups involved in the current study full ethics clearance was not a prerequisite and thus not applied for.

Chapter 4, will review the statistical analysis undertaken on the primary data gathered for the purposes of this study. In so doing Chapter 4 will address RQ<sub>4</sub>, *“What relationships between independent and dependent variables can be verified through the empirical evaluation of the hypothesised model for green product purchase behaviour in the FMCG sector?”*, RQ<sub>5</sub>, *“Which independent variables in the hypothesised model of green product purchasing behaviour have a significant relationship to green product purchasing behaviour in the FMCG sector?”* and RQ<sub>6</sub>, *“What is the significance of the difference in the relationship of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector?”*. Chapter 4 will address these research questions through achieving RO<sub>4</sub>, *“Empirically evaluate the hypothesised model of green product purchase behaviour in order to accept or reject the formulated hypotheses”*, RO<sub>5</sub>, *“Establish which of the identified variables in the hypothesised model of green product purchase behaviour are significantly related to green product*

purchasing behaviour in the FMCG sector” and RO<sub>6</sub>, “Establish the significance of the difference in relationships between of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector”.

## CHAPTER 4 DATA ANALYSIS AND INTERPRETATION

### 4.1 Introduction

Chapter 3 provided a discussion on the research methodology applied in this treatise by explaining the concepts of research, research methodology, research paradigms, sample design and measuring instruments. Thereafter the chapter set out the chosen research methodology, research paradigm, specific sampling design and the measuring instrument that was used in this study. By doing this, Chapter 3 addressed RQ<sub>3</sub> namely, *“How can a detailed description of the research methodology be provided in order to understand and reproduce this treatise in future?”* This was accomplished by satisfying RO<sub>3</sub> namely to, *“Identify and explain the research methodology used for this treatise enabling reproduction in the future”*.

This chapter is comprised of the analysis and interpretation of the primary data for this study beginning with descriptive statistics and then progressing onto inferential statistics. In so doing, Chapter 4 will address RQ<sub>4</sub>, *“What relationships between independent and dependent variables can be verified through the empirical evaluation of the hypothesised model for green product purchase behaviour in the FMCG sector?”*, RQ<sub>5</sub>, *“Which independent variables in the hypothesised model of green product purchasing behaviour have a significant relationship to green product purchasing behaviour in the FMCG sector?”* and RQ<sub>6</sub>, *“What is the significance of the difference in the relationship of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector?”*.

Chapter 4 will address these research questions through achieving RO<sub>4</sub>, *“Empirically evaluate the hypothesised model of green product purchase behaviour in order to accept or reject the formulated hypotheses”*, RO<sub>5</sub>, *“Establish which of the identified variables in the hypothesised model of green product purchase behaviour are significantly related to green product purchasing behaviour in the FMCG sector”* and RO<sub>6</sub>, *“Establish the significance of the difference in relationships of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector”*.



In delivering the above outcomes each Sub-section will cover the following topics:

Sub-section 4.1 provides a brief review of what was covered in Chapter 3 and introduces the research questions and objectives that will be addressed in Chapter 4. A brief chapter layout and topics to be covered within each of the proceeding sub-sections is further provided. Sub-section 4.2 provides a brief explanation of the data analysis and interpretation methods used in the chapter. It further provides more information on the survey questions within the main study questionnaire (Appendix A) and the specific techniques that are used to analyse the data obtained therefrom. Sub-section 4.3 presents the descriptive statistics and provides the univariate analysis for Section 1 to 5 of the study questionnaire. This presentation and analysis comprises of the respondents' biographical details as well as the variables green consumer profiles, green product awareness, green product trust, green product knowledge and green product purchasing behaviour. The sub-section concludes with a brief summary of the main findings which includes comparisons with existing literature.

Sub-section 4.4 provides information on the multivariate analysis and inferential statistics that were conducted on the variables in this study. This will include a discussion on data reliability and Pearson Chi-Square test. The sub-section will further provide an empirical evaluation of the hypothesised model of green product purchase behaviour where the relationship of the independent variables green consumer profiles, green product awareness, green product trust and green product knowledge with the dependant variable green product purchasing behaviour will be analysed. Lastly, the sub-section will conclude with in a summary of the main findings using existing literature as a means of comparison thereof. Sub-section 4.5 will expound on the differences in relationships of the independent variables to the dependant variable in the model of green product purchasing behaviour for the FMCG sector and further establish the significance of the differences of these relationships. Sub-section 4.6 provides a chapter summary highlighting the most important deductions that can be drawn therefrom.

An overview of this chapter's RQ's and RO's can be seen in Figure 4.1 while Figure 4.2: Overview of Chapter 4. depicts the chapter structure.

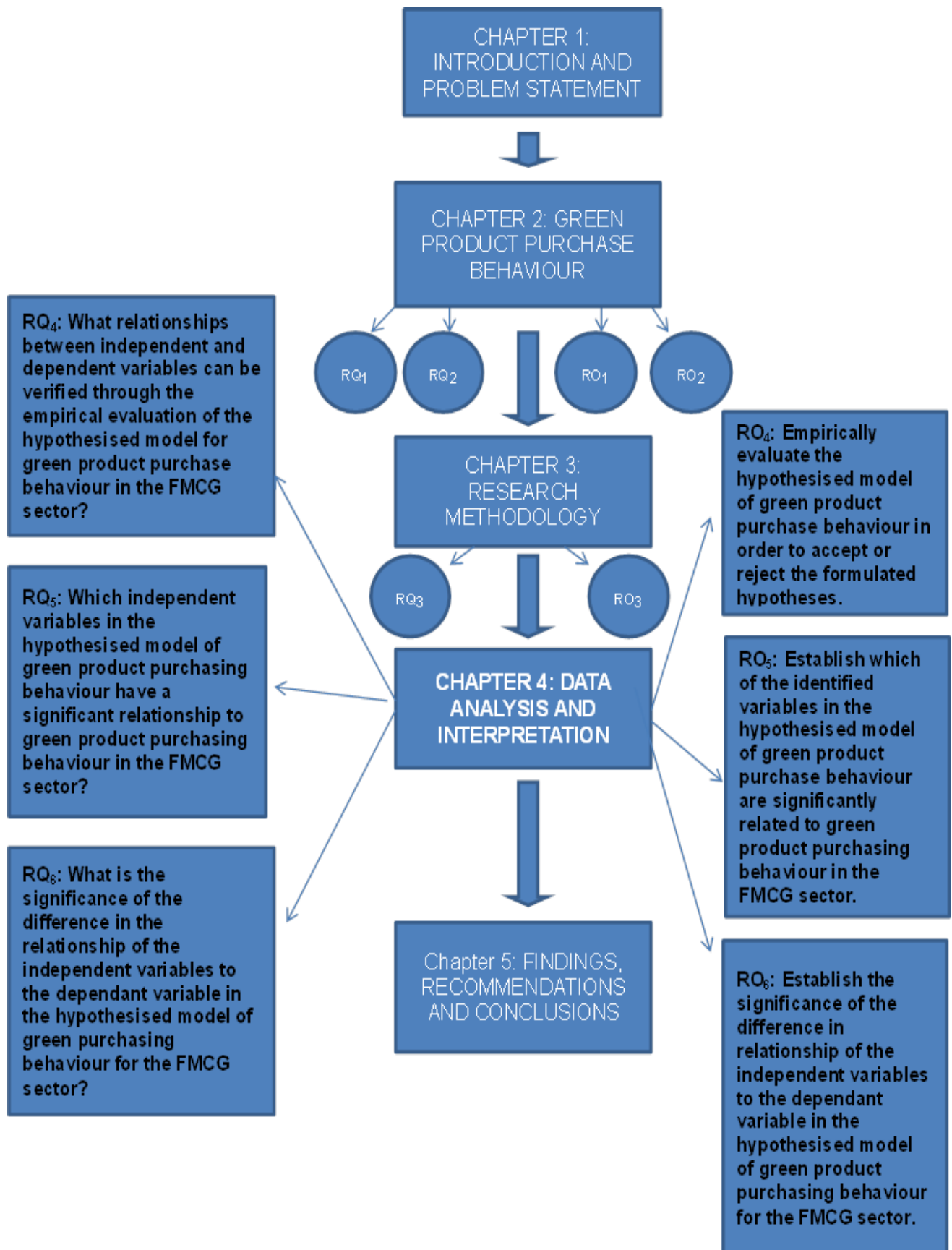
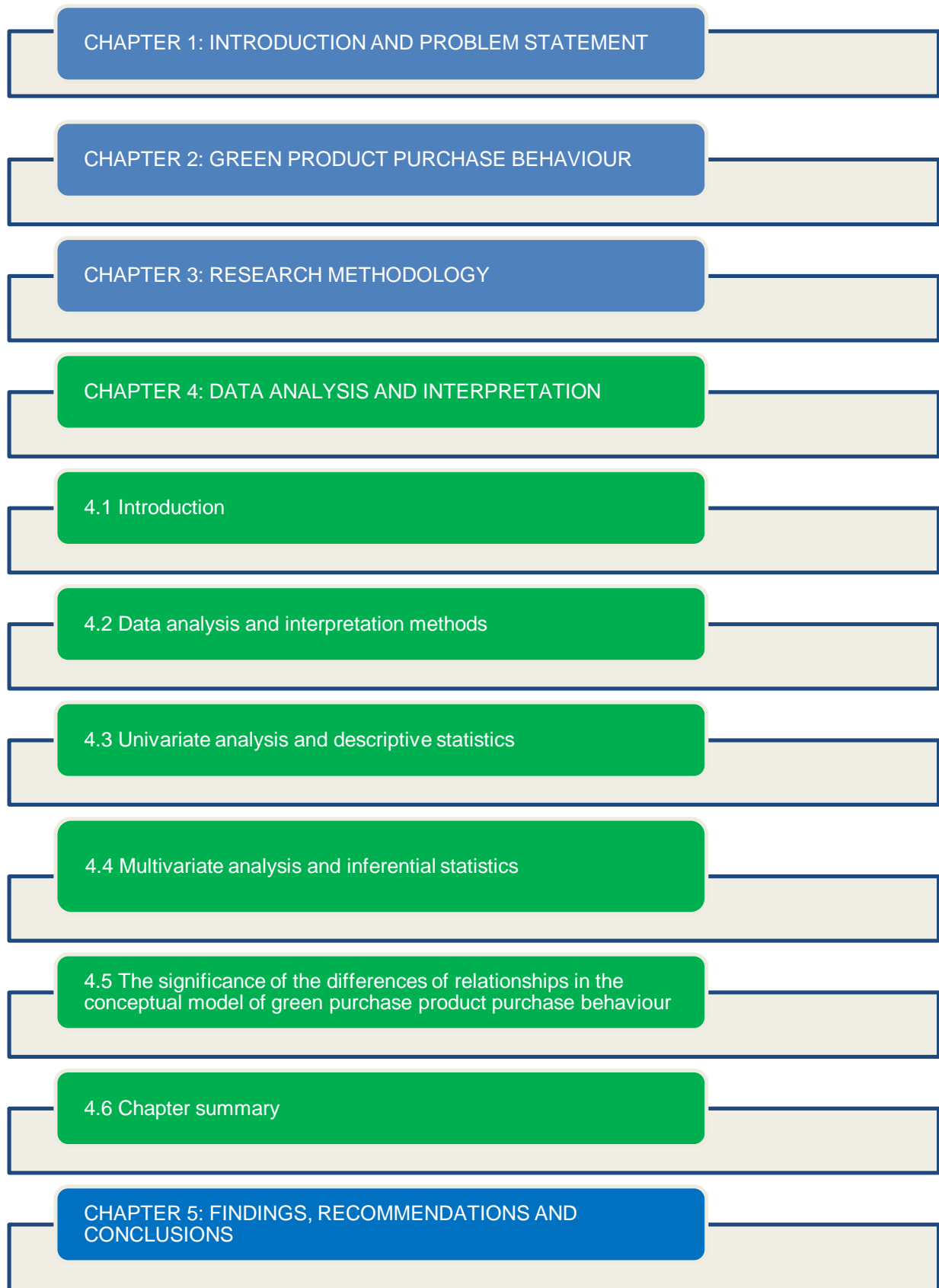


Figure 4.1: Chapter RQ's and RO's.



**Figure 4.2: Overview of Chapter 4.**

## 4.2 Data analysis and interpretation methods

This sub-section provides a brief review of the survey questions within the main study questionnaire (Appendix A). The variables in this study and the sections of the questionnaire they appear in are also highlighted and confirmed. Lastly, this sub-section provides a brief review of the data analysis and interpretation methods used in the chapter.

The respondents that formed part of this study included all FMCG consumers within the national centres of South Africa including, Cape Town, East London, George, Johannesburg and Port Elizabeth. A representative sample from this population was selected. Their responses were then subject to statistical analysis to address the research questions and satisfy the research objectives set out in Sub-section 4.1 above.

A total of 597 respondents from the target population were chosen. The primary data were collected from the sample by means of a survey questionnaire (Appendix A) distributed to the respondents through students at the NMMU Business School contact sessions. The questionnaire (Appendix A) was divided into 5 Sections consisting of 46 questions in total. The respondent's biographical information was collected in Section 1. The biographical information collected consisted of age, gender, race, employment status, monthly household income and information on where the respondents lived. The information was collected via the respondent indicating which of the presented alternatives applied to them.

The variable green consumer profiles, an independent variable, was measured both biographically with information collected from Section 1 and psychographically by variables comprising questions Q2, Q3, Q4, Q5, Q38, Q39, Q40, Q4, Q42, Q43 and Q52 of the questionnaire. The variable green product awareness, an independent variable, was measured in Section 2 of the questionnaire. Green product awareness was measured by 7 variables comprising questions 1 to 7. The variable green product trust, an independent variable, was measured in Section 3 of the questionnaire. Green product trust was measured by 6 variables comprising questions 8 through to 13. The variable green product knowledge, an independent variable, was measured in Section 4 covering questions 14 to 37 of the

questionnaire. Two overarching questions, comprising 22 variables in total, measured this variable. The variable green product purchasing behaviour, the dependent variable, was measured in Section 5 of the questionnaire. This variable was measured by means of 9 variables which covered questions 38 to 46 of the questionnaire.

The primary data obtained from the survey questions within the main study questionnaire (Appendix A) were analysed using two statistical analysis techniques referred to as univariate and multi-variate analysis. While conducting the univariate analysis descriptive statistics are used to analyse individual variables without investigating their relationships to other variables. The statistical data are presented predominantly by means of categorical frequency tables and figures in the form of pie charts. Multi-variate analysis and inferential statistics are used to analyse and interpret the existence of relationships between two or more variables.

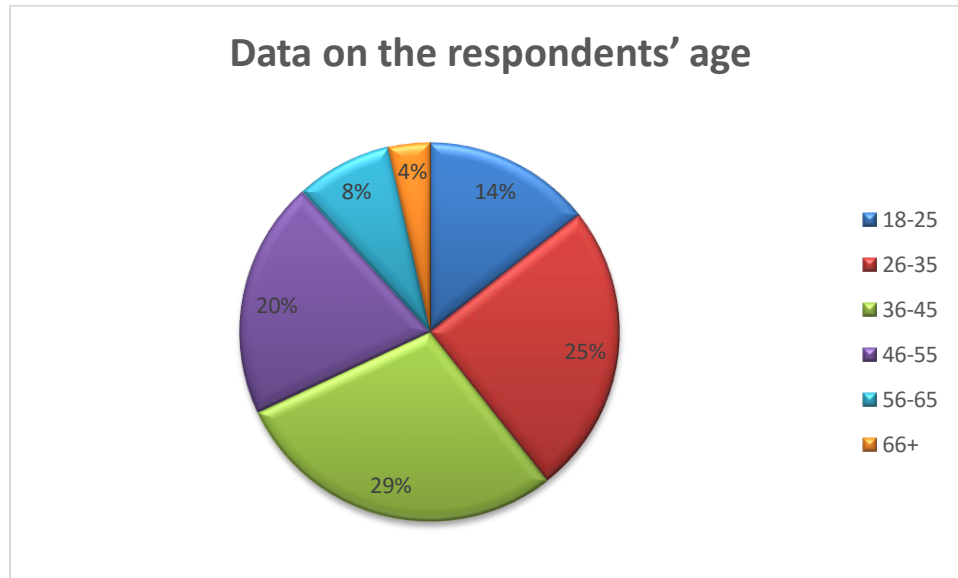
### **4.3 Univariate analysis and descriptive statistics**

This sub-section presents the descriptive statistics and provides the univariate analysis for Section 1 to 5 of the study questionnaire (Appendix A). In so doing the data on the respondents' biographical details as well as the independent variables green consumer profiles, green product awareness, green product trust, green product knowledge and the dependant variable green product purchasing behaviour are presented and analysed. The sub-section concludes with a brief summary of the main findings which includes comparisons with existing literature.

#### *4.3.1 Section 1: Biographical data*

##### *4.3.1.1 Age*

Data on the respondent's age were collected by the respondent selecting and marking from one of the following alternative age groups: 18-25, 26-35, 36-45, 46-55, 56-65 and 66+. The results from the 597 respondents are illustrated in Figure 4.3.



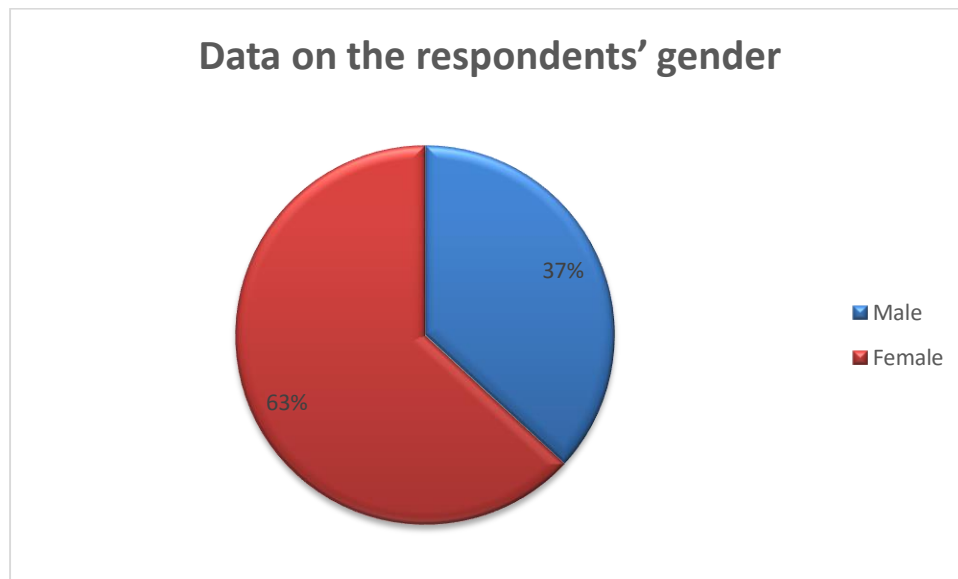
**Figure 4.3: Data on the respondents' age.**

The results show that 14% ( $n = 86$ ) of the respondents are between the ages of 18-25 years of age, 25% ( $n = 149$ ) between 26-35, 29% ( $n = 171$ ) between 36-45, 20% ( $n = 121$ ) between 46-55, 8% ( $n = 49$ ) between 56-55 and 4% ( $n = 21$ ) 66+ years of age. These results indicate that the average age of the respondents for this study is between the ages of 36 and 45 ( $n = 171$ ). This was therefore the most common age group amongst the respondents. Furthermore, it becomes apparent that 74% ( $n = 441$ ) of the sample were between the ages of 26 and 55.

#### 4.3.1.2 Gender

Data on the respondent's gender was collected by the respondent selecting and marking from one the following alternatives: Male and Female. The results are illustrated in Figure 4.4.

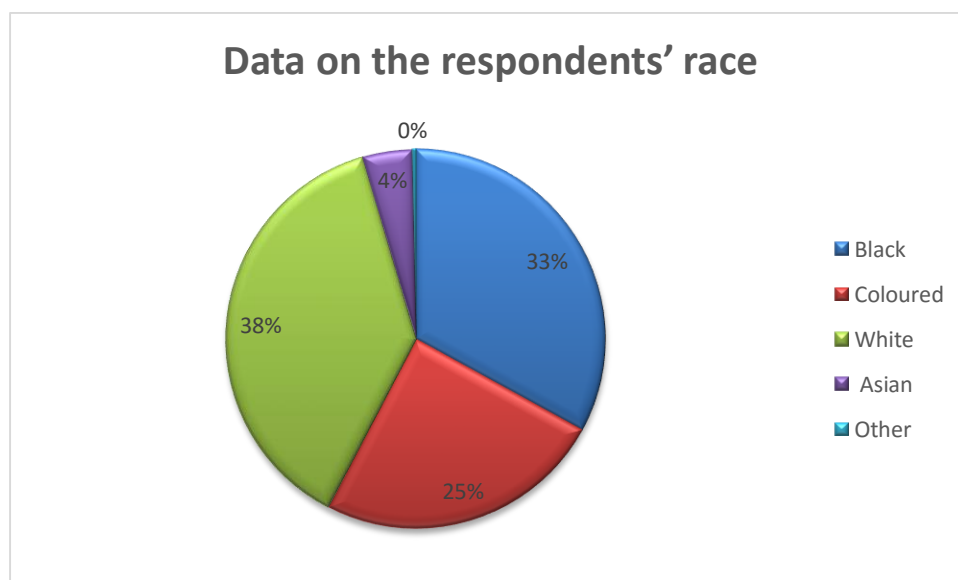
These results would indicate that more than half of the respondents, 63% ( $n = 377$ ), are female while the remaining 37% ( $n = 220$ ) are male.



**Figure 4.4: Data on the respondents' gender.**

#### 4.3.1.3 Race

Data on the respondent's race were collected by the respondent selecting and marking one from the following alternatives: Black, Asian, Coloured, White and Other. The results are illustrated in Figure 4.5.

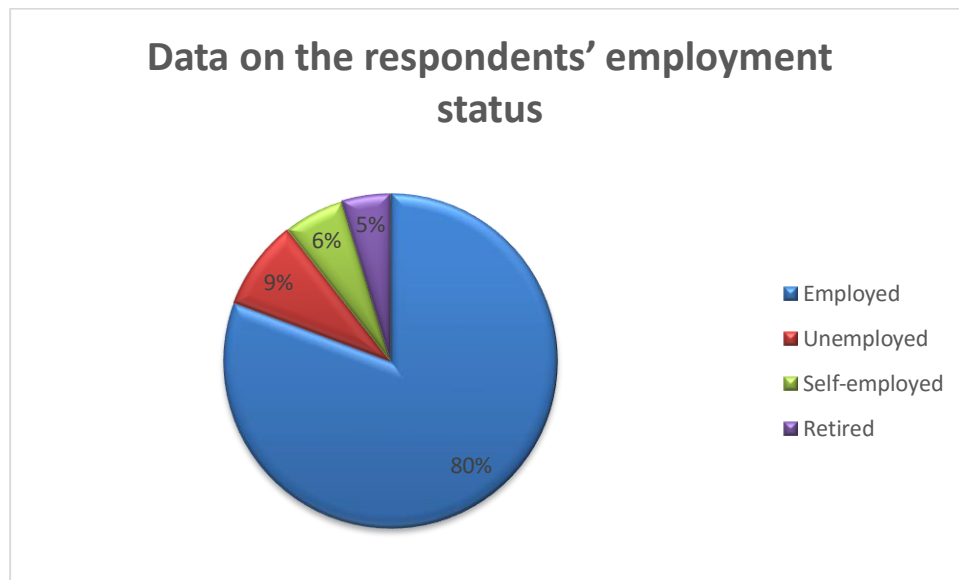


**Figure 4.5: Data on the respondents' race.**

The results reveal that 33% (n = 197) were African, 25% (n = 149) were coloured, 38% (n = 226) were European, 4% (n = 23) were Asian and 0% (n = 2) were from a race categorized as other. It thus becomes apparent that while the average respondent was European, 38% (n = 226), 71% (n=423) of the respondents were of African or European descent.

#### 4.3.1.4 *Employment status*

Data on the respondent's employment status were collected by the respondent selecting and marking one from the following alternatives: Employed, Unemployed, Self-employed, Retired and Other. The results from 597 respondents are illustrated in Figure 4.6.



**Figure 4.6: Data on the respondents' employment status.**

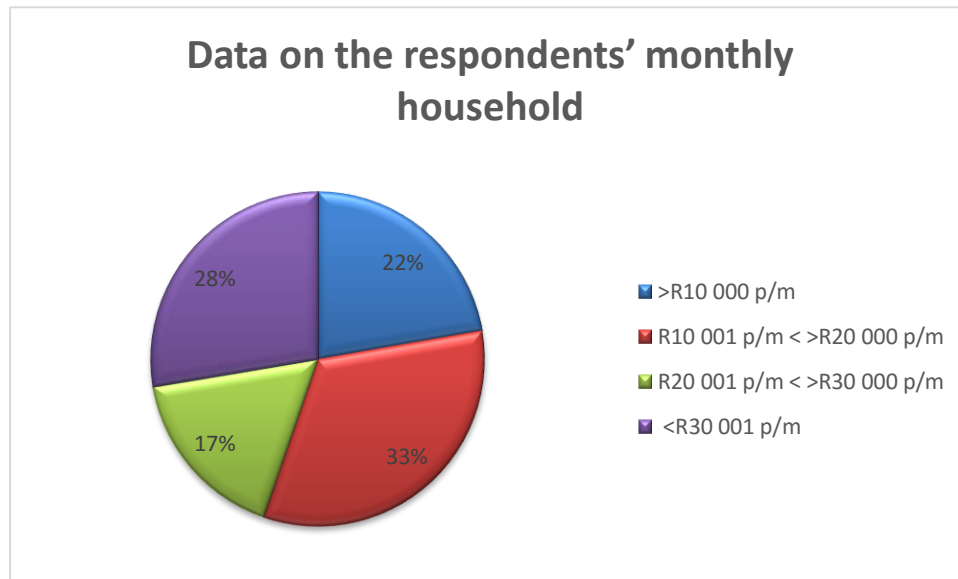
The results show that 80% (n = 481) were employed, 9% (n = 52) were self-employed, 6% (n = 35) were unemployed and 5% (n = 28) were retired. These results further indicate that the average respondent, 80% (n = 481) is employed.

#### 4.3.1.5 *Monthly household income*

Data on the respondent's monthly household income were collected by the respondent selecting and marking one of the following alternatives: less than R10 000 p/m, greater than R10 001 p/m but less than R20 000 p/m, greater than R20 001



p/m but less than R30 000 p/m, greater than R30 001 p/m and other. The results from the 597 respondents are illustrated in Figure 4.7.



**Figure 4.7: Data on the respondents' monthly household income.**

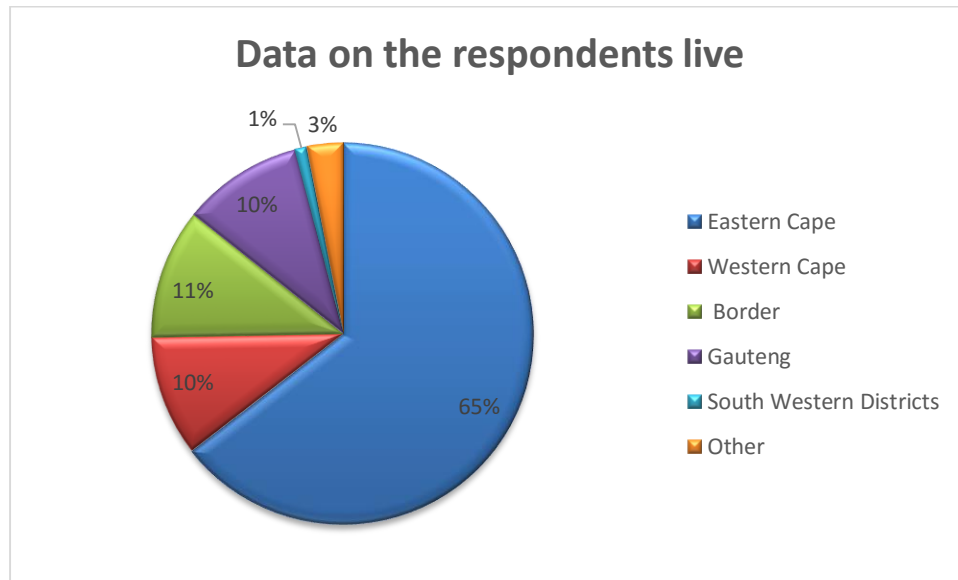
The results indicate that 22% (n = 133) have a monthly house income of <R10 000, 33% (n=197) between R10 001-R20000 p/m, 17% (n = 102) between R20 001-R30 000 p/m, 28% (n = 165) R30 000 and more. These results would indicate that the majority of the respondent's, 33% (n = 197), monthly household income is between R10001 and R20000 per month. Furthermore, 49% (n = 294) of the respondents earn between R10 000 and R30 000 per month.

#### 4.3.1.6 Where do you live?

Data on where the respondents lived were collected by the respondent selecting and marking one from the following alternatives: Border, Eastern Cape, Gauteng, South Western Districts, Other and Western Cape, the results from 597 respondents are illustrated in Figure 4.8.

The results reveal that 64% (n = 385) of the respondents lived in the Eastern Cape, 10% (n = 61) in the Western Cape, 11% (n = 66) in the Border area, 10% (n = 61) in Gauteng and 1% (n = 6) living in South Western Districts. 4% (n = 18) indicated that they lived in areas other than those provided for above. These results show that the majority of the respondents, 64% (n = 385), are from the Eastern Cape. This is

noteworthy as the Nelson Mandela Metropolitan University is also situated in the Eastern Cape. Furthermore, a total of 85 % (n = 512) of the respondents in this study live in the coastal areas of South Africa namely Border, Eastern Cape and Western Cape.



**Figure 4.8: Data on where the respondents live.**

#### 4.3.1.7 Summary of Biographical data

A synthesis of the biographical data indicates that out of 597 respondents, 63% (n = 377) are females, 74% (n = 441) are aged between 26 and 55, 71% (n = 423) were of European or African descent, 49% (n = 294) earning between 10 000 and 30 000 rand per month and 86% (n = 512) of the respondents are from the coastal areas namely Border, Eastern Cape and the Western Cape area. With this information it can be assumed generally that the average typical respondent was an employed African or European female between the ages of 26 and 55, living and working in the coastal areas of South Africa whilst earning as low as 10 000 per month and as much as 30 000 rand per month.

#### 4.3.2 Section 1: Green consumer profiles

As has been explained in Sub-section 3.6.3 the independent variable green consumer profiles was formulated from different sections of the study questionnaire (Appendix A). For the purposes of this variable a biographical description from

information obtained from Section 1, the biographical section and a psychographical description with reference to information collected from questions Q1, Q2, Q3, Q4, Q5, Q38, Q39, Q40, Q41, Q42, and Q43 will be identified and analysed. The descriptive statistics on the biographic and psychographic details of the respondents are thus presented and can be viewed under different Sub-sections in this chapter. Specifically, the descriptive statistics for the biographical details of the respondents can be found in Sub-section 4.3.1 marked Section 1: Biographical data. The descriptive statistics for questions 1 through 5, measuring the psychographical profiles of the respondents can be viewed at Sub-section 4.3.2 headed Section 2: Green product awareness. Furthermore, the descriptive statistics for questions 38 to 43 can be found in Sub-section 4.3.6 headed Section 5: Green product purchase behaviour.

For the purposes of this sub-section the important findings of these biographic and psychographic descriptions comprising the independent variable green consumer profiles have been incorporated below.

#### *4.3.2.1 Analysis of descriptive data on green consumer profiles*

A synthesis of the biographical data for the purpose of analysing the independent variable green consumer profiles reveals that out of 597 respondents, 63% (n = 377) are females, 74% (n = 441) are aged between 26 and 55, 71% (n = 423) were of African or European decent, 49% (n = 294) earning between 10 000 and 30 000 rand per month and 86% (n = 512) of the respondents are from the coastal areas namely Border, Eastern Cape and the Western Cape area. With this information it can be assumed generally that the average respondent in this study was an employed European or African female, between the ages of 26 and 55 living and working in the coastal areas of South Africa and earning as low as 10 000 rand per month and as much as 30 000 rand per month. This profile partly accords with what the literature has found on this issue. In this regard biographically, when considering ethnicity, age, income, education and occupation, environmentally committed and conscious consumers are caste as being European, between 25 and 35 or 45 and 55 years old, white collared professionals, educated, employed, working in middle management within specialist fields and earning above average incomes (Fisher, Bashyal & Bachman, 2012).

The psychographic data on the independent variable green consumer profiles indicates that more than three quarters of the respondents in the sample believe that they understand the concept of and can identify green products. The respondents believe that their green purchases can in fact make a difference to and impact in some way the green agenda and that they have purchased a green product within the last two years. Furthermore, three quarters of the respondents in the sample also deliberately shops where green products are stocked and take steps where possible to save power whilst believing that green is their responsibility. Together with these results more than half but less than three quarters of the respondents believe that they are aware of green product labelling requirements, that they are buying green products and participating in the green economy in some way shape or form, that they purchase products that are credited organic and are willing to pay a premium for green products.

The above results would seem to suggest that the psychographic profiles of the respondents in this study, at least descriptively, generally mirror that of the profiles of the green consumer that occurs in the literature. In this regard the literature describes the profiles of the green consumer psychographically as taking personal responsibility for environmental solutions, who believe they can make a contribution to solving environmental issues, incorporate green living into daily lives, consider environmental issues when making purchasing decisions, are knowledgeable of, deliberately seek out and are prepared to pay a premium for environmentally friendly products (Ottman, 2011).

#### *4.3.3 Section 2: Green product awareness*

Section 2 of the questionnaire (Appendix A), covering questions 1 to 7, measured the independent variable green product awareness. Green product awareness was measured with 7 questions. Questions 1 through to 5 being anchored with a 5-point Likert scale (1 = Strongly Disagree and 5 = Strongly Agree). Question 6 was anchored with an ordinal scale from 1 being most important and 6 being least important. Question 7 was anchored by a nominal scale where the respondents had to indicate full agreement, partial agreement or disagreement with the given statement.

#### 4.3.3.1 Q1: Consumers consider green issues when making purchase decisions.

The results from the 597 respondents are illustrated in Table 4.1.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>Consumers consider green issues when making purchase decisions</b>	4% (n = 24)	23% (n = 136)	32% (n = 194)	29% (n = 174)	12% (n = 69)	3.00	1	5	1.06

**Table 4.1: Data on Q1: Consumers consider green issues when making purchase decisions.**

These results would indicate that less than half being 41% (n = 243) of the respondents agree on some level that they actually consider green issues when making purchase decisions while 59% (n = 354) are either indifferent or disagree on some level with this statement. The results also indicate that the average response by the 597 respondents was a neutral one indicating that typically the respondents indicated that they neither believed nor disbelieved that they actually consider green issues when making purchase decisions.

#### 4.3.3.2 Q2: I understand the concept of green products.

The results from 597 respondents are illustrated in Table 4.2.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>I understand the concept of green products</b>	1% (n = 4)	1% (n = 4)	10% (n = 62)	54% (n = 325)	34% (n = 202)	4.20	1	5	0.69

**Table 4.2: Data on Q2: I understand the concept of green products.**

These results would indicate that more than three quarters, being 88% (n = 527), of the respondents believe that they understand the concept of green products while 12% (n = 70) are either indifferent or disagree with this statement. Typically, the mean of 4.20 indicates that the respondents agreed that they believed they understood the concept of green products.

#### 4.3.3.3 Q3: I can identify green products.

The results from 597 respondents are illustrated in Table 4.3.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
I can identify green products	0% (n = 3)	1% (n = 6)	18% (n = 106)	54% (n = 320)	27% (n = 162)	4.05	1	5	0.72

**Table 4.3: Data on Q3: I can identify green products.**

These results would indicate that more than three quarters, being 81% (n = 482), of the respondents in the sample believe that they can identify green products while 19% (n = 115) are either indifferent or disagree with this statement. The mean of 4.05 indicates that the typical response from the respondents was agreement that they can identify green products.

#### 4.3.3.4 Q4: I'm aware of green product labelling requirements.

The results from 597 respondents are illustrated in Table 4.4.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
I'm aware of green product labelling requirements	2% (n = 12)	14% (n = 82)	30% (n = 181)	41% (n = 246)	13% (n = 76)	4.00	1	5	0.94

**Table 4.4: Data on Q4: I'm aware of green product labelling requirements.**

These results would indicate that more than half, being 54% (n = 322), of the respondents believe that they are aware of green product labelling requirements while 46% (n = 275) are either indifferent or disagree with this statement. The mean of 4.00 indicates that the most common response from the respondents was agreeing that they aware of green product labelling requirements.

#### 4.3.3.5 Q5: *I'm aware of green product certifications.*

The results from 597 respondents are illustrated in Table 4.5.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>I'm aware of green product certifications</b>	4% (n = 24)	14% (n = 86)	39% (n = 230)	32% (n = 190)	11% (n = 67)	3.31	1	5	0.98

**Table 4.5: Data on Q5: I'm aware of green product certifications.**

These results would indicate that 43% (n = 257) of the respondents believe that they are aware of green product certifications while 57% (n = 340) are either indifferent or disagree on some level with this statement. The mean of 3.31 indicates that the typical response to this question was a neutral one indicating generally that the respondents neither agreed nor disagreed that they were aware of green product certifications.

#### 4.3.3.6 Q6: *In which areas do you feel the trend towards purchasing green products is most pronounced?*

The results of 597 respondents are illustrated in Table 4.6 to Table 4.11.

The results of 597 respondents specifically relating to Q6a, building and construction, as an area in which the trend towards purchasing green products is believed to be most pronounced are illustrated in Table 4.6.

Question	EI	VI	MI	SI	NI	EU	Mean	Min	Max	Standard Deviation
<b>Building</b>	20% (n = 119)	12% (n = 70)	12% (n = 73)	12% (n = 69)	18% (n = 109)	26% (n = 157)	6.00	1	6	1,87

**Table 4.6: Data on Q6a: Building.**

These results would indicate that 20% (n = 119) of the respondents believe that building and construction is extremely important as an area in which the trend towards purchasing green products is most pronounced. 44% (n = 266) indicated that this issue is not important on some level or another. The mean of 6.00 indicates that the respondents believe that building and construction is extremely unimportant as an area in which the trend towards purchasing green products is most pronounced.

The results of 597 respondents specifically relating to Q6b personal hygiene as an area in which the trend towards purchasing green products is believed to be most pronounced are illustrated in Table 4.7.

Question	EI	VI	MI	SI	NI	EU	Mean	Min	Max	Standard Deviation
<b>Personal hygiene</b>	13% (n = 80)	23% (n = 140)	19% (n = 112)	23% (n = 135)	15% (n = 90)	7% (n = 40)	2.00	1	6	1,47

**Table 4.7: Data on Q6b: Personal hygiene.**

These results would indicate that 13% (n = 80) believe that personal hygiene is extremely important as an area in which the trend towards purchasing green products is most pronounced. 22% (n = 140) of the respondents indicated that this issue is not important on some level or another. The mean of 2.00 indicates that the respondents typically believe that personal hygiene is very important as an area in which the trend towards purchasing green products is most pronounced.



The results of 597 respondents specifically relating to Q6c concerning clothing as an area in which the trend towards purchasing green products is believed to be most pronounced are illustrated in Table 4.8.

Question	EI	VI	MI	SI	NI	EU	Mean	Min	Max	Standard Deviation
<b>Clothing</b>	6% (n = 37)	11% (n = 63)	18% (n = 111)	21% (n = 126)	17% (n = 100)	27% (n = 160)	6.00	1	6	1,55

**Table 4.8: Data on Q6c: Clothing.**

These results would indicate that 56% (n = 337) believe that clothing is important on some level or another as an area in which the trend towards purchasing green products is most pronounced. 44% (n = 260) of the respondents indicated that this issue is not important on some level or another. The mean of 6.00 indicates that the respondents typically believe that clothing is extremely unimportant as an area in which the trend towards purchasing green products is most pronounced.

The results of 597 respondents specifically relating to Q6d concerning food as an area in which the trend towards purchasing green products is believed to be most pronounced are illustrated in Table 4.9.

Question	EI	VI	MI	SI	NI	EU	Mean	Min	Max	Standard Deviation
<b>Food</b>	39% (n = 235)	20% (n = 118)	15% (n = 92)	11% (n = 63)	7% (n = 40)	8% (n = 49)	1.00	1	6	1.61

**Table 4.9: Data on Q6d: Food.**

These results would indicate that 39% (n = 235) believe that food is extremely important as an area in which the trend towards purchasing green products is most pronounced. 15% (n = 89) of the respondents indicated that this issue is not important on some level or another. The mean of 1.00 indicates that the respondents

typically believe that food is extremely important as an area in which the trend towards purchasing green products is most pronounced.

The results of 597 respondents specifically relating to Q6e concerning detergents as an area in which the trend towards purchasing green products is believed to be most pronounced are illustrated in Table 4.10.

Question	EI	VI	MI	SI	NI	EU	Mean	Min	Max	Standard Deviation
<b>Detergents</b>	13% (n = 78)	19% (n = 115)	21% (n = 123)	17% (n = 100)	16% (n = 95)	14% (n = 86)	3.00	1	6	1.60

**Table 4.10: Data on Q6e: Detergents.**

These results would indicate that 13% (n = 78) believe that detergents are extremely important as an area in which the trend towards purchasing green products is most pronounced. 30% (n = 181) of the respondents indicated that this issue is not important on some level or another. The mean of 3.00 indicates that the respondents typically believe that detergents are moderately important as an area in which the trend towards purchasing green products is most pronounced.

The results of 597 respondents specifically relating to Q6f concerning appliances and electrics as an area in which the trend towards purchasing green products is believed to be most pronounced are illustrated in Table 4.11.

Question	EI	VI	MI	SI	NI	EU	Mean	Min	Max	Standard Deviation
<b>Appliances / Electrics</b>	13% (n = 78)	13% (n = 80)	15% (n = 90)	16% (n = 92)	21% (n = 124)	22% (n = 133)	6.00	1	6	1.72

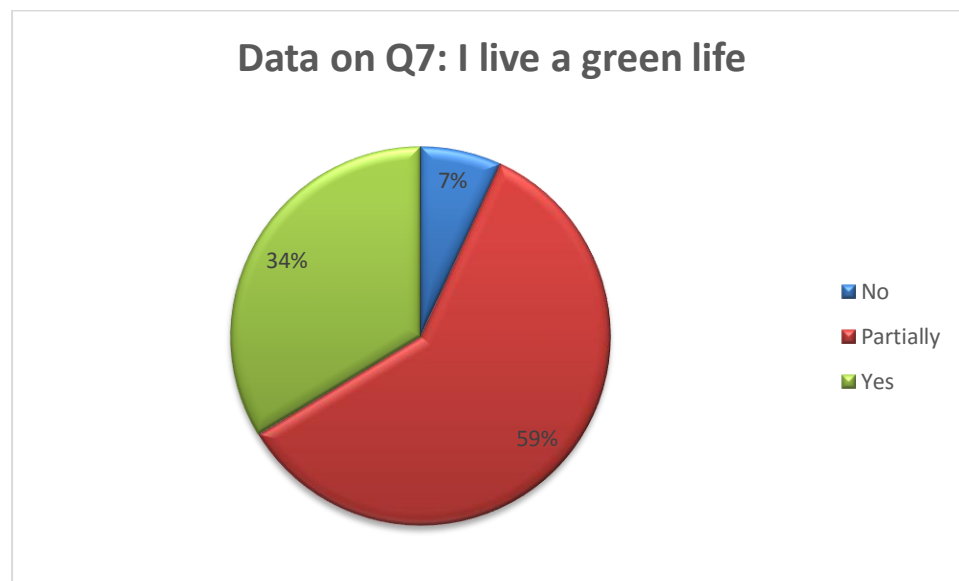
**Table 4.11: Data on Q6f: Appliances/electrics.**

These results would indicate that 57% (n = 340) believe that appliances and electrics is important on some level or another as an area in which the trend towards

purchasing green products is most pronounced. 43% (n = 257) of the respondents indicated that this issue is not important on some level or another. The mean of 6.00 indicates that the respondents typically believe that appliances and electrics are extremely unimportant as an area in which the trend towards purchasing green products is most pronounced.

#### 4.3.3.7 Q7: I live a green life

The results from 597 respondents are illustrated in Figure 4.9.



**Figure 4.9: Data on Q7: I live a green life.**

These results would indicate that the majority of the respondents, being 59% (n = 355), believe that they are living a green life to some extent or another. 7% (n = 41) of the respondents disagreed with the statement and thus did not believe that they were living a green at all. A mean score of 2.26 was recorded indicating that the typical response by the respondents was a belief that they lived a green life although be it only partially.

#### 4.3.3.8 Analysis of descriptive data green product awareness

These results reveal moderate green product awareness as 88% (n = 527), of the respondents believe that they understand the concept of green products, 81% (n = 482), believe that they can identify green products and 54% (n = 322) believe that

they are aware of green product labelling requirements. Less than half of the respondents, 43% (n = 257), however believe that they are aware of green product certifications and less than half of the respondents, 41% (n = 243), agree on some level that they actually consider green issues when making purchase decisions. This in spite of the fact that 93% (n = 556), believe that they are living a green life to some extent or another.

The comparison of the descriptive analysis of the above results with the literature on green product awareness illustrated mixed findings with at times better results being recorded in the current study and thereby possibly indicating a better awareness of green products and at other times very similar or worse outcomes occur. The following becomes noteworthy. The Chain Store Age study conducted by McKinsey and Company in 2007 of 822 respondents in the United States found that 50% of the consumers surveyed were not aware of or could not locate green alternatives in many product categories (Chain Store Age Publishing Corporation, 2007). The above result may indicate a lack of awareness and understanding of what a green product is at this time and thus an inability to identify green products. If so and as noted above this study suggests a better ability of the respondents to identify green products.

In a further study conducted by McKinsey and Company (2007), consumers were surveyed in Europe and the United States of America on the environmental impacts of purchase behaviours where it was demonstrated that 87% of respondents considered the environmental and social impacts when purchasing products (McKinsey & Company, 2007). This proportion is almost double that of the current study on this issue which may suggest a deeper consideration of environmental issues in 2007.

An analysis of the perceptions of respondents in whether they are living a green life or not the revealed some noteworthy findings. The 2008 Global Green Consumer Survey conducted by the Boston Consulting Group surveying 9,000 adults, aged 18 to 65, in nine countries including Canada, France, Germany, Italy, Japan, Spain, United Kingdom and the United States found that 50% of the respondents indicated that they were not purchasing green products at the time of the study (Boston Consulting Group, 2008). In spite of this it was further found that 50% of the

respondents still claimed to engage in daily green habits such as turning off home electronics when not in use, recycling or reusing products, using low-energy light bulbs, using less water, bringing own bags to the grocery store, using energy-efficient appliances and using a car as little as possible and purchase locally produced products. This may indicate a belief that they are living a green life to some extent or another (Boston Consulting Group, 2008).

Furthermore, the 2011 GFK and Roper Consulting Green Gauge Report surveyed 2,000 adults age 18 and over in the United States and found that 83% of respondents indicated that they turn off lights and electrical appliances when not in use (Gesellschaft für Konsumforschung & Roper Consulting, 2011). To add to this more than half of all respondents indicated that they contributed to environmentally friendly behaviours by using alternative types of transportation instead of driving, actively conserving water, attempting to cut down on the amount of trash and garbage they create and sorting of trash to separate garbage from recyclable material (Gesellschaft für Konsumforschung & Roper Consulting, 2011). This may again indicate a believe by these respondents that they are living a green life in some way shape or form which if so when compared to this current study are similar outcomes proportionality. This seems to accord with the general finding in this study.

Upon further consideration of in what area respondents felt the trend towards purchasing green products is most pronounced it was established that the typical respondent in the current study believed that personal hygiene was very important, 23% (n = 140), food is extremely important, 39% (n = 235) and detergents only moderately important, 21% (n = 123). The respondents further believed that building and construction, 26% (n = 157), clothing, 27% (n = 160) and appliances and electrics, 22% (n = 132) are all extremely unimportant as an area in which the trend towards purchasing green products is most pronounced. In comparison with the literature the study conducted in 2012, by DuPont, called the, Sustainability Survey, where 418 industry experts from all over the world where surveyed at exhibitions and conferences across the world, including Europe, Asia and North America becomes noteworthy. In this study it was found that approximately 15% of Asians, 8% of Europeans and 13% of North American respondents believed this to be in the area of building and construction (DuPont, 2012). Furthermore, approximately 12% of

Asians, 21% of Europeans and 14% of North American respondents believed this to be in the area of personal hygiene. 3% of Asians, 3% of Europeans and 2% of North American respondents believed this to be in the area of clothing (DuPont, 2012). To add to this approximately 23% of Asians, 33% of Europeans and 23% of North American respondents believed this to be in the area of food (DuPont, 2012). Approximately 28% of Asians, 24% of Europeans and 27% of North American respondents believed this to be in the area of detergents and approximately 17% of Asians, 10% of Europeans and 19.1% of North American respondents believed this to be in the area of appliances and electrics (DuPont, 2012). When these results are compared to the current study it is noted that the results in the areas of personal hygiene, food and detergents are similar but differ somewhat on the rest of the alternatives posed.

#### 4.3.4 Section 3: Green product trust

The independent variable green product trust was measured in Section 3 of the study questionnaire (Appendix A). Green product trust was measured with a scale comprising of 6 questions numbered 8 through to 13. Questions 8 through to 13 were anchored with a 5-point Likert scale (1 = Strongly Disagree and 5 = Strongly Agree).

##### 4.3.4.1 Q8: Consumers feel that green products live up to their claim

The results from 597 respondents are illustrated in Table 4.12.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>Consumers feel that green products live up to their claim</b>	2% (n = 10)	9% (n = 54)	43% (n = 257)	41% (n = 243)	5% (n = 33)	3.39	1	5	0.79

**Table 4.12: Data on Q8: Consumers feel that green products live up to their claim.**

These results show that 46% (n = 276) of the respondents feel that green products live up to their claim while 54% (n = 321) are either indifferent or disagree with this

statement. The mean of 3.39 indicates the typical neutral response by the respondents indicating that they neither agreed nor disagreed with statement.

#### 4.3.4.2 Q9: Green products are always safe

The results from 597 respondents are illustrated in Table 4.13.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>Green products are always safe</b>	2% (n = 10)	8% (n = 48)	31% (n = 187)	44% (n = 264)	15% (n = 88)	4.00	1	5	0.89

**Table 4.13: Data on Q9: Green products are always safe.**

These results would indicate that 59% (n = 352) of the respondents believe that green products are always safe while 41% (n = 245) are either indifferent or disagree with this statement.

#### 4.3.4.3 Q10: Green products always consider human safety

The results from 597 respondents are illustrated in Table 4.14.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>Green products always consider human safety</b>	1% (n = 6)	6% (n = 36)	23% (n = 138)	51% (n = 303)	19% (n = 114)	4.00	1	5	0.84

**Table 4.14: Data on Q10: Green products always consider human safety.**

These results reveal that 70% (n = 417) of the respondents believe green products always consider human safety while 30% (n = 180) are either indifferent or disagree with this statement. The mean of 4.00 indicates that the most common response from the respondents was agreeing that green products always consider human safety.

#### 4.3.4.4 Q11: Green products always consider environmental safety

The results from 597 respondents are illustrated in Table 4.15.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>Green products always consider environmental safety</b>	0% (n = 2)	2% (n = 11)	12% (n = 73)	47% (n = 282)	39% (n = 229)	4.21	1	5	0.75

**Table 4.15: Data on Q11: Green products always consider environmental safety.**

It becomes apparent that 86% (n = 511) of the respondents believe green products always consider environmental safety while 14% (n = 86) are either indifferent or disagree with this statement. The mean of 4.21 indicates that the typical response from the respondents was agreeing to the statement that green products always consider environmental safety.

#### 4.3.4.5 Q12: Fewer resources are utilised to produce green products

The results from 597 respondents are illustrated in Table 4.16.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>Green products always consider human safety</b>	3% (n = 17)	12% (n = 71)	32% (n = 192)	37% (n = 219)	16% (n = 98)	3.51	1	5	0.99

**Table 4.16: Data on Q12: Fewer resources are utilised to produce green products.**

These results would show that 53% (n = 317) of the respondents believe that fewer resources are utilised to produce green products while 47% (n = 280) are either indifferent or disagree with this statement.



#### 4.3.4.6 Q13: Green products are readily available.

The results from 597 respondents are illustrated in Table 4.17.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>Green products are readily available</b>	4% (n = 21)	24% (n = 145)	30% (n = 182)	34% (n = 200)	8% (n = 49)	4.00	1	5	1.01

**Table 4.17: Data on Q13: Green products are readily available.**

These results would reveal that 42% (n = 249) of the respondents believe that green products are readily available while 58% (n = 348) are either indifferent or disagree with this statement.

#### 4.3.4.7 Analysis of descriptive data on green product trust

These above results demonstrate moderate to high levels of green product trust as more than half of the respondents answered in the affirmative to many of the listed statements thereon. This is reflected in the fact 53% (n = 317) of the respondents believe that fewer resources are utilised to produce green products, 59% (n = 352) of the respondents believe that green products are always safe, 70% (n = 417) believe green products always consider human safety and 86% (n = 511) of the respondents believe green products always consider environmental safety while. Interestingly though this is in spite of the fact that less than half, 46% (n = 276), believe that green products live up to their claim. Only 42% (n = 249) of the respondents believe that green products are readily available.

A comparison of above findings in the context of the reviewed literature shows that the results of the current study seem similar specifically on issues relating to trust of product claims and the ability to locate green products. This as the Chain Store Age study of 822 United States conducted in 2007 by McKinsey & Company found that 50% of the consumers surveyed did not trust green product claims. To add to this the 50% of the respondents also claimed that they were not aware of or could not

locate green product alternatives in many product categories, believed that green products were of a lower quality than traditional products, claimed they did not fully understand environmental issues, were distrustful of environmental claims and believed that green products were too expensive (McKinsey & Company, 2007). To add to this the Eurobarometer (2009) study seemed to support these low levels of trust when it too found that only 49% of the respondents said that they trusted green product claims and 48% stated these claims were untrustworthy (Eurobarometer, 2009).

Upon considering the Global Green Consumer Survey conducted in 2008 conducted by the Boston Consulting Group more than 75% of respondents from the European Union, United States, Canada and South Korea indicated a willingness to pay a premium for green products. Although not tested it is submitted that this may be due in part the levels of trust in green product claims at that time (Boston Consulting Group, 2008). If so this may indicate higher levels of trust in green product claims at this time.

In a further report by Yates (2009) 58% of consumers surveyed believed that many companies are pretending to be green in order to charge higher prices for their product offerings (Yates, 2009). Furthermore, more than 75% of all respondents believed that it was possible for companies to make false claims about environmental performance and that companies were not doing enough to promote environmentally friendly options for consumers (Yates, 2009). To add to this more than 50% of all respondents believed that products that were bad for the environment should not be available for consumption (Yates, 2009). It is submitted that these high frequencies indicate a trust deficit at that time in green products and the companies that produce them. It is submitted that although the current study did not measure these specific issues on a like for like basis it is possible that the respondent in this study may have given more positive responses to these topics as a result of the seemingly more positive general attitude of respondents on green products, there claims and related issues. This as a result of the fact that on the whole when compared to literature it seems that the respondent in this study has a higher levels of green product trust.

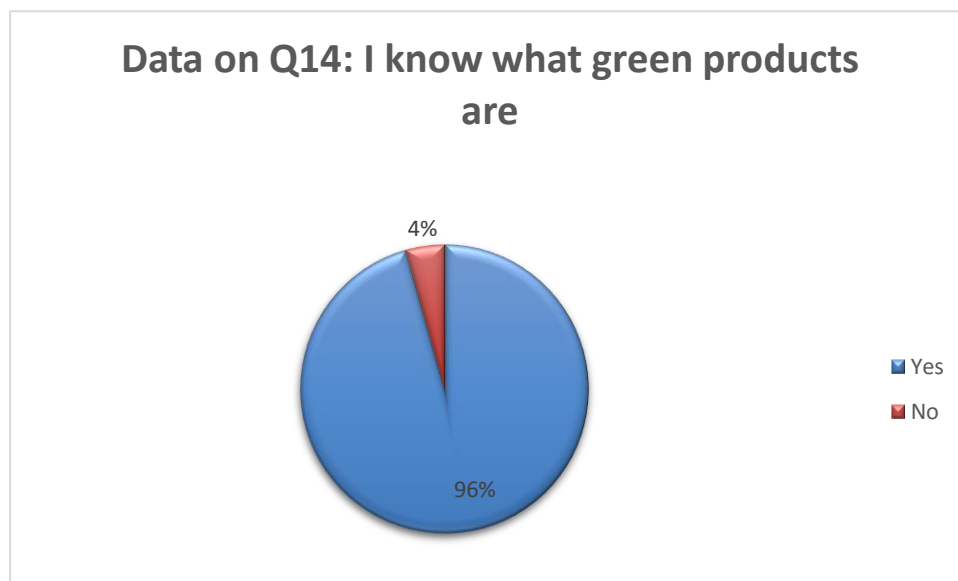
#### 4.3.5 Section 4: Green product knowledge

The independent variable green product knowledge was measured in Section 4 of the study questionnaire (Appendix A).

Green product knowledge was measured by a scale consisting of 24 questions numbered from questions 14 to 37: Question 14 anchored by a nominal scale where the respondents had to indicate an agreement or disagreement with the given statement. Question 15 to 37 was further anchored by a nominal scale where the respondents had to indicate either full agreement, partial agreement or disagreement with the given statement. Question 37 was also anchored by a nominal scale where the respondents again had to indicate an agreement or disagreement with the given statement without having the option of partially agreeing thereto.

##### 4.3.5.1 Q14: I know what green products are

The results from 597 respondents are illustrated in Figure 4.10.



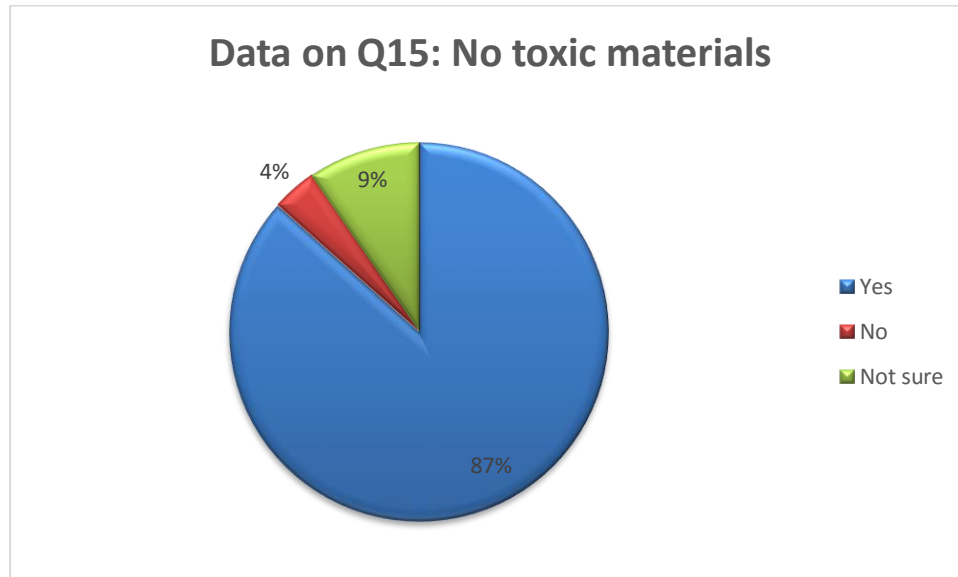
**Figure 4.10: Data on Q14: I know what green products are.**

It becomes apparent that 96% ( $n = 571$ ) of the respondents addressed this statement in the affirmative thereby indicating that they believe they know what green products are. 4% ( $n = 26$ ) did not share this belief and reflected this by answering this statement in the negative. A mean score of 2.00 was recorded indicating that agreeing to the statement was the most frequent response from all the

respondents. A belief in the knowledge of what green products are can thus be considered to be the most common and typical response from all the respondents.

#### 4.3.5.2 Q15: No toxic materials

The results from 597 respondents are illustrated in Figure 4.11.

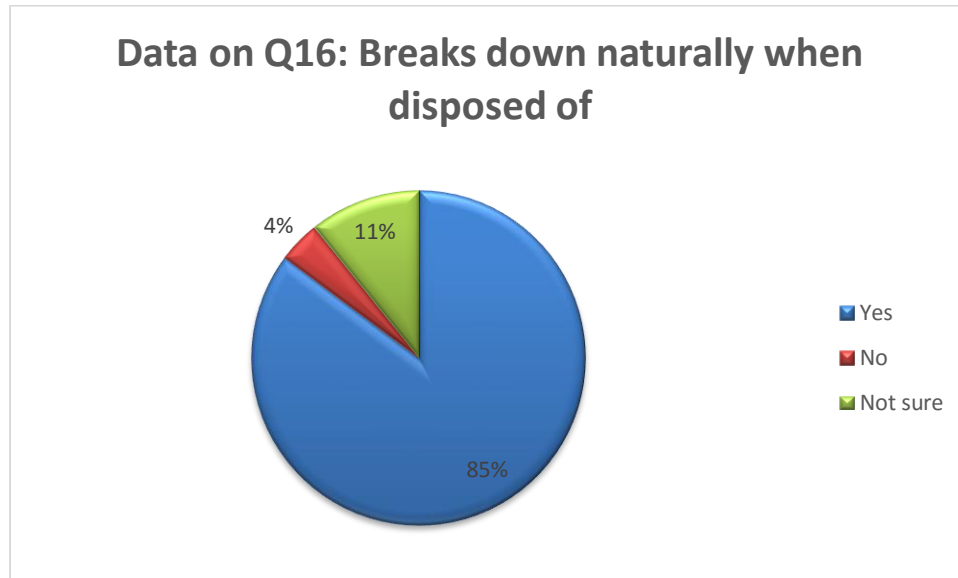


**Figure 4.11: Data on Q15: No toxic materials.**

These results would reveal that 87% ( $n = 517$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it contains no toxic materials while 13% ( $n = 80$ ) are either unsure or did not know. A recorded mean of 1.01 indicates that agreeing to the statement that what makes a product green is the fact that it contains no toxic material was the most common response from all the respondents.

#### 4.3.5.3 Q16: Breaks down naturally when disposed of

The results from 597 respondents are illustrated in Figure 4.12.



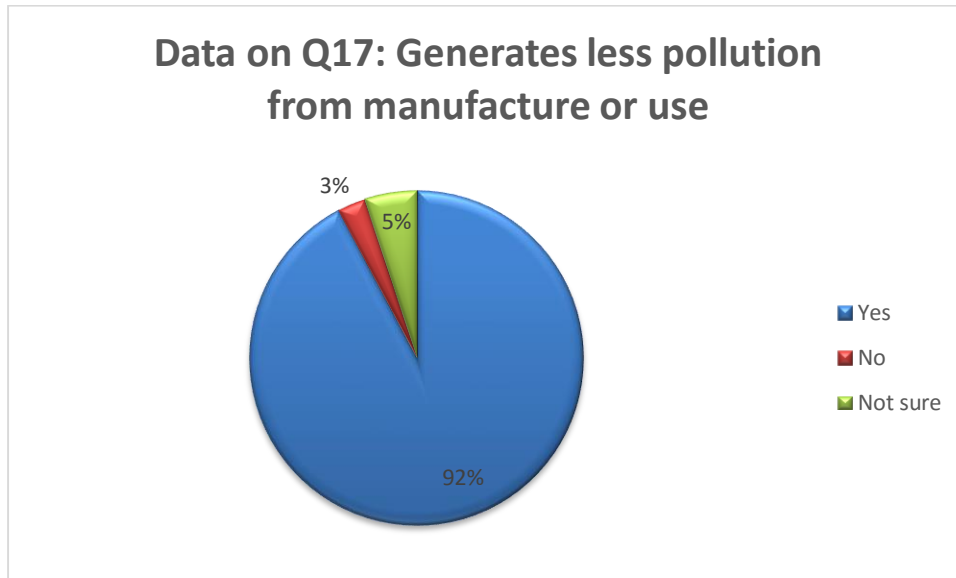
**Figure 4.12: Data on Q16: Breaks down naturally when disposed of.**

These results show that 85% ( $n = 509$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it breaks down naturally when disposed of. 15% ( $n = 88$ ) are either unsure or indicated in the negative to this statement. A recorded mean of 1.18 indicates that the respondents typically agreed to the statement that what makes a product green is that it breaks down naturally when disposed of.

#### 4.3.5.4 Q17: Generates less pollution from manufacture or use

The results from 597 respondents are illustrated in Figure 4.13.

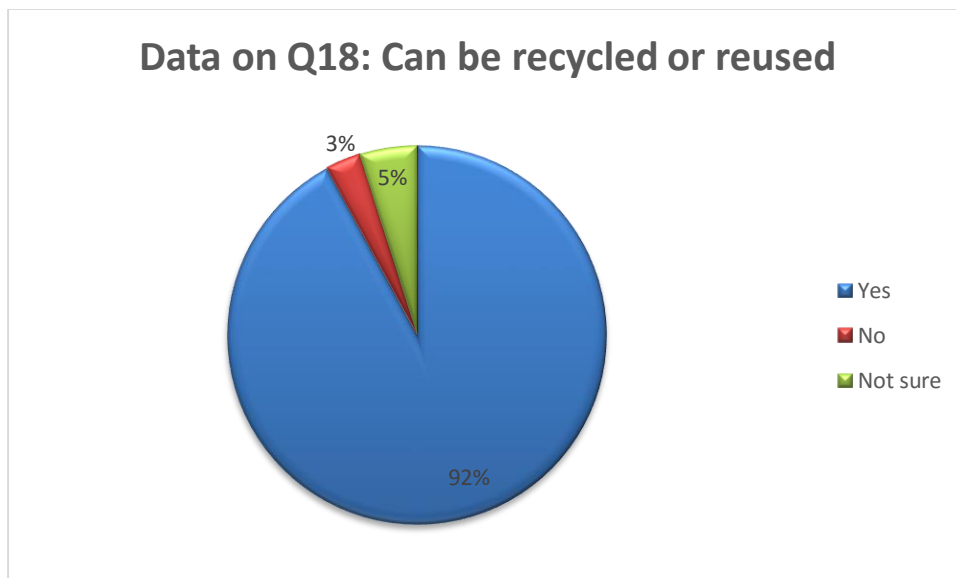
These results indicate that 92% ( $n = 551$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it generates less pollution from manufacture or use while 8% ( $n = 46$ ) are either unsure or simply addressed in the negative. The mean of 1.01 indicates that the most common response from the respondents was in the affirmative meaning that they typically agreed to the statement that what makes a product green is that it generates less pollution from manufacture or use.



**Figure 4.13: Data on Q17: Generates less pollution from manufacture or use.**

#### 4.3.5.5 Q18: Can be recycled or reused

The results from 597 respondents are illustrated in Figure 4.14.



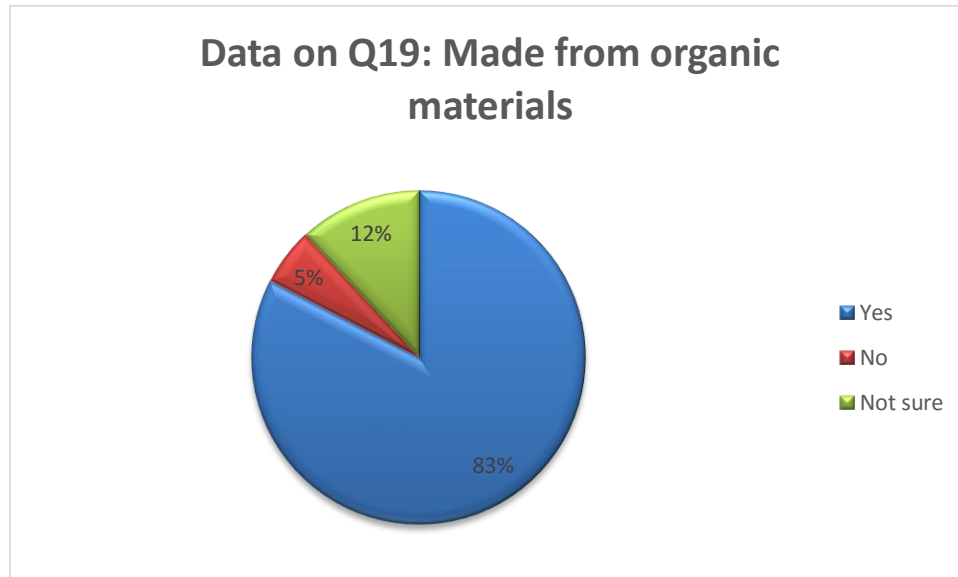
**Figure 4.14: Data on Q18: Can be recycled or reused.**

These results reveal that 92% ( $n = 550$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it can be recycled

or reused while 8% (n = 47) are either unsure or did not know. The mean of 1.01 indicates that this was a common belief amongst the respondents.

#### 4.3.5.6 Q19: Made from organic materials

The results from the total sample of 597 respondents are illustrated in Figure 4.15.

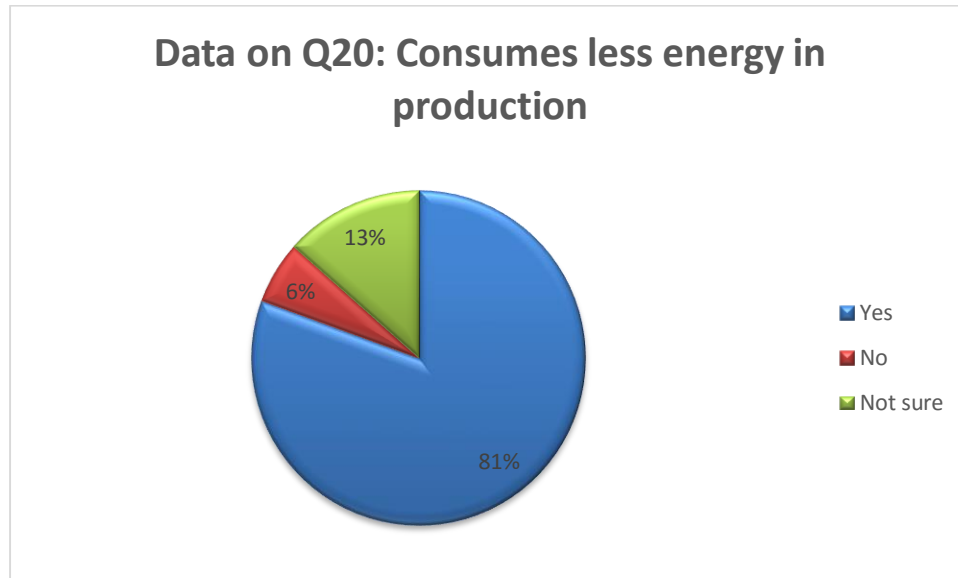


**Figure 4.15: Data on Q19: Made from organic materials.**

These results indicate that 83% (n = 493) of the respondents indicated positively thereby believing that what makes a product green is the fact that it made from organic materials while 17% (n = 104) are either unsure, did not know or simply addressed in the negative. The mean of 1.01 indicates that the respondents typically agreed with the statement that what makes a product green is that it is made from organic materials.

#### 4.3.5.7 Q20: Consumes less energy in production

The results from 597 respondents are illustrated in Figure 4.16.



**Figure 4.16: Data on Q20: Consumes less energy in production.**

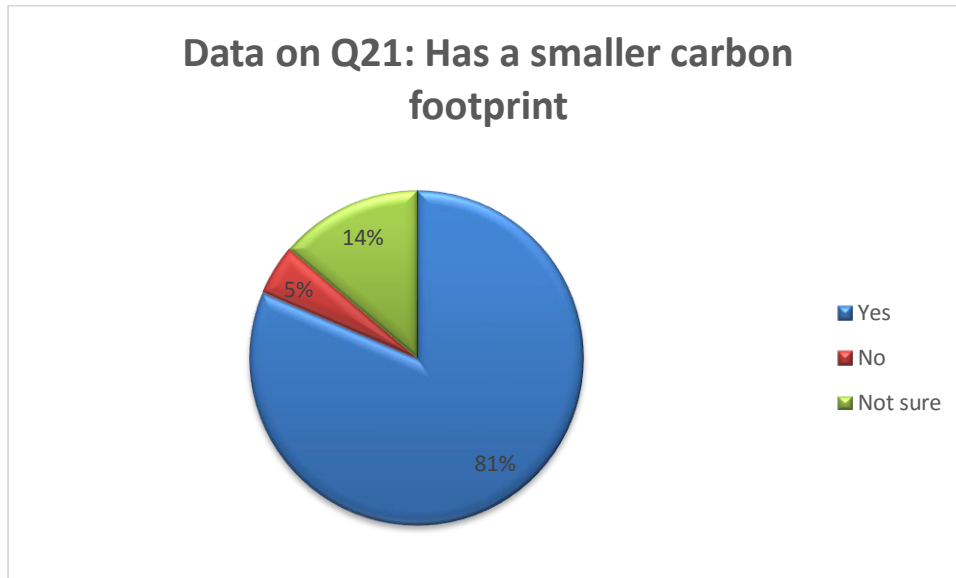
These results show that 81% ( $n = 481$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it consumes less energy while 19% ( $n = 116$ ) are either unsure, did not know or simply addressed in the negative. 1.01 was the recorded mean which indicates that this was a common belief amongst the respondents as the typical response to the statement was in the affirmative.

#### *4.3.5.8 Q21: Has a smaller carbon footprint*

The results from 597 respondents are illustrated in Figure 4.17.

These results reveal that 81% ( $n = 486$ ) of the respondents indicated positively thereby believing that what makes a product green it that it has a smaller carbon footprint. The recorded mean of 1.01 indicates that this was a common belief amongst the respondents as the typical response to the statement was in the affirmative. 19% ( $n = 111$ ) are either unsure or did not believe this statement to be such a factor.

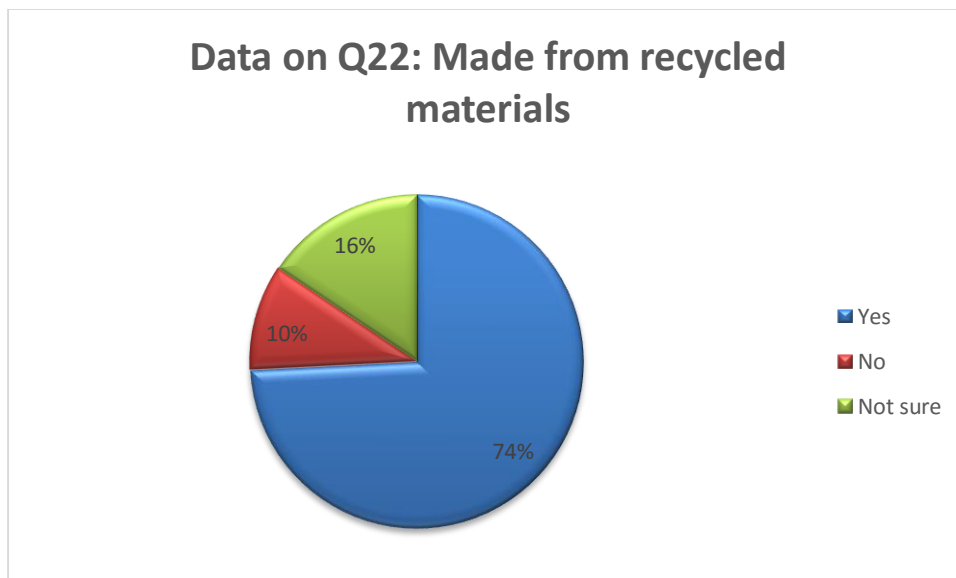




**Figure 4.17: Data on Q21: Has a smaller carbon footprint.**

#### 4.3.5.9 Q22: Made from recycled materials

The results from 597 respondents are illustrated in Figure 4.18.



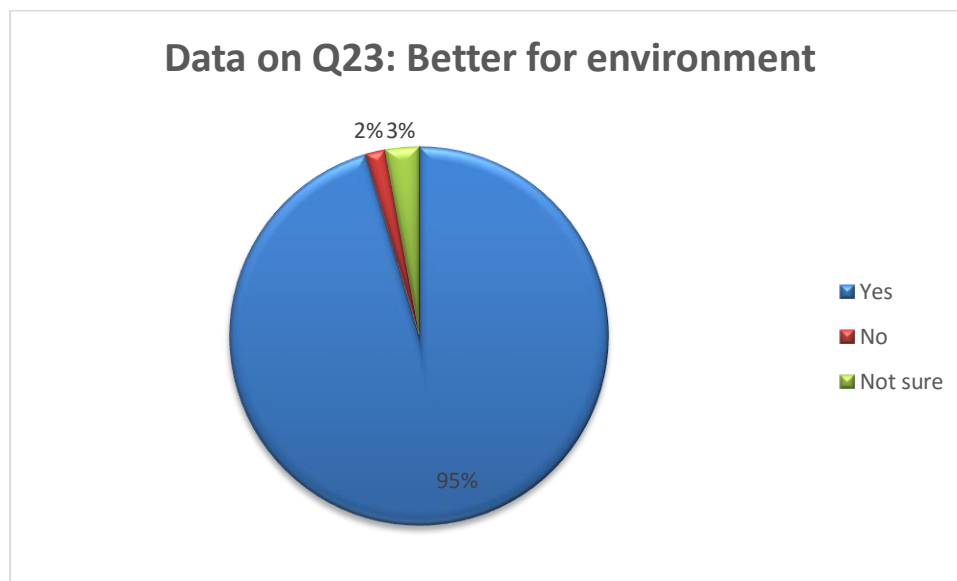
**Figure 4.18: Data on Q22: Made from recycled materials.**

These results indicate that 74% ( $n = 443$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it is made from

recycled materials. A mean of 1.01 was calculated indicating that this was a common belief amongst the respondents as the typical response of the respondents to this statement was in the affirmative. 26% (n = 154) of the respondents are either unsure or did not believe this statement to be a criteria in determining if a product was green or not.

#### 4.3.5.10 Q23: *Better for environment*

The results from 597 respondents are illustrated in Figure 4.19.

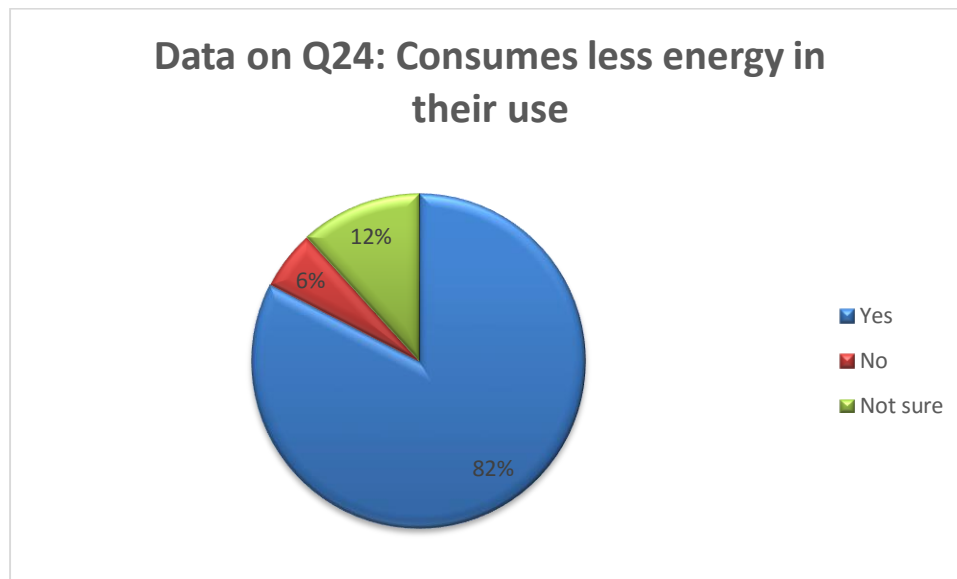


**Figure 4.19: Data on Q23: Better for environment.**

These results show that 95% (n = 570) of the respondents indicated positively thereby believing that what makes a product green is the fact that it is better for environment while 5% (n = 27) are either unsure or addressed in the negative to this statement. The recorded mean of 1.01 indicates that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared a belief that what makes a product green was partly due to the fact that it was better for the environment.

#### 4.3.5.11 Q24: *Consumes less energy in their use*

The results from 597 respondents are illustrated in Figure 4.20.



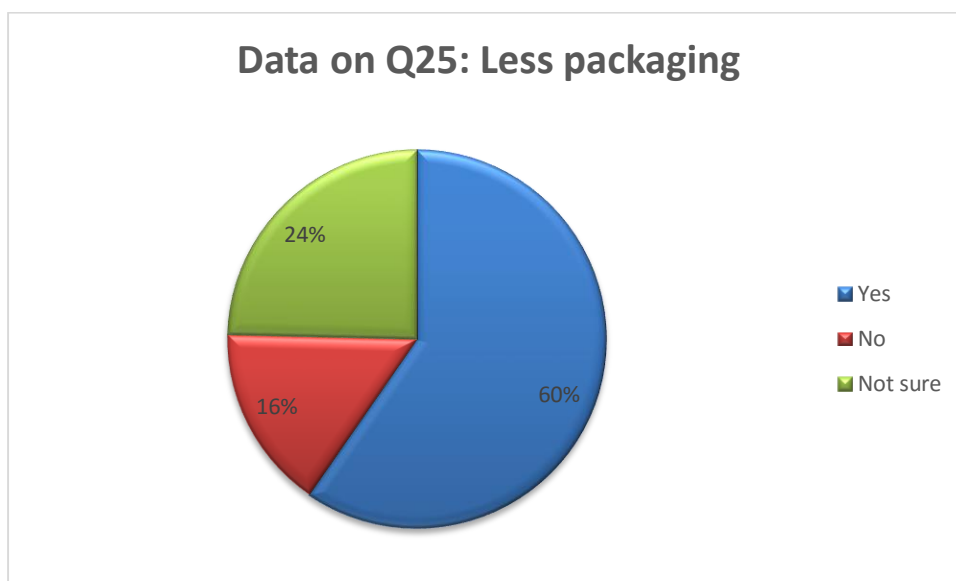
**Figure 4.20: Data on Q24: Consumes less energy in their use.**

These results indicate that 82% ( $n = 493$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it consumes less energy in their use. The mean was calculated to be 1.01 indicating that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared a belief that what makes a product green was partly the fact that it consumes less energy in their use. 18% ( $n = 104$ ) are either unsure or addressed in the negative to this statement.

#### 4.3.5.12 Q25: Less packaging

The results from 597 respondents are illustrated in Figure 4.21.

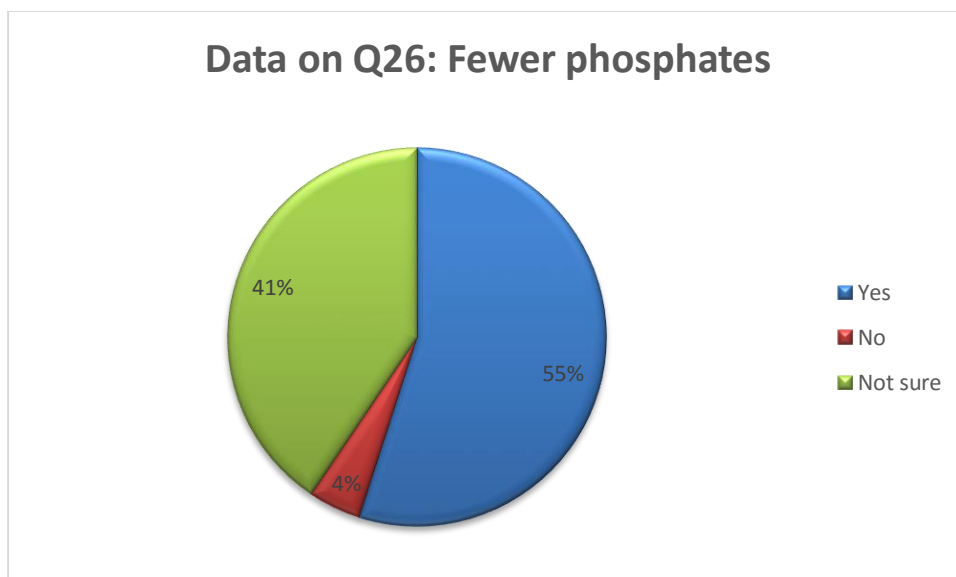
These results reveal that 60% ( $n = 356$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that contains less packaging. 40% ( $n = 241$ ) are either unsure or addressed in the negative to this statement. A mean of 1.01 was recorded. This indicates that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared a belief that what makes a product green was partly the fact that it contains less packaging.



**Figure 4.21: Data on Q25: Less packaging.**

#### 4.3.5.13 Q26: Fewer phosphates

The results from 597 respondents are illustrated in Figure 4.22.



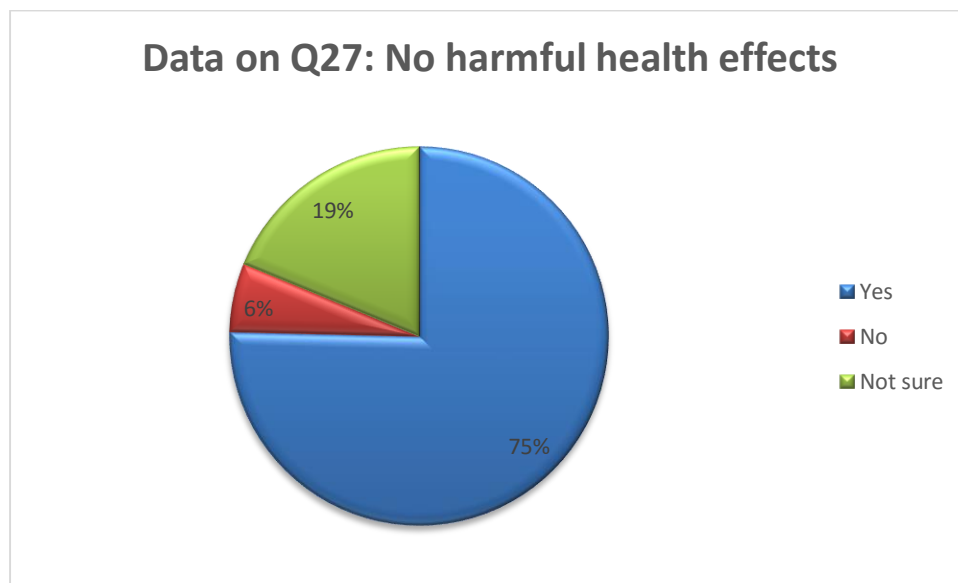
**Figure 4.22: Data on Q26: Fewer phosphates.**

These results show that 55% (n = 328) of the respondents indicated positively thereby believing that what makes a product green is the fact that it contains fewer

phosphates. 45% (n = 269) are either unsure or addressed in the negative to this statement. A mean of 1.01`was recorded. This indicates that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared a belief that what makes a product green was partly the fact that it contains fewer phosphates.

#### 4.3.5.14 Q27: No harmful health effects

The results from 597 respondents are illustrated in Figure 4.23.

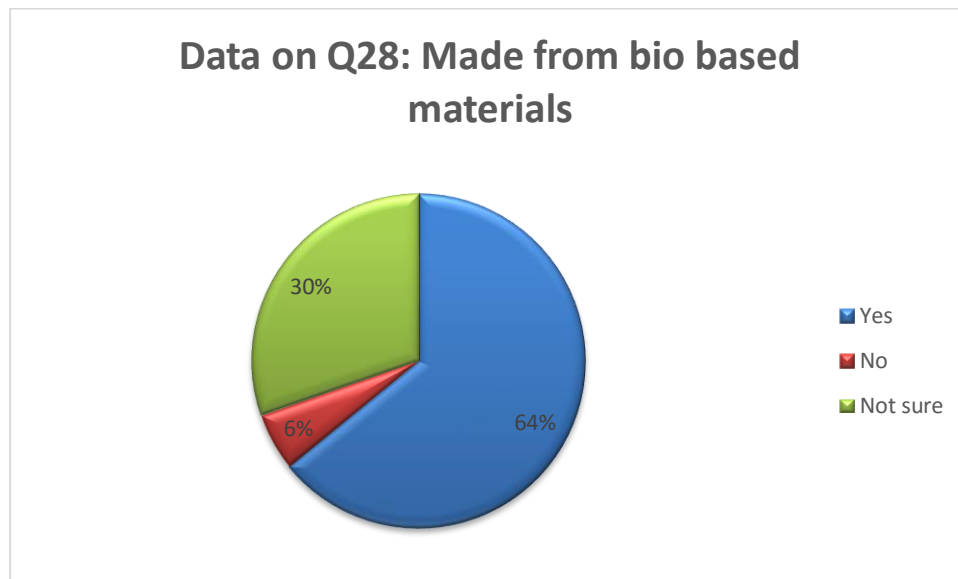


**Figure 4.23: Data on Q27: No harmful health effects.**

These results indicate that 75% (n = 450) of the respondents indicated positively thereby believing that what makes a product green is the fact that it has no harmful health effects while 25% (n = 147) are either unsure or addressed in the negative. A mean of 1.01 was calculated. This indicates that believing that what makes a product green is the fact that it has no harmful health effects was a common belief amongst the respondents as reflected by the typical response to the statement being in the affirmative.

#### 4.3.5.15 Q28: Made from bio based materials

The results 597 respondents are illustrated in Figure 4.24.



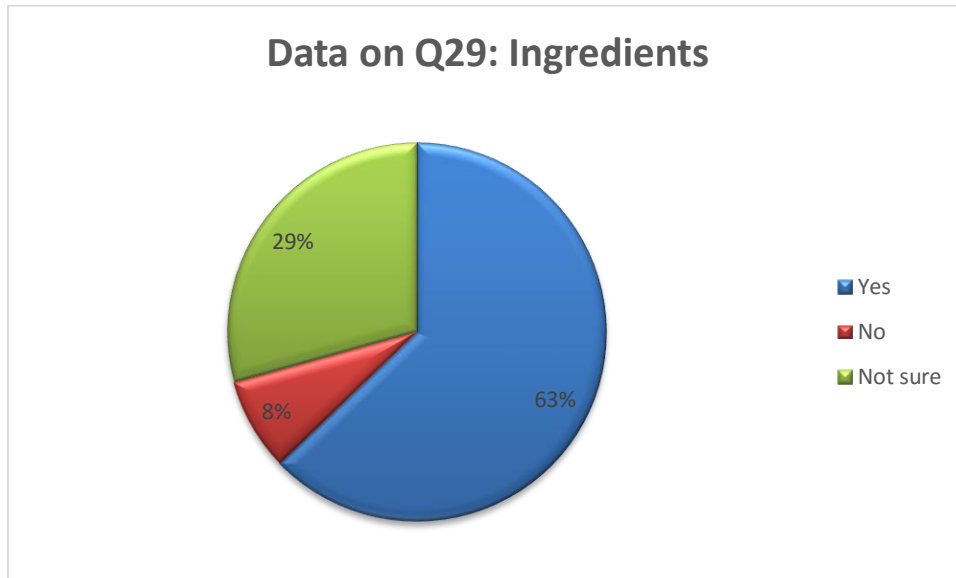
**Figure 4.24: Data on Q28: Made from bio based materials.**

These results show that 64% ( $n = 383$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it was made from bio based materials while 36% ( $n = 214$ ) are either unsure or addressed in the negative. A mean of 1.01 was recorded. This would indicate that believing that what makes a product green is the fact that it was made from bio based materials was a common belief amongst the respondents as reflected by the typical response to the statement being in the affirmative.

#### 4.3.5.16 Q29: *Ingredients*

The results from 597 respondents are illustrated in Figure 4.25.

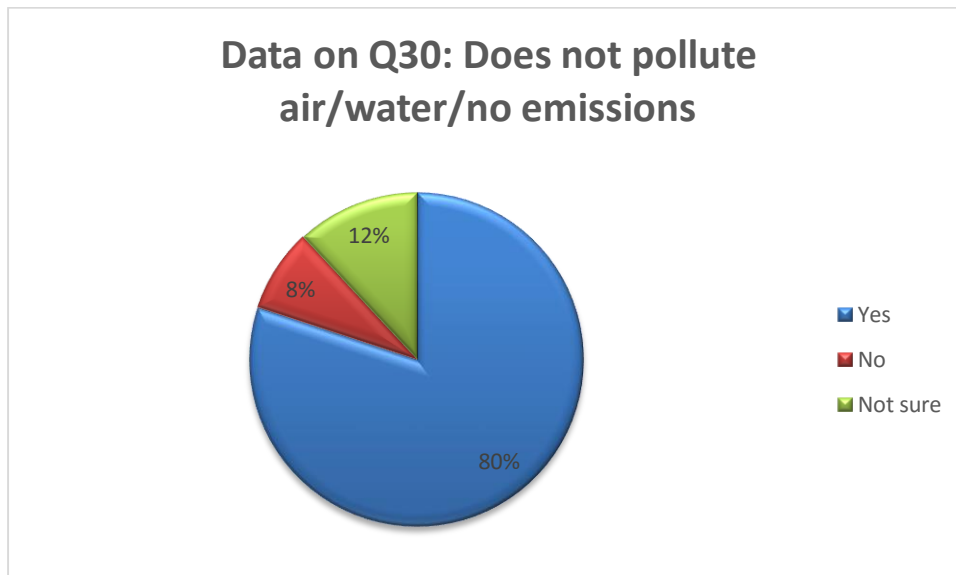
These results indicate that 63% ( $n = 375$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it was made from certain ingredients. 37% ( $n = 222$ ) are either unsure or did not believe this to be the case. The mean of 1.01 was established indicating that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared this belief.



**Figure 4.25: Data on Q29: Ingredients.**

**4.3.5.17**      *Q30: Does not pollute air/water/no emissions*

The results from 597 respondents are illustrated in Figure 4.26.



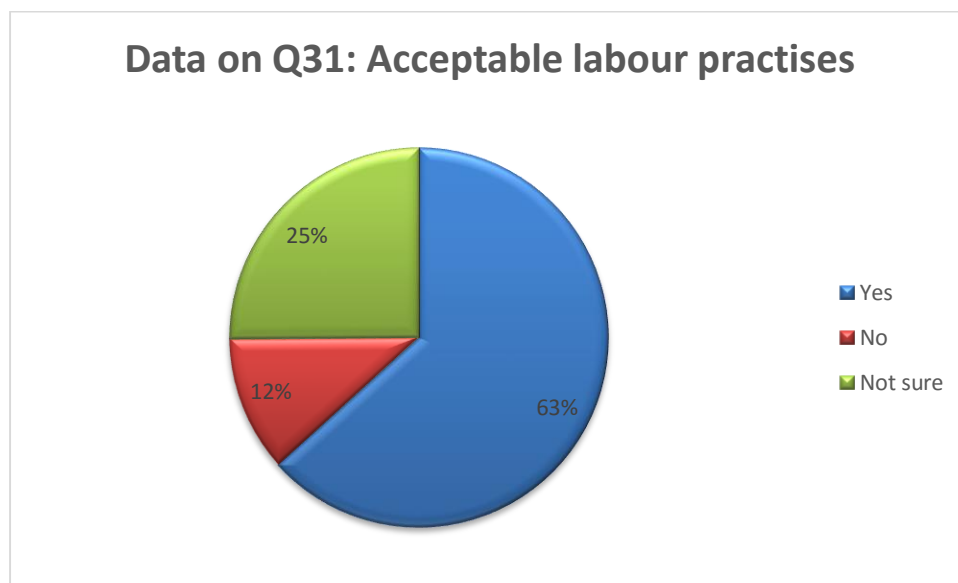
**Figure 4.26: Data on Q30: Does not pollute air/water/no emissions.**

These results reveal that 80% ( $n = 478$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it does not pollute

the air and water and has no emissions. 20% (n = 119) are either unsure or addressed in the negative to this statement. A mean of 1.01 was recorded. This indicates that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared the belief that what makes a product green was the fact that it does not pollute the air and water and has no emissions.

#### 4.3.5.18 Q31: Acceptable labour practises

The results from 597 respondents are illustrated in Figure 4.27.



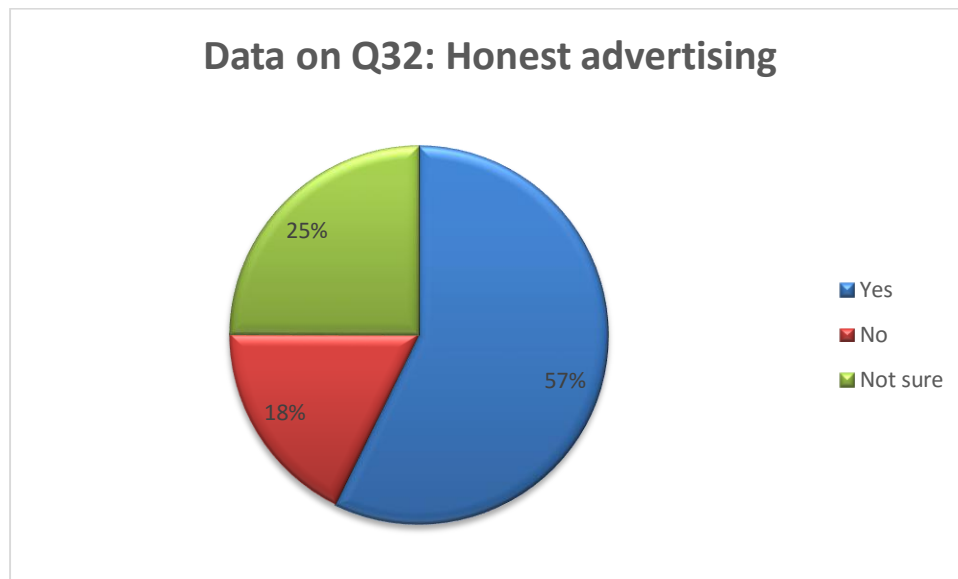
**Figure 4.27: Data on Q31: Acceptable labour practises.**

These results indicate that 63% (n = 378) of the respondents indicated positively thereby believing that what makes a product green is the fact that it is produced with acceptable labour practises. 37% (n = 219) are either unsure or simply do not believe that what partly makes a product green are acceptable labour practises. The mean established to be 1.01 indicates that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared this belief.

#### 4.3.5.19 Q32: Honest advertising

The results from 597 respondents are illustrated in Figure 4.28.





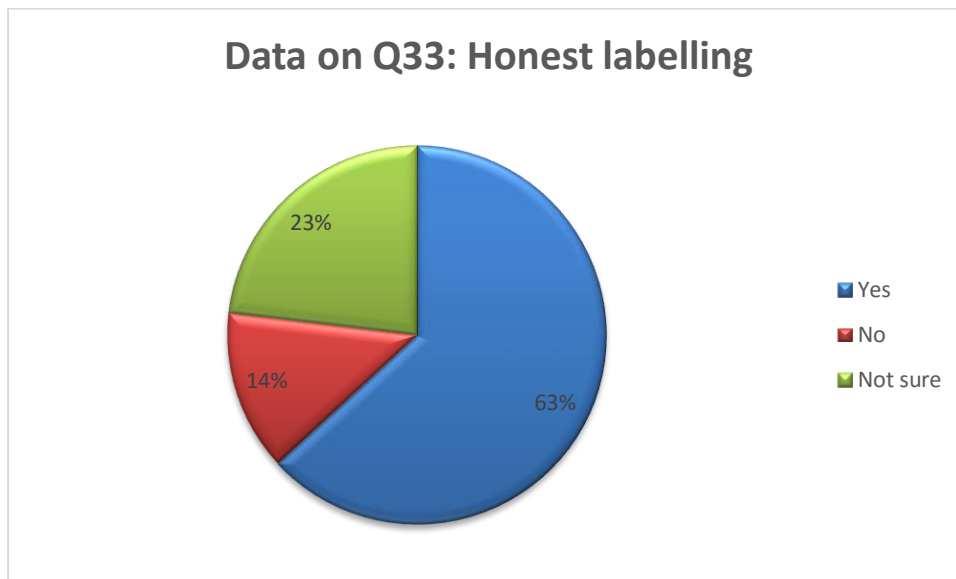
**Figure 4.28: Data on Q32: Honest advertising.**

These results indicate that 57% ( $n = 342$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it is promoted with honest advertising. The mean of 1.01 was recorded. This indicates that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared the belief that what makes a product green is the fact that it is promoted with honest advertising. 43% ( $n = 255$ ) are either unsure, do not know or simply do not believe that what partly makes a product green is the fact that it is promoted with honest advertising.

#### 4.3.5.20 Q33: Honest labelling

The results from 597 respondents are illustrated in Figure 4.29.

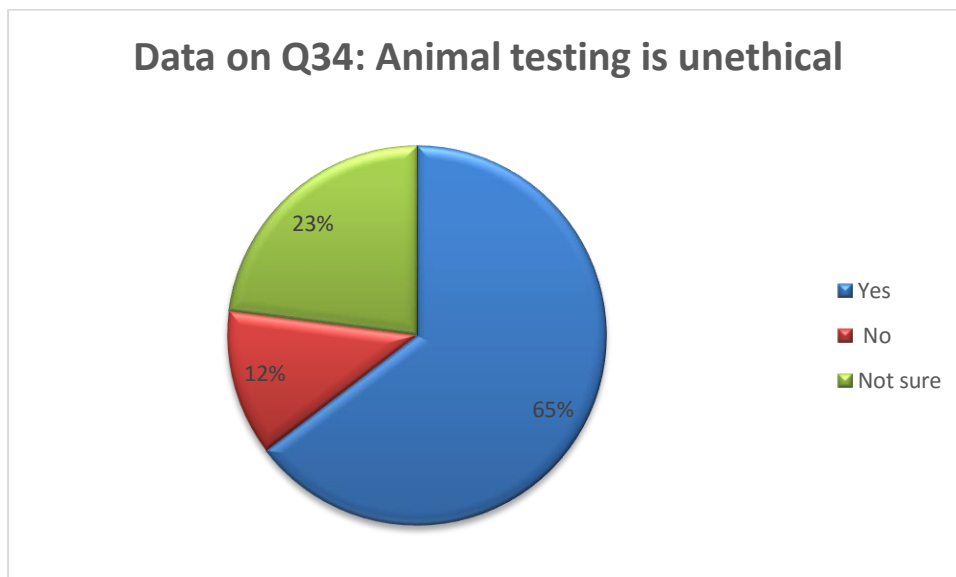
These results show that 63% ( $n = 377$ ) of the respondents indicated positively thereby believing that what makes a product green is the fact that it has honest labelling while 37% ( $n = 220$ ) are either unsure or did not know. A mean calculated at 1.01 indicates that the most common response amongst the respondents to this statement reflects a typical belief that honest labelling is partly what makes a product green.



**Figure 4.29: Data on Q33: Honest labelling.**

**4.3.5.21**      *Q34: Animal testing is unethical*

The results from 597 respondents are illustrated in Figure 4.30.



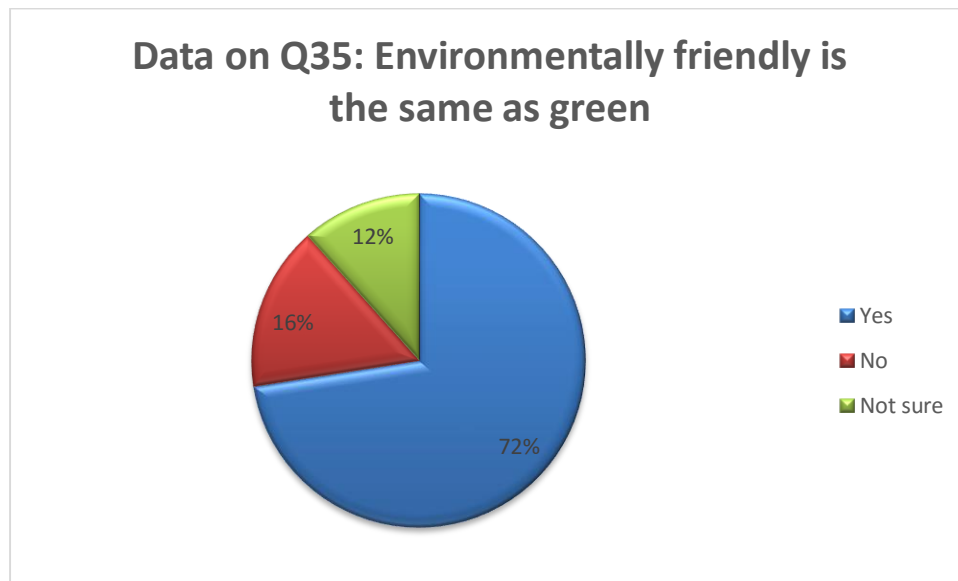
**Figure 4.30: Data on Q34: Animal testing is unethical.**

These results reveal that 65% (n = 386) of the respondents indicated positively thereby believing that what makes a product green is the fact that it is associated

with the philosophy that animal testing is unethical while 35% (n = 211) are either unsure or did not believe this statement to be true. The mean of 1.01 indicates that the most common response amongst the respondents to this statement reflects a typical belief that green products are associated with the philosophy that animal testing is unethical.

#### 4.3.5.22 Q35: *Environmentally friendly is the same as green*

The results from 597 respondents are illustrated in Figure 4.31.

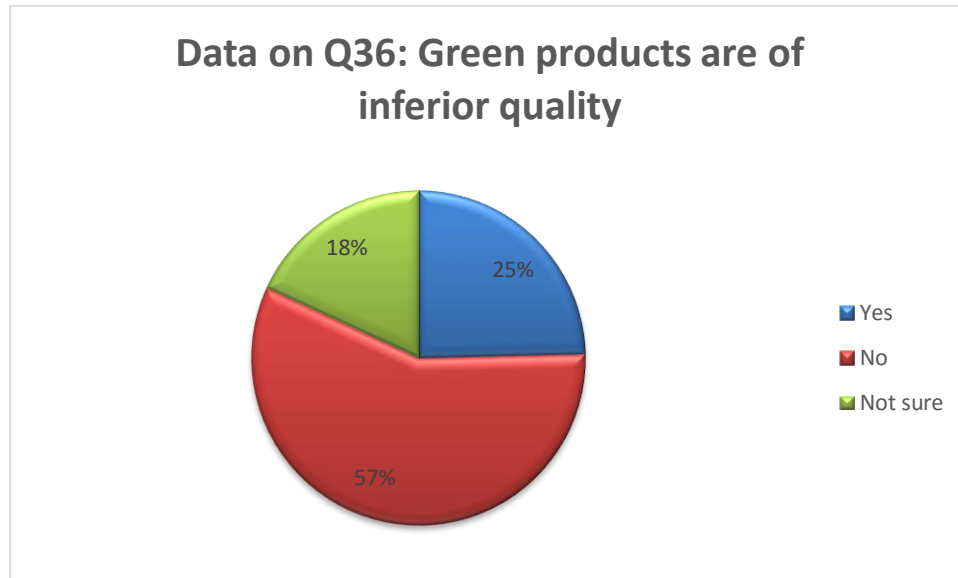


**Figure 4.31: Data on Q35: Environmentally friendly is the same as green.**

These results indicate that 72% (n = 433) of the respondents indicated positively thereby believing that what makes a product green is the fact that it is associated with the philosophy that environmentally friendly is the same as green while 18% (n = 164) are either unsure or did not know. A mean of 1.01 was established. This indicates that the most common response amongst the respondents to this statement reflects a typical belief that green products are associated with the philosophy that environmentally friendly is the same as green.

#### 4.3.5.23 Q36: *Green products are of inferior quality*

The results from 597 respondents are illustrated in Figure 4.32.



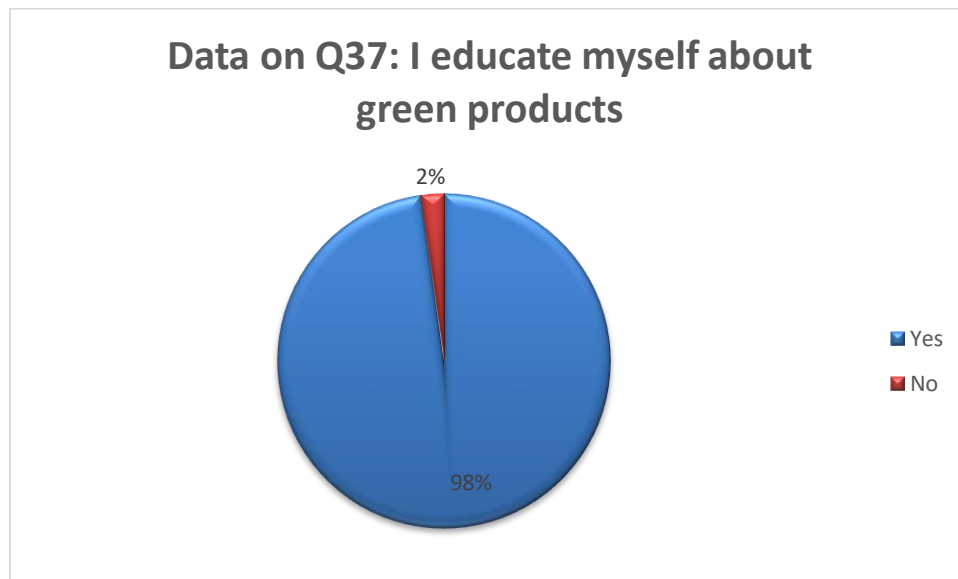
**Figure 4.32: Data on Q36: Green products are of inferior quality.**

These results indicate that 57% ( $n = 342$ ) of the respondents indicated negatively thereby believing that they disagree with the statement that green products are of inferior quality. A recorded mean of 2.00 indicates that the most common response to this statement by the respondents was in the negative. Typically, therefore the respondents shared the belief that what makes a product green was not the fact that it does not pollute the air and water and has no emissions. 43% ( $n = 255$ ) are either unsure or indicated that they agreed with this statement.

#### 4.3.5.24 Q37: *I educate myself about green products*

The results from the total sample of 597 respondents are illustrated in Figure 4.33.

These results show that 98% ( $n = 584$ ) of the respondents indicated positively thereby indicating that they believed that they educated themselves about green products. The mean of 1.01 indicates that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared the belief that they educated themselves about green products. 2% ( $n = 13$ ) indicated that they disagreed with this statement.



**Figure 4.33: Data on Q37: I educate myself about green products.**

#### 4.3.5.25 Analysis of descriptive data on green product knowledge

In the analysis it becomes apparent that a large proportion, more than three quarters, of the respondents indicated in the affirmative agreeing too many of the statements presented. This is reflected in the fact that 96% (n = 571) of the respondents indicated that they believe they know what green products are. Furthermore, when it came to statements on what made a product green large proportions of respondents believed in part that it is the fact that green products have no toxic materials, 87% (n = 517), break down naturally when disposed of, 85% (n = 509), generate less pollution from manufacture or use, 92% (n = 551), can be recycled or reused, 92% (n = 550), are made from organic materials, 83% (n = 493), consume less energy, 81% (n = 481), have a smaller carbon footprint, 81% (n = 486), are better for environment, 95% (n = 570), consume less energy in their use, 82% (n = 493) and do not pollute the air and water and has no emissions, 80% (n = 478). To add to this 98% (n = 584) of the respondents indicated that they believed that they educated themselves about green products.

The above results would indicate a belief by the respondents of possessing a good general knowledge of what green products are. It also gives an indication of what the

typical respondent believed through their common responses to these statement regarding the variable green product knowledge.

The fact that the respondents indicated in the affirmative and thus agreeing with many of the other statements posed but proportionately to a lesser degree are also considered. These include the respondents agreeing that what a makes a product green is that it is made from recycled materials, 74% (n = 443), containing less packaging, 60% (n = 356) and fewer phosphates, 55% (n = 328) together with the fact that that it was made from bio based materials, 64% (n = 383), and specific certain ingredients, 63% (n = 375). These products were also believed to be produced, marketed and promoted with acceptable labour practises, 63% (n = 378), honest advertising 57% (n = 342) and honest labelling, 63% (n = 377), whilst at the same time being associated with the philosophy that being friendly to the environment is critical, (72% (n = 433) and animal testing is unethical, 65% (n = 386).

In the analysis one could posit that the reasons for the lower proportionate affirmative responses to these statements could be that the required responses necessitate the understanding of more technical concepts within the statements themselves. For example, an understanding of the concepts recycled materials, bio based materials, phosphates, green product ingredients and animal testing.

Upon further analysis it becomes apparent further on what statements the respondents indicated in the negative and thus disagreeing with the statements posed. Interestingly the only statement in which the respondents disagreed is that green products are of inferior quality. As the question is posed in the negative this can be seen as a positive response because it implies the contrary.

The review of the literature in an attempt to compare the above findings illicit some noteworthy points. The Chain Store Age study conducted in 2007 by McKinsey & Company again becomes relevant. The study found that 50% of the consumers surveyed were not aware of or could not locate green alternatives in many product categories. Furthermore, the majority believed that green products were of a lower quality than traditional products. To add to this the majority of respondents indicated they did not fully understand environmental issues (McKinsey & Company, 2007).

The fact that the majority of this study also indicated that they did not have the knowledge of how to align their consumption behaviours in a way that contributed to a sustainable environment was also a noteworthy finding (McKinsey & Company, 2007).

The Global Green Consumer Survey conducted by the Boston Consulting Group in 2008 also provides noteworthy comparisons. In this regard 41% of respondents from European Union countries; 43% from the United States; 45% from Canada; 40% of South Korea and 60% of Chinese respondents all perceived green products to be of higher quality than traditional products (Boston Consulting Group, 2008). The current study suggests slightly more respondents associate green products with higher product quality than in 2008. The above study further found that 80% of all respondents believed that green products were those that that can be recycled or reused, generate less pollution in their production or use, are made of recycled materials, are produced in an eco-friendly ways, consume less energy in their production or use, involve less packaging, have a smaller carbon footprint, are made of natural or organic materials and are generally produced from fewer materials (Boston Consulting Group, 2008). These high incidences seems to be in line with the results of the current study.

The Sustainability Survey conducted by DuPont in 2012 conducted on the question of which green issues consumers found most important when considering purchasing green products also revealed relevant points to consider. In this regard approximately 7.9% of Asians, 10.8% of North Americans and 5.7% of Europeans addressed this question to be less pollution, 2% of Asians, 1% of North Americans and 3.6% of Europeans addressed this to be locally produced, 25.2% of Asians, 29.6% of North Americans and 30.6% of Europeans addressed this to be natural ingredients and 11.9% of Asians, 12.8% of North Americans and 14.5% of Europeans addressed this to be less packaging (DuPont, 2012). Although this study does not mirror this question like for like it indicates a relationship between these issues to green products. When viewed from this perspective the results of this current study on the questions of what makes a product green study shows a higher incidence of affirmative answers to similar if not the same associations.

#### 4.3.6 Section 5: Green product purchase behaviour

The variable green product purchasing behaviour was measured in Section 5 of the questionnaire covering the following items found in questions 38 to 46. Green product purchase behaviour was measured by a scale consisting of questions 38 to 43 and were anchored by a 5-point Likert scale (1 = Strongly Disagree and 5 = Strongly Agree). Question 44 was anchored by a nominal scale from 1 representing agreement to and to 2 representing a disagreement to the questions posed. Furthermore, question 45 is anchored by an ordinal scale ranking alternatives from 1, being most important, to 6 being least important.

##### 4.3.6.1 Q38: I buy green products

The results of 597 respondents are illustrated in Table 4.18.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>I buy green products</b>	0% (n = 3)	2% (n = 11)	31% (n = 183)	55% (n = 326)	12% (n = 74)	4.00	1	5	0.70

**Table 4.18: Data on Q38: I buy green products.**

These results revealed that the majority, 67% (n = 400), of the respondents believe that they are buying green products and participating in the green economy in some way shape or form while 33% (n = 197) are either indifferent or disagree with this statement. The mean of 4.00 indicates that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared the belief in this statement.

##### 4.3.6.2 Q39: I recycle packaging at home

The results of 597 respondents are illustrated in Table 4.19.



Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>I recycle packaging at home</b>	3% (n = 16)	16% (n = 94)	28% (n = 169)	37% (n = 220)	16% (n = 98)	4.00	1	5	1.02

**Table 4.19: Data on Q39: I recycle packaging a home.**

These results indicate that a 53% (n = 318) of the respondents believe that they recycle packaging at home. 47% (n = 279) of the respondents are either indifferent on the issue or disagree with this statement. The mean of 4.00 indicates that most of the respondents agreed with this statement. Agreeing with this statement was the most common response by all the respondents.

#### 4.3.6.3 Q40: I save power where I can

The results of 597 respondents are illustrated in Table 4.20.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>I save power where I can</b>	1% (n = 4)	1% (n = 6)	8% (n = 46)	46% (n = 275)	44% (n = 266)	4.32	1	5	0.71

**Table 4.20: Data on Q40: I save power where I can.**

These results show that a large number of the respondents, 90% (n = 541), believe that they do take steps and make decisions where possible to save power. The mean of 4.32 indicates that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared the belief in this statement. 10% (n = 56) of the respondents are either indifferent on the issue or disagree with this statement.

#### 4.3.6.4 Q41: I purchase products that are credited organic by an organisation

The results of 597 respondents are illustrated in Table 4.21.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>I purchase products that are credited organic by an organisation</b>	2% (n = 9)	7% (n = 42)	40% (n = 240)	38% (n = 228)	13% (n = 78)	3.54	1	5	0.86

**Table 4.21: Data on Q41: I purchase products that are credited organic by an organisation.**

These results indicate that 51% (n = 306) of the respondents believe that they purchase products that are credited organic. The mean of 3.54 indicates that typically respondents were neutral on this issue. This neutrality was reflected in 40% (n = 240) of the respondents indicating so. 9% (n = 51) of the respondents disagree with this statement on some level or another.

#### 4.3.6.5 Q42: Green is my responsibility

The results of 597 respondents are illustrated in Table 4.22.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>Green is my responsibility</b>	0% (n = 2)	2% (n = 9)	14% (n = 84)	46% (n = 273)	38% (n = 229)	4.21	1	5	0.76

**Table 4.22: Data on Q42: Green is my responsibility.**

These results indicate that a large portion of the respondents being 84% (n = 502) believe and agree on some level that green is their responsibility. 16% (n = 95) are either indifferent on the issue or disagree with this statement. The mean of 4.21 indicates that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared the belief in this statement.

#### 4.3.6.6 Q43: My green purchase can make a difference

The results of 597 respondents are illustrated in Table 4.23.

Question	SD	D	N	A	SA	Mean	Min	Max	Standard Deviation
<b>My green purchase can make a difference</b>	0% (n = 1)	0% (n = 2)	9% (n = 53)	44% (n = 262)	47% (n = 279)	5.00	1	5	0.67

**Table 4.23: Data on Q43: My green purchase can make a difference.**

These results show that a large portion of the sample being 91% (n = 541) believe that their green purchases can in fact make a difference to and impact the green agenda in some way. 9% (n = 56) of the respondents are either indifferent on the issue or disagree with this statement. The mean of 5.00 indicates the most typical response was the respondents strongly agreeing with the belief that their green purchases can make a difference.

#### 4.3.6.7 Q44: I have purchased a green product in the last two months

The results of 597 respondents are illustrated in Figure 4.34.



**Figure 4.34: Data on Q44: I have purchased a green product in the last two months.**

These results indicate that a large portion of the sample being 98% (n = 587) believed that they did in fact purchase a green product within the last two months. The mean of 1.01 indicates that the most common response to this statement by the respondents was in the affirmative. Typically, therefore the respondents shared the belief in this statement. Only 2% (n = 10) of the respondents indicated that they had not purchased a green product within the last two months.

#### 4.3.6.8 Q45: Which issues influence your purchase decision?

The results of Q45a to Q45e of the 597 respondents are illustrated in Table 4.24 to Table 4.28.

The results of Q45a specifically relating to the respondents degree of importance of less pollution in influencing a purchase decision are illustrated in Table 4.24.

Question	EI	VI	MI	SI	NI	EU	Mean	Min	Max	Standard Deviation
<b>Less pollution</b>	31% (n = 186)	20% (n = 122)	17% (n = 100)	16% (n = 93)	16% (n = 96)	0% (n = 0)	1.00	1	5	1,45

**Table 4.24: Data on Q45a: Less pollution.**

These results reveal that a large portion of the respondents being 84% (n = 501) believe and agree on some level that generating less pollution is an important issue influencing a purchase decision. 16% (n = 96) disagree with this statement and feel rather that this issue is not important in influencing purchasing decisions. The mean of 1.00 indicates that the most common belief to this statement by the respondents was that generating less pollution is extremely important influence in there purchase decision.

The results of Q45b specifically relating to the respondents degree of importance of natural product ingredients in influencing a purchase decision are illustrated in Table 4.25.

Question	EI	VI	MI	SI	NI	EU	Mean	Min	Max	Standard Deviation
<b>Natural Ingredients</b>	35% (n = 211)	23% (n = 138)	14% (n = 82)	16% (n = 95)	12% (n = 71)	0% (n = 1)	1.00	1	5	1,41

**Table 4.25: Data on Q45b: Natural ingredients.**

These results indicate that 35% (n = 211) believe the issue of natural product ingredients are extremely important in influencing a purchase decision. 12% (n = 71) of the respondents indicated that this issue is not important when considering the purchase decision. These results therefore indicate further that a large portion of the respondents being 88% (n = 526) believe and agree on some level that the issue of natural product ingredients in influencing a purchase decision to be extremely important. The mean of 1.00 indicates that the most common belief to this statement by the respondents was that this issue is extremely important in purchasing decisions.

The results of Q45c specifically relating to the respondents degree of importance of products being locally produced in influencing a purchase decision are illustrated in Table 4.26.

Question	EI	VI	MI	SI	NI	EU	Mean	Min	Max	Standard Deviation
<b>Locally produced</b>	16% (n = 97)	18% (n = 110)	22% (n = 130)	14% (n = 86)	30% (n = 174)	0% (n = 1)	5.00	1	5	1,41

**Table 4.26: Data on Q45c: Locally produced.**

These results show that a large portion of the respondents being 70% (n = 423) believe and agree on some level that products being locally produced is an important issue influencing a purchase decision. 30% (n = 174) disagree with this statement and feel rather that this issue is not important in influencing purchasing decisions. The mean of 5.00 indicates that the most typical response to this statement by the

respondents was that the issue of being locally produced is a not important influence in there purchase decision.

The results of Q45b specifically relating to the respondents degree importance of products containing less packaging in influencing a purchase decision are illustrated in Table 4.27.

Question	EI	VI	MI	SI	NI	EU	Mean	Min	Max	Standard Deviation
<b>Less packaging</b>	10% (n = 59)	15% (n = 92)	19% (n = 112)	27% (n = 160)	29% (n = 174)	0% (n = 0)	5.00	1	5	1,38

**Table 4.27: Data on Q45d: Less packaging.**

These results indicate that a large portion of the respondents being 71% (n = 423) believe and agree on some level that products containing less packaging is an important issue influencing a purchase decision. 29% (n = 174) disagree with this statement and feel rather that this issue is not important in influencing purchasing decisions. The mean of 5.00 indicates that believing this issue to be important in the purchasing decision was typical and thus was the most common response by the respondents on this issue.

The results of Q45e specifically relating to the respondents degree of importance of products containing recyclable packaging in influencing a purchase decision are illustrated in Table 4.28.

Question	EI	VI	MI	SI	NI	EU	Mean	Min	Max	Standard Deviation
<b>Recyclable packaging</b>	11% (n = 66)	18% (n = 108)	25% (n = 147)	25% (n = 148)	21% (n = 128)	0% (n = 0)	4	1	5	1,26

**Table 4.28: Data on Q45e: Recyclable packaging.**

These results indicate that a large portion of the respondents being 79% (n = 469) believe and agree on some level that products containing recyclable packaging is an important issue influencing a purchase decision. 21% (n = 128) disagree with this statement and feel rather that this issue is not important in influencing purchasing decisions. The mean of 4.00 indicates that believing this issue to be slightly important in the purchasing decision was typical and thus was the most common response by the respondents on this issue.

#### 4.3.6.9 Q46: I shop where green products are stocked

The results of 597 respondents are illustrated in Figure 4.35.



**Figure 4.35: Data on Q46: I shop where green products are stocked.**

These results would indicate that a large portion of the respondents being 84% (n = 501) believe that they shop where green products are stocked while 16% (n = 96) are either indifferent or disagree with this statement. A mean of 1.16 was recorded indicating that the most common response to this statement by the respondents was in the affirmative.

#### 4.3.6.10 Analysis of descriptive data on green product purchase behaviour

The analysis of the descriptive data of green product purchase behaviour reveals that more than three quarters of the respondents believed that they engaged in

certain of the listed behaviours are in some way, shape or form. This is reflected in the fact that 98% (n = 587) believed that they did in fact purchase a green product within the last two months, 90% (n = 541) believed that they do take steps and make decisions where possible to save power, 84% (n = 502) believed and agree on some level that green is their responsibility. Furthermore, 91% (n = 541) believe that their green purchases can in fact make a difference to and impact the green agenda in some way and 84% (n = 501) whilst also believing that they shop where green products are stocked. Lower incidences of other of the listed behaviours listed were however also noted. For example, 51% (n = 306) of the respondents believe that they purchase products that are credited organic, 53% (n = 318) believe that they recycle packaging at home and 67% (n = 400) of the respondents believe that they are buying green products and participating in the green economy.

When considering what factors respondents regarded as important in influencing a purchase decision 84% (n = 501) believed this to be generating less pollution, 70% (n = 423) believed this to be being locally produced, 71% (n = 423) believed this to be products containing less packaging and 79% (n = 469) believed this to be products containing less packaging. The typical respondent in this regard was shown to believe that less pollution 31% (n = 186) and the use of natural ingredients 35% (n = 211) was extremely important in influencing the purchasing decision while regarding being locally produced as only moderately important 22% (n = 130). The typical recycle further believed that recyclable packaging was only slightly important, 25% (n = 148), while less product packaging was regarded as not important at all in influencing the purchasing decision.

The above results would seem to conflict with the earlier literature in 2006 on the statistical incidence of green behaviour which seemed to suggest low incidences of green consumerism. These low levels are illustrated by a 2006 study conducted in the United States by market research consultants J.D. Power and Associates which specifically measured the incidence of green product purchasing behaviour in the FMCG sector. The study found that green purchases of various items within the FMCG sector only amounted to 3% of those sampled (J.D. Power & Associates, 2006). When further reviewing the surveyed literature this result differs also from that of some 2007 and 2008 studies on green behaviours where it was previously found



that only 33% and 50% of the respondents sampled purchased green products at the time of the study (McKinsey & Company, 2007; Boston Consulting Group, 2008).

The results in this study however sees an increase and better incidence on certain questions from previous studies conducted in 2007 where it was noted that 61% of consumers believed that it was not their responsibility to act in environmentally friendly ways but rather believed that companies had to take the initiative in dealing with the global environmental issues (Chain Store Age Publishing Corporation, 2007). The same study, when testing the actual incidence of green purchases, found that only 25% of the respondents interviewed had in fact purchased a green product before (Chain Store Age Publishing Corporation, 2007). This study does provide some positives as 87% of respondents considered environmental and social impacts when purchasing products a figure comparable to this study (Chain Store Age Publishing Corporation, 2007). It should be noted however that these differences may be a result of the fact that this study has been conducted in South Africa in 2015 and the results of those earlier studies reflecting lowered incidences of the discussed behaviours and attitudes were undertaken some time before this study. The green phenomena and its relating attitudes and behaviour have thus during this period had time to proliferate as the green agenda has become more prominent due to the consequences thereof becoming more evident.

#### **4.4 Multivariate analysis and inferential statistics**

This sub-section provides information on the multivariate analysis and inferential statistics conducted on the variables in this study. In so doing this sub-section includes a discussion on data reliability and Pearson Chi-Square test. The sub-section further provides an empirical evaluation of the hypothesised model of green product purchase behaviour where the relationships of the independent variables green consumer profiles, green product awareness, green product trust and green product knowledge with the dependant variable green product purchasing behaviour will be analysed. Lastly, the sub-section will conclude with in a summary of the main findings using existing literature as a means of comparison thereof.

#### 4.4.1 Data reliability

As discussed in Sub-section 3.6.3 and 3.6.4, Validity and Reliability are an indicator of whether repeat studies will produce the same result. The test for reliability used in this study involved calculating the internal consistency of measuring instrument responses. Cronbach's alpha coefficient is used to measure this internal consistency. A high coefficient value indicates a high internal consistency while a low value indicates the opposite.

The following guidelines in Table 4.29 have been developed:

Reliability coefficient	Interpretation
Cronbach Alpha $\geq 0.90$	high reliability
Cronbach Alpha $\geq 0.80$	moderate reliability
Cronbach Alpha $\geq 0.70$	low reliability
Cronbach Alpha $< 0.70$	unacceptable reliability

**Table 4.29: Cronbach Alpha coefficients, Collis and Hussey (2009).**

A variable is accepted to be reliable if the Cronbach's Alpha is equal to or exceeds a score of 0.70 (Hair *et al.*, 2010). Upon consideration of the variable green product purchase behaviour Table 4.30 illustrates the Cronbach's Alpha score of 0.70. The instrument and variables used to measure green product purchase behaviour do so reliably, consistently and free from random error. With reference to the variable green consumer profiles Table 4.30 illustrates the Cronbach's Alpha score as 0.77. The instrument and variables used to measure the variable green consumer profiles thus do so reliably, consistently and free from random error. When considering the variable green product trust Table 4.30 illustrates the Cronbach's Alpha score as 0.78. The instrument and variables used to measure the variable green product trust thus do so reliably, consistently and free from random error. Upon consideration of the variable green product knowledge Table 4.30 illustrates the Cronbach's Alpha score for green product knowledge as 0.74. The instrument and variables used to measure the variable green product purchase behaviour do so reliably, consistently and free from random error. Upon consideration of the variable green product

awareness Table 4.30 illustrates the Cronbach's Alpha score as 0.73. The instrument and variables used to measure the variable green product purchase behaviour do so reliably, consistently and free from random error.

The above stated Cronbach's Alpha scores for all variables in this study are depicted in Table 4.30.

Variable	Cronbach Alpha
Green product purchase behaviour	0.70
Green consumer profiles	0.77
Green product trust	0.78
Green product knowledge	0.74
Green product awareness	0.73

**Table 4.30: Cronbach alpha scores for each variable.**

#### *4.4.2 Empirical evaluation of the hypothesised model of green product purchase behaviour*

##### *4.4.2.1 Pearson Chi-Square test*

The chapter objectives will partly be achieved by applying inferential statistics to analyse and interpret the relationships between two or more variables. More specifically the Pearson Chi-Square test will be used to test the measure of association. The Chi-Square test is a statistical method used to test for relationships between two categorical variables or to test for equality of proportions across two or more populations. In this study the Chi-Squared test is used to test for a significant difference between the relationships of independent variables, green consumer profiles, green product trust, green product knowledge and green product awareness to the dependent variable green product purchasing behaviour.

##### *4.4.2.2 Hypotheses formulation*

The evidence extracted from the literature review on green product purchase behaviour was used to formulate a general assumption that green product purchase

behaviour will be significantly related to green consumer profiles, green product trust, green product knowledge and green product awareness in the FMCG sector. In order to test this, four hypothesis were formulated namely:

- H<sub>1</sub>: Green consumer profiles is significantly related to green product purchase behaviour.
- H<sub>2</sub>: Green product trust is significantly related to green product purchase behaviour.
- H<sub>3</sub>: Green product knowledge is significantly related to green product purchase behaviour.
- H<sub>4</sub>: Green product awareness is significantly related to green product purchase behaviour.

#### *4.4.2.3 Hypotheses testing and analysis of results*

Upon consideration of the variable green consumer profiles Table 4.31 provides the Pearson Chi-Square static for green consumer profiles of 393.25 with a  $p = 0.00$  calculated with 12 degrees of freedom. At a 95% confidence level it is further noted that the  $p$  value is smaller than 0.05. This indicates a significant relationship between the independent variable green consumer profiles and the dependant variable green product purchasing behaviour at this confidence level. We are thus able to state that these variables are significantly related in some way but without knowing the cause and effect or the direction of this relationship. This result indicates an acceptance of the formulated hypothesis H<sub>1</sub>: Green consumer profiles is significantly related to green product purchase behaviour.

The above finding supports the reviewed literature on green consumer profiles as positive associations, correlations and relationships between green consumer profiles and levels of pro-environmental behaviour have been identified and established. In this regard, psychographically, green consumer profiles has been found to be associated with pro-environmental behaviours including green product purchases through its impact on lifestyle, materialism, egoism, social-altruism, perceptions of the ability to affectively contribute to environmental solutions and perceptions of freedom and democracy (Singh & Singh, 2013; Sinnappan & Rahman, 2011; Sarli & Tat, 2011; Scholder, Wiener & Cohb-Walgren, 1999). The

strength of the above association is mediated by biographical variables such as gender, age, education, income and occupation (Diamantopoulos, *et al.*, 2003).

Upon consideration of the variable green product trust Table 4.31 further provides the Pearson Chi-Square static for green product trust of 56.40 with a  $p = 0.00$  at a 95 confidence level and 12 degrees of freedom. It is noted that the  $p$  value is smaller than 0.05. This indicates a significant relationship between the independent variable green product trust and the dependant variable green product purchasing behaviour. We are thus able to state that these variables are significantly related but without knowing the cause and effect of each or direction of this relationship. This result indicates an acceptance of the formulated hypothesis  $H_2$ : Green product trust is significantly related to green product purchase behaviour.

The above finding supports the reviewed literature on green product trust as positive associations, correlations and relationships between green product trust and levels of pro-environmental behaviour have been identified and established. In this regard green product trust has been found to be positively associated and correlated to levels of involvement in green behaviours and green product purchases. The relationship is mediated by levels of brand equity, loyalty and image, perceptions of product value, perception of deliverability of product attributes, perceptions of informational value, perceptions of green marketing believability and perceptions of company expertise, competence, honesty and credibility (Sekhon *et al.*, 2014, Chen & Chang, 2012). Green product trust has also been found to be negatively associated and correlated to levels of consumer scepticism as to whether green products or green product communications are able to deliver what they promise (Chen & Chang, 2013; Changa, 2011). Although the current study did not test what variables mediated the established relationship between the independent variable green product trust and the dependant variable green product purchasing behaviour we can only but speculate that the fact that less than half of our respondents believe green product claims may have a similar mediating affect.

Upon considering the variable green product knowledge Table 4.31 also illustrates that the Pearson Chi-Square static for green product knowledge of 1.85 with a  $p = 0.603$  and 12 degrees of freedom. It is noted that the  $p$  value is greater than 0.05. This indicates at a confidence level of 0.95 that no relationship between the

independent variable green product knowledge and the dependant variable green product purchasing behaviour was established. We are thus able to state that these variables are not significantly related or associated. This result indicates that the formulated hypothesis H<sub>3</sub>: Green product knowledge is significantly related to green product purchase behaviours cannot be accepted.

The above finding is contrary to and does not support the reviewed literature on green product knowledge as positive associations, correlations and relationships between green product knowledge and levels of pro-environmental behaviour have been identified and established in the literature. In this regard green product knowledge, was in general, found to be positively associated and correlated to motivations to purchase green products, perceptions of product quality, value and effectiveness, product familiarity, product expertise, product trust, consumer confidence and access to and availability of product information (Tan & Lau, 2011; Brown, Dury & Holdsworth, 2009; Bonini & Oppenheim, 2008; Moreau, Lehmann & Markman, 2001; Scholder, Wiener & Cohb-Walgren, 1999). Furthermore, product knowledge has been positively associated and correlated to a consumer's ability to gauge product price as a reliable indicator of value (Bei & Widdow, 2005).

These positive associations and correlations in the literature were found however to be mediated by the level of the understanding and relative importance of product information, the product attributes being evaluated, the amount of product knowledge needed in the evaluation process and consumer scepticism (Aertsens, *et al.*, 2011; D'Souza, *et al.*, 2007). The ability of green product knowledge to predict specific environmental behaviours was further mediated by a consumer's levels of environmental concern, perceptions of environmental responsibility and perceptions of control over environmental issues (Barr *et al.*, 2003).

Specifically, with reference to the types of product knowledge, the use of subjective product knowledge was found to be positively correlated to consumer confidence and the perceptions of risk inherent within the product purchase, whilst objective product knowledge is positively correlated to the use of independent sources of information to evaluate purchases (Gregar-Paxton & Roedder-John, 1997). The above relationships were mediated by levels of consumer intellect (Gregar-Paxton & Roedder-John, 1997). Due to its limited scope however this study did not test what

variables mediated, moderated or could have influenced the relationship or lack thereof between the independent variable green product knowledge and the dependant variable green purchasing behaviour. This treatise is thus unable to determine the predominant causes of the lack of any significant relationship between these two variables.

Upon consideration of the variable green product awareness Table 4.31 illustrates the Pearson Chi-Square static for green product awareness of 103.98 with a  $p = 0.00$  calculated with 12 degrees of freedom. At a 95% confidence level it is further noted that the  $p$  value is smaller than 0,05. This result indicates a significant relationship between the independent variable green product awareness and the dependant variable green product purchasing behaviour. We are thus able to state they these variables are significantly related in some way but without knowing the cause and effect or the direction of this relationship. This result indicates an acceptance of the formulated hypothesis H<sub>4</sub>: Green product awareness is significantly related to green product purchase behaviour.

The above finding supports the reviewed literature on green product awareness as positive associations, correlations and relationships between green product awareness and levels of pro-environmental behaviour have been identified and established. In this regard there is a positive correlation between green product awareness and levels of pro-environmental behaviour, willingness to incorporate green products into choice sets, willingness to pay a premium for green products and green purchase intentions (Kotchen & Reiling, 2000). These relationships are mediated however by social influence, environmental attitude, environmental concern, perceived seriousness of environmental problems, perceived environmental responsibility, perceived effectiveness of environmental behaviour, levels of involvement in the green economy and concern for self-image in environmental protection (Lee, 2008; Yeung, 2004; Kotchen & Reiling, 2000; Lai, 2000). Levels of green product awareness are further determined by demographic variables, social variables, economic variables and the availability of and access to green product and green market information (Mannetti et al., 2004).

Table 4.31 provides a tabular summary of the results of the hypothesis testing undertaken in this study.

Hypothesis	Hypothesis Description	Pearson Chi-Square	Relationship	Hypothesis Accepted or Rejected
H <sub>1</sub>	<i>Green consumer profiles is significantly related to green product purchase behaviour</i>	393.25 p = 0.00	Significant relationship	Accepted
H <sub>2</sub>	<i>Green product trust is significantly related to green product purchase behaviour</i>	56.40 p = 0.00	Significant relationship	Accepted
H <sub>4</sub>	<i>Green product awareness is significantly related to green product purchase behaviour</i>	103.98 p = 0.00	Significant relationship	Accepted
H <sub>3</sub>	<i>Green product knowledge is significantly related to green product purchase behaviour</i>	1.85 p = 0.603	No relationship	Rejected

**Table 4.31: Empirical results of hypothesis testing.**

These results would indicate that the proposed relationships, as indicated in the Figure 2.18 have all been successfully verified.

#### **4.5 Significance of the differences of relationships in the hypothesised model of green product purchase behaviour.**

This sub-section identifies and analyses the differences in relationships of the independent variables green consumer profiles, green product awareness, green product trust and green product knowledge with the dependant variable green product purchasing behaviour occurring in the hypothesised model of green product purchasing behaviour for the FMCG sector. Lastly, this sub-section highlights the significance of the differences of these relationships. The possible meanings of these differences are further expounded upon.

The difference in relationships between of the independent variables to the dependant variable in the model of green product purchasing behaviour for the



FMCG sector are illustrated in Figure 4.36 representing the conceptual model of green product purchasing behaviour.

An analysis of the significance in differences of relationships of the variables reveals that a significant relationship between the independent variables green consumer profiles, green product trust and green product awareness with the dependant variable green product purchasing behaviour at a confidence level of 0.95 was established. This result was significantly different to the lack of relationship established for the variables green product knowledge and green product purchasing behaviour. This indicates at a confidence level of 0.95 that no relationship between the independent variable green product knowledge and the dependant variable green product purchasing behaviour was established.

Of further noteworthy significance was the fact that the independent variable green consumer profiles displayed the most significant relationship to green product purchase behaviours with a Chi-Square static of 393.25 and a  $p = 0.00$ . This was followed by green product awareness and then green product trust representing a Chi-Square static of 103.98 with a  $p = 0.00$  and Chi-Square static of 56.40 with a  $p = 0.00$ , respectively. It was further found that the significance in the difference in strength of the relationships of these variables lay in the fact that although green product awareness and trust may influence green product purchase behaviours it was a combination of psychographic variables reflecting a consumers general attitudes and beliefs towards the green agenda that displays the most significant relationship to green product purchase behaviour.

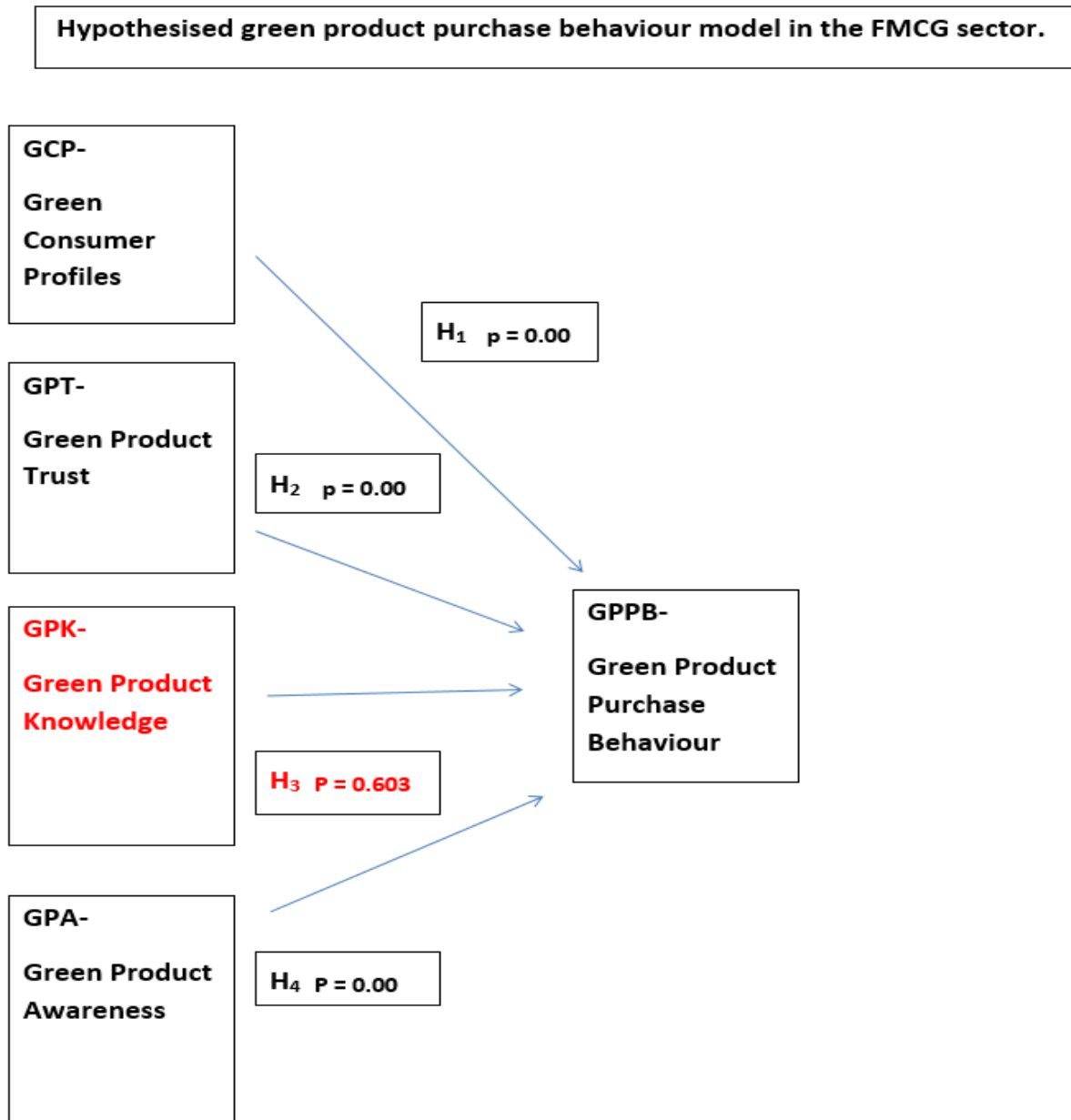


Figure 4.36: Difference in relationships between of the independent variables to the dependant variable in the model of green product purchasing behaviour for the FMCG sector.

- H<sub>1</sub>: GCP is significantly related to GPPB
- H<sub>2</sub>: GPT is significantly related to GPPB
- **H<sub>3</sub>: GPK is not significantly related to GPPB**
- H<sub>4</sub>: GPA is significantly related to GPPB

## 4.6 Chapter summary

Through an analysis and interpretation of the primary data Chapter 4 addressed following research questions, RQ<sub>4</sub>, *“What relationships between independent and dependent variables can be verified through the empirical evaluation of the hypothesised model for green product purchase behaviour in the FMCG sector?”*, RQ<sub>5</sub>, *“Which independent variables in the hypothesised model of green product purchasing behaviour have a significant relationship to green product purchasing behaviour in the FMCG sector?”* and RQ<sub>6</sub>, *“What is the significance of the difference in the relationship of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector?”*. Chapter 4 addressed these research questions through achieving the following research objectives RO<sub>4</sub>, *“Empirically evaluate the hypothesised model of green product purchase behaviour in order to accept or reject the formulated hypotheses”*, RO<sub>5</sub>, *“Establish which of the identified variables in the hypothesised model of green product purchase behaviour are significantly related to green product purchasing behaviour in the FMCG sector”* and RO<sub>6</sub>, *“Establish the significance of the difference in relationships between of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector”*.

These outcomes were achieved by addressing specified topics within sub-sections outlined within the chapter. Sub-section 4.1 provided a brief summary of the material covered in Chapter 3 thereafter setting out the research questions and objectives to be addressed in Chapter 4. Sub-section 4.2 discussed the data analysis and interpretation methods used in this study. It was established that the primary data was obtained from survey questionnaires and were analysed by using two statistical analysis techniques referred to as univariate and multi-variate analysis.

Sub-section 4.3 concentrated on the descriptive statistics for the variables and items contained in the study questionnaire (Appendix A). It did so with reference to the biographical data, occurring in Section 1 of the questionnaire, the variable green consumer profiles, an independent variable, measuring both biographic data from information collected from Section 1 and pshychographic data from information collected from questions Q2, Q3, Q4, Q5, Q38, Q39, Q40, Q4, Q42, Q43 and Q52 of

the questionnaire, the variable green product awareness, an independent variable, measured from information collected in Section 2 of the questionnaire, the variable green product trust, an independent variable, measured from information collected in Section 3 of the questionnaire, the variable green product knowledge, an independent variable, measured in from information collected from Section 4 the questionnaire and the variable green purchasing behaviour, the dependent variable, was measured from information collected in Section 5 of the questionnaire.

In the descriptive analysis of the biographical data it was established that out 597 respondents the typical respondent was female, aged between 26 and 55, of European or African descent, earning between 10 000 and 30 000 rand per month and predominantly residing in the coastal areas of South Africa namely Border, Eastern Cape and the Western Cape area. In the descriptive analysis of the data for the independent variable green consumer profiles measuring both biographical and psychographical variables thereof. Pysychographically, the respondents in this study were found further too typically believe that they understand the concept of and can identify green products. The respondents further believed that their green purchases can in fact make a difference to and impact in some way the green agenda and that they have purchased a green product within the last two years. Furthermore, three quarters of the respondents in the sample also deliberately shops where green products are stocked and take steps where possible to save power and believe further that green is their responsibility. Together with these results more than half but less than three quarters of the respondents believe that they are aware of green product labelling requirements, that they are buying green products and participating in the green economy in some way shape or form, that they purchase products that are credited organic and are willing to pay a premium for green products. It was noted that this green profile partly accords with what the literature has found on this issue (Ottman 2011, Fisher, Bashyal & Bachman, 2012).

When analysing the descriptive data on the independent variable green product awareness it was established that more than seventy five percent believed that they were living a green life to some extent or another. This while more than half of the respondents believed that they understand the concept of green products, that they can identify green products and that they are aware of green product labelling

requirements. Less than half of the respondents however believed that they were aware of green product certifications. Less than half of the respondents also agreed on some level that they actually consider green issues when making purchase decisions. It was noted that these results indicate a belief by the respondent of good to moderate green product awareness levels. When comparing the findings to studies such as The Chain Store Age study conducted by McKinsey and Company, the 2008 Global Green Consumer Survey conducted by the Boston Consulting Group, the GFK Roper Green Gauge report and the Sustainability Survey 2012, by DuPont it was noted that the findings were mixed. The current study seemed to produce a respondent who believed in a better ability to identify and locate green products but a lower consideration, in general, of environmental issues. Furthermore, when considering the extent to which respondents were engaged in green behaviours as an indication of living a green life it was accepted that the current study produced similar proportions thereto.

When the descriptive data on the independent variable green product trust was analysed it revealed moderate to high levels of green product trust as more than half of the respondents addressed in the affirmative to many of the listed statements thereon. This as the results indicate that the majority of the respondents believe that fewer resources are utilised to produce green products, that green products are always safe and always consider human safety. They further believe that green products always consider environmental safety. It was further noted that more than half of the respondents did not believe that green products live up to their claim or were readily available. When reviewing the literature of The Chain Store Age study of 2007, the Global Green Consumer survey of 2008 and the Eurobarometer of 2009 it was established that although the results were mixed and questions not matched like for like the current study found similarities on the levels of trust respondents had on green product claims and their ability to locate green products. This became evident as literature reviewed also indicated that less than half of the respondents did not trust green product claims.

The descriptive data of green product knowledge was also analysed. It was found that the typical respondent believed they know what green products are. The typical respondent also believed that green products are those that have no toxic materials,

break down naturally when disposed of, generate less pollution from manufacture or use, can be recycled or reused, are made from organic materials, consume less energy and have a smaller carbon footprint. The typical respondent believed further that green products are those that are better for environment, consume less energy in their use and do not pollute the air and water as well as having no emissions. To add to this, it was found that more than three quarters of the respondents indicated that they believed that they educated themselves about green products. It was accepted that these may indicate a belief by the respondents of possessing a good general knowledge of what green products are. When comparing the findings to the Sustainability Survey conducted by DuPont in 2012 on similar questions it was accepted that the results of this study on the questions of what makes a product green shows a higher incidence of affirmative answers to similar if not the same statements posed.

The analysis of the data on the dependant variable green product purchasing behaviour revealed that the typical respondent believed that they engaged in certain of the listed green behaviours in some way, shape or form and even believed that they did in fact purchase a green product within the last two months while shopping where green products are stocked. The typical respondent furthermore believed that going green is their responsibility and that their green purchases can in fact make a difference to and impact the green agenda in some way. Lower incidences of other of the listed behaviours listed were however also noted. It was revealed that average respondents believed important factors in influencing a purchase decision was pollution, product production location, packaging and product ingredients. It was noted that the above results would seem to show a greater incidence of green product purchasing behaviour as illustrated by the above questions than the 2006 study by J.D. Power and Associates, the Chain Store Age survey conducted by McKinsey & Company in 2007 and the Global Green Consumer Survey conducted in 2008. It was noted specifically that the respondents in this study generally showed a greater incidence of having actually purchased green products at the time of the study. It was also noted that these differences could be a result of the fact that this study has been conducted in South Africa in 2015 and the results of those earlier studies reflecting lowered incidences of the discussed behaviours and attitudes were undertaken some time before this study.

Sub-section 4.4 covered multivariate analysis and inferential statistics in order to achieve RO<sub>4</sub>, RO<sub>5</sub> and RO<sub>6</sub>. In so doing it was established that all variables in this study were regarded as reliable with reference to the Cronbach Alpha standard. Furthermore, a significant relationship between the independent variables green consumer profiles, green product trust and green product awareness was established. This study was thus able to state that these variables are significantly related in some way but without knowing the cause and effect or the direction of this relationship. It was further noted that the above findings accorded, in general, to that posed by the existing literature in this regard. Lastly, no significant relationship between the independent variable green product knowledge and the dependant variable green product purchasing behaviour was found. It was established that this did not accord with the literature on green product knowledge.

Sub-section 4.5 provided a summary of the empirical evaluation of the hypothesised model of green product purchase behaviour in order to achieve the research objective RO<sub>6</sub>. In so doing it was established that the independent variables green consumer profiles, green product trust and green product awareness are significantly related to the dependent variable green product purchase behaviour. It was also established that green product knowledge did not reflect any significant relationship to green product behaviour. It was established that the independent variable green consumer profiles displayed the most significant relationship to green product purchase behaviours followed by green product awareness and then green product trust. It was further noted that the significance in the difference in strength of the relationships of these variables lay in the fact that although green product awareness and trust may influence green product purchase behaviours it was a combination of psychographic variables reflecting a consumers general attitudes and beliefs towards the green agenda that displays the strongest relationship to green product purchase behaviour.

Chapter 5, will provide conclusions that can be drawn from this study and recommendations. Furthermore opportunities for further studies will be highlighted.

## **CHAPTER 5 FINDINGS, RECOMMENDATIONS AND CONCLUSIONS**

### **5.1 Introduction**

Marketers of goods and services have tremendous power which can be utilised in ways that bring potentially both positive and or negative outcomes for the organisation and society at large (Ottman, 2010). With the power to design and promote more sustainable goods, services, products and technologies marketers find themselves in a unique position to assist consumers change to more sustainable living patterns to be expressed through their consumption choices (Ottman, 2010).

This reality is especially important as it is beyond doubt that consumption patterns are having an impact on society and the planet (Sanders & Wood, 2014). As a result of these revelations, certain segments of the consumer market have begun to adjust both spending patterns and behaviours in order to satisfy their needs and desires to potentially contribute to the solution to the impending environmental, social and economic fallout (Weybrecht, 2010). As a result consumers have indicated a willingness to support companies engaged in sustainable business practises and additionally select environmentally friendly product alternatives in order to negate any negative effects that choices may having on the environment (Sanders & Wood, 2014).

Companies and marketers alike have incentives to get on the green bandwagon for the following reasons: The many growth opportunities presented by a rapidly growing green economy; the protection of brand equity by not to being labelled by an ever vocal green market segment as engaging in unsustainable business practises; reaping the benefits of being associated as green and conducting sustainable operations; increasing the amount of goodwill between the organisation and many of its internal and external stakeholders by using the sustainability agenda to engage in transparent dialogue when executing its own sustainability agenda and to reap the benefits at being at the forefront of the suitability narrative and conversation (Benn, Dunphy & Griffiths, 2014).

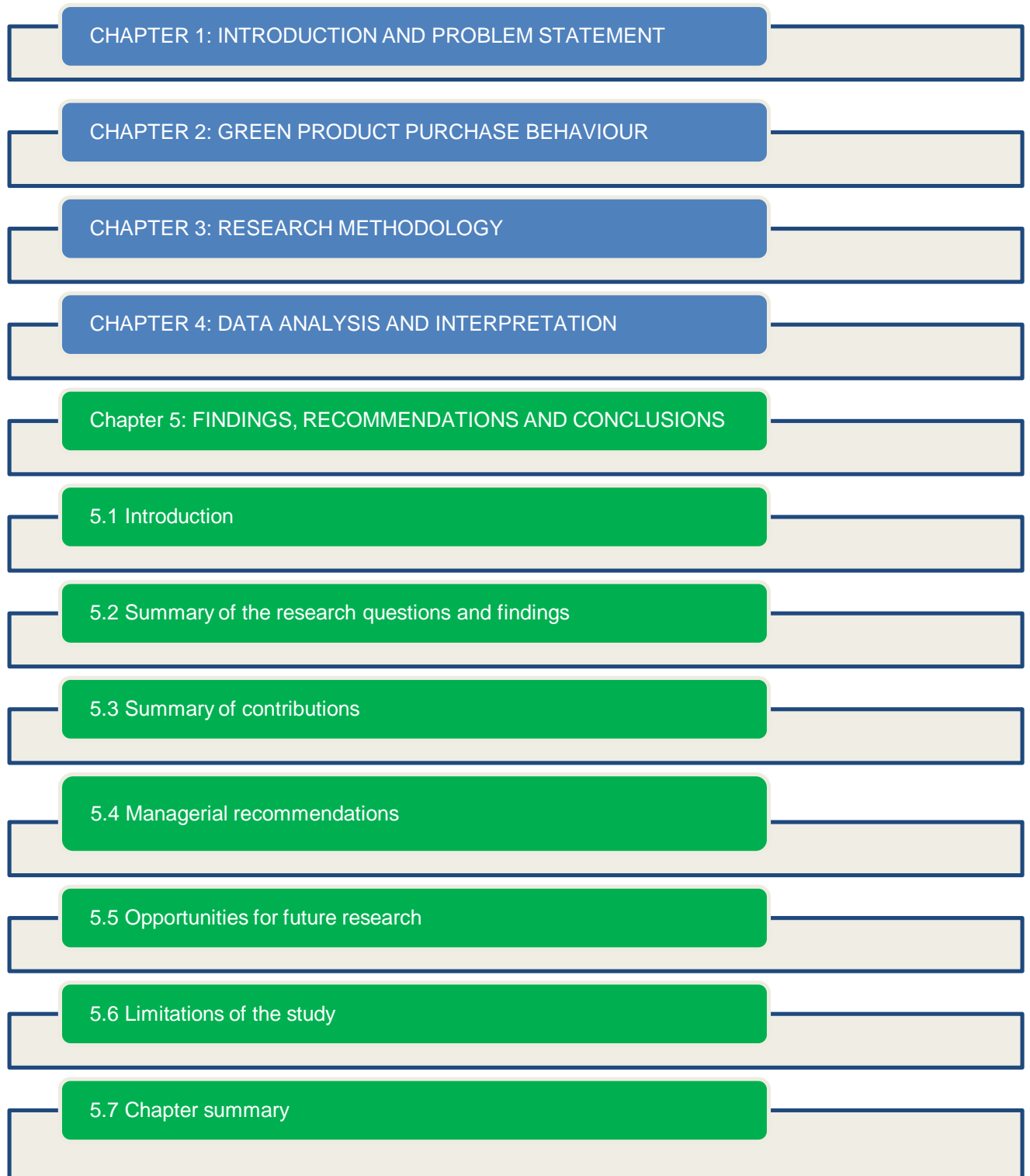


In order to successfully target and capitalise on the profit potential of this emerging consumer segment and the many opportunities the sustainability agenda offers marketers are thus feverishly engaged in gaining a greater insight and understanding into the drivers of green consumer behaviour and green buying decision processes in spite of gaps in the knowledge thereon still exiting (Weybrecht, 2010).

In Chapter 2, a literature review was conducted to establish the significant associations and relationships between green product purchase behaviour and its various predictors and antecedents. The chapter highlighted four specific variables and culminated in the development of a hypothesised model in Sub-section 2.10 of green product purchase behaviour incorporating the independent variables green consumer profiles, green product trust, green product knowledge and green product awareness and the dependant variable green product purchase behaviour. The research methodology for this treatise was identified in Chapter 3. In Chapter 4, an analysis of the findings and an interpretation of the results were conducted.

This chapter will deal with the research findings, recommendations and conclusions in the sub-sections to follow:

Sub-section 5.1 provides a brief introduction setting out the context within which this treatise was conducted. Sub-section 5.2 contains a discussion on the research questions in this study to determine whether the research conducted, effectively addresses each of these questions. Sub-section 5.3 provides a summary of the contributions made by the findings of this treatise. Sub-section 5.4 will further provide managerial recommendations based on the findings arrived at in this study. Sub-section 5.5 discusses the opportunities for further research. Sub-section 5.6 provides a discussion on the limitations of the research. Sub-section 5.7 provides a brief chapter summary. An overview of this chapter can be seen in Figure 5.1.



**Figure 5.1: Overview of Chapter 5.**

## 5.2 Summary of the research questions and findings

Six research questions were identified and investigated in order to address the main research question of this treatise. This sub-section contains summaries of these investigations.

The main research question of the research (**RQ<sub>M</sub>**) was, “*What is the significance of the relationships to green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge in the FMCG sector?*” Sub-questions (RQ<sub>1</sub> to RQ<sub>6</sub>) were identified and investigated in order to address to this main research question. These sub-questions were as follows:

- **RQ<sub>1</sub>:** *What is the significance of the relationships between green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour in the FMCG sector?*
- **RQ<sub>2</sub>:** *What variables are to be included in the hypothesised model of green product purchase behaviour in the FMCG sector?*
- **RQ<sub>3</sub>:** *How can a detailed description of the research methodology be provided in order to understand and reproduce this treatise in future?*
- **RQ<sub>4</sub>:** *What relationships between independent and dependent variables can be verified through the empirical evaluation of the hypothesised model for green product purchase behaviour in the FMCG sector?*
- **RQ<sub>5</sub>:** *Which independent variables in the hypothesised model of green product purchasing behaviour have a significant relationship to green product purchasing behaviour in the FMCG sector?*
- **RQ<sub>6</sub>:** *What is the significance of the difference in the relationship of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector?*

### 5.2.1 Research question RQ<sub>1</sub>

The first research question was stated as, “*What is the significance of the relationships between green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour in the FMCG sector?*” In order to successfully address this research question, RO<sub>1</sub>

namely, “Conduct a literature review in order to identify and establish the related variables with green product purchasing behaviour with specific reference to green consumer profiles, green product awareness, green product trust and green product knowledge” was formulated.

In order to address this research question and achieve this research objective a literature review was conducted in Chapter 2. This literature review discussed green product purchase behaviour and highlighted the green economic context within which green product purchase behaviour currently finds itself.

Sub-section 2.2 revealed that green product purchase behaviour is a complex variable being both positively and negatively impacted by many variables. (Matthesa & Wonneberger, 2014; Hanson, 2013; Papista & Krystallis, 2013; Khare, Mukerjee & Goyal, 2013; Baqer, 2012; Tucker, Rifon, Lee & Reece, 2012; Kaufmann, Fateh, Panni & Orphanidou, 2012; Smith, 2012; Durif, Roy & Boivin, 2012; Michaud & Llerena, 2011; Griskevicius et al., 2010; Belz, 2009; Rokka & Ursitalo, 2008; Vermeir & Verbeke, 2008; Mostafa, 2007; Sánchez-Fernández & Iniesta-Bonillo, 2007; Hartmann & Apaolaza Ibáñez, 2006; Kim & Choi, 2005; Tanner & Kast, 2003; Nordlund & Garvill, 2002). It was established that green product purchase behaviour is directly predicted by consumer profiles being both demographic and psychographic characteristics, environmental attitudes and awareness, green product awareness, green product knowledge and green product trust (Hanson, 2013; Papista & Krystallis, 2013; Baqer, 2012; Kaufmann, Fateh, Panni & Orphanidou, 2012; Durif, Roy & Boivin, 2012; Michaud & Llerena, 2011; Griskevicius et al., 2010; Vermeir & Verbeke, 2008; Mostafa, 2007; Hartmann & Apaolaza Ibáñez, 2006; Kim & Choi, 2005; Nordlund & Garvill, 2002; Rokicka & Słomczyńska, 2002). Furthermore, the literature indicated that the strength of the relationships between green product purchase behaviour and environmental attitudes and awareness, green product awareness, green product knowledge and green product trust are further indirectly mediated by demographic, psychographic, social, political and economic variables (Hanson, 2013; Papista & Krystallis, 2013; Baqer, 2012; Kaufmann, Fateh, Panni & Orphanidou, 2012; Durif, Roy & Boivin, 2012; Michaud & Llerena, 2011; Griskevicius et al., 2010; Vermeir & Verbeke, 2008; Mostafa, 2007;

Hartmann & Apaolaza Ibáñez, 2006; Kim & Choi, 2005; Nordlund & Garvill, 2002; Rokicka & Słomczyńska, 2002).

The profiles of the green consumer were also reviewed in Sub-section 2.3. It was revealed that green product purchase behaviours are predicted, demographically, by socially active, younger to middle-aged, highly educated, White professional females who earn above average incomes (Chitra, 2007; Natural Marketing Institute, 2009; Ottman, 2011 Goyal, 2014; Fisher, Bashyal & Bachman, 2012; Baqer, 2012; Gesellschaft für Konsumforschung & Roper Consulting, 2012; Goyal, 2014). The green consumer was found psychographically to be individuals who care about their position within society, who are environmentally concerned, aware and knowledgeable, are personally connected to and take personal responsibility for environmental solutions (Chitra, 2007; Natural Marketing Institute, 2009; Ottman, 2011 Goyal, 2014; Fisher, Bashyal & Bachman, 2012; Baqer, 2012; Gesellschaft für Konsumforschung & Roper Consulting, 2012; Goyal, 2014). Furthermore, it was established that the green consumer believes they can make a contribution to solving environmental problems and will consider environmental issues when making purchasing decisions. (Chitra, 2007; Natural Marketing Institute, 2009; Ottman, 2011 Goyal, 2014; Fisher, Bashyal & Bachman, 2012; Baqer, 2012; Gesellschaft für Konsumforschung & Roper Consulting, 2012; Goyal, 2014).

To add to this description it was further revealed that green consumers showed themselves to be knowledgeable of, deliberately seek out and are prepared to pay a premium for environmentally friendly products while incorporating green living into their daily lives (Chitra, 2007; Natural Marketing Institute, 2009; Ottman, 2011 Goyal, 2014; Fisher, Bashyal & Bachman, 2012; Baqer, 2012; Gesellschaft für Konsumforschung & Roper Consulting, 2012; Goyal, 2014). The literature further established that this psychographic profile was generally supported by an altruistic value system expressing itself in the green consumer being neither self-absorbed nor self-centred (Chitra, 2007; Natural Marketing Institute, 2009; Ottman, 2011 Goyal, 2014; Fisher, Bashyal & Bachman, 2012; Baqer, 2012; Gesellschaft für Konsumforschung & Roper Consulting, 2012; Goyal, 2014).

Upon further review of the demographic profile of the green consumer in the literature a positive relationship between pro-environmental consumer behaviours

and age, income, gender and education was established (Finisterra do Paco et al., 2009; D'Souza et al., 2007; Mostafa, 2007). It was noted further that it was females in general who showed a greater tendency toward such behaviour (Finisterra do Paco et al., 2009; D'Souza et al., 2007; Mostafa, 2007). Furthermore, education showed a significant positive relationship with pro-environmental behaviours and was noted to be more consistent in its predictive nature than the other demographic variables (Mostafa, 2007; Jaina & Kaura, 2006). It was further revealed that the above relationships were mediated by social class due to its influence on education, income and occupation (Chan, 1999). To add to this, psychographically, pro-environmental behaviours were seen to be positively predicted by lifestyle, materialism, egoism, social-altruism, perceptions of the ability to affectively contribute to environmental solutions and perceptions of freedom and democracy (Singh & Singh, 2013; Sinnappan & Rahman, 2011; Sarli & Tat, 2011; Scholder, Wiener & Cohb-Walgren, 1999). The literature also demonstrated that the strength of the above relationships is mediated by gender, age, education, income and occupation (Diamantopoulos, et al., 2003).

The review of green product trust in Sub-section 2.4 the literature demonstrated positive correlations between green product trust and green product purchase behaviour (Sekhon et al., 2014, Pedro, Luzio & Lemke, 2013; Chen & Chang, 2013; Sheehan & Atkinson, 2012; Tucker, Rifon, Lee & Reece, 2012; Chen & Chang, 2012; Changa, 2011; Sweeney & Swait, 2008; Obermiller, Spangenberg & MacLachlan, 2005). This specifically through its positive influence on many related variables such as the level of involvement in green behaviours and green products, levels of brand equity, loyalty and image. (Sekhon et al., 2014, Pedro, Luzio & Lemke, 2013; Chen & Chang, 2013; Sheehan & Atkinson, 2012; Tucker, Rifon, Lee & Reece, 2012; Chen & Chang, 2012; Changa, 2011; Sweeney & Swait, 2008; Obermiller, Spangenberg & MacLachlan, 2005). It was noted that levels of trust in green products were seen to influence many consumer perceptions including perceptions of product value, perception of deliverability of product attributes, perceptions of informational value, perceptions of green marketing believability and perceptions of company expertise, competence, honesty and credibility. (Sekhon et al., 2014, Pedro, Luzio & Lemke, 2013; Chen & Chang, 2013; Sheehan & Atkinson,

2012; Tucker, Rifon, Lee & Reece, 2012; Chen & Chang, 2012; Changa, 2011; Sweeney & Swait, 2008; Obermiller, Spangenberg & MacLachlan, 2005).

Green product knowledge was also reviewed in Sub-section 2.5 where it was established that both environmental and product knowledge are positively correlated to green product purchase behaviour but are mediated by both demographic and psychographic variables (Tan & Lau, 2011; Mostafa, 2007). Specifically, the literature demonstrated green product knowledge to be positively correlated to green product purchase behaviours through its positive influences on consumer motivations to purchase green products, perceptions of product knowledge, quality, value and effectiveness, product familiarity, product expertise, product trust, consumer confidence and the consumer's ability to gauge product price as reliable indicator of value (Tan & Lau, 2011; Brown, Dury & Holdsworth, 2009; Bonini & Oppenheim, 2008; Moreau, Lehmann & Markman, 2001; Scholder, Wiener & Cohb-Walgren, 1999). It was further established that the influence of green product knowledge on green product purchase behaviours is mediated by the level of the understanding and importance of product information, the product attributes being evaluated, the amount of product knowledge needed in the evaluation process, consumer scepticism, levels of environmental concern, perceptions of environmental responsibility and perceptions of control over environmental issues. (Aertsens, Mondelaers, Verbeke, Buysse & Van Huylenbroeck, 2011; D'Souza, et al., 2007; Bei & Widdow, 2005).

Lastly, upon reviewing green product awareness in Sub-section 2.6 the literature revealed that both environmental awareness and green product awareness are positively correlated to green product purchase behaviour (Hessami, Yousefi & Goudarz, 2013; Kim & Choi 2005; Gatersleben, Steg & Vlek, 2002; Soutar, Ramaseshan & Molster, 1994). Specifically, green product awareness was shown to be positively correlated to green product purchase behaviours through its influence on general levels of pro-environmental behaviour, willingness to incorporate green products into choice sets, willingness to pay a premium for green products. (Hessami, Yousefi & Goudarz, 2013; Kim & Choi 2005; Gatersleben, Steg & Vlek, 2002; Soutar, Ramaseshan & Molster, 1994). It was further established that this relationship is mediated by environmental attitude, environmental concern, perceived

seriousness of environmental problems, perceived environmental responsibility, perceived effectiveness of environmental behaviour, levels of involvement in the green economy, concern for self-image in environmental protection, demographic variables, psychographic variables, social variables, economic variables and the availability of and access to green product and green market information (Lee, 2008; Yeung, 2004; Mannetti et al., 2004; Kotchen & Reiling, 2000; Lai, 2000).

Chapter 2 by providing a thorough literature review on green product purchase behaviour was able to achieve RO<sub>1</sub> namely, “Conduct a literature review in order to identify and establish the related variables with green product purchasing behaviour with specific reference to green consumer profiles, green product awareness, green product trust and green product knowledge” and thereby successfully addressing RQ<sub>1</sub> namely, *“What is the significance of the relationships between green consumer profiles, green product awareness, green product knowledge and green product trust with green product purchase behaviour in the FMCG sector?”*.

#### 5.2.2 Research question RQ<sub>2</sub>

The second research question was stated as, *“What variables are to be included in the hypothesised model of green product purchase behaviour in the FMCG sector?”* In order to successfully address this research question RO<sub>2</sub> namely, “Develop a hypothesised model for green product purchasing behaviour in the FMCG sector” was formulated.

This research question and research objective was also addressed and achieved in the literature review conducted in Chapter 2 reviewing green product purchase behaviour. This review was used to identify four independent variables namely green consumer profiles, green product trust, green product knowledge and green product awareness to form a hypothesised model of green product purchasing behaviour. The hypothesised model of green product purchase behaviour for the South African FMCG sector thus hypothesised that the dependant variable, green product purchase behaviour, will be significantly related to the independent variables green consumer profiles, green product trust, green product knowledge and green product awareness. The model resulted from the formulated hypothesis found in Sub-sections 2.3.4, 2.4.2, 2.5.2 and 2.6.2 namely: H1. Green consumer profiles is



significantly related to green product purchase behaviours, H2. Green product trust is significantly related to green product purchase behaviours, H3. Green product knowledge is significantly related to green product purchase behaviours and H4.

Chapter 2 by providing a thorough literature review thereby identifying four independent variables namely green consumer profiles, green product trust, green product knowledge and green product awareness to form a hypothesised model of green product purchasing behaviour was able to achieve RO<sub>2</sub> namely, “Develop a hypothesised model for green product purchasing behaviour in the FMCG sector” and thereby successfully addressed RQ<sub>2</sub> namely, *“What variables are to be included in the hypothesised model of green product purchase behaviour in the FMCG sector?”*.

### 5.2.3 Research question RQ<sub>3</sub>

The third research question was stated as, *“How can a detailed description of the research methodology be provided in order to understand and reproduce this treatise in future?”*. In order to successfully address this research question RO<sub>3</sub> namely, “Identify and explain the research methodology used for this treatise enabling reproduction for the future” was formulated.

This research question and research objective was also addressed and achieved in Chapter 3 by setting out the research methodology to be used in this study. Specifically Sub-sections 3.2, 3.3, 3.4, 3.5 and 3.6 characterised and explained the research process, referred to as a research onion, as consisting of various stages resembling the layers of an onion. These sections explained the concepts research methodology and research paradigms as the first stage of the research process and forming the first outer most layer of the research onion. The two predominant paradigms being Positivism and Interpretivism were thereafter identified and detailed. The sub-sections further explained the research process by expounding upon the second, third, fourth, fifth and sixth layers of the illustrated research onion. In this regard it was further established that research can be classified according to its purposes, methods, logic and outcomes as being qualitative or quantitative, inductive or deduction, descriptive, exploratory or explanatory, basic or applied, cross-sectional or longitudinal and multi, mixed or mono-method. Furthermore, it was

revealed how these selections would influence the sample design and data collection and analysis methods undertaken in the study. In addressing the research question and guided by the nature of the research objectives these sub-sections established a selection of research process for the current study that is positivistic, quantitative, deductive, descriptive and cross-sectional whilst also incorporating a mono-method research approach. This selection was justified as it was accepted that the incidence of green consumption patterns and its variables, mediators, moderators and predictors form part of objective reality and are scientifically capable of description through quantitative analysis by means of statistical and other numerical measures.

Furthermore, the sampling methods chosen for this study were thereafter described as non-probability convenience and snowball sampling as the respondents were chosen due to their proximity to the researcher, had an equal opportunity of being selected for the study and facilitated by adding more members to the sample by them leveraging their existing acquaintances. The sampling frame was identified to include all FMCG consumers within the national centres of South Africa including, Cape Town, East London, George, Johannesburg and Port Elizabeth. A representative sample 597 respondents from this population was selected. The data collection methods selected for the used study involved the collection of primary data by means of a survey questionnaire divided into 5 Sections consisting of 46 questions, distributed to and collected from the respondents manually by students at the NMMU Business School. The above research process selections ensure that the conclusions, inferences and predictions drawn from this research are able to be generalised to the entire population being, all national FMCG consumers as the requirements of validity and reliability were, as indicated above, satisfied thereby.

Chapter 3 by establishing the above research process selections was able to achieve RO<sub>3</sub> namely, "Identify and explain the research methodology used for this treatise enabling reproduction for the future" and thereby successfully addressing RQ<sub>3</sub>, *"How can a detailed description of the research methodology be provided in order to understand and reproduce this treatise in future?"*

#### 5.2.4 Research question RQ<sub>4</sub>

The fourth research question was stated as, “*What relationships between independent and dependent variables can be verified through the empirical evaluation of the hypothesised model for green product purchase behaviour in the FMCG sector?*”. In order to successfully address this research question RO<sub>4</sub>, namely “Empirically evaluate the hypothesised model of green product purchase behaviour in order to accept or reject the formulated hypotheses” was formulated.

This research question and research objective was also addressed and achieved in Chapter 4 by describing the various univariate and multivariate data analysis and interpretation methods that would be used in this study. The chapter continued by illustrating and discussing the demographic data captured during the empirical study. The independent variables green consumer profiles, green product trust, green product knowledge and green product awareness and the dependent variable green product knowledge were described mainly by means of descriptive statistics such as frequency distributions and inferentially by means of the Pearson’s Chi-Square test. The biographical details of the respondents were analysed descriptively in Sub-section 4.3.1. Upon this analysis it was found that the typical respondent was female, aged between 26 and 55, of European or African descent, earning between 10 000 and 30 000 rand per month and predominantly residing in the coastal areas of South Africa namely Border, Eastern Cape and the Western Cape area.

The independent variable green consumer profiles were described in Sub-section 4.3.2. This description revealed that the profile of the respondent in this study generally accorded with what the reviewed literature as, when considering ethnicity, age, income, education and occupation, it revealed persons who are environmentally committed and conscious, caste as being European, between 25 and 35 or 45 and 55 years old, white collared professionals, educated, employed, working in middle management within specialist fields and earning above average incomes (Fisher, Bashyal & Bachman, 2012). It was further found that that psychographic profiles of the respondents in this study, at least descriptively, also generally mirrored that of the phsychographic profiles of the green consumer that occurs in the literature This was indicated to be persons who take personal responsibility for environmental solutions, who believe they can make a contribution to solving environmental issues,

incorporate green living into daily lives, consider environmental issues when making purchasing decisions, are knowledgeable of, deliberately seek out and are prepared to pay a premium for environmentally friendly products a (Ottman, 2011). The verifiability of the relations between green consumer profiles with green product purchase behaviour was established in Sub-section 4.4.2.3. In so doing the hypothesised relationship was accepted. A more detailed discussion of the findings of the relationship between this variable and green product purchase behaviour is provided in Sub-sections 5.2.5 and 5.2.6.

The independent variable green product awareness was described descriptively in Sub-section 4.3.3. This analysis revealed a typical respondent who believed is living a green life to some extent or another, who understands the concept of and can understand green products, can identify green products and who is aware of green product labelling requirements. The analysis also revealed that this respondent was not were aware of green product certifications and who does not always consider actually consider green issues when making purchase decisions. It was found that these results generally accord to this literature in this regard (Chain Store Publishing Corporation, 2007, Boston Consulting Group, 2008, Gesellschaft für Konsumforschung & Roper, 2011 and DuPont, 2012). The current study however specifically seemed to produce a respondent who believed in a better ability to identify and locate green products but a lower consideration, in general, of environmental issues. Furthermore, when considering the extent to which respondents were engaged in green behaviours as an indication of living a green life it was accepted that the current study produced similar proportions thereto. The verifiability of the relations between green product awareness with green product purchase behaviour was established in Sub-section 4.4.2.3. In so doing the hypothesised relationship was accepted. A more detailed discussion of the findings of the relationship between this variable and green product purchase behaviour is provided in Sub-sections 5.2.5 and 5.2.6.

The independent variable green product trust was described descriptively in Sub-section 4.3.4. This analysis revealed moderate to high levels of green product trust as the majority of the respondents believed that fewer resources are utilised to produce green products, these green products are always safe and always consider

human safety. The respondents further believed that green products always consider environmental safety while. It was further found that more than half of the respondents did not believe that green products live up to their claim or were readily available. When reviewing the literature in this regard it was found the results were mixed and questions not matched like for like. The current study did however find similarities on the levels of trust respondents had on green product claims and their ability to locate green products. This became evident as literature reviewed also indicated that less than half of the respondents did not trust green product claims (Sekhon et al., 2014, Pedro, Luzio & Lemke, 2013; Chen & Chang, 2013; Sheehan & Atkinson, 2012; Tucker, Rifon, Lee & Reece, 2012; Chen & Chang, 2012; Changa, 2011; Sweeney & Swait, 2008; Obermiller, Spangenberg & MacLachlan, 2005). The verifiability of the relations between green product trust with green product purchase behaviour was established in Sub-section 4.4.2.3. In so doing the hypothesised relationship was accepted. A more detailed discussion of the findings of the relationship between this variable and green product purchase behaviour is provided in Sub-sections 5.2.5 and 5.2.6.

The independent variable green product knowledge was described descriptively in Sub-section 4.3.5. The descriptive data of green product knowledge was also analysed. It was found that the typical respondent believed they know what green products are. The typical respondent also green products are those that have no toxic materials, break down naturally when disposed of, generate less pollution from manufacture or use, can be recycled or reused, are made from organic materials, consume less energy and have a smaller carbon footprint. The typical respondent believed further that green products are those that are better for environment, consume less energy in their use and do not pollute the air and water as well as having no emissions. To add to this, it was discovered that more than three quarters of the respondents indicated that they believed that they educated themselves about green products. This was accepted would indicate a belief by the respondents of possessing a good general knowledge of what green products are. It also gives an indication of what the typical respondent believed through there common responses to these statement regarding the variable green product knowledge.

When comparing the above finding to the Sustainability Survey conducted by DuPont in 2012 conducted on similar questions it was accepted that the results of this study on the questions of what makes a product green shows a higher incidence of affirmative answers when compared to similar if not the same statements posed (DuPont in 2012). The verifiability of the relations between green product knowledge with green product purchase behaviour was established in Sub-section 4.4.2.3. In so doing the hypothesised relationship was rejected. A more detailed discussion of the findings of the relationship between this variable and green product purchase behaviour is provided in Sub-sections 5.2.5 and 5.2.6.

Chapter 4 by verifying and describing the variables and hypothesised relationships in this study achieved RO<sub>4</sub>, namely “Empirically evaluate the hypothesised model of green product purchase behaviour in order to accept or reject the formulated hypotheses” successfully addressed RQ<sub>4</sub> namely, *“What relationships between independent and dependent variables can be verified through the empirical evaluation of the hypothesised model for green product purchase behaviour in the FMCG sector?”*.

#### 5.2.5 Research question RQ<sub>5</sub>

The fifth research question was stated as, *“Which independent variables in the hypothesised model of green product purchasing behaviour have a significant relationship to green product purchasing behaviour in the FMCG sector?”*. In order to successfully address this research question RO<sub>5</sub> namely, “Establish which of the identified variables in the hypothesised model of green product purchase behaviour are significantly related to green product purchasing behaviour in the FMCG sector” was formulated.

This research question and research objective was also addressed and achieved in Chapter 4 using the Pearson’s Chi-Square coefficient to establish the significant relationships between the independent variables green consumer profiles, green product awareness, green product trust and green product knowledge and the dependent variable green product purchasing behaviour. The relationship between the independent variable green consumer profiles and the dependant variable green product purchase behaviour was analysed for significance in Sub-section 4.4.3.2. A

significant relationship between these two variables was found. This became evident as the Pearson Chi-Square static of 393.25 with a  $p = 0.00$  calculated with 12 degrees of freedom was established. At a 95% confidence level and a  $p$  value smaller than 0,05 this study found that these variables are significantly related in some way but without knowing the cause and effect or the direction of this relationship. Due to these findings the formulated hypothesis  $H_1$ : Green consumer profiles is significantly related to green product purchase behaviours was accepted.

It was further found that the above finding supports the reviewed literature on green consumer profiles as significant relationships positive between green consumer profiles and levels of pro-environmental behaviour have been identified and established therein. In this regard, psychographically, green consumer profiles has been found to be significantly related to and associated with pro-environmental behaviours including green product purchases through its impact on lifestyle, materialism, egoism, social-altruism, perceptions of the ability to affectively contribute to environmental solutions and perceptions of freedom and democracy (Singh & Singh, 2013; Sinnappan & Rahman, 2011; Sarli & Tat, 2011; Scholder, Wiener & Cohb-Walgren, 1999). The strength of the above association is mediated by biographical variables such as gender, age, education, income and occupation (Diamantopoulos, et al., 2003).

The relationship between the independent variable green product trust and the dependant variable green product purchase behaviour was analysed for significance in Sub-section 4.4.3.2. A significant relationship between these two variable was found. This became evident as the Pearson Chi-Square static of 56.40 with a  $p = 0.00$  calculated with 12 degrees of freedom was established. At a 95% confidence level and a  $p$  value was smaller than 0,05 this study found that these variables are significantly related in some way but without knowing the cause and effect or the direction of this relationship. Due to these findings the formulated hypothesis  $H_2$ : Green product trust is significantly related to green product purchase behaviours was accepted.

This study further found that the above result supports the reviewed literature on green product trust as significant relationships between green product trust and levels of pro-environmental behaviour have been identified and established therein

(Sekhon et al., 2014, Pedro, Luzio & Lemke, 2013; Chen & Chang, 2013; Sheehan & Atkinson, 2012; Tucker, Rifon, Lee & Reece, 2012; Chen & Chang, 2012; Changa, 2011; Sweeney & Swait, 2008; Obermiller, Spangenberg & MacLachlan, 2005). In this regard green product trust has been found to be significantly related to levels of involvement in green behaviours and green product purchases. This relationship was found to be mediated by levels of brand equity, loyalty and image, perceptions of product value, perception of deliverability of product attributes, perceptions of informational value, perceptions of green marketing believability and perceptions of company expertise, competence, honesty and credibility (Sekhon et al., 2014, Chen & Chang, 2012). Green product trust has been found to be further negatively associated and correlated to levels of consumer scepticism as to whether green products or green product communications are able to deliver what they promise (Chang et al., 2013; Changa, 2011).

The relationship between the independent variable green product knowledge and the dependant variable green product purchase behaviour was analysed for significance in Sub-section 4.4.3.2. No significant relationship between these two variable was found. This became evident as the Pearson Chi-Square static of 1.85 with  $p = 0.603$  and 12 degrees of freedom was established. At a 95% confidence level and a  $p$  value was smaller than 0,05 this study found that these variables are not significantly related in some way but without knowing the cause and effect or the direction of this relationship. Due to these findings the formulated hypothesis  $H_3$ : Green product knowledge is significantly related to green product purchase behaviours cannot be accepted.

It was found that the above finding is contrary to and does not support the reviewed literature on green product knowledge as significant relationships between green product knowledge and levels of pro-environmental behaviour have been identified and established in these prior studies (Tan & Lau, 2011; Brown, Dury & Holdsworth, 2009; Bonini & Oppenheim, 2008; Moreau, Lehmann & Markman, 2001; Scholder, Wiener & Cohb-Walgren, 1999). In this regard green product knowledge, was in general, found to be positively associated and correlated to motivations to purchase of green products, perceptions of product quality, value and effectiveness, product familiarity, product expertise, product trust, consumer confidence and access to and



availability of product information (Tan & Lau, 2011; Brown, Dury & Holdsworth, 2009; Bonini & Oppenheim, 2008; Moreau, Lehmann & Markman, 2001; Scholder, Wiener & Cohb-Walgren, 1999). Furthermore, product knowledge has been positively associated and correlated to a consumer's ability to gauge product price as a reliable indicator of value (Bei & Widdow, 2005).

The relationship between the independent variable green product awareness and the dependant variable green product purchase behaviour was analysed for significance in Sub-section 4.4.3.2. A significant relationship between these two variable was found. This became evident as the Pearson Chi-Square static of 103.98 with a  $p = 0.00$  calculated with 12 degrees of freedom was established. At a 95% confidence level and a  $p$  value smaller than 0,05 this study found that these variables are significantly related in some way but without knowing the cause and effect or the direction of this relationship. This result indicates an acceptance of the formulated hypothesis H<sub>4</sub>: Green product awareness is significantly related to green product purchase behaviours.

It was found that the above finding supports the reviewed literature on green product awareness as significant relationships between green product trust and levels of pro-environmental behaviour have been identified and established (Hessami, Yousefi & Goudarz, 2013; Kim & Choi 2005; Gatersleben, Steg & Vlek, 2002; Soutar, Ramaseshan & Molster, 1994). In this regard it was noted that there is a positive correlation between environmental awareness and environmental knowledge, concern for the environment, pro-environmental behaviours, intentions to purchase and willingness to pay a premium for green products, but the extent thereof is dependent on the specific levels of environmental awareness concerned, which in itself is influenced by the age, gender, occupation and consumer income levels (Hessami, Yousefi & Goudarz, 2013; Kim & Choi 2005; Gatersleben, Steg & Vlek, 2002; Soutar, Ramaseshan & Molster, 1994).

The established relationship between the independent variables green consumer profiles, green product trust, green product knowledge and green product awareness with the dependant variable green product purchase behaviour are depicted graphically in Figure 5.2.

Chapter 4, as a result of the inferential analysis techniques employed, achieved RO<sub>5</sub> namely, “Establish which of the identified variables in the hypothesised model of green product purchase behaviour are significantly related to green product purchasing behaviour in the FMCG sector” and thereby successfully addressed RQ<sub>5</sub> namely, *“Which independent variables in the hypothesised model of green product purchasing behaviour have a significant relationship to green product purchasing behaviour in the FMCG sector?”*.

Hypothesised green product purchase behaviour model in the FMCG sector.

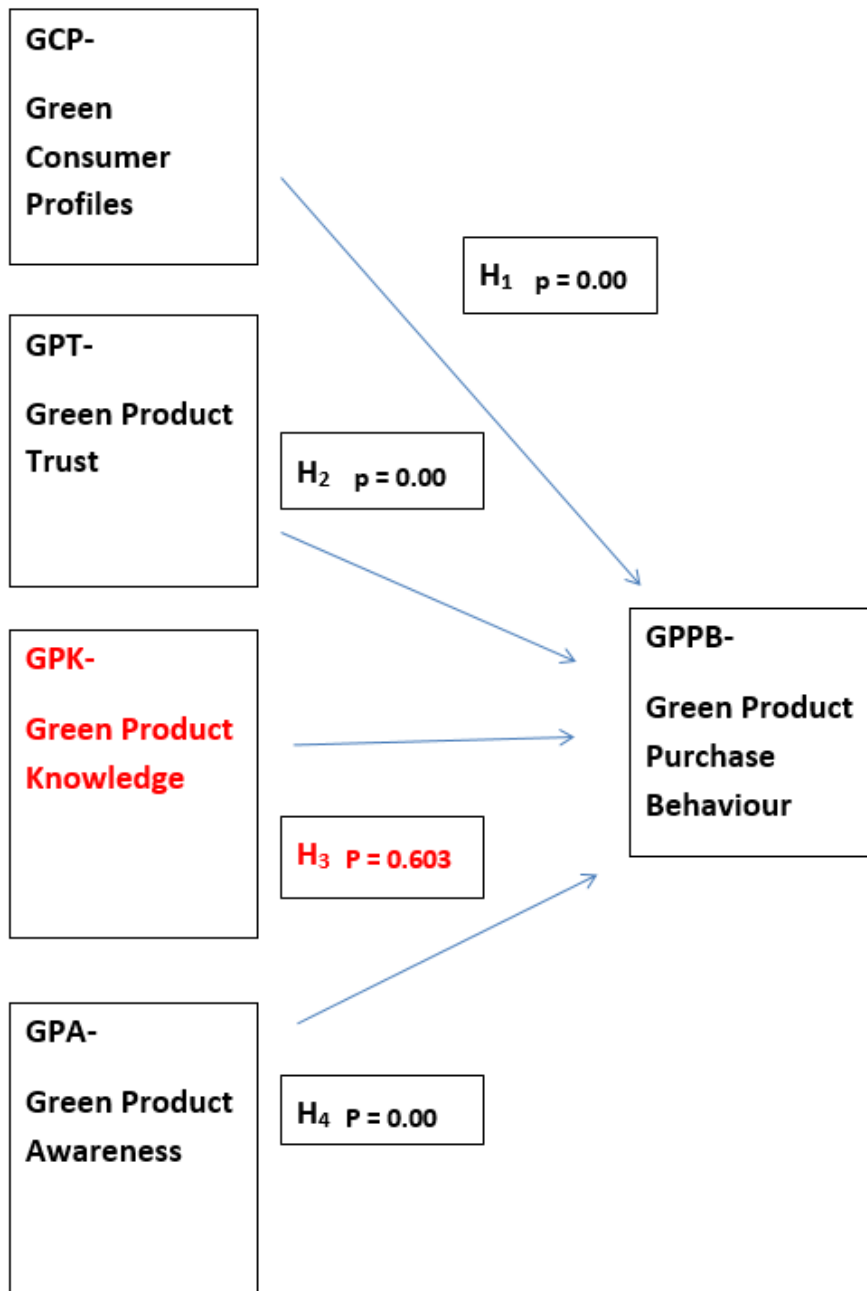


Figure 5.2: Model of green product purchase behaviour.

### 5.2.6 Research question RQ<sub>6</sub>

The sixth research question was stated as, *“What is the significance of the difference in the relationship of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector”*. In order to successfully address this research question RO<sub>6</sub> namely, “Establish the significance of the difference in relationships of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector” was formulated.

This research question and research objective was also addressed and achieved in Chapter 4 where it was found that the independent variable green consumer profiles displayed the most significant relationship to green product purchase behaviours with a Chi-Square static of 393.25 and a  $p = 0.00$ . This was followed by green product awareness and then green product trust representing a Chi-Square static of 103.98 with a  $p = 0.00$  and Chi-Square static of 56.40 with a  $p = 0.00$ , respectively. It was further found that the significance in the difference in strength of the relationships of these variables lay in the fact that although green product awareness and trust may influence green product purchase behaviours it was a combination of psychographic variables reflecting a consumers general attitudes and beliefs towards the green agenda that displays the most significant relationship to green product purchase behaviour.

Chapter 4, as a result of the inferential analysis techniques employed, achieved RO<sub>6</sub> namely, “Establish the significance of the difference in relationships of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector” and thereby successfully addressing RQ<sub>6</sub> namely, *“What is the significance of the difference in the relationship of the independent variables to the dependant variable in the hypothesised model of green product purchasing behaviour for the FMCG sector?”*.

### 5.2.7 Main research question RQ<sub>M</sub>

The main research question of the research was, *“What is the significance of the relationships to green product purchasing behaviour of green consumer profiles,*

*green product awareness, green product trust and green product knowledge in the FMCG sector?”*. In order to successfully address this research question **RO<sub>M</sub>** namely, “To determine the significance of the relationships to green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge in the FMCG sector” was formulated.

This treatise, through the development and statistical acceptance of the hypothesised model of green product purchase behaviour as depicted in Figure 5.2 identifying the independent variables green consumer profiles, green product awareness and green product trust as having a significant positive influence on the hypothesised model of green product purchase behaviour in the FMCG sector, achieved **RO<sub>M</sub>** namely, “To determine the significance of the relationships to green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge in the FMCG sector. This successful achievement **RQ<sub>M</sub>** namely, “*What is the significance of the relationships to green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge in the FMCG sector?*”.

### **5.3 Summary of contributions**

This treatise has made the following contributions to the existing body of knowledge on the subject of green product purchasing behaviour and its antecedents.

- A new hypothesised model of green product purchasing behaviour for the FMCG sector has been presented. The model is based on the reviewed literature of green product purchasing behaviour;
- A measuring instrument to gauge green consumer profiles, green product awareness, trust and knowledge in the FMCG sector was developed;
- Differences in relationships of green consumer profiles, green product awareness trust and knowledge to green product purchase behaviour were identified.
- No relationship between green product knowledge with green product purchase behaviour was identified; and

- The hypothesised model on green product purchase behaviour that was developed can be used by marketers in the FMCG sector in South Africa to better target the green consumer.

#### **5.4 Managerial recommendations**

This treatise proposes the following recommendations due to the established relationships between green consumer profiles, green product awareness and trust with green product knowledge.

Due to the established relationship between green consumer profiles with green product purchase behaviour it is recommended that marketers direct their marketing strategies to those consumers that are most inclined to purchase and consume green goods or services. In order to achieve this, marketers should specifically target European and African females, between 26 and 55 years old, earning between 10 000 and 30 000 Rand per month. Additionally, marketers should target consumers who understand the concept of and can identify green products and who believe that their green purchases can in fact make a difference to and impact the green agenda to some extent. These are typically consumers who have purchased a green product within the last two years, deliberately shop where green products are stocked, are taking steps and making decisions to contribute to the green agenda as they believe that green is their responsibility. Marketers ought to increase their chances of success by targeting this profile of consumer as this segment of consumer should be the most willing to engage in green product purchases.

Due to the established relationship between green product trust and green product purchase behaviour it is recommended that marketers increase the amount of green product trust that consumers have in order to increase green product purchase behaviour. It is further recommended that in order to achieve this they should pursue initiatives that are known to support and increase the incidence of green trust that consumers have in green products and the organisations that produce and market them. Marketers should thus include initiatives aimed at providing access to enough complete, trustworthy and credible information on green products and manufacturing practises, providing a knowledge platform upon which consumers can compare green product information, using eco-labels to provide relevant, accurate and

meaningful information, creating credible third party certification associations, eliminating the informational asymmetry within the industry, supporting the introduction of stricter regulations in the green economy, supporting the introduction of stricter penalties for industry norm transgressors and supporting the introduction of green industry charters where all companies commit to playing a positive role within the industry (Pedro, Luzio & Lemke, 2013).

Due to the established relationship between green product awareness with green product purchase behaviour it is recommended that marketers increase the amount of green product awareness that consumers have in the green products and the organisation that is marketing them in order to increase green product purchase behaviour. In order to achieve this it is further recommended the marketers devise comprehensive green product awareness campaigns. These campaigns must consist of the following elements to be effective: overall goals of the campaign as well as specific objectives, target groups of the awareness campaign, key messages of the awareness campaign, tasks and activities related to the awareness campaign, set deliverables of the campaign; indicators to monitor progress of the project's implementation as well as results. The success of these campaigns will yield greater green product awareness will could increase green product purchase behaviours and purchases of green products.

## **5.5 Opportunities for future research**

A number of opportunities for future research have been identified throughout the research process of this study. Some of these research opportunities are outlined below:

- Future research can be performed to further evaluate the hypothesised green product purchasing behaviour model by performing a wider range of statistical analysis techniques thereon;
- Future research to confirm this exploratory research and to further test the hypothesised model can be performed;
- An in-depth treatise could be conducted to identify why green product knowledge is less related to green product purchasing behaviour than green product awareness, trust and green consumer profiles;

- An in-depth treatise could be conducted to identify the associative relationship of biographical and demographic variables with green purchasing behaviour;
- An in-depth treatise could be conducted to identify methods and marketing strategies to better leverage and capitalise on the established relationships of green product awareness, trust and green consumer profiles with green product purchasing behaviour; and
- An in-depth treatise could be conducted to confirm if an organisation could continue to grow as expected if they better align their value offering to the needs of the market as determined by this treatise.

## **5.6 Limitations of the study**

The following have been identified as limitations of this study:

- The respondents of the study were concentrated in South Africa, specifically the Eastern Cape, Western Cape and East London areas. If this study were to be repeated in another geographic location the results may differ;
- The variable green consumer profiles were developed from literature dated 2007, 2008 and 2009 which in 2015 considering the dynamic nature of the green consumer may not accurately reflect the psychographic variables used in the variable green consumer profiles for this treatise;
- Although the reviewed literature establishes many variables that share a relationship to green product purchasing behaviour the model of green product purchase behaviour developed for this treatise only tests the significance of relations to green product purchase behaviour of four independent variables being green consumer profiles, green product awareness, green produce trust and green product knowledge;
- The quantitative techniques used were limited to descriptive and inferential statistics using Pearson Chi-Square only. This treatise, where significant relationships were established, was however not able to determine the direction or strength of these relationships; and
- This study also did not test for moderators or mediators of the established relationships between the four independent variables with green product purchasing behaviour.



## 5.7 Chapter summary

The main objective of this research was to determine the significance of the relationships to green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge in the FMCG sector.

The deliverables to achieve this included:

- Performing a literature review on green product purchasing behaviour;
- Developing a hypothesised model for green product purchasing behaviour;
- Explaining the research methodology used for this treatise with sufficient detail to allow it to be reproduced in future;
- Conducting an empirical evaluation of the hypothesised green product purchasing behaviour model;
- Establishing the relationship between green consumer profiles, green product awareness, green product trust and green product knowledge with green product purchase behaviour in order to accept or reject the formulated hypotheses; and
- Establishing if there is a significant difference between the established relationships of the independent variables to green product purchasing behaviour.

This study concluded with the development of a hypothesised model of green product purchase behaviour that through statistical analysis indicated that green consumer profiles, green product awareness and green product trust are significantly related to green product purchase behaviour while at the same finding no significant relationship between green product knowledge with green product purchase behaviour.

The core problem to be addressed by this research which is, that companies within the FMCG sector do not leverage the impact on green product purchasing behaviour of green consumer profiles, green product awareness, green product trust and green product knowledge through effective marketing strategies was considered by establishing a conceptual model of and significance of relationships amongst these variables.

Recommendations were made to areas where this model could be improved, opportunities for further research were outlined, limitations of this study were identified and managerial recommendations based on this study were made.

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## APPENDIX A: QUESTIONNAIRE

### NMMU Business School Questionnaire: 2014

#### FMCG Customers views on Green/Sustainable Products

Please answer the following questions:

<b>Age:</b>	18-25		26-35		36-45		46-55		56-65		66+	
<b>Gender:</b>	Male		Female									
<b>Race:</b>	Black		Asian		Coloured		White		Other			
<b>Employment Status</b>	Employed		Unemployed		Self-employed		Retired					
<b>Monthly Household Income</b>	< R10 000		R10 001 - R20 000		R20 001 - R30 000		R30 001+					
<b>Where do you live?</b>	Eastern Cape		Western Cape		Border		Gauteng		SWD		Other	

#### Green Product Awareness

<b>Your opinion about the following: (Please circle your option)</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
Q1: Consumers consider green issues when making purchase decisions.	1	2	3	4	5
Q2: I understand the concept of green products.	1	2	3	4	5
Q3: I can identify Green Products.	1	2	3	4	5
Q4: I'm aware of green product labelling requirements.	1	2	3	4	5
Q5: I'm aware of green product certifications.	1	2	3	4	5
Q6: In which areas do you feel the trend towards purchasing green products is most pronounced? Rank the following in order of importance (1 to 6). 1 being most important, 6 being least important					
Q6a: Building					
Q6b: Personal hygiene					
Q6c: Clothing					
Q6d: Food					
Q6e: Detergents					

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Q6f: Appliances/electrics			
Q7: I live a green life.	Yes	No	Partially

<b>Green Product Trust</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>Your opinion about the following:</b> Please circle your option.					
Q8: Consumers feel that green products live up to their claim.	1	2	3	4	5
Q9: Green products are always safe.	1	2	3	4	5
Q10: Green products always consider human safety.	1	2	3	4	5
Q11: Green products always consider environmental safety.	1	2	3	4	5
Q12: Fewer resources are utilised to produce green products.	1	2	3	4	5
Q13: Green products are readily available.	1	2	3	4	5

### Green Product Knowledge

Q14: I know what green products are.	Yes		No	
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<b>What makes a product green? Please tick the appropriate box (Yes/No/Not sure):</b>	<b>Yes</b>	<b>No</b>	<b>Not Sure</b>
Q15: No toxic materials			
Q16: Breaks down naturally when disposed of			
Q17: Generates less pollution from manufacture or use			
Q18: Can be recycled or reused			
Q19: Made from organic materials			
Q20: Consumes less energy in production			
Q21: Has a smaller carbon footprint			
Q22: Made from recycled materials			
Q23: Better for environment			
Q24: Consumes less energy in their use			
Q25: Less packaging			
Q26: Fewer phosphates			
Q27: No harmful health effects			
Q28: Made from bio based materials			



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Q29: Ingredients			
Q30: Does not pollute air/water/no emissions			
Q31: Acceptable labour practises			
Q32: Honest advertising			
Q33: Honest labelling			
Q34: Animal testing is unethical			
Q35: Environmentally friendly is the same as green			
Q36: Green products are of inferior quality			

Q37: I educate myself about green products	Yes		No	
<b>If Yes, Please select the media you use</b>				
Q37a: Internet		Q37e: Newspapers		
Q37b: Referrals from friends		Q37f: Magazines		
Q37c: Adverts		Q37g: Social media		
Q37d: Word of mouth		Q37h: Other: _____		
Q37: I educate myself about green products	Yes		No	

<b>PURCHASE BEHAVIOUR</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
Please circle your option.					
Q38: I buy green products.	1	2	3	4	5
Q39: I recycle packaging at home.	1	2	3	4	5
Q40: I save power where I can.	1	2	3	4	5
Q41: I purchase products that are credited organic by an organisation.	1	2	3	4	5
Q42: Green is my responsibility.	1	2	3	4	5
Q43: My green purchase can make a difference.	1	2	3	4	5
Q44: I have purchased a green product in the last two months	<b>Yes</b>			<b>No</b>	
<b>If Yes, indicate purchase type:</b>					
Q44a: Household cleaning products		Q44e: Organic food items			
Q44b: Personal care		Q44f: Reusable shopping bags			
Q44c: Paper products		Q44g: Products with natural ingredients			
Q44d: Energy efficient light bulbs		Q44h: Other : _____			
<b>Q45: Which issues influence your purchase decision? Please rank in order of importance (1 to 5): (1 being most important).</b>					

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Q45a: Less pollution		Q45d: Less packaging	
Q45b: Natural ingredients		Q45e: Recyclable packaging	
Q45c: Locally produced			
Q46: I shop where green products are stocked	Yes		No

**Thank you for completing the questionnaire**

## APPENDIX B: ETHICS CLEARANCE FORM



### ETHICS CLEARANCE FOR TREATISES/DISSERTATIONS/THESES

*Please type or complete in black ink*

FACULTY: BUSINESS + ECONOMIC SCIENCES

SCHOOL/DEPARTMENT: NMMU BUSINESS SCHOOL

I, (surname and initials of supervisor) CULLEN, M.D.M.

the supervisor for (surname and initials of candidate) VERVUET, B.M.

(student number) 192436530

a candidate for the degree of MASTERS IN BUSINESS ADMINISTRATION

with a treatise/dissertation/thesis entitled (full title of treatise/dissertation/thesis):

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considered the following ethics criteria (please tick the appropriate block):

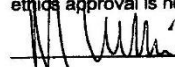
	YES	NO
1. Is there any risk of harm, embarrassment of offence, however slight or temporary, to the participant, third parties or to the communities at large?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Is the study based on a research population defined as 'vulnerable' in terms of age, physical characteristics and/or disease status?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.1 Are subjects/participants/respondents of your study:		
(a) Children under the age of 18?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(b) NMMU staff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(c) NMMU students?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(d) The elderly/persons over the age of 60?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(e) A sample from an institution (e.g. hospital/school)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(f) Handicapped (e.g. mentally or physically)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

# A MODEL FOR GREEN PRODUCT PURCHASING BEHAVIOUR

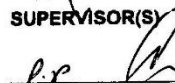
3. Does the data that will be collected require consent of an institutional authority for this study? (An institutional authority refers to an organisation that is established by government to protect vulnerable people)			✓
3.1 Are you intending to access participant data from an existing, stored repository (e.g. school, institutional or university records)?			✓
4. Will the participant's privacy, anonymity or confidentiality be compromised?			✓
4.1 Are you administering a questionnaire/survey that:			
(a) Collects sensitive/identifiable data from participants?			✓
(b) Does not guarantee the anonymity of the participant?			✓
(c) Does not guarantee the confidentiality of the participant and the data?			✓
(d) Will offer an incentive to respondents to participate, i.e. a lucky draw or any other prize?			✓
(e) Will create doubt whether sample control measures are in place?			✓
(f) Will be distributed electronically via email (and requesting an email response)?			✓
<p>Note:</p> <ul style="list-style-type: none"> <li>If your questionnaire <b>DOES NOT</b> request respondents' identification, is distributed electronically and you request respondents to return it <i>manually</i> (print out and deliver/mail); <b>AND</b> respondent anonymity can be guaranteed, your answer will be NO.</li> <li>If your questionnaire <b>DOES NOT</b> request respondents' identification, is <i>distributed via an email link and works through a web response system</i> (e.g. the university survey system); <b>AND</b> respondent anonymity can be guaranteed, your answer will be NO.</li> </ul>			

Please note that if ANY of the questions above have been answered in the affirmative (YES) the student will need to complete the full ethics clearance form (REC'd application) and submit it with the relevant documentation to the Faculty REC'd Ethics representative.

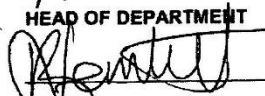
and hereby certify that the student has given his/her research ethical consideration and full ethics approval is not required.

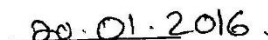
  
SUPERVISOR(S)

  
DATE

  
HEAD OF DEPARTMENT

  
DATE

  
STUDENT(S)

  
DATE

Please ensure that the research methodology section from the proposal is attached to this form.

## APPENDIX C: TURNITIN REPORT

### A MODEL FOR GREEN PRODUCT PURCHASING BEHAVIOUR

#### ORIGINALITY REPORT

<b>14%</b>	<b>8%</b>	<b>3%</b>	<b>8%</b>
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

#### PRIMARY SOURCES

<b>1</b>	<b>Submitted to Nelson Mandela Metropolitan University</b> Student Paper	<b>6%</b>
<b>2</b>	<b>www.bcg.com</b> Internet Source	<b>&lt;1%</b>
<b>3</b>	<b>dspace.nwu.ac.za</b> Internet Source	<b>&lt;1%</b>
<b>4</b>	<b>www.itc.polyu.edu.hk</b> Internet Source	<b>&lt;1%</b>
<b>5</b>	<b>uir.unisa.ac.za</b> Internet Source	<b>&lt;1%</b>
<b>6</b>	<b>gbata.org</b> Internet Source	<b>&lt;1%</b>
<b>7</b>	<b>www.diva-portal.org</b> Internet Source	<b>&lt;1%</b>
<b>8</b>	<b>eprints.qut.edu.au</b> Internet Source	<b>&lt;1%</b>
<b>9</b>	<b>enterprise-impact.org.uk</b> Internet Source	<b>&lt;1%</b>