ANTECEDENTS OF GREEN PURCHASE BEHAVIOUR AMONGST BLACK GENERATION Y STUDENTS

COSTA SYNODINOS

(M Comm)

STUDENT NUMBER: 21375798

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Promoter: Prof AL Bevan- Dye

Vanderbijlpark

2014

DECLARATION

I declare that:

“Antecedents of green purchase behaviour amongst black Generation Y students”

is my own work, that all the sources used or quoted have been identified and acknowledged by means of complete references, and that this thesis has not previously been submitted by me for a degree at any other university.

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C. Synodinos
November 2014
Vanderbijlpark

LETTER FROM THE EDITOR

Ms Linda Scott
English language editing
SATI membership number:
1002595
Tel: 083 654 4156
E-mail:
lindascott1984@gmail.com

26 November 2014

To whom it may concern

This is to confirm that I, the undersigned, have language edited the completed research of Costa Synodinos for the PhD thesis entitled: *Antecedents of green purchase behaviour amongst black Generation Y students*.

The responsibility of implementing the recommended language changes rests with the author of the thesis.

Yours truly,

Linda Scott

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ABSTRACT

Keywords: Environmental attitude, green products, green purchase behaviour, black Generation Y students, South Africa.

Green marketing is now recognised amongst academics as a reputable area of study and conventional marketing has taken a step back as green marketing comes into prominence in the fight against unsustainability. A number of organisations are using green marketing as a tool to differentiate their market offerings from those of their competitors in an effort to gain a strong position in today's markets. These organisations are seeking to exploit consumers' growing environmental concerns and increasing green purchase intentions in order to acquire market share in the newly developed green consumer markets. The Generation Y cohort, born between 1986 and 2005, are the most technologically astute generation to date. When segmenting the Generation Y cohort, the black Africans hold the majority share, comprising 84 percent of the Generation Y cohort and approximately 32 percent of the entire South African population. Owing to its sheer size, the black Generation Y cohort presents as an attractive and lucrative market segment, especially those who hold a tertiary education. Individuals who pursue a higher education are linked to higher future earning potential.

The primary objective of this study was to propose and empirically test a model of the antecedents of black Generation Y students' green purchase behaviour within the South African context. The proposed model suggests that environmental knowledge, subjective norms, and perceived behaviour control have a direct positive influence on environmental attitude, which, in turn, has a direct positive influence on green purchase intentions. Moreover, the model infers that green purchase intensions have a direct positive influence on environmental purchase behaviour, while accounting for the mediating effects of perceived price (price) and perceived quality (quality).

The sampling frame for the study comprised the 25 public registered HEIs situated in South Africa. From this initial list of 25 registered institutions, a judgement sample of four institutions in the Gauteng province was chosen, of

which two included country-based universities and two city-based universities. Of the four universities, two were traditional universities, one a university of technology and one comprehensive university. Lecturers at each of the four campuses were contacted and asked if they would act as gatekeepers to the student participants. A convenience sample of 500 students across these four campuses was taken in 2014. Of the questionnaires completed, 332 were usable. The statistical analysis of the collected data included exploratory factor analysis, descriptive statistical analysis, correlation analysis, structural equation modelling and independent sample t-tests.

The findings of this study indicate that South African black Generation Y students are knowledgeable about the environment, consider the opinions of their peers regarding the environment, perceive their actions as having a positive effect on the environment and display strong pro-environmental attitudes towards the environment. Moreover, they display positive intentions to purchase green products and aim to behave in a pro-environmental manner. The influence of green purchase intentions on green purchase behaviour is partially mediated by the perceived price and quality of green products. This may explain the noticeable gap between environmental awareness and lack of actual green product purchases.

Environmental knowledge and perceived behaviour control had a significant direct effect on black Generation Y students' environmental attitude, which, in turn, has a significant direct influence on black Generation Y students' green purchase intentions. Similarly, subjective norms and environmental knowledge had a significant direct effect on green purchase intentions.

This study contributes to developing the green consumer profile of the black Generation Y consumer in South Africa. Furthermore, the study will aid in identifying the green consumer behaviour patterns amongst the South African youth. This study offers a conceptual model that illustrates the antecedents of black Generation Y students' green purchasing behaviour. The findings of this study will be helpful to national and international marketers seeking to profile and target the lucrative green market segment in South Africa.

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CHAPTER 1
INTRODUCTION AND PROBLEM STATEMENT

1.1 INTRODUCTION

In terms of sustainability, marketing has played a dualistic role by promoting significant levels of demand and consumption, whilst simultaneously becoming the would-be hero of the environment through the implementation of various mechanisms aimed at alleviating social and environmental problems (Peattie, 2001a:129). Green marketing is now recognised amongst academics as a reputable area of study (Mostafa, 2007:446) and, according to Ottman (2011:43), conventional marketing has taken a step back as green marketing comes into prominence in the fight against unsustainability.

Peattie (2001a:129) describes green marketing as the various marketing activities, which include the demotion of adverse environmental impacts that existing products and production systems pose, and the promotion of less harmful products and services. Chen and Chang (2012:29) note that a number of organisations are using green marketing as a tool to differentiate their market offerings from those of their competitors in an effort to gain a strong position in today's markets. These organisations are seeking to exploit consumers' growing environmental concerns and increasing green purchase intentions in order to acquire market share in the newly developed green consumer markets.

Based on published literature, Mostafa (2007:448) concludes that several factors contribute to pro-environmental behaviour and green purchase behaviour. These include environmental knowledge, environmental attitudes and green purchase intentions. Ali *et al*. (2011:218) indicate that consumer green purchasing intentions may possibly lead to actual green purchasing behaviour. D'Souza *et al.* (2007:72) concur with Mostafa (2007:448) and suggest that consumers' green purchase intentions are influenced by their beliefs and attitudes, but add that the perceived price and quality of green

products may play a significant role in the persisting lag between green purchase intentions and actual green purchase behaviour.

The last four decades have seen an exponential growth in research conducted on the environmentally conscious consumer (Leonidou *et al*., 2010:1321). Dietz *et al*. (2005:336) suggest that inherent values may contribute to certain individuals having a more positive attitude towards pro-environmental efforts. Rahbar and Wahid (2011:76) add that the focus of such research has been on factors such as attitudes, knowledge and values, and indicate that many scholars have neglected the marketing activities that influence green purchase behaviour. While these attributes have proven to be astute measures of environmental behaviour, they are not sufficient to explain a consumer's thought process concerning environmental consumption behaviour. Dietz *et al*. (2005:336) indicate that values influence people's collective and individual decisions and, therefore, if their values were to be changed, people may possibly develop a more positive attitude towards behaving in a pro-environmental manner.

Environmental concern, a topic that has gained popularity amongst academics and practitioners over 30 years (Rahbar & Wahid, 2011:73; Haytko & Matulich, 2008:2), has resulted in an increased demand for environmentally friendly products and services, and has compelled many multinational organisations as well as governments to go 'green' due to public pressures (Ali *et al*., 2011:218). Studies show that consumer beliefs such as perceived environmental knowledge (Mostafa, 2007), subjective norms (Han *et al*., 2010) and perceived behavioural control (Al-Debei *et al*., 2013) influence their level of environmental concern and awareness. According to Mostafa (2007:446), there is evidence that environmental knowledge and beliefs vary across cultures.

Marketing literature states that purchase intentions are a key concept in the adoption of new products as well as in the continued purchase of existing products (Ali *et al*., 2011:219). Chen and Chang (2012:4) add that organisations' green marketing efforts may increase customers' green purchase intentions. Mostafa (2007:446), in reference to Egypt, indicates that

some countries are still in the 'green awakening' stage and lag behind the developed economies in the western world. Similarly, South Africa may be categorised into the same 'green awakening' stage of understanding of environmental behaviour and, to date, there has been only limited published research concerning consumers' environmental behaviour in the South Africa context.

While studies indicate that consumers globally have a more positive attitude towards pro-environmental efforts and a heightened concern for the environment (Ali *et al*., 2011:224; Chang, 2011:19; Rahbar & Wahid, 2011:73; Sodhi, 2011:177; Gupta & Ogden, 2009:376; Laroche *et al*., 2001:503; Peattie, 2001a:137; Crane, 2000:279; Kalafatis *et al.,* 1999:442), the influence of these attitudes and concerns on green purchasing intentions and behaviour provides contradictory evidence. Some studies (Ali *et al.,* 2011:224; Chang, 2011:19; Rahbar & Wahid, 2011:74; Peattie, 2001a:137) found that while consumers have a positive attitude towards the environment and are environmentally concerned, this did not translate into environmentally friendly behaviour or green purchasing behaviour. In contrast, other studies (Rahbar & Wahid, 2011:73; Sodhi, 2011:177; Gupta & Ogden, 2009:376; Laroche *et al.*, 2001:503; Crane, 2000:279; Kalafatis *et al.*, 1999:442) found that consumers were not only willing to purchase green products but were even prepared to pay higher prices in order to conserve the environment.

Consumers typically perceive green products as being more expensive and/or of a lower quality compared to conventional products (Chang, 2011:20). These perceptions are not without grounds, with many organisations implementing exaggerated pricing strategies and/or poor quality controls on their green market offerings (D'Souza *et al*., 2007:70). Many consumers are unwilling to compromise on attributes such as price, quality, value and performance. Green products must compete on the same level as non-green products based on those attributes in order to attract consumer attention and ultimately product adoption (Chen & Chang, 2012:4). Although, evidence suggests that some consumers may be willing to pay extra for green products due to their heightened environmental concerns (Ali *et al*., 2011:219).

The leaders of tomorrow's green movement and the future of environmental protection lie in the hands of the youth (Ottman, 2011:6; Lee, 2009:87). The youth currently are classified as being part of the Generation Y cohort, which includes individuals born between 1986 and 2005 (Markert, 2004:21). These individuals are often recognised as being "born green" because they were raised in a society where the new eco-conscious lifestyle is considered the norm (Rogers, 2013). These individuals, aged between nine and 28 in 2014 (Markert, 2004:21), led by their Generation X or Baby Boomer parents are displaying a major positive shift in their green attitudes and behaviour, even assuming leadership roles in the sustainable marketplace (Rogers, 2013).

In 2014, the Generation Y cohort in South Africa made up 38 percent of South Africa's entire population and a significant 84 percent of this generation were African (hereafter referred to as black Generation Y) (Statistics South Africa, 2014). The significant size of the black Generation Y market makes them an important segment to marketers, including green marketers, operating in the South African market. Those black Generation Y members attending higher education institutions (HEIs) are of specific interest to marketers in that a tertiary qualification often equates to higher future earning potential and consequent higher disposable income, as well as greater opinion leadership amongst the South Africa's wider black Generation Y cohort (Bevan-Dye & Surujlal, 2011:49).

1.2 PROBLEM STATEMENT

There are indications within the literature that while consumers' environmental awareness is on the rise, this does not necessarily translate into an increase in their purchase of pro-environmental market offerings (Chang, 2011:19; Tan & Lau, 2011:559; Gupta & Ogden, 2009:376-377; Peattie, 2001a:137). Studies, mostly conducted in developed countries, provide contradictory findings as to the influence of consumers' environmental attitudes and concerns on their pro-environment purchase intentions and behaviour (Rahbar & Wahid, 2011:73). For example, researchers such as Sodhi (2011:177-178), Crane (2000:279) and Kalafatis *et al.* (1999:442), found that heightened environmental attitudes result in positive green purchase

behaviour. In contrast, Chang (2011:19), Lee (2008:580) and Peattie (2001a:137) concluded that environmental attitudes have a somewhat modest and vague influence on environmental behaviour, including green purchase behaviour. These contradictory results suggest that further studies are needed to investigate other possible factors that may help or better predict green purchase behaviour (Lee, 2009:88).

From a marketing standpoint, this is disconcerting. Marketers, both those already marketing green products and those considering greening their market offerings, require an in-depth understanding of the factors that determine consumers' green product purchase intentions and behaviour in order to tailor their marketing strategies accordingly.

Rahbar and Wahid (2011:73) suggest that the antecedents of green purchasing behaviour may be target-market specific. As indicated in the introduction, in South Africa the black Generation Y cohort represents an important target market to marketers, including green marketers. The trendsetting potential of those black Generation Y members attending HEIs may provide important insights into South Africa's wider black Generation Y cohort's environmental attitude, green purchasing intentions and green purchase behaviour.

Lee (2008:576-577) asserts that the topic of young consumers' green purchase behaviour is rarely explored, even though the youth are crucial to the future of the green movement. In South Africa, there is only limited research on the consumer behaviour of the significantly sized black Generation Y cohort, including their green purchasing intentions and behaviour. One study (Synodinos *et al*., 2013:88) found that black Generation Y students exhibit a positive attitude towards green advertising and the environment, and are environmentally concerned, and that collectively, these factors influence their environmental behaviour in a positive manner. However, the study failed to investigate the factors that influence the cohorts' green product purchase intentions and behaviour.

This suggests that there is a need to develop and empirically test a model of the antecedents that influence the green purchase intentions and purchase behaviour amongst black Generation Y students in South Africa.

1.3 OBJECTIVES OF THE STUDY

The following objectives have been formulated for the study:

1.3.1 Primary objective

The primary purpose of this study is to propose and empirically test a model of antecedents that influence black Generation Y students' green purchase behaviour within the South African context.

1.3.2 Theoretical objectives

In order to achieve the primary objective, the following theoretical objectives were formulated for the study:

- Review the literature on the factors that caused the environmentalism movement.
- Conduct a review on the literature concerning green marketing, sustainability and environmental sustainability.
- Review the literature pertaining to the environmental antecedents that influence green purchase intentions and environmental behaviour.
- Conduct a review of the literature on the mediating effects of the perceived price and quality of green products on green purchase behaviour.
- Conduct a review on the literature regarding the Generation Y cohort, with reference to the characteristics of its members and the impact environmentalism has had on this generation.

1.3.3 Empirical objectives

In accordance with the primary objective of the study, the following empirical objectives were formulated:

- Determine the level of black Generation Y students' environmental knowledge.
- Determine black Generation Y students' environmental subjective norms.
- Determine black Generation Y students' perceived behavioural control concerning environmental issues.
- Determine black Generation Y students' environmental attitude.
- Determine black Generation Y students' green purchase intentions.
- Determine black Generation Y students' green purchase behaviour.
- Empirically test a proposed model of the black Generation Y students' antecedents of green purchase intentions and green purchasing behaviour.
- Determine whether perceived price and quality mediate the effect of black Generation Y students' green purchase intentions on their green purchase behaviour.
- Determine whether male and female black Generation Y students differ in their environmental knowledge, environmental subjective norms, perceived behaviour control, environmental attitude, green purchase intentions and green purchase behaviour.
- Determine whether black Generation Y students registered at city-based HEIs differ from those registered at country-based HEIs in terms of their environmental knowledge, environmental subjective norms, perceived behaviour control, environmental attitude, green purchase intentions and green purchase behaviour.

1.4 HYPOTHESES

In order to achieve the empirical objectives of the study, the following eight hypotheses were formulated:

H_o1: Antecedents of green purchase behaviour is not a six-factor structure comprising environmental knowledge, environmental subjective

norms, perceived behaviour control, environmental attitude, green purchase intentions and green purchase behaviour.

H_a1: Antecedents of green purchase behaviour is a six-factor structure comprising environmental knowledge, environmental subjective norms, perceived behaviour control, environmental attitude, green purchase intentions and green purchase behaviour.

H_o2: Environmental knowledge (+), environmental subjective norms (+) and perceived behavioural control (+) do not have a significant direct influence on black Generation Y students' environmental attitude.

H_a2: Environmental knowledge (+), environmental subjective norms (+) and perceived behavioural control (+) have a significant direct influence on black Generation Y students' environmental attitude.

H_o3: Environmental attitude (+) does not have a direct significant influence on black Generation Y students' green purchase intentions.

H_a3: Environmental attitude (+) does have a direct significant influence black Generation Y students' green purchase intentions.

H_o4: Green purchase intentions (+) do not have a direct significant influence on black Generation Y students' green purchase behaviour.

H_a4: Green purchase intentions (+) have a direct significant influence on black Generation Y students' green purchase behaviour.

H_o5: Perceived price does not mediate the effect of green purchase intentions on green purchase behaviour.

H_a5: Perceived price does mediate the effect of green purchase intentions on green purchase behaviour.

H_o6: Perceived quality does not mediate the effect of green purchase intentions on green purchase behaviour.

H_a6: Perceived quality does mediate the effect of green purchase intentions on green purchase behaviour.

H_o7: There is no difference between male and female black Generation Y students' environmental knowledge, environmental subjective norms, perceived behavioural control, environmental attitude, green purchase intentions and green purchase behaviour.

H_a7: There is a difference between male and female black Generation Y students' environmental knowledge, environmental subjective norms, perceived behavioural control, environmental attitude, green purchase intentions and green purchase behaviour.

H_o8: There is no difference between country- and city-based black Generation Y students' environmental knowledge, environmental subjective norms, perceived behavioural control, environmental attitude, green purchase intentions and green purchase behaviour.

H_a8: There is a difference between country- and city-based black Generation Y students' environmental knowledge, environmental subjective norms, perceived behavioural control, environmental attitude, green purchase intentions and green purchase behaviour.

The following section describes the research design and methodology used within the study.

1.5 RESEARCH DESIGN AND METHODOLOGY

The study comprised a literature review and an empirical study. Given that, the study focused on understanding and predicting consumer behaviour, a positivism approach was adopted for the study. A descriptive research design was followed for the empirical portion of the study.

1.5.1 Literature review

In order to support the empirical study of this research project, a review of South African and international literature was conducted. Secondary data

sources included relevant textbooks, the Internet, journal articles, business articles, academic journals, newspaper articles and online academic databases.

1.5.2 Empirical study

The empirical portion of this study comprised the following methodology dimensions:

1.5.2.1 Target population

The target population, relevant to this study were the full-time black Generation Y students, aged between 18-24 years, registered at South African public HEIs in 2014. The target population is defined as follows:

- Element: Full-time black Generation Y students aged between 18 and 24 years
- Sampling Unit: South African registered public HEIs
- Extent: South Africa, Gauteng
- Time: 2014

1.5.2.2 Sampling frame

The sampling frame comprised the 25 registered South African public Higher Education Institutions (Higher Education in South Africa, 2014). From this initial sample frame, non-probability judgment sampling was used to narrow the sampling frame to four HEIs located in the Gauteng province − two city-based traditional university campuses, one country-based traditional university campus and one country-based university of technology campus. The Gauteng province was selected for this study because it has the highest percentage of South Africa's 25 registered public HEIs and the highest number of these institutions' collective campuses (Bevan-Dye & Surujlal, 2011:49).

1.5.2.3 Sample method

A single cross-sectional non-probability convenience sample of full-time black Generation Y students was drawn for the final study. In order to overcome the limitations of using convenience sampling, demographic questions pertaining to province of origin, gender and home language were included in the questionnaire. This aided in determining the extent to which the sample is representative of the target population and, consequently, the degree to which the study's findings may be generalised to that population.

1.5.2.4 Sample size

A sample size of 500 full-time students was selected for this study. This sample size is in accordance with other studies similar in nature, such as Ali *et al.,* (2011:220) (sample size: 400), Cheah and Phau (2011:460) (sample size: 600), Leonidou, *et al*. (2010:1328) (sample size: 500), Haytko and Matulich (2008:3) (sample size: 565), Minton and Rose (1997:40) (sample size: 500) and, as such, is considered sufficiently large. The sample size also met the requirements of the statistical analysis techniques applied to the collected data. The sample size of 500 full-time students was split equally between the four HEI campuses, with a sample of 125 per campus.

1.5.2.5 Measuring instrument and data collection method

This study utilised a structured, self-administered questionnaire to gather the required data. The questionnaire includes existing scales used in previously published research. The measuring scales in the questionnaire included scales adapted from Leonidou *et al.* (2010), Fielding *et al.* (2008), Lee (2008), Mostafa (2007), as well as Kim and Choi (2005), together with two individual items from the D'Souza *et al.* (2007) study. The questionnaire included three sections, namely Section A, Section B and Section C. Scaled responses were measured using a six-point Likert scale ranging from strongly disagree (1) to strongly agree (6). The questionnaire included a cover letter explaining the nature of the study as well as providing relevant contact details and an assurance of confidentiality concerning the participants' information.

The questionnaire was piloted on a convenience sample of 50 students on a South African HEI campus that did not form part of the main study's sampling frame, in order to ascertain the reliability of the questionnaire. The results of the pilot test were coded and tabulated accordingly.

Questionnaires were distributed to students at the HEI campuses that formed part of the sampling frame. Lecturers at each of the four campuses were contacted and asked to act as gatekeepers to the student participants. These lecturers were shown the questionnaire together with the ethics clearance certificate obtained from the Ethics Committee of the Faculty of Economic Sciences and Information Technology at the North-West University (Vaal Triangle Campus). The questionnaires were handed out to the students after lectures so as not to disturb or disrupt any academic learning time. All participants were informed that participation in the survey was purely on a voluntary basis. This was done for all four participating HEI campuses in 2014.

1.5.3 Statistical analysis

The captured data was analysed using the Statistical Package for Social Sciences (SPSS) and Analysis of Moment Structures (AMOS), Version 22.0 for Windows. The following statistical methods will be used on the empirical data sets:

- Exploratory factor analysis
- Reliability and validity analysis
- Descriptive analysis
- Correlation analysis
- Structural equation modelling
- Two independent-sample t-tests

1.6 ETHICAL CONSIDERATIONS

The research study complied with all ethical standards of academic research, which entailed the protection of the identities and interest of the participants. In addition, the information provided by participants was handled confidentially at all times. Participation in the survey was strictly voluntary and no individual was coerced to partake in it.

In addition, the questionnaire, together with an outline of the research methodology to be followed in the study, went through the North-West University's Ethics Committee in order to ensure that the measurement instrument did not request any information of a sensitive nature and that the target population and sampling frame from which the sample of participants was to be drawn did not include any persons that could be classified as being vulnerable. The questionnaire successfully passed the Committee's standards and received the following ethical clearance number: **Econit-Econ-2014-007**.

1.7 DEMARCATION OF THE STUDY

This particular study concerns black Generation Y students between 18 and 24 years of age, registered at South African public HEIs in 2014. This study made use of four public HEI campuses located within the Gauteng province of South Africa. The four chosen campuses were selected from the sampling frame and included two traditional HEIs, one comprehensive university and one university of technology.

1.8 CLARIFICATION OF THE TERMINOLOGY

- Generation Y: Individuals born between 1986 and 2005
- Environment: Refers to the natural environment
- Environmental attitude: reflects an individual's overall feeling towards the natural environment
- Green product: Refers to a product that has been manufactured in a sustainable way or contributes less harm to the environment than a conventional product.

- Environmental behaviour: Refers to individuals acting in a pro-environmental manner.

1.9 CONTRIBUTIONS OF THE STUDY

Ecological concern, environmentally friendly, green products and environmental consciousness are just a few of the new eco-terms to gain attention in the South African consumer market. This study seeks to determine empirically a comprehensive set of antecedents that influence green purchasing intentions and green purchasing behaviour, specifically amongst South Africa's black Generation Y student cohort. An understanding of these antecedents will enable marketers to tailor their green marketing efforts towards the black Generation Y cohort in South Africa. These antecedents may also provide a foundation for segmenting the black Generation Y cohort into green purchase intention groups, in accordance with their readiness to adopt pro-environmental purchasing behaviour.

In addition, the findings of this study will contribute to the literature on green marketing as well as the literature on South Africa's black Generation Y students' consumer behaviour. The latter contribution to the literature is in accordance with the aims of the proGenY (profiling the consumer behaviour of Generation Y in South Africa) project at North-West University (Vaal Triangle Campus).

1.10 CHAPTER CLASSIFICATION

In accordance with the gap in the literature relating to the antecedents of green purchase behaviour amongst the black Generation Y cohort in South Africa, one primary objective, five theoretical objectives and ten empirical objectives were formulated in this chapter, Chapter 1. In order to address these objectives, the remainder of this thesis incorporates the following chapters:

Chapter 2: Environmentalism, sustainability and green marketing

In this chapter, a detailed literature review on environmentalism, sustainability and green marketing is provided. Environmentalism is discussed, including the causes behind the deterioration of the environment. The chapter presents the various aspects of sustainability and environmental sustainability as a recent addition to organisational strategies. Furthermore, the chapter presents an in-depth literature review regarding green marketing. It includes a definition of green marketing, together with its history and background. In addition, Chapter 2 presents the challenges green marketing faces and includes a discussion pertaining to the marketing mix components in terms of green marketing.

Chapter 3: Antecedents of green purchase behaviour and the Generation Y cohort

This chapter begins with a background of the models scholars have used to characterise the green attributes of consumers, in particular, the Theory of Planned behaviour is discussed. An outline of several factors thought to influence consumers' green purchase behaviour is then provided. This chapter includes a literature review regarding the Generation Y cohort as a strong marketing force. A discussion on how individuals in the Generation Y cohort have been raised in an environmentally conscious era is presented. In addition, the chapter explains how the Generation Y cohort has incorporated green practices into their daily activities and lives. The importance of the black Generation Y consumer with regards to the South African context is then discussed. The chapter concludes with a proposed model of the antecedents that may influence the green purchase behaviour of black Generation Y students in South Africa.

Chapter 4: Research design and methodology

The focus of Chapter 4 is on the theoretical background of the research methodology employed in collecting and analysing the data captured in the study. The chapter begins with a discussion of the marketing research process. This is followed by a discussion on the questionnaire design,

sampling procedure, data collection process and the statistical techniques used to analyse the data in the study.

Chapter 5: Results and findings

This chapter includes the results from the pilot test and the main survey. Within the chapter, there is a description of the sample, together with a discussion of the results of the exploratory factor analysis and a report on the internal-consistency reliability of the measurement instrument used in the main study. In addition, the results of the descriptive statistical analysis and correlation analysis are presented. Furthermore, the results of the empirical testing of the model of the antecedents of South African black Generation Y students' green purchase behaviours are reported. The chapter ends with a discussion of the results of the two independent-sample t-tests.

Chapter 6: Conclusions and recommendations

Chapter 6 provides a review of the entire study and the conclusions observed from the study. In addition, it stipulates the recommendations emanating from the findings of the study. The limitations of the study and suggestions for future research are also given within this chapter.

1.11 GENERAL

- Annexures are located in the end matter of the thesis
- Tables and figures are placed on the relevant pages throughout the thesis
- Where no source reference appears for tables and figures, it refers to own research
- Referencing was based on the 2014 version of the NWU referencing guide: Harvard style.

1.12 CONCLUSION

This chapter highlighted the study's context and background. Furthermore, the chapter introduced a brief overview of the present environmental problems

and introduced the mechanisms of green marketing. The advantages associated with green marketing include a potential market opportunity and a subsequent competitive advantage. The research problem identified in this study is that there is a gap in the literature concerning the antecedents of green purchase behaviour, particularly in the South African context. Given that the youth represent the future of environmentalism and green marketing endeavours, the study focuses on the country's Generation Y cohort or, to be more specific, the black Generation Y cohort. In accordance with the problem statement, one primary objective, five theoretical objectives and ten empirical objectives were set out in this chapter. Thereafter, a brief overview of the research methodology followed in achieving those objectives was provided. The chapter included a discussion pertaining to the ethical considerations and demarcation of the study, as well as an explanation of the contribution of the study and a classification of the chapters included in the thesis.

The following chapter, Chapter 2, serves to address the first two theoretical objectives formulated for this study and includes a discussion on environmentalism, sustainability and green marketing.

CHAPTER 2
ENVIRONMENTALISM, SUSTAINABILITY AND GREEN MARKETING

2.1 INTRODUCTION

In accordance with the first and second theoretical objectives formulated in Chapter 1, this chapter provides an overview of environmentalism, sustainability and green marketing. The purpose of Chapter 2 is to provide a background to the antecedents of green purchase behaviour amongst black Generation Y students, as laid out in Chapter 3.

The environmentalism movement has become a well-recognised movement and consumers are actively seeking to become involved in the preservation of the environment. For instance, the term ‘going green’ had 15.6 million hits in Google in January 2008 and that number escalated to 31 million a mere two months later (Haytko & Matulich, 2008:2). This widespread concern is the result of growing environmental problems such as climate change, global warming, carbon dioxide emissions and natural resource depletion. Increasing consumer environmental awareness and concern is the driving force behind green marketing initiatives, as marketers attempt to understand and capture this growing market segment.

As stipulated in Chapter 1, the purpose of this study was to propose and empirically test a model of factors that determine the antecedents of green purchase behaviours amongst black Generation Y students in South Africa. The purpose of this chapter is to outline the factors that caused the environmentalism movement, as well as to provide a discussion on green marketing as a whole. As such, Section 2.2 discusses environmentalism, including the factors that have shaped the environmentalism movement. Section 2.3 pertains to the sustainability practices implemented in organisations. In Section 2.4, the focus is on green marketing, where the history and problems associated with green marketing are discussed. Section 2.5 includes as discussion concerning the greening of the marketing mix.

2.2 ENVIRONMENTALISM

Whilst the degradation of the natural environment has been a persistent issue throughout human history, in recent times the problem has escalated, threatening the sustainability of the planet at large and the wellbeing of people's health and welfare on a global scale (Ali *et al*., 2011:217). As a result, the natural environment and environmentalism have become significant topics amongst academia and the public alike (Rahbar & Wahid, 2011:73; Ali *et al.*, 2011:217; Haytko & Matulich, 2008:2).There are suggestions that the Earth's life-support systems are under attack due to constantly increasing anthropogenic activities (Christensen, 2013:4).

Scientific evidence is beginning to emerge that indicates economic growth to be one of the main culprits negatively impacting on the sustainability of the natural environment (Wells *et al*., 2011:808) and there are growing concerns that the Earth's natural life-supporting ecosystems simply cannot withstand the stronghold of humanity's copious demands (Christensen, 2013:4). Therefore, humanity has to remedy the injustices of its current and past environmental transgressions if it is to ensure a sustainable environment for future generations; that is, environmentalism needs to be embraced more fully by governments, industry and individuals across the globe.

2.2.1 Environmentalism defined

Before defining environmentalism, it is necessary to clarify that the environment, in terms of environmentalism, refers to the natural environment or biosphere, as opposed to other environments such as the social, economic and political environments, and increasingly is used interchangeable with the term green (Charter *et al*., 2002:10). The natural environment includes all living and non-living things that occur naturally on planet Earth, from fauna and flora to natural resources, the atmosphere and physical phenomena (Miller & Spoolman, 2012:6).

There are several different definitions for the term environmentalism, with some being more detailed than that of others. Barton (2002:9), for example,

defines environmentalism as “the advocacy of a proper balance between humans and the natural world”, whereas Miller and Spoolman (2012:7) define environmentalism as “a social movement dedicated to protecting the Earth’s life support systems for all forms of life”. Levy (2011:108) infers environmentalism to be “a social movement and associated body of thought that expresses concern for the state of the natural environment and seeks to limit the impact of human activities on the environment”. Environmentalism is also denoted as a “political and ethical movement that seeks to improve and protect the quality of the natural environment through changes to environmentally harmful human activities” (Britannica, 2014).

From a marketing perspective, environmentalism is rooted in the societal marketing concept and involves balancing demand expansion with sustainability (Kotler, 2011:135). Kotler and Armstrong (2012:617) define environmentalism as the “organised movement of concerned citizens and government agencies to protect and improve people’s current and future living environment”. Charter *et al*. (2002:9) indicate that the pursuit of environmental sustainability necessitates that marketers re-evaluate their portfolio of market offerings, together with the way in which those offerings are created, produced, promoted and distributed. Mostafa (2007:446), Leonidou *et al*. (2010:1322), and Cheah and Phau (2011:454) are among several authors who highlight the role of consumer pro-environmental behaviour in ensuring environmental sustainability.

In light of these various perspectives, this study defines environmentalism as *an organised social movement that aims to protect and conserve the current state of the natural environment by balancing consumer demand with sustainability and environmentally pro-behaviour*.

The following section outlines the history of environmentalism and describes the factors that shaped the environmentalism movement.

2.2.2 History of environmentalism

While it is understood generally that public environmental concern was the driving force behind the birth of environmentalism, the exact date of the

conceptualisation of environmentalism has proven more difficult to establish (Pepper, 1986:14). The consensus amongst many academics is that true public environmental concerns only became a prominent factor in the everyday lives of consumers around the 1970s (Ali *et al*., 2011:218; Peattie & Crane, 2005:357; Crane, 2000:277; Straughan & Roberts, 1999:558; Brown & Wahlers, 1998:39; Kuzmaik, 1991:265). Although, evidence does suggest that environmental concern dates back thousands of years (Billitteri, 2010:81; Peattie, 2001a:129).

The earliest recordings of environmental conservation can be traced back to ancient times in Egypt, Greece, India and China (Irwin & Lotz-Sisitka, 2005:36). Theophrastus, a fourth-century Greek philosopher, was said to be the first person who understood the basic theories of ecology, environmental management and public education. This philosopher emphasised topics such as effective resource utilisation, climate change and the unnecessary deforestation of trees in Athens (Irwin & Lotz-Sisitka, 2005:37; Grove, 1996:1). In the eighteenth-century, British colonial states developed forest conservation policies based on underlying climatic theories (Grove, 1996:1). Billitteri (2010:81) adds that political philosophers and economists in the eighteenth- and nineteenth-centuries were alluding to their concerns regarding the impact of population growth, industrialisation and urbanisation on food supplies, resources and the natural environment. Goethe, Rousseau, Humboldt, Haeckel, Froebel, Dewey and Montessori are among the great thinkers from the 1800s and 1900s upon whose work environmental concerns had a significant influence (Palmer, 1998:4).

Similarly, in South Africa, between 1895 and 1965, conservative measures were taken to protect natural areas at an average rate of one new addition each year (Barton, 2002:156). Since only 1.9 percent of South Africa is covered by natural forests, there was a definite need to conserve and protect these forests from exploitation. Hence, the Department of Forestry was established in 1910 in order to monitor and control timber logging in the country (Barton, 2002:156). However, deforestation was not the only worrying environmental factor. Billitteri (2010:81) states that economists and political

philosophers displayed great concerns about human population growth, industrialisation, resource depletion, natural beauty preservation, urbanisation and food supplies in the eighteenth- and nineteenth-centuries. From the nineteenth -century onwards, environmentalism became established firmly as a salient concept that was no longer regarded as an outlandish idea amongst consumers and academics.

Several factors have been documented that are considered instrumental in prompting the emergence of environmentalism and these factors are described in the following section.

2.2.3 Factors that have shaped the environmentalism movement

This section describes the major factors identified to have shaped the environmentalism movement.

2.2.3.1 Global warming and its effects on climate change

Climate change and global warming are often misconceived as meaning the same thing, when in fact they are two very different concepts. Climate refers to the Earth's average weather conditions or the average weather conditions of a particular region, as measured over lengthy time- periods, ranging from decades to centuries and even to thousands of years (Miller & Spoolman, 2012:482). The Earth's climate has alternated naturally over the years between colder and warmer periods (Christensen, 2013:200). As such, climate change is regarded as the changing of the seasonal cycles on the Earth. Global warming, in contrast, occurs when natural greenhouse gases (gases that form an insulating layer around the Earth) increase due, mostly, to anthropogenic activities. This increase in greenhouse gases escalates the average atmospheric temperature causing the phenomenon known as 'global warming' (Kalule & de Wet, 2010:38).

Since the discovery of global warming, scientists have debated whether it is to blame for climate change or whether climate change occurs because of the natural climatic cycles of the Earth. Regardless of which view is true, the

scientific and academic community agree that anthropogenic actions are the main cause behind the rise in the Earth's average temperature (Miller & Spoolman, 2012:486; Ali *et al.*, 2011; Kalule & de Wet, 2010; Brower & Leon, 2009; Tisdell, 2008; Lynas, 2007; Ottman *et al*., 2006; Antilla, 2005; Chylek *et al*., 2004; Shankin, 2004; Sathiendrakumar, 2003; Lomborg, 2001). However, not all believe that anthropogenic activities are the only culprits responsible for the rise in global temperatures (Beder, 2011:423; LeFeuvre, 2011; Foss, 2009; Neill, 2009; Cole, 2003; Lomborg, 2001; Leon & Rind, 1998). In addition, although the evidence suggests global warming is real, Shankin (2004:362) indicates that there are still a number scientists who dispute its existence.

The last 50 years has seen global warming increase at a staggering rate, mainly due to an increase in greenhouse gases, which scientists from across the world (Woodard, 2010:26; Tisdell, 2008:891; Karl & Trenberth, 2003:1719) attribute to the burning of fossil fuels and deforestation (Miller & Spoolman, 2012:486). A six-year study conducted by the Intergovernmental Panel on Climate Change (IPCC) comprising findings from over 1000 scientists across 113 countries, indicated with a 90 percent certainty, that greenhouse gases generated from human actions are the leading cause for the rise in global temperatures over the past five decades (Woodard, 2010:26). In contrast, Foss (2009:3) claims that in an IPCC study conducted in 1995, a federal geologist's publication concluded that the removal of forests significantly increased global air temperatures, contradicting the IPCC's views that carbon dioxide emissions induced by humans was the main cause global warming. Similarly, Lomborg (2001:266-267) found that predictions from previous IPCC models throughout the 1990s were inaccurate and did not match the observed data. Moreover, the 2000 IPCC report indicated that the 1990 models overshot a 0.91 Celsius degree of warmth. Although a sceptic, Lomborg (2001:317) does agree that humans do contribute to greenhouse gas emissions, which ultimately induce global warming.

Environmental sceptics do not deny that global warming is real but suggest its implications are over exaggerated. Some claim that human contributions are

insignificant in the larger scheme of the planet (Foss, 2009:66), while others believe it is a natural process that is beyond human control (Lomborg, 2001).

Notwithstanding the views of the sceptics, there appears to be overwhelming evidence that global warming poses a threat to the natural environment and that human action is the primary contributor to increased greenhouse gases.

2.2.3.2 Global warming and the greenhouse effect

The primary concern of climate change is the resulting global warming; that is, warming which is based on the so-called 'greenhouse effect' (Lomborg, 2001:259). Without gases such as oxygen, water vapour, nitrogen, carbon dioxide, methane and the like, life on Earth would be non-existent as these greenhouse gases make the Earth habitable. If these gases were absent, the Earth would be around 33 degrees cooler and, therefore, too cold to sustain any form of life (Miller & Spoolman, 2012:54; Christensen, 2011:208). Greenhouse gases warm the Earth via a process called the greenhouse effect. This greenhouse effect occurs when sunlight penetrates the Earth's atmosphere and strikes the Earth's crust. The Earth then absorbs the long wave radiation (heat) from the sunlight, and the Earth's surface is warmed. The absorption emits infrared radiation back into the atmosphere, where greenhouse gases trap some of the outgoing infrared radiation particles retaining the heat that warms the Earth (Woodard, 2010:26; De Beer., *et al*, 2005:8; Sathiendrakumar, 2003:1234). Simply put, these gases act as a proverbial blanket that wraps around the Earth and traps heat within Earth's atmosphere (Lomborg, 2001:259-260).

The increase in greenhouse gases has driven the Earth's global average temperature to warm by about 0.74 degrees Celsius in the last century (Miller & Spoolman, 2012:486). Many scientists, but not all, suggest that this increase in global temperatures from greenhouse gases may have possible disastrous effects on the natural environment, even going so far as to threaten the existence of humankind (Sathiendrakumar, 2003:1234). Christensen (2013:224) adds that these climate changes will affect regions differently, where certain areas may face anything from droughts and heat waves to

erratic storm patterns, raising sea levels, flooding and higher levels of rainfall. These changes will force humans to adapt their activities to accommodate the affects, where changes required may include agriculture methods, water management, coastal management, industry, and public health.

The first decade of the twentieth-century recorded the warmest temperatures seen since 1881, with annual greenhouse gas emissions rising 70 percent between 1970 and 2009 (Miller & Spoolman, 2012:486). It is because of alarming statistics such as these that countries all over the world are aiming to reduce their own greenhouse gas emissions. Unfortunately, only a limited number of countries are actually reducing their greenhouse gas emissions, whilst the majority still fail to fulfil their greenhouse gas reduction agreements, and still others continue to increase their emissions at a steady rate without any recourse (Woodard, 2010:28; Tisdell, 2008:894).

South Africa ranks as the number one contributor to greenhouse gas emissions in Africa and 14th in the world (Coleman, 2012:184). Even though South Africa is forecasted to contribute 3.5 percent to the world's total greenhouse gas emissions by the year 2020 (den Elzen *et al.*, 2013:639), the government does aim to reduce the country's emissions by implementing a number of initiatives. These initiatives include Reducing Emissions from Deforestation and Forest Degradation (REDD), National Climate Change Response White Paper and adhering to initiatives developed at the Kyoto Protocol formed by the United Nation's Framework Convention on Climate Change (UNFCCC) (Department of Environmental Affairs, 2013; Rahloa *et al*., 2011:25).

South Africa is largely an energy dependent producer, with 80 percent of the country's greenhouse gas emissions coming from the burning of fossil fuels, with more than 92 percent of electricity generation in the country being coal orientated (South Africa, 2010:15). This suggests that if South Africa is serious about adhering to its greenhouse gas emission reduction goals, innovations to lessen the use of coal as the main energy-producing compound should be a top priority.

Greenhouse gas emissions pose a serious threat to the planet. In 2011 alone, human activities resulted in an estimated 7.6 billion metric tons of greenhouse gas emissions being released into the earth's atmosphere. In addition, human activities resulted in approximately 20 million tons of nitrogen being released into streams and rivers across the globe and contributed to the extinction of as many as 20 000 different species of plants, animals and microorganisms (Christensen, 2013:624). Even more worrying is that even if humankind were able to stabilise current greenhouse gas emissions, additional global warming is unavoidable. In terms of greenhouse gas emissions, a major factor to consider is the significant amounts of carbon dioxide produced on a daily basis, with these levels having risen steadily over the past five decades (Christensen, 2013:224; Tisdell, 2008:890).

2.2.3.3 Carbon dioxide as the deadliest greenhouse gas

The atmospheric composition of both Mars and Venus comprises over 96 percent pure carbon dioxide, where the remaining 3-4 percent consists of nitrogen and other gases. In contrast, the Earth's atmosphere contains 78 percent nitrogen, 21 percent oxygen and carbon dioxide accounts for a mere 0.039 percent. The combined rich abundance of oxygen and lower carbon dioxide levels is what makes the Earth habitable (Christensen, 2013:81). However, human actions, such as the burning of fossil fuels, are elevating carbon dioxide levels on the planet, which potentially influences the Earth's ability to support life forms (Christensen, 2013:211; Coleman 2012:203; Miller & Spoolman, 2012:486; Bandyopadhyay, 2011:94; Karl & Trenberth, 2003:1720; Sathiendrakumar, 2003:1235).

As previously stated, the more greenhouse gases continue to increase, the greater the effect of global warming will be. Carbon dioxide is one of the most concerning of the greenhouse gases as it contributes 80 percent to total greenhouse gas emissions and 75 percent to the effects of global warming (Christensen, 2013:211; Dahlstrom, 2011:40). Tisdell (2008:890) adds that carbon emissions have increased at a steady rate over the last 50 years, and that gas emissions have increased 31 percent since preindustrial times,

increasing the Earth's average global atmospheric temperature by almost one degree Celsius (Christensen, 2013:4; Karl & Trenberth, 2003:1720).

Currently, the United States of America (USA), China and India have the largest anthropogenic-induced carbon dioxide emission records of all countries (Christensen, 2013:211; Tisdell, 2008:894). South Africa (being heavily dependent on fossil fuels) is not far off the heavy carbon producers, as the country is ranked 13th highest in the world for carbon emissions (South Africa, 2010:15). South Africa's primary energy source is the combustion of coal, which represents more than 90 percent of the country's energy output (SAJS, 2009:394), which ultimately leads to the high greenhouse gas emissions. Since coal is abundantly available as well as cheap, it remains the primary source of power for the country (South Africa, 2010:15). Dahlstrom (2011:40) asserts that the combustion of coal is the number one source of carbon emissions worldwide. South Africa, as a developing economy, seems to be caught in the middle of the global climate change equation. The country emits immense amounts of carbon dioxide even more so than some developed countries such as the United Kingdom (Coleman, 2012:184).

The rate at which carbon dioxide and other greenhouse gases are increasing is cause for concern (Christensen 2013:211). Tisdell (2008:890) opines that even if global carbon dioxide emissions were to be kept at their current rate, the possibility of environmental disaster appears imminent. Given that most of the world's energy needs (nearly 85 percent) are met from the combustion of fossil fuels, reducing the concentrations of carbon and greenhouse gas emissions seems to be a daunting task (Bandyopadhyay, 2011:94; Tisdell, 2008:890).

2.2.3.4 Anthropogenic effects on Earth

The human race has evolved into the most successful species on Earth, and the continued increase in their population numbers is having a significant effect on the natural environment (Karl & Trenberth, 2003:1720). On 27 August 2014, the world's human population stood at 7,256,633,000, growing by an estimated 154,431 that day and 53,402,908 that year (Worldometers,

2014). This figure is expected to reach 8 billion by 2024 (Geohive, 2014). In 2014, the human population growth rate stood at an estimated 1.14 percent per annum; that is, an increase of about 80 million people per year (Worldometers, 2014). Whilst it took thousands of years for the human population to reach the 1 billion mark in 1804 (Geohive, 2014), following the Industrial Revolution in the late 1700s, it took merely 123, 33, 14, 13, 12 and 13 years respectively to add each extra billion people to the world's population, thereby signifying a population explosion (Steck, 2014).

This significant growth in the human population translates into more people that need to be fed, which, in turn, translates into more fishing, and more and improved agricultural production. More and improved agricultural production generally necessitates the use of pesticides and fertilisers, as well as more cultivated land. More land devoted to farming typically entails deforestation and shrinkage in the natural habitats of flora and fauna. More people also means that there is a need for more housing, more space for housing, more transport, more energy, the burning of more fossil fuel, more industry and greater pollution of the air, water and environment in general. Christensen (2013:5) indicates that it is this exponential growth in the human population and consequent increase in industrial activities that has led to high pollution levels, ultimately adding to the concentration of greenhouse gases (carbon dioxide) in the atmosphere.

Approximately 12 percent of human-induced carbon dioxide emissions stem from deforestation (van der Werf *et al.*, 2009:737-738). Each year precious forests, that reduce carbon dioxide levels, are being replaced with human commodities such as agriculture expansion and urban development (Christensen, 2013:434). Essentially, half of the world's forests have already been desecrated at this point in time, disappearing at a rate of 0.2 percent per year, and studies show that around 40 percent of the remaining forests will have been logged within the next two decades possibly sooner (Christensen, 2013:434; Miller & Spoolman, 2012:220; Dahlstrom, 2011:40). This poses a potential problem as natural forests act as both sources of carbon but more importantly as carbon sinks that reduce the amount of carbon in the

atmosphere (Rahloa *et al*., 2011:25). Moreover, forests provide homes for a variety of wild life, prevent soil erosion, support biodiversity and provide traditional medication among many other functions (Dahlstrom, 2011:53).

A major concern environmentalists have regarding the consequences of global warming is the melting of the arctic seas, permafrost and polar ice caps. Climate models suggest that climate change will affect the worlds' Polar Regions most severely and faster than the rest of the Earth (Miller & Spoolman, 2012:494; Beary, 2012:144). For instance, over 80 percent of the Earth's glaciers are dissipating (Christensen, 2013:213). Scientists claim that in 2007, more arctic ice melted than in any other year ever recorded, which coincides with the fact that the first decade in the twentieth-century recorded the highest mean global temperatures since 1981 (Miller & Spoolman, 2012:486; Beary, 2010:127). Furthermore, since satellite observations began in 1978, arctic sea ice has been shrinking by about 3 percent per decade (Christensen, 2013:213). Woodard (2010:37) adds that the polar ice cap that covers the seas around the North Pole is receding at a rate of 9 percent each decade. In most Polar Regions today, the rate of melting exceeds the rate of ice formation (Christensen, 2013:213). There are several reasons why this melting should be of high concern. First, ice and snow reflect around 35 percent of incoming solar radiation, which is a considerable amount more than the 10 percent that forests or ocean waters reflect. Secondly, average sea levels are rising constantly. Runoff water from melting ice sheets and glaciers in time makes its way to the oceans, and the twentieth-century alone contributed a rise of 19 centimetres to the average sea level. Thirdly, and possibly the most alarming factor of all, is that of permafrost. Permafrost soils contain between 50-60 times more carbon dioxide (carbon stored as methane) than what the burning of fossil fuels contribute every year. The melting of permafrost releases this excessive amount of carbon dioxide into the air, accelerating global warming, which could result in catastrophic consequences (Christensen, 2013:213; Miller & Spoolman, 2012:487,495; Beary, 2010:138; Woodard, 2010:40).

Water is a precious and irreplaceable commodity that all life forms need in order to exist. Despite the salience of water, humans manage this resource poorly by depleting the Earth's reserves faster than the rate at which it can be replenished (Miller & Spoolman, 2012:312). Consumable water is a scarce resource in that 97 percent of the Earth's water is saline leaving a mere 3 percent as fresh water. Essentially, 70 percent of this fresh water is locked up in the frozen snow caps of Antarctica and Greenland, meaning less than 1 percent of the world's water supply is fit for human consumption (Dahlstrom, 2011:48). Despite this, humans continue to waste and abuse water (Miller & Spoolman, 2012:312-313).

Population growth, urbanisation and economic expansion are stressing water supplies in many regions, with the most affected being the poorer nations (Dahlstrom, 2011:50; Behr, 2010:323). Many natural wetlands and marshes have been reclaimed for agricultural use and urban development (Christensen, 2013:339). Miller and Spoolman (2012:313) add that the loss of water along with constant polluting has resulted in the decline of water quality, species extinction, lower fish populations and the destruction of aquatic ecosystems. Humans feel and will continue to feel, the repercussions of water misuse as scientists warn that the global warming trend will undoubtedly pose a threat to water supplies and food production, especially in arid regions (Miller & Spoolman, 2012:313; Behr, 2010:323). As a water-scarce country, South Africa will exceed its land-based water resources by the year 2050 given its current population growth (South Africa, 2010:10). Climate change due to global warming has also affected ocean ecosystems, contributing to the decline of coral reefs and causing sea levels to rise, which is expected to increase droughts in dry regions (Christensen, 2013:365; Behr, 2010:323).

These are just a few environmental problems caused by humans. The Earth's climatic system is a complex one with many uncertain variables. There is no exact estimate of the Earth's resource limitations and its ability to sustain life in the face of the continued population growth of humans.

The consequences of the population explosion and subsequent era of mass production and pursuit of economic growth that marked the twentieth-century

became clearly apparent at the dawn of the twenty-first century, making sustainability a global concern rather than merely the vision of a few environmentally oriented individuals (Peattie & Charter, 2003:726).

2.3 SUSTAINABILITY AND ORGANISATIONAL PRACTICES

The contemporary consumer makes their brand choice not only according to functional and emotional criteria but also according to the degree to which organisations meet their social responsibility (Kotler, 2011:133). This means that marketers increasingly need to consider what is in the long-term interests of consumers as well as society as a whole, and behave as good corporate citizens (Schiffman *et al*., 2010:27). This includes going beyond satisfying immediate customer needs and desires, and implementing strategies that will sustain the needs of future generations (Kotler & Armstrong, 2012:606).

Sustainability is the progress of development that ensures the needs of future generations are not compromised (Le Grange & Loubser, 2005:114). Sustainability, also referred to as the 'Triple Bottom Line' or 'Corporate Social Responsibility', comprises three components, namely economic, social and environmental sustainability (Mariadoss *et al*., 2011:1306; Charter *et al.,* 2002:6).

For the purpose of this study, the scope of sustainability is limited to environmental sustainability. The topic of environmental sustainability has attracted the interests of several marketing scholars (for example, Leonidou *et al*., 2013; Coleman, 2012; Dahlstrom, 2011; Ottman, 2011; Mariadoss *et al*., 2011; Dangelico & Pujari, 2010; Peattie & Crane, 2005; Sathiendrakumar, 2003; Charter *et al*., 2002; Mendleson & Polonsky, 1995). Kotler (2011:132) highlights that the environmental agenda is having and will continue to have a profound influence on conventional marketing theory and practice.

From an organisational standpoint, sustainable business practice promotes the possibility of gaining a competitive advantage (Ottman, 2011:91; Peattie & Crane, 2005:366), improve corporate image (Chen, 2009:307), enable better waste management and optimise resource allocation (Mariadoss *et al*., 2011:1308; Mendleson & Polonsky, 1995:13). Therefore, organisations benefit

from reduced overhead costs, all the while obtaining a new client base (Charter *et al*., 2002:19; Chen, 2009:307). As such, it is important that organisations take the issue of environmental sustainability into account (Kotler, 2011:132).

2.3.1 Environmental sustainability

Environmental sustainability, similar to sustainability, involves the design and implementation of strategies that simultaneously sustain the environment and produce profits for the organisation (Kotler & Armstrong, 2012:103). From a marketing perspective, Mariadoss *et al.* (2011:1306) explain that engaging in sustainable environmental practices is determined largely by an organisation's abilities to promote sustainable consumption. Kotler and Armstrong (2012:103) claim that many organisations are recognising that environmentally sustainable actions may lead to profitability.

This recognition of the potential link between environmentally sustainable actions and profitability is evident from the number of multinational corporations that have invested millions of dollars in various environmentally sustainable areas of research in an effort to become more sustainable. For example, Coca Cola has spent over $60 million in developing a 'state-of-the-art-plastic-bottle-to-bottle' recycling plant. Similarly, the giant super-chain store Walmart invested $500 million into sustainability projects, while Subaru's investments have led them to produce less trash each year than the average American family (Kotler & Armstrong, 2012:619; Dahlstrom, 2011:181; Ottman, 2011:11). Such investments have the potential of yielding additional benefits. For example, Whirlpool won the coveted Golden Carrot award for their Super-Efficient Refrigerator Programme, along with a handsome $30 million award package. Therefore, alert organisations can benefit from investing in environmental sustainability (Ottman *et al*., 2006:25).

Product innovation offers an attractive stepping-stone to achieving environmental sustainability. Organisations are heeding consumer demands by producing more environmentally friendly products (Kotler & Armstrong, 2012:103; Dahlstrom, 2011:146). Green products have become conventional

and have developed to such an extent that consumers do not necessarily buy them for their green attributes, but rather because they have simply become better than the non-green alternative offerings (Dangelico & Pujari, 2010:471; Ottman *et al*., 2006:26). However, not all organisations have enjoyed such benefits. General Motors, for example, invested over $1 billion into electric powered car technology; however, only 800 were ever produced. The company investment ran at a significant loss as consumers considered it too troublesome to switch driving styles and found it an inconvenience to recharge the cars constantly (cited by Ottman *et al*., 2006:25). Despite certain failures, globally more and more organisations are embracing the concept of environmental sustainability and meet the standards set out by the International Organisation for Standardisation (ISO).

2.3.2 ISO series

The ISO 1400 series comprises voluntary standards set out by the International Organisation for Standardisation (ISO), which are applied in order to monitor and control the interaction between the industries of the world and the environment (Dahlstrom, 2011:173). The primary function of the ISO is to develop and implement voluntary international standards concerning specific products and environmental management issues. The ISO comprises the ISO 14000 series. This series consists of voluntary standards in the environmental field under development by the ISO (ISO, 2014a).

Introduced in 1996, the ISO 14001 series is considered the most widely accepted environmental management system certification to date (Ronnenburg *et al.*, 2011:633). The ISO 14001 system is based on a framework that provides a holistic and strategic approach to an organisation's policy, plans and actions on an international environmental level (ISO, 2014b).

The ISO 14001 certification is associated with environmental responsibility and many organisations use them as a means to develop a competitive advantage (Morrow & Rondinelli, 2002:169). Thus, multiple firms are incorporating environmental management systems, such as the ISO 14001, into their organisations (Matthews, 2003:96). The millennium saw over 10 000

organisations have their environmental management systems certified under the ISO 14001 verification (Darnell *et al*., 2000:2) while 2001 saw that number jump to 30 300 (Morrow & Rondinelli, 2002:159). By 2005, more than 88 000 organisations were on board under the ISO 14001 certification (Peglau, 2005).

The ISO 14001 has developed into a worldwide-accepted benchmark aiming towards the improvement of environmental performance (Matthews, 2003:99). Despite the various forms of environment management systems, frameworks from systems such as the ISO 14001 allow common features to be established into organisations on a worldwide basis even if regulatory requirements and operations differ within various organisations (Matthews, 2003:105).

The South African Bureau of Standards (SABS) is a member of the ISO and was brought into existence by the South African government. SABS certifies that South African based organisations have documented and implemented management systems that meet and adhere to specific national and international specifications. The SABS serves to standardise services that contribute to the competitiveness of the country by means of standardising products and services within South Africa and on an international basis. Products, services and management systems with any of the logos depicted in Figure 2.1 have been SABS approved:

Figure 2.1: Logos depicting SABS approval (Source: SABS, 2014; ISO, 2014c).

More and more people are realising that the survival of humankind is dependent on the survival of the Earth, and that they need to alter their behaviour, including their consumer behaviour, and act in a more pro-environmental manner. This growth in consumer environmental concern, coupled with the increase in environmental-related regulations, necessitated a revision of marketing practices. Green marketing, a concept that first arose in the 1970s (Peattie & Crane, 2005:358; Peattie & Charter, 2003:727), has now become an imperative (Kotler, 2011:132).

2.4 GREEN MARKETING

The growing evidence of the negative influence human actions is having on the natural environment and the increased media attention to the consequences of those actions has served to heighten environmental concerns amongst consumers. This heightened consumer environmental concern, in turn, gave rise to the concept of green marketing (Kotler, 2011:132; Peattie & Charter, 2003:727; Kalafatis *et al.*, 1999:441).

The concept of green marketing, while rooted in the societal marketing concept, adopts a more holistic, global and intrinsic perspective of the interdependency between the economy, society and the natural environment (Peattie & Charter, 2003:727). In this section, green marketing is defined and its history and associated problems are described.

2.4.1 Green marketing defined

Charter *et al*. (2002:12) indicate that green marketing, or greener marketing practices, essentially involve spotlighting environmental issues by placing greater emphasis on the reduction of environmental degradation or damage. However, Dahlstrom (2011:5) argues that this is a rather narrow definition given that green marketing has evolved over the years, and so too has its meaning and implications. Green marketing is often viewed as the adaptation of conventional marketing, where environmental or greening aspects are integrated into traditional marketing activities (Chamorro *et al*., 2009:223). Ottman *et al*. (2006:24) state that for green marketing to be an effective

marketing tool two objectives must be adhered to, namely customer satisfaction and improving environmental quality.

Peattie and Charter (2003:727) define green marketing as "The holistic management process responsible for identifying, anticipating and satisfying the needs of customers and society, in a profitable and sustainable way". Importantly, this definition takes into account the strategic objectives of a business organisation, in terms of its long-term competitive advantage and profitability. Various authors (Leonidou *et al.,* 2013:153; Kirchoff *et al.,* 2011:687; Dahlstrom, 2011:5) concur with Peattie and Charter's (2003:727) definition, but add that green marketing products and services should be manufactured with minimal environmental impact during the production process and that this impact should be clearly stated in the product offering.

This suggests that green marketing essentially involves four elements, namely customer satisfaction, environmental sustainability, long-term profitability and environmental transparency.

Based on the above perspectives, this study defines green marketing as *the holistic strategic approach to producing/manufacturing, packaging, labelling distributing, pricing and promoting marketing goods in an environmentally responsible and transparent manner to satisfy the identified needs of customers and the global society in a profitable and sustainable manner.*

The following section provides a description of the historical background of green marketing

2.4.2 Historical background of green marketing

Green marketing has had a rather oscillatory history, fluctuating between sanguinity and disillusionment (Leonidou & Leonidou, 2011:73; Peattie & Crane, 2005:359). Although there is some evidence of environmental concern pre-twentieth-century (refer to Section 2.2.2), the first real wave of consumer environmental concern and resultant marketing interest in environmentalism only occurred in the late 1960s (Leonidou & Leonidou, 2011:69). The seminal works of Kotler and Levy (1969), who introduced the idea of marketing

extending its scope beyond being merely a business activity to taking a more active role in pursuing activities that will be advantageous to society as a whole, and that of Hennison and Kinnear (1976), who introduced the concept of ecological marketing were at the forefront of the conceptualisation of green marketing. This period may be viewed as green marketing's 'pre-stage', with the combined contributions of the societal marketing concept and ecological marketing germinating the idea of green marketing.

The 1980s marked the Stage 1 of green marketing and saw the idea of green marketing develop into a full-fledged concept (Peattie & Crane, 2005:358; Peattie, 2001a:131), in that as green consumers started to emerge and marketers began engaging in green practices with expectations of increased market shares and goodwill (Lee, 2008:574; Crane, 2000:279). By the end of the decade, many consumers fashioned themselves as environmentalists, galvanising organisations into green activities (Crane, 2000: 279; Kalafatis *et al*., 1999:442).

This increased level of environmental concern pressed on into the 1990s as consumers began pursuing environmentally friendly alternatives (Leonidou *et al*., 2010:1319), bringing forth the second stage of green marketing's development. The 1990s witnessed high expectations from marketing practitioners and scholars alike in terms of a greening boom (Chamorro *et al*., 2009:224; Crane, 2000:277). However, what transgressed was quite the opposite. Peattie and Crane (2005:357), Crane (2000:277) and Wong *et al*. (1996:264) state that a slight backlash was experienced by marketers during this time. The reason for this backlash was the false and unproven environmental claims organisations were promoting in their products to inflate sales and profits (Peattie & Crane, 2005:361). Wong *et al*. (1996:264) add that green products did not render much success in markets because of overzealous environmental product claims, despite the fact that consumers displayed environmental concerns and awareness. Rex and Bauman (2007:572) concur, stating that various polls in the 1990s showed a significant rise in green consumers as a result from heightened environmental concerns.

Academics, such as Rex and Baumann (2007:568), Peattie and Crane (2005:357), and Crane (2000:277), indicate that the literature in the 1990s focused more on the segmentation of green consumers, consumer environmental concerns and the green market size. Research, at this stage, failed to focus on actual green product purchases and environmental behaviour patterns. Even so, organisational management recognised the importance of satisfying the environmental needs of consumers (Brown & Wahlers, 1998:44), thereby sustaining the environmental movement towards improving operational methods, altering package systems, differentiating product formulas and raising promotional efforts (Straughan & Roberts, 1999:558). However, by the latter part of the 1990s, many organisations had tarnished their green marketing activities to such an extent that consumers were left bewildered and unsure about what or whom to believe, leaving them with a sense of distaste and rendering them unwilling to partake in green purchase behaviours (Crane, 2000:278). Lee (2008:574) adds that consumers' cynicism concerning environmental products was one of the main contributors to the green marketing backlash. The end of the decade still saw a lack of green consumer growth (Rex & Baumann, 2007:573; Peattie & Crane, 2005:359), forcing scholars and practitioners to approach green marketing from a different angle, whereby marketers focused on environmental studies as a means to gain a competitive advantage in the market (Peattie & Crane, 2005:366).

The third stage of green marketing began at the start of the twenty-first-century and runs to the present. With consumers' environmental concerns still high, the millennium witnessed a refocus on the environmental agenda (Chang, 2011:19; Leonidou *et al*., 2010:1319-1320; Lee, 2008:575). Being green has become commonplace in the everyday lives of today's consumer (Chen & Chang, 2012:2; Ottman, 2011:1-2). In the 2000s, the green marketing industry gained momentum once again via technological improvements, strict governmental regulations and enhanced global environmental awareness, brought about by the media and environmental organisations. Moreover, green products have vastly improved, recapturing consumer confidence. For instance, the green product industry was estimated

to be worth over $200 billion in 2006 (Rahbar & Wahid, 2011:74; Lee, 2008:575; Gupta & Ogden, 2009:376) and the 2011 Global Image Power Green Brands Survey indicated that worldwide, consumers intended to spend more on green market offerings (Berland, 2011).

As such, while green marketing suffered a backlash the 1990s (*see* Crane, 2000 & Wong, 1996) despite being promoted as a positive and necessary ecological revolution, times have changed and there has been a resurgence in environmental concern and being green, which, subsequently, has refocused attention on green marketing. However, the long-term success of green marketing as a whole depends on overcoming the problems associated with its practice.

2.4.3 Problems associated with green marketing

As with any other form of marketing, green marketing has experienced its fair share of complications, much of which were caused by distasteful marketing practices. Several authors (Lee, 2008:574; Ottman *et al*., 2006:22; Peattie & Crane, 2005:357; Mendleson & Polonsky, 1995:4) indicate that major hindrances impeding green marketing success include consumer confusion, consumer cynicism and poor credibility. Mendleson and Polonsky (1995:5) posit that if marketers cannot overcome these hurdles, it is questionable whether green marketing as a whole will be successful.

Stemming from the 1990s backlash caused by false and unproven environmental claims, consumers became confused about green products' actual ability to better the environment. Most consumers want to make informed and rational decisions when acquiring environmentally friendly market offerings (Cheah & Phau, 2011:456). However, this is a challenging task for many consumers, given that environmental claims are often misleading and exaggerated (Chang, 2011:21). Consumer wariness of green market offerings is also a product of marketers' historic actions of making overzealous environmental claims (Crane, 2000:283), which has resulted in many consumers being in a state of limbo regarding green purchasing.

Research indicates that consumer cynicism is rife when it comes to green marketing (Lee, 2008:574; Peattie & Crane, 2005:359). Consumers' feelings of being abused and cheated, and the public's consequent cynicism towards green marketing practices is linked to the false, disingenuous and outright dishonest practices of certain organisations (Thompson, 2012; Crane 2000:280). Peattie and Crane (2005:359) along with Thompson (2012) point out that consumers feel cheated when false claims are uncovered and they find that their good intentions of helping the environment were exploited for organisational profits.

Effective green marketing is based on the sound principle of credibility (Ottman *et al.,* 2006:31). However, green marketing credibility has been tarnished over the years by various organisations making unproven environmental claims (Mendleson & Polonsky, 1995:5). Claims such as 'environmentally friendly', 'biodegradable' and 'recyclable' were thrown around loosely by many organisations without any proven or conclusive evidence of the benefits they promoted (Crane, 2000:280). Peattie and Crane (2005:359) accentuate that the marketing philosophy is based on the relationship between the consumer and organisation. If this relationship is tainted by distrust, green marketing is sure to fail. Furthermore, Crane (2000:289) found that negative perceptions of green offerings made it almost impossible for organisations to establish green credibility and differentiate themselves from their bogus environmental competitors.

During the last three decades, Peattie and Crane (2005:360-364) have identified the following five marketing strategies that have hindered green marketing's success:

- **Green spinning:** This strategy involves taking a reactive approach by utilising public relations to contradict or deny the public's criticisms against the organisation's practices.
- **Green selling:** This strategy involves organisations opportunistically adding environmental or green claims to existing products with the aim of increasing sales.

- **Green harvesting:** With this strategy, organisations only become enthusiastically involved in the preservation of the environment when greening directly benefits the organisation. Such benefits could include cost saving in terms reduced material inputs, energy saving and package reductions, and the like.
- **Enviropreneur marketing:** This strategy involves organisations blindly develop innovative green products without researching what consumers in the market actually want and need.
- **Compliance marketing:** This strategy involves organisations complying with the bare minimum environmental regulations. Organisations opportunistically promote green credentials without taking any willing initiatives in green regulations or policies.

Another practice that has and continues to have a negative effect on the credibility of green marketing efforts is greenwashing. Since 'green' has become mainstream, organisations are catering to eco-consumers by launching green products and services that could, intentional or not, be less than justifiably considered as 'green' (Ottman, 2011:131-132; Dangelico & Pujari, 2010:471). Such actions are referred to as greenwashing (Ottman, 2011:132). Miller and Spoolman (2012:607) define greenwashing as the deceptive practice an organisation uses to spin environmentally friendly services and products as green, clean or environmentally beneficial. Although a perfectly green product does not exist, some have used this label to advance themselves in a dishonest manner in order to capture the green market (Terrachoice, 2010:14; Weeks, 2010:189).

Organisations looking to adopt sustainable environmental practices must be aware of the ramifications of committing the act of greenwashing. Greenwashing promotes a negative brand image and creates the possibility of a consumer backlash (Ottman, 2011:132-133). Identifying greenwashing is an important aspect for an organisations' green marketing success. Therefore, for sustainable success to be attained, organisations must avoid the seven sins of the greenwashing trap proposed by Terrachoice (2010:10):

- **Sin of the hidden trade-off**: This refers to marketing a product as environmentally friendly based on a single characteristic, without covering other environmental issues such as where the remaining materials of production come from or the level of energy used to produce it.
- **Sin of no proof**: This involves making environmental statements about a product without sufficient evidence to back up the claim or without having a third party able to verify that claim.
- **Sin of vagueness**: This is the sin of boasting about a product in a manner that is ill defined and very broad, which results in the true meaning being lost or misunderstood by the consumer.
- **Sin of irrelevance**: This involves producing claims, even though they may be true, which are irrelevant and not helpful to environmentally friendly product seeking consumers (for example, CFC products are banned by law, therefore claiming a product to be CFC-free is of no importance).
- **Sin of lesser of two evils**: This refers to products that have eco labels but fall into a category that is regarded as harmful to a human's health or the environment (for example, organic cigarettes).
- **Sin of fibbing**: This refers to the act of making an environmental claim that is blatantly false and/or inaccurate.
- **Sin of worshiping false labels**: This involves purposely misleadingly consumers by claiming that a product is endorsed by a particular third party, when in fact it is not. This is done through the means of false images or words.

These opportunistic marketing actions have done a great deal to hamper the credibility of green marketing and the uptake of pro-environmental consumer purchase behaviour. If green marketing is to succeed, such actions need to be abstained from in the future. Rahbar and Wahid (2011:73) highlight that the use of green marketing tools, such as eco-labelling, eco-branding and green advertising, will raise consumers' awareness of green brands and help to

stimulate pro-environmental purchasing behaviour. Peattie and Charter (2003:746) suggest that the practical challenge facing marketers is how to green the marketing mix.

2.5 GREENING THE MARKETING MIX

Kotler (2011:133) indicates that from a marketing standpoint, embracing environmental sustainability necessitates that organisations revisit the four Ps of the traditional marketing mix and review which marketing practices will need to change. The following section reviews the literature on ways of greening the product, price, place and promotion elements of the marketing mix. In addition, as per the definition of green marketing proposed in this study (refer to Section 2.4.1), green packaging and eco-labelling are discussed, which are also treated as separate elements by Peattie and Charter (2003:747,750).

2.5.1 Product

Even though no product may be regarded as being completely environmentally sustainable, a green product refers to a product that has a low impact on the environment (Pickett-Baker & Ozaki, 2008:283). A green product is one that satisfies identified consumer needs in a manner that is environmentally sustainable (Peattie, 1995:180). This necessitates consideration of not only the materials used in the product but also the manufacturing/production process, the way the product is used and how it is disposed of at the end of its life. As such, the materials used in the product should be sourced from sustainable sources and should not be damaging to the environment. The manufacturing/production process of the product should have a minimal impact on the environment. Use of the product should not pose a danger to the consumer or others and should not require the consumption of excessive energy. In terms of disposing of the product, the product should be biodegradable, recyclable or, at the very least, not pose an unnecessary risk to the environment (Strong, 1996:5).

From a marketing perspective, an important consideration in the manufacturing/production of green products is the quality of that product. Ottman (2011:110) highlights that most consumers are not prepared to sacrifice quality or performance just for the sake of going green. As such, it is essential that green products meet or exceed consumer expectations (Ottman *et al*., 2006:31). Pickett-Baker and Ozaki (2008:290) concur and indicate that the perceived risk of green products not performing as expected constitutes a significant barrier to the purchase of such products by consumers. Rahbar and Wahid (2011:75) add that a green product needs to be branded in such a way that it is easy for consumers to differentiate between it and non-green alternatives. This is an important point given that Pickett-Baker and Ozaki (2008:289) found that consumers find it difficult to identify environmentally friendly products.

Products need to be scrutinised for the impact they have on the environment from the very beginning of their production lifecycle right through to their eventual disposal (Ottman, 2011:56). This suggests that the product design needs to incorporate the green dimension, which lessens its environmental impact from the start of its life right through to its eventual disposal.

2.5.2 Green packaging

The packaging of a product can serve as the first step in minimising the environmental impact of the product, an additional means of making the product more environmentally friendly and as an important branding tool to help consumers differentiate the product as being an eco-brand. Peattie and Charter (2003:747) emphasise that discarded packaging, particularly in industrialised economies, accounts for a significant amount of waste and contributes considerably to the impact many products have on the environment. Kotler (2011:133) advises that organisations need to redesign their packaging so that it can be recycled or that it is biodegradable. Mariadoss *et al*. (2011:1313) explain that packaging is the starting point for any organisation attempting to increase its sustainable marketing efforts. Therefore, marketers have begun incorporating recycled packaging materials into the product production process in a way that reduces production costs

without hampering the core product attributes or product performance (Mariadoss *et al*., 2011:1313; Peattie, 2001a:135). Such actions help appease environmentally concerned consumers and may contribute towards creating a competitive advantage, which, in turn, makes organisations more willing to change their packaging inputs and processes. This was the case for Starbucks that announced their intention to produce a 100 percent recyclable cup, as well as HP that reduced 97.2 percent of packaging materials on their range of products (Dangelico & Pujari, 2010:478-479). Therefore, green products must represent the link between product choice and environmental protection. This may be achieved by emphasising sustainable packaging that incorporates less toxic materials, less input materials and increased recyclable content. Organisations benefit from this sustainable marketing strategy in terms of reduced materials, cost savings, increased profits, higher market share and national recognition (D'Souza *et al*., 2007:70; Minton & Rose, 1997:45).

2.5.3 Eco-labelling certified green products

Eco-labelling has developed into a major green marketing tool, allowing consumers to base their product choices on environmental criteria and helping them reduce their own environmental impact (Rahbar & Wahid, 2011:74; Rex & Baumann, 2007:567). Eco-labelling is the use of voluntary or mandatory labelling systems pertaining to consumer products in order to indicate a specific level of environmental responsibility or sustainability (Kte'pi, 2011:164). The aim of an eco-label is to help consumers identify products that are more environmentally friendly than their counterparts are in order to promote environmental consumerism (Rahbar & Wahid, 2011:75). In South Africa, there are 46 recognised and registered eco-labels to date in the country, which represents a mere 10 percent of the 444 registered worldwide eco-labels (Ecolabel Index, 2013).

Despite the promise offered by eco-labelling in terms of effectiveness, efficiency and promotional value, the market share for eco-labelled products remains fairly low as these products have only been marketed to 'green' consumers (Rex & Baumann, 2007:567). However, product eco-labelling can

be used to encourage consumers to purchase in a more environmentally friendly manner (Miller & Spoolman, 2012:607). Another useful trait of eco-labelling is the credibility it establishes in green claims presented by organisations (Dangelico & Pujari, 2010:480).

Organisations looking to obtain sustainability should consider eco-labelling as a viable option to capture the respective market. Eco-labelling presents a sense of moral obligation when choosing an eco-labelled brand as opposed to a conventional brand (Kte'pi, 2011:165). Eco-label systems come in a variety of forms by organisations, consumer groups, and governments. Even the South African government has pledged to develop mandatory labelling for household appliances, introduce Minimum Energy Performance Standards and propose mandatory energy rating labelling (Kte'pi, 2011:165; South Africa, 2010:17).

2.5.4 Price

Price has an important influence on consumers' product choice, and represents the total value that consumers sacrifice in order to obtain the benefits or use of a product or service (Kotler & Armstrong, 2012:314). Pricing is one of the most challenging aspects in green marketing given that if the higher costs involved in being eco-friendly are passed on to the consumer, the organisation is susceptible to accusations of exploiting consumers' green aspirations and price undercutting from competitors (Peattie & Charter, 2003:749).

Green products tend to be perceived as being relatively costly and the prices of green products typically are higher than conventional products because of the higher production costs that are involved (Chang, 2011:20; Peattie & Crane, 2005:362; Peattie, 1995:284). In the case of energy saving green products, the hurdle of non-competitive pricing may be overcome by stressing the cost savings to the consumer resulting from greater energy efficiency (Peattie & Crane, 2005:367).

Marketers of other types of green products need to ensure that they communicate a clear and relevant environment benefit to consumers in order

to mitigate the price issue, as Laroche *et al*. (2001:513) found that consumers with a positive attitude towards environmentalism are willing to pay more for green products. Peattie and Charter (2003:737) agree and indicate that a fundamental determinant of a willingness to pay a price premium for green market offerings is the consumers' confidence in the environmental benefits rendered by the purchase of that offering.

2.5.5 Place

The place or distribution element of the marketing mix refers to the activities an organisation undertakes to make a product accessible to the organisation's target consumers (Kotler & Armstrong, 2012:76). The major place decision facing organisations that aspire towards environmental sustainability is where to establish their production and distribution facilities (Kotler, 2011:131). In environmental sustainability terms, the means of energy consumption and socio-environmental effects of transporting a product to where it is needed represents a significant factor contributing to a product's overall eco-performance (Peattie, 1995:249).

Achieving an optimal environmental performance level in distribution represents a significant challenge. For example, organisations could make use of large trucks to reduce the amount of fuel used per product but in doing so, communities and roads could face greater negative effects from the trucks passing through them (Peattie & Charter, 2003:750). Kotler (2003:131) suggests that pro-environmental marketers should compare existing distribution channel alternatives and consider new channels, such as the online channel, in an effort to decrease their organisation's carbon footprint.

2.5.6 Promotion

Organisations that have succeeded in achieving a positive environmental performance level need to communicate this to their target market(s) in order to reap the rewards and gain the competitive advantage that green marketing can provide (Peattie, 1995:216). Providing consumers with information regarding the organisation's green initiatives has the added benefit in that this

serves to educate them regarding environmental issues, which, in turn, has been found to increase their environmental awareness levels and promote a more favourable attitude towards green products and green behaviours (Cheah & Phau, 2011:464; Larouche *et al*., 2001:513). Enlightening consumers regarding the environmental and social benefits of a green product can at times be difficult given that such benefits are often indirect, intangible and, in some cases, may be insignificant to the consumer (Ottman, 2011:108; Peattie, 1995:219). Even so, organisations need utilise the elements of the promotion mix to promote their pro-environmental initiatives and green market offerings to target consumers (Larouche *et al*., 2001:513).

An organisation's promotional mix includes advertising, public relations, personal selling, sales promotion and direct marketing (Kotler & Armstrong, 2012:432). The primary purposes of green promotion are to inform target consumers about the organisation's green practices and market offerings and to persuade consumers to switch to green offerings from conventional offerings (Peattie, 1995:231). Green advertising, in particular, is a used to encourage consumers to engage in pro-environmental behaviour and to purchase green market offerings (Rahbar & Wahid, 2011:76; Haytko & Matulich, 2008:2).

Advertising manifests as an significant social phenomenon that both stimulates demand and serves to shape the lifestyles and value orientations within society (Pollay & Mittal, 1993:99), and has helped raise the profile of environmental issues and environmental sustainability (Leonidou *et al*., 2011:6).

Green advertising, which began in the 1970s (Haytko & Matulich, 2008:2), rose sharply in the 1980s in response to the growth in consumers' environmental concerns and more stringent ecological government regulations, and then declined again in the 1990s, mostly because of the consumer backlash against the practice of making misleading and exaggerated green advertising claims (Leonidou *et al*., 2011:8). As the ecological consequences of anthropogenic actions became so evident at the

start of the new millennium, there was a resurgence of interest in the practice of green advertising (Leonidou *et al*., 2011:8; Haytko & Matulich, 2008:2).

Advertising is the most utilised medium of communicating green messages to consumers (Nyilasy *et al*., 2013:2). For this reason, green advertising is credited to have played a significant role in influencing public awareness of green issues as well as being the driving force behind the increase in demand for green services and products (Leonidou *et al*., 2011:6).

Banerjee *et al*. (1995:22) articulate green advertising as being advertisements that link the market offering to environmental sustainability, promote a pro-environmental lifestyles and/or depict an organisation as being environmentally responsible. While environmentally conscious consumers tend to be more aware of and more positive towards green advertising (Haytko & Matulich, 2008:2; Pickett-Baker & Ozaki, 2008:293), green advertising still plays an important role in promoting pro-environmental behaviour amongst consumers and organisations alike (Leonidou *et al*., 2011:6).

Laroche *et al*. (2001:513) indicate that green advertising should educate consumers of the convenience of purchasing green products and services, as many still perceive being environmentally friendly as an inconvenience. Furthermore, Pickett-Baker and Ozaki (2008:292) highlight that green advertisements need to be relevant and engaging and should contain information, not only on the benefits of green products and services, but also on improvements made to them. Kotler (2011:133) suggests that organisations should also investigate more environmentally friendly ways of promoting their products, such as shifting promotion from traditional platforms to new digital platforms such as the Web, online social networking sites and mobile telephony.

In order to avoid the risk of being accused of the unsavoury marketing activities outlined in Section 2.4.3, it is essential that any green claims should be based on relevant and important benefits, should be truthful, definable and scientifically accurate, and should be substantiated. In addition, the

information in green advertising messages should be presented in a clear and non-technical manner in order to ensure that the targeted consumers fully comprehend the environmental claim. Making misleading, vague or exaggerated environmental claims in a green advertising message will foster consumer confusion, consumer cynicism and poor credibility, which will ultimately tarnish the brand and the organisation's reputation. Furthermore, marketers can enhance their environmental sustainability and green image by using digital media platforms to communicate their green initiatives and inform target consumers of their green products.

2.6 CONCLUSION

The environment has been placed under a great deal of strain, mostly as a result of anthropogenic factors. Consequently, humanity's poor management skills and exploitation of the Earth's natural resources have put the environment in a downward spiral. Moreover, it is unclear if the Earth can continue to withstand the copious demands of humanity, causing uncertainty for future generations to come. The majority of the today's environmental problems has occurred directly from humans. As such, humanity has begun to attempt to alleviate the problem by implementing various strategies on behalf of the environment. Environmentally conscious consumers who seek to ensure an environmentally sustainable future for their offspring have stepped up to take up the fight against unsustainability. Marketers have developed green marketing mechanisms and have implemented these green strategies into the market place to satisfy these increasingly green consumers. However, if green marketing is to be effective and successful, a non-greenwashing approach needs to be methodically adopted. More importantly, marketers have to understand this newly formed green consumer, in terms of their attitudes and motivations for consuming green products. Marketers cannot rely on conventional marketing tactics to capture green consumers because green consumers are somewhat different to conventional consumers. Therefore, marketers must develop appropriate green marketing strategies in order to capture this market.

The next chapter, Chapter 3, concerns with the antecedents that influence green purchase intentions and green purchase behaviour. The chapter includes results from previous research that have shaped the typical green consumer and provides a detailed discussion on the Generation Y cohort as a whole and the black Generation Y cohort in South Africa in particular.

CHAPTER 3
ANTECEDENTS OF GREEN PURCHASE BEHAVIOUR AND THE GENERATION Y COHORT

3.1 INTRODUCTION

In Chapter 2, the underlying factors of environmentalism and green marketing were discussed in accordance with the first two theoretical objectives formulated in Chapter 1. In this chapter, the third, fourth and fifth theoretical objectives are addressed. Therefore, the purpose of this chapter is to review the literature pertaining to the determinants of green purchase behaviour in order to propose a model of the antecedents of black Generation Y students' green purchase behaviour. As such, this chapter includes a discussion of the characteristics of the Generation Y cohort, with specific reference to South Africa's black Generation Y cohort.

Throughout 'green' literature's four-decade-old history, environmental behaviour has been ascribed to factors such as green purchase attitudes, environmental knowledge, perceived price and quality, organisation environmental protection and credible environmental advertising (Ali *et al.,* 2011:218). Past studies infer that an individual's attitude is the dominant predictor of his/her environmental behaviour (Kanchanapibul *et al*., 2014:530; Polonsky *et al*., 2012:242). This attitude-behaviour concept has been measured utilising various expectancy-value models over the past 40 years (Kalafatis *et al*., 1999:443). However, throughout this extensive research, empirical evidence suggests that environmental behaviour cannot be predicted by a single determinant but rather is an action determined by several antecedents (Mostafa, 2007:451).

As indicated in Chapter 1, the purpose of this study was to test a proposed model of factors that determine black Generation Y students' green purchase behaviour within the South African market empirically. Section 3.2 provides a discussion on the behavioural models used in the past including the Theory of Planned Behaviour. Section 3.3 discusses the antecedents that affect green

purchase behaviour. The difference in environmental behaviour between genders is discussed in Section 3.4. The Generation Y cohort is outlined in Section 3.5 and Section 3.6 illustrates the proposed model of the study.

3.2 BEHAVIOURAL MODELS AND THE THEORY OF PLANNED BEHAVIOUR

Environmental behaviour has become a burning research topic over the past few years with many scholarly articles being published on the subject. Abdul-Muhmin (2007:237) classifies the past environmental work into three broad streams of research.

The first stream of research involves descriptive studies focusing on consumers' environmental concerns, knowledge, attitudes and behaviour in particular demographic segments of the population (*see* Synodinos *et al*., 2013; Wehrmeyer & McNeil, 2000; Chan, 1999; Daniere & Takahashi, 1999).

The second stream of research constitutes studies that developed through psychometric measures of these constructs (*see* Schlegelmilch *et al.* 1996; Bohlen *et al.*, 1993; Leigh *et al.*, 1988).

The third stream of research consists of studies utilising models in order to predict environmentally friendly behaviour. Such theoretical frameworks include the norm activation theory (Garling *et al*., 2003; Stern & Dietz, 1994), the cognitive dissonance theory (Thogersen, 2004), and the dominant social paradigm (Kilbourne *et al*., 2002). The majority of these studies or theories are based on attitudinal theories (Abdul-Muhmin, 2007:237; Kalafatis *et al*., 1999:443), particularly that of Fishbein and Ajzen's Theory of Reasoned Action (Fishbein & Ajzen, 1975) and Ajzen's Theory of Planned Behaviour (Ajzen, 1991).

The Theory of Planned Behaviour model is an extension of the Theory of Reasoned Action model and proposes that attitudes towards a specific behaviour, subjective norms and perceived behaviour control are three independent variables that predict behavioural intention (Han *et al*.,

2010:326). Intention is then a function of behaviour (Chan & Bishop, 2013:96; Polonsky *et al*., 2012:240). Conceptually, the theory is illustrated in Figure 3.1.

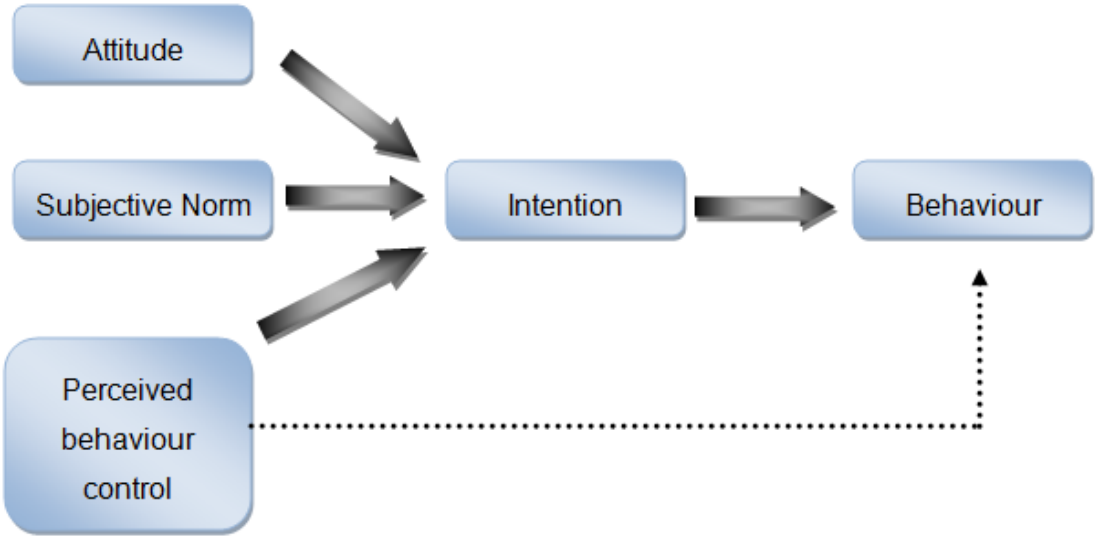

Figure 3.1: Theory of Planned Behaviour model

The Theory of Planned Behaviour seeks to predict behaviour patterns from attitudes and to determine the degree to which the two variables are interlinked (Oreg & Katz-Gerro, 2006:463). As such, the Theory of Planned Behaviour has proved its use in a wide variety of studies seeking to determine behaviour patterns of consumers.

Table 3.1 outlines a selection of studies conducted on multiple dimensions of the Theory of Planned Behaviour model and the findings thereof.

Table 3.1: Sample of Theory of Planned Behaviour studies

Author/s	Dimensions	Sample	Purpose/main findings
Al-Debei *et al*. (2013)	Attitudes, subjective norms, perceived behaviour control, perceived value, continuance participation intention, continuance participation behaviour	Students	Findings suggest that while attitudes, subjective norms, perceived behaviour control and perceived value have a significant effect on the continuance participation intention of post-adopters of Facebook, perceived behaviour control did not have a significant effect on perceived continuance behaviour.
Masser *et al*. (2012)	Attitudes, subjective norms, perceived behaviour control, self-identity, intention, behaviour past time	Consumers	The study investigated the retention rate of first-time blood donors in Australia. Behaviour was consistently predicted by intention to re-donate. Furthermore, donors' intentions were predicted by attitudes, perceived control and self-identity.

Table 3.1: Sample of Theory of Planned Behaviour studies (continued...)

Author/s	Dimensions	Sample	Purpose/main findings
Quintal *et al*. (2010)	Perceived risk, perceived uncertainty, attitudes, subjective norms, perceived behaviour control, intention.	Consumers	This study examined the effect of impact risk and uncertainty on travel decision-making of consumers intending to visit Australia. The results indicated that subjective norms and perceived behaviour control significantly impacted intentions in all participating countries. However, attitudes towards visiting Australia were only significant in Japan. Risk influenced attitudes in South Korea and Japan, while uncertainty influenced attitudes in South Korea and China. Finally, perceived behavioural control only influenced consumers in China and Japan.

Table 3.1: Sample of Theory of Planned Behaviour studies (continued...)

Author/s	Dimensions	Sample	Purpose/main findings
Liao *et al*. (2010)	Perceived risk, attitude toward using, subjective norms, perceived behaviour control, behavioural intention use	Consumers	This study sought to determine consumers' behavioural intention to use pirated software and considers perceived risk as a salient belief that influences attitude and intention toward using pirated software. The results portrayed prosecution risk as impacting intention to use pirated software, and concluded psychological risk as a strong predictor of attitude toward using pirated software. Moreover, attitude and perceived behaviour control contributed to the intended use of pirated software.

Source: Own work

As indicated in Table 3.1, the Theory of Planned Behaviour is a diverse behavioural measurement tool. As such, it did not take long before scholars began using the Theory of Planned Behaviour to predict behavioural patterns in the environmental domain. Various facets of the environmental movement have been predicted using the Theory of Planned Behaviour.

Table 3.2 outlines a sample of environmental studies that applied the Theory of Planned Behaviour model.

Table 3.2: Sample of environmental studies using the Theory of Planned Behaviour

Author/s	Dimensions	Sample	Purpose/main findings
Greaves *et al*. (2013)	Attitudes, subjective norms, perceived behaviour control, perceived value, general environmental intentions	Consumers	This study examined environmental behaviour intentions in a workplace setting. The results indicate that the Theory of Planned Behaviour constructs explained between 46 and 61 percent of the variance in employees' intentions to engage in pro-environmental behaviour. The study also determined the mediated effects of beliefs on employees' intentions to engage in environmental behaviour.
Kim *et al*. (2013)	Attitude toward the behaviour, subjective norm, perceived behavioural control, anticipated regret, intention	Students	The study investigated the relationship between consumers' acceptance of and engagement in ecological behaviour. The authors found that decision-making models such as the Theory of Planned Behaviour integrate anticipated emotion. Furthermore, the study identifies consumers' decision process when selecting eco-friendly restaurants.

Table 3.2: Sample of environmental studies using the Theory of Planned Behaviour (continued...)

Author/s	Dimensions	Sample	Purpose/main findings
Rezai *et al*. (2012)	Attitudes towards green foods, subjective norms, perceived behaviour control, intentions to purchase green food, green purchasing behaviour	Consumers	The aim of the study was to examine consumers' awareness and intention towards green food consumption in the Malaysian market. Most of the respondents indicated that they were environmentally aware and emphasised that green foods are not only about being organic but also include various other aspects such as health issues, food safety, environmental hazards, etc. Most of the respondents who indicated being environmentally aware had a strong intention to purchase green foods.

Table 3.2: Sample of environmental studies using the Theory of Planned Behaviour (continued...)

Author/s	Dimensions	Sample	Purpose/main findings
Kim and Chung (2011)	Consumer value, attitude, subjective norm, perceived behaviour control, past experiences with organic food, intentions to buy	Consumers	This study investigated the influence of consumers' values and past experiences on their purchase intentions towards organic personal care products, while controlling for the moderating effect of perceived behaviour control on the attitude-intention relationship. The results show that environmental consciousness and appearance consciousness positively influence attitude toward buying organic personal care products. The moderating effect of perceived behaviour control served as a positive predictor between attitude and purchase intentions towards organic foods.

Table 3.2: Sample of environmental studies using the Theory of Planned Behaviour (continued...)

Author/s	Dimensions	Sample	Purpose/main findings
Han *et al*. (2010)	Attitudes, subjective norms, perceived behaviour control, perceived value, visit intentions	Consumers	The aim of this study was to explore the dimensions that explained consumers' intentions to visit a green hotel. The authors concluded that the constructs from the Theory of Planned Behaviour positively affected intentions to stay at a green hotel. In addition, no statistical difference was found between consumers who actively practice eco-friendly activities and those that do not engage in environmentally friendly behaviours in their everyday lives.
Oreg and Katz-Gerro (2006)	Pro-environmental attitude, perceived behaviour control, willingness to sacrifice, pro-environmental behaviour	Consumers	The study empirically tested a model of determinants of pro-environmental behaviour. The antecedents of attitude, perceived behaviour control and willingness to sacrifice had a significant positive influence on pro-environmental behaviour.

Source: Own work

The Theory of Planned Behaviour not only provides a good foundation upon which to conduct environmental behaviour research but it also allows for other independent variables to be added into the theoretical model, as shown in Table 3.2. However, Polonsky *et al.* (2012:240) caution that prior factual knowledge regarding the specific issue in question is a prerequisite when using the Theory of Planned Behaviour model.

The literature suggests that other variables such as environmental knowledge (Mostafa, 2007:448), the perceived price of green products (Ha & Janda, 2012:468), as well as the perceived quality of green products (D'Souza, 2007:72) also play a salient role in predicting green purchase behaviour.

The following section explains the different variables thought to predict green purchase behaviour.

3.3 ANTECEDENTS OF CONSUMERS' GREEN PURCHASE BEHAVIOUR

As highlighted in Chapter 2, the increase in environmental awareness amongst consumers globally and the concurrent increase in the number of organisations implementing green marketing strategies has peaked researchers' interest concerning the factors that predict green purchase behaviour. Understanding the determinants of green purchase behaviour not only aids in differentiating green consumers from non-green consumers but also informs the design of marketing strategies aimed at persuading non-green consumer segments to adopt a more pro-environmental purchase behaviour. Different studies have proposed and tested a multitude of factors thought to influence consumers' green purchase behaviour.

This section reviews the literature pertaining to the possible antecedents of consumers; green purchase intentions and behaviour.

3.3.1 Environmental knowledge

Generally, consumers use many forms of knowledge to evaluate a product and then base their purchase upon that evaluation (Kotler & Armstrong,

2012:173-181; Ottman, 2011:159). Information is gathered and assessed according to the consumer's current state of knowledge, which collectively influences each step of the decision-making process from the type, number of options considered, evaluation criteria and the final purchase decision made (Laroche *et al.*, 2001:505). Various scholars argue that environmental knowledge is a prerequisite of consumers adopting more responsible consumption patterns and environmentally sustainable practices (Polonsky *et al*., 2012:242; Chea & Phau, 2011:456).

Environmental knowledge refers to an individual's current knowledge and awareness regarding environmental issues (Zsóka *et al*., 2013:27). Environmental knowledge is defined as "a general knowledge of facts, concepts, and relationships concerning the natural environment and its major ecosystems" (Fryxell & Lo, 2003:48). Environmental knowledge concerns what individuals know about the environment and their impact on the environment (D'Souza *et al.*, 2007:71). In terms of encouraging pro-environmental purchase behaviour, creating environmental knowledge necessitates making consumers aware of the impact a product has on the environment, including the impact it has during its production process (Chea & Phau 2011:455-456). Mostafa (2007:449) adds that environmental knowledge also entails various environmental issues, problems, causes, campaigns, solutions and so forth.

In order to stimulate consumers' environmental knowledge concerning green products, marketers have implemented green marketing strategies such as eco-brands, green advertising and eco-labelled products (refer to Chapter 2 Sections 2.5.2, 2.5.6 & 2.5.3, respectively). The underlying theory of environmental knowledge suggests that consumers who are knowledgeable about environmental problems will be more likely to purchase green or environmentally friendly products (D'Souza *et al.*, 2007:71; Peattie, 2001b:191). This increased willingness to buy environmental products has arisen due to the deteriorating environment (Peattie, 2001b:191).

Environmental knowledge plays a significant role in the success of green marketing campaigns and the adoption of green products as a whole (Gam,

2011:180). Accordingly, environmental knowledge may be viewed as an important predictor of green purchase behaviour. Polonsky *et al.* (2012:243) argue that based on previous research consumers who display greater environmental knowledge are more likely to behave in a pro-environmental manner. Ottman *et al.* (2006:31) theorise that environmental knowledge can be spread by educating consumers using environmental marketing messages placed on educational environmental websites that emphasise environmental products as solutions to both consumer needs and the needs of the environment. This, together with the use of educational environmental social networking sites would fit with today's tech-savvy Generation Y consumers who typically turn to digital platforms to gather information (Smith, 2012:87; Ottman, 2011:116; Schwalbe, 2009:53).

Polonsky *et al.* (2012:254) found that consumers incorporate new knowledge concerning the environment into their general attitudes and that once they become more knowledgeable about environmental issues they modify their attitudes and behaviours accordingly. Similar results were recorded by Zoska *et al.* (2013:136), Levine and Strube (2012:321), Chea and Phau (2011:464), Wells *et al.* (2010:828), Fryxell and Lo (2003:57), and Mostafa (2007:460). However, Zsóka *et al.* (2013:127) caution that an increase in environmental knowledge does not always translate into behavioural changes.

The findings of a limited number of studies indicate environmental knowledge to have little bearing on pro-environmental behaviour. Rahbar and Wahid (2011:80) found that increased environmental knowledge about eco-labels had no significant influential effect on the green purchase behaviour in Malaysia. Similarly, Abdul-Muhmin (2007:245) found a negative relationship between environmental knowledge and the perceived seriousness of the threat against the environment, which, in turn, affects environmental concerns.

To summarise, while there are certain studies that found no significant relationship between environmental knowledge and pro-environmental behaviour, the empirical findings in the literature suggest that the mainstream perspective is that there is positive relationship between environmental knowledge and pro-environmental attitudes and intentions, which leads to pro-

environmental behaviour. Environmental knowledge and environmental attitudes form the core basis for environmental behaviour (Wells *et al.*, 2010:828; Mostafa, 2007:452). Moreover, various environmental studies (Polonsky *et al.,* 2012*:*240; Gupta & Ogden 2009:377; Mostafa, 2007:452; Straughan & Roberts, 1999:569; Minton & Rose, 1997:45) indicate that for an individual to have an attitude towards a specific component, a previous personal experience or knowledge about the issue is a prerequisite. Zsóka *et al.* (2013:127) explain that environmental knowledge and pro-environmental attitudes are highly correlated.

Therefore, environmental knowledge is regarded as a precondition to an individual's environmental attitude, and environmental attitudes have been commonly found to be a significant influencing factor towards environmental behaviour (Polonsky *et al*., 2012:242; Gupta & Ogden, 2009:377).

3.3.2 Environmental attitude

Before an environmental attitude can be defined, it is important to establish what a general attitude is, as the two concepts differ. Kotler and Armstrong (2012:174) define an individual's attitude as consistent "favourable or unfavourable evaluations, feelings and tendencies toward an object or idea". Fielding *et al*. (2008:319) indicate that attitudes are simply the overall positive or negative evaluation of a performing behaviour. However, Zikmund and Babin (2013:260) postulate that attitudes have a deeper social-psychological nature, where attitudes are an on-going consistent responsive process towards various aspects of the world; these aspects comprise affective, cognitive, and behavioural components. This is in line with Kotler and Armstrong's (2012:174) suggestion that an individual's attitude is not an easily changeable attribute, as an alteration in one simple attitude may require difficult modifications in many others.

As previously indicated in Section 3.3, when an attitude is based on a specific issue or personal experience, prior knowledge of the issue or experience is a necessity (Gupta & Ogden, 2009:377). The same concept applies to an environmental attitude. When purchasing environmentally friendly products,

individuals prefer making informed purchase decisions and thus, seek the relative knowledge about environmental problems to form a valid attitudinal view to incorporate into their purchase intentions (Chea & Phau, 2011:456). Once the relevant knowledge is obtained, an environmental attitude is then formed. An environmental attitude is commonly referred to as "a cognitive judgement towards the value of environmental protection" (Lee, 2009:88). There has been a constant improvement in consumers' environmental attitudes since the 1990s and, as a result, organisations have begun to conform to the societal environmental needs of consumers (Chen, 2009:308)

Within the environmental domain, environmental attitudes have been considered a strong determinant affecting environmental behaviour. Several past studies (Greaves *et al*., 2013:111; Kim *et al*., 2013:258; Polonsky *et al*., 2012:239-240; Ali *et al*., 2011:179; Ajzen, 1991:218) utilised environmental attitudes in behavioural models as a core determinant of environmental intentions and, ultimately, environmental behaviour (Polonsky *et al*., 2012:242). Despite the frequent application of this concept in such models, environmental attitudes remain a perplexing phenomenon in terms of environmental behaviour.

Many studies have found that, generally, consumers display a positive attitude towards the environment and pro-environmental efforts, even showing a high degree of concern about the environment (*see* Ali *et al*., 2011; Chang, 2011; Rahbar & Wahid, 2011; Sodhi, 2011; Gupta & Ogden, 2009; Laroche *et al*., 2001; Peattie, 2001a; Crane, 2000). However, actual pro-environmental purchase behaviour remains scarce. This notion is reflected in the studies conducted by Ali *et al.* (2011), Chang, (2011), Rahbar and Wahid (2011) and Peattie (2001a), who discovered that environmentally concerned consumers having pro-environmental attitudes, did not necessarily engage in any actual pro-environmental purchase behaviour. In contrast, studies by Sodhi (2011), Gupta and Ogden (2009), Laroche *et al*. (2001), Crane (2000) and Kalafatis *et al.* (1999) found consumers were not only willing to purchase green products but were prepared to pay higher prices for products for environmental conservation purposes.

Chang (2011:19) proposes that these contradicting views may stem from consumers' positive and negative evaluations of green products. Consumers may like to buy environmentally friendly products because they do less harm to the environment and enhance the emotional appreciation for such purchases. However, consumers display doubts over green purchases due to perceived higher prices, inferior quality, and consumer scepticism concerning their individual ability to change the world.

An important aspect of the marketing mix that influences consumers' environmental attitudes is green advertising. Green advertising is one of the most utilised marketing mechanisms to convey green messages to consumers (Nyilasy *et al.,* 2013:2). For a detailed discussion on environmental advertising and product promotion, refer to Chapter 2, Section 2.5.6.

Closely interlinked, attitudes and subjective norms are functions of intention, which, in turn, is a function of behaviour (Polonsky 2012:240; Gupta & Ogden 2009:377; Rex & Baumann, 2007:562).

3.3.3 Subjective norms and environmental behaviour

Subjective norms, a concept utilised extensively in multiple studies, constitute an integral part of Fishbein and Ajzen's Theory of Reasoned Action, as well as in Ajzen's Theory of Planned Behaviour (Greaves *et al.*, 2013:110; Polonsky *et al.*, 2012:240; Han *et al*., 2010:237; Ajzen, 1991:188). Subjective norms are an individual's perceptions of significant others' (family, friends, colleagues and peers) attitudes towards a specific behaviour (Greaves *et al.*, 2013:110; Fielding *et al.*, 2008:319). Subjective norms refer to the social pressure that an individual feels from relevant others to display a specific behaviour (Greaves *et al.*, 2013:110; Niaura, 2013:75).

Subjective norms form an important aspect of purchase behaviour as purchase behaviour is a function of intention, which, in turn, is a function of subjective norms (Polonsky *et al*., 2012:240). Niaura (2013:75) asserts that from an environmental protection standpoint, a subjective norm is the conscience decision of whether or not to implement pro-environmental behaviour, including pro-environmental purchase behaviour.

Social environments such as friends, family or peer networks have a strong influence on the purchase decision (Chea & Phau, 2011:456). As such, an individual's subjective norms are a salient factor underlying environmental behaviours. Ha and Janda (2012:463) insinuate that strong subjective norms are directly related to environmental behaviour engagement and create consumer eagerness to help improve and preserve the environment. Moreover, such norms harbour a feeling of need to behave in a positive pro-environmental manner leading consumers to be more open and willing to engage in environmentally friendly behaviour. The importance of this concept is bolstered by previous studies (Kim *et al*., 2013:260; Ha & Janda, 2012:466; Fielding *et al*., 2008:324), that found subjective norms to be significantly predictive, whether directly or indirectly, to pro-environmental intentions and behaviour on a variety of environmental facets (for example, eco-friendly restaurant selection, eco-product purchases, environmental activism, and the like). This is also consistent with the notion that subjective norms regarding environmental aspects should endorse behavioural intentions (Ha & Janda, 2012:463).

In addition, this is pertinent to Ajzen's (1991:188) general rule, which is that "the more favourable the attitude and subjective norm with respect to a behaviour, the stronger should be an individual's intention to perform the behaviour under consideration". Therefore, attitudes and subjective norms are seen to work in tandem when attempting to predict intentions.

Another factor highlighted in the literature as an important predictor of intentions is that of consumers' perceived behavioural control, which is discussed in the following section.

3.3.4 Perceived behaviour control and environmental behaviour

Perceived behaviour control is an addition to Ajzen's Theory of Reasoned Action. This add-on came about because the Theory of Reasoned Action lacked the explanatory power to describe an individual's volitional control over a specific behaviour (Gupta & Ogden, 2009:377; Ajzen, 1991:181). As such,

the Theory of Planned Behaviour came into being. The inclusion of perceived behaviour control aims to determine both behavioural intentions and behaviour itself (Niaura, 2013:75). Perceived behaviour control may then be defined as the extent to which individuals perceive the ease or difficulty of engaging in a specific behaviour and their perceived capacity to produce a successful outcome when engaging in that behaviour; that is, the extent of their self-efficacy (Ajzen, 1991:183, 184). Intentions describe the motivational factors influencing behaviour; they indicate the extent to which individuals are willing to perform the behaviour. Therefore, it can be said that the stronger the intention to perform the behaviour, the higher the performance behaviour will be. However, it should be noted that intention can only predict behaviour if the behaviour is under volitional control; in other words, if an individual can decide to act out the behaviour or not. Even if an individual's behaviour meets this requirement, other non-motivational factors (for example, skills, money, time, availability and the like) also play a significant role in the behaviour being performed. Collectively, these situational elements represent an individual's actual control towards the behaviour (Chan & Bishop, 2013:96; Greaves *et al*., 2013:110; Han *et al*., 2010:327; Gupta & Ogden, 2009:378; Kalafatis *et al*., 1999:445; Ajzen, 1991:181-182).

Ajzen (1991:188) suggests that, typically, the more favourable the subjective norm and attitude with regards to the behaviour of interest, as well as the greater the perceived behaviour control, the more robust an individual's intention to perform the behaviour. Furthermore, perceived behaviour control allows for the explanation of complex behaviours, as it is a proxy for actual control and may also have a direct impact on behaviour. This is evident for the case of environmental behaviour (Gupta & Ogden, 2009:378; Fielding *et al*., 2008:319).

When referring to environmental behaviour, perceived behaviour control shows how an individual perceives his or her ability to implement such behaviour (Niaura, 2013:75). Perceived behaviour control has been used in conjunction with the Theory of Planned Behaviour in many studies to predict consumers' intentions and behaviour (Han *et al*., 2010:327). Similarly,

perceived behaviour control has been used as a determinant in various ecological studies to predict intentions and behaviour of consumers. Such environmental studies, amongst others, include recycling (Chan & Bishop, 2013), eco-restaurants (Kim *et al*., 2013), environmental behaviour in the work place (Greaves *et al*., 2013), environmental behaviour amongst the youth (Niaura, 2013), eco-hotels (Han *et al*., 2010), environmental activism (Fielding *et al*., 2008), environmental behaviour (Oreg & Katz-Gerro, 2006) and green marketing practises (Kalafatis *et al*., 1999). Han *et al*. (2010:327) and Ajzen (1991:188) caution that the three main predictors of intention, namely attitudes, subjective norms and perceived behaviour control, are not fixed factors and, as such, may be expected to vary across different situations and behaviours. Various authors (Chea & Phau 2011:459; Kalafatis *et al.,* 1991:445) concur, stating that individuals who possess favourable attitudes and subjective norms may not perform the actual behaviour because they may lack the necessary resources to adopt the behaviour. Furthermore, Ajzen (1991:185) asserts that both perceived behaviour control and intentions may play pivotal roles in the prediction of behaviour, although in any given situation, one may be more dominant than the other and, in some cases, only one factor may be needed. Such was the case in the studies of Kim *et al*. (2013:256) and Fielding *et al*. (2008:322-324). Both of these studies found that perceived behaviour control was a non-significant factor in determining consumers' intentions of selecting eco-friendly restaurants as well as engaging in environmental activism, respectively. The authors go on to reference various other studies on activism that also found perceived environmental control to be a non-significant factor in predicting behaviour (*see* Fielding *et al.,* 2008:324). Consequently, it should be noted that the role perceived behaviour plays in the prediction of intentions and behaviour should be examined astutely and in individualistic circumstances, as perceived behavioural control is condition-specific.

3.3.5 Green purchase intentions

An individual's purchase intention may be described as the extent of a consumer's willingness or readiness to perform a specific behaviour (Niaura,

2013:74). It is believed that behaviour is a function of intention, which, in turn, is a function of various other factors (Polonsky *et al*., 2012:240). Numerous scholars have attempted to determine the factors that constitute behavioural intentions, which are thought to include altruism (Chea & Phau 2011:464), perceived value, (Chen & Chang 2012:8), price and quality of green products (D'Souza, 2007:72) and environmental knowledge (Chea and Phau 2011:456), all with varying results. However, three dominant influential factors (based on Ajzens' Theory of Planned Behaviour) always prevail, namely attitude, subjective norms and perceived behaviour control (Fielding *et al*., 2008:319; Ajzen, 1991). Owing to conventional intention being closely related to environmental intention, Abdul-Muhmin (2007:237) suggests that behavioural intention is the fundamental variable in understanding or determining environmental behaviour.

From an environmental standpoint, environmental intention is a plan to act on an intended behaviour. Furthermore, it serves as a presupposition of favourable environmental activities and encompasses the likelihood of purchasing a particular product as a result of environmental needs (Chen & Chang, 2012:20; Abdul-Muhmin, 2007:237). Prior theoretical and empirical research have identified several components motivating environmental behaviour; however, most green consumer research is in consensus that ecological purchase intentions are highly related to ecological behaviour (Mostafa, 2007:450). Intentions are made up of various aspects and outlined below are some of the most common predictors:

- **Environmental attitudes:** It has been suggested, that a favourable environmental attitude towards environmental issues is the leading predictor of environmental intentions and, ultimately, behaviour (Ha & Janda, 2012:462; Abdul-Muhmin, 2007:245). This assumption is based on the premise that environmental attitudes are positively correlated with intentions (Greaves *et al.,* 2013:113; Levine & Strube, 2012:317; Ali *et al.,* 2011:221; Fielding *et al*., 2008:322). Therefore, in a theoretical sense, a favourable environmental attitude should result in a greater

intent to behave in a pro-environmental manner. However, this is not entirely true in reality, as explained in Section 3.3.2.

- **Environmental knowledge:** Peattie (2001b:191) explains that as environmental problems intensify and consumers become more knowledgeable about the environment, so should their intentions to buy environmentally friendly products increase. Previous research supports this notion, indicating that greater environmental knowledge leads to consumers acting in a more pro-environmental way (Polonsky *et al*., 2012:243).
- **Subjective norms:** Subjective norms play an important role as determinants of behavioural intentions and are well documented in various consumer behaviour contexts (Han *et al*., 2010:327). Moreover, strong subjective norms present in consumers lead to a greater willingness to engage in pro-environmental activity and, therefore, increased behavioural intentions (Ha & Janda, 2012:463). This was the case for Kim *et al*. (2013:260), who found subjective norms to be the best predictor of behavioural intentions when selecting an eco-friendly restaurant.
- **Perceived behaviour control:** In terms of environmental behaviour, perceived behaviour control affects both behavioural intentions and behaviour in a direct or indirect manner (Niaura, 2013:75; Kalafatis *et al*., 1999:445). The indirect effect is based on the assumption that perceived behaviour control may have "motivational implications for behavioural intentions" (Kalafatis *et al*., 1999:445). Consumers who perceive that they have a sense of control over their behaviour are able to act according to their intentions (Minton & Rose, 1997:46). Therefore, intentions would be expected to increase behaviour to the extent that the consumer has behavioural control (Ajzen, 1991:183).

The Theory of Planned Behaviour argues that behaviour is a function of intention, which, in turn, is determined by the three aforementioned factors. Accordingly, the more favourable an attitude is regarding the behaviour, coupled with the extent of social pressure perceived from relevant others,

together with a sense of perceived behaviour control, the stronger the intention towards the behaviour (Chan & Bishop, 2013:96). However, the theory is confined to these variables and excludes additional factors that may play a significant role in the prediction of consumer behaviour. It is the stance of this study that such variables include environmental knowledge and the perceptions of price and quality of green products.

3.3.6 Effect of perceived price and perceived quality

Green products have typically had a negative stigma attached to them with regards to price and quality. This may be attributed to organisations making overzealous and inflated claims about green products in the past (refer to Chapter 2, Section 2.4.2 & Section 2.4.3). As such, true environmental organisations have had to rebuild the reputation of green products painstakingly.

3.3.6.1 Perceived price

A consumer's perception concerning the price of a product is a significant factor in their product choice. Perceived price reflects the value the consumer receives from the purchase (Schiffman *et al*., 2010:193), while price is the amount of monetary value exchanged for a product or service (Kotler & Armstrong, 2012:314). Pricing in the environmental domain is a daunting task, as green products are often associated with higher prices and inferior quality (Chang, 2011:19-20; Ottman *et al*., 2006:29). Such was the case in the 1960s when consumers who tried to lead an environmentally conscious lifestyle by incorporating green products into their shopping habits were considered arbitrary and unconventional (Ottman, 2011:1). However, over the years this has steadily changed, Laroche *et al*. (2001:503) explains that 67 percent of Americans were willing to pay from 5-10 percent more for environmentally friendly products in 1989, which increased to 79 percent of Americans being willing to pay 40 percent more in 1994. This consumer eagerness did not go unnoticed and organisations began to exploit consumers for profits, resulting in a backlash against environmental products (Peattie & Crane, 2005:361; Wong *et al.,* 1996:264). Nevertheless, the green market recovered and more

recently (2000s) consumers once again showed a willingness to pay higher prices for green products to preserve the environment (Rahbar & Wahid, 2011:73; Royne *et al*., 2011:331; Sodhi, 2011:177-178; Han *et al*., 2010:327; Gupta & Ogden, 2009:376; Laroche *et al*., 2001:503; Crane, 2000:279).

Previous studies confirm that consumers who indicate having positive environmental attitudes do not necessarily engage in green purchase behaviour (Zsóka *et al.,* 2013:127; Ha & Janda, 2012:468; Han *et al*., 2010:326). The most commonly cited reason for this consumer reluctance is the stigma of the high prices attached to green products (Ha & Janda, 2012:468). In a survey conducted in the USA that investigated the barriers to green product adoption, high price was found to be the leading barrier followed by scepticism concerning green product performance (Ottman, 2011:40). These results are consistent with the findings of Chang (2011:28) who found price and quality issues as significant contributors to ambivalent feelings towards green products. Excessively priced products may be subject to various price-hiking factors such as high distribution costs, high advertising or promotion costs and excessive mark-ups (Kotler & Armstrong, 2012:608). This is often the case with green products, and Dangelico and Pujari (2010:480) identified that high development and manufacturing costs make green products non-competitive.

Uncovering the underlying reasons why a consumer purchases green products may help broaden the appeal of green products and aid in overcoming a premium price hurdle. One way of doing this would be to demonstrate how green products help create long-term savings, provide health benefits and help keep consumers' homes both safe and clean (Ottman, 2011:113). An example of promoting the savings benefit is that of Phillips who launched their Marathon light bulb that claimed a lifespan of five years and lower energy consumption compared to incandescent bulbs (Ottman *et al.*, 2006:23). This example suggests that consumers would be willing to pay a higher price in the short-term if they knew the green product would result in long-term payback savings. Ottman (2011:41) opines that

consumers will pay higher price premiums if green products save them money in the long run.

Dangelico and Pujari (2010:481) admonish that consumers classify green products into different price categories and that these categories determine the extent to which consumers are willing to pay extra for green products. A key determinant in getting consumers to pay premium prices for green products is to boost consumer confidence in the environmental benefits offered by the purchase of the green product (Peattie & Charter, 2003:737). Another important factor besides price is the perceived quality green products have compared to conventional products. The following section pertains to the quality of green products, as seen by consumers.

3.3.6.2 Perceived quality

A consumer's perception of quality and how those perceptions influence decision making are of particular interest to those dealing with consumer behaviour. Therefore, marketers and organisations alike have used quality as a means of differentiating themselves from their competitors (Swinker & Hines, 2006:218). Schiffman *et al*. (2010:195) define consumer product quality as "the perceived quality of a product (or service) that is based on a variety of informational cues that they associate with the product". The consensus towards environmental product quality is that green products are somewhat inferior and under-perform when compared to non-green products (Chang, 2011:20; Ottman *et al.*, 2006:29).

Consumers are reluctant to compromise on product quality simply for the "sake of saving the earth" and for the most part expect environmental products to be environmentally safe without the need of sacrificing quality (Chen & Chang, 2012:25; Ali *et al*., 2011:219). This negative connotation stems from the first generation of environmentally friendly products introduced in the 1960s and 1970s. For example, cleaning agents during that period were tagged as products that "cost twice as much to remove half the grime" (Ottman *et al*., 2006:29). Even in today's market, consumers are sceptical regarding the quality of environmental products. Chang (2011:28) found that

negative perceptions of the quality of green products create ambivalence towards green products. That being said, environmental products have come a long way from their first generation counterparts and some are even designed to perform better than non-green products (Ottman *et al*., 2006:29).

Well-known brands have the advantage of consumer trust, and green products under such brands that work well and do not inflate claims stand to be successful (Picket-Baker & Ozaki, 2008:293). Referring back to Chapter 2 Section 2.3.1, this was proven when Whirlpool won the Golden Carrot award for their Super-Efficient Refrigerator programme. Furthermore, consumers generally trust popular brands over less well-known brands because the perceived risk is lower (Ali *et al*., 2011:219; Pickett-Baker & Ozaki, 2008:293). Therefore, in terms of the quality aspect of environmental products, organisations (well known or not) must adhere to the following two conditions:

- Environmental quality of green products must be enhanced and clearly conveyed to the consumer to gain recognition within the market (Ali *et al*., 2011:219; Rex & Baumann, 2007:371).
- Green products must perform better than or just as effectively as conventional products (Chen & Chang, 2012:4; Picket-Baker & Ozaki, 2008:293; Charter *et al*., 2002:24).

Ali *et al*. (2011:219) assert that if these two aspects are implemented correctly and achieved, then environmental considerations will play an important role in the purchasing decision of consumers.

The pricing and quality dimensions of green products have a negative image. However, this is changing, as there are a plethora of green products available today that deliver lower operating costs, offer convenience and perform better than traditional products. One of the mistakes that many organisations make is that they do not emphasise these benefits clearly enough and consumers do not recognise these products as being green (Ottman *et al*., 2006:25). This is consistent with the findings of Ali *et al*. (2011:223), who concluded that if green product offerings are competitive with regard to price and quality, the relationship between a consumer's intention and purchase behaviour is

strengthened. This relationship between intention and behaviour is important for environmental product success as a whole.

3.3.7 Green purchase behaviour

The environment has played many roles in market behaviour over the last 30 years (Kilbourne & Pickett, 2008:885) and environmental behaviour has been at the heart of many scholarly articles over the past few decades (Polonsky *et al*., 2012:240). Early environmental studies focused on demographic and psychographic variables associated with environmental attitudes and behaviour (Chea & Phau, 2011:455; Lee, 2009:88). These studies suggested a positive correlation between favourable attitudes towards eco-friendly products and pro-environmental purchase decisions (Chea & Phau, 2011:455). In addition, pro-environmental attitudes have been known to stimulate consumers' environmental behaviour (Polonsky *et al*., 2012:244). However, the strength displayed between attitude-behaviour relationships has at times come into question (that is, a weaker relationship than expected) (Gupta & Ogden, 2009:377; Lee, 2009:90; Kim & Choi, 2005:593; Minton & Rose, 1997:38). As such, other factors like behavioural intentions have been suggested to explain behaviour (Kim & Choi, 2005:593). It is this intention that may lead to actual purchase behaviour (Ali *et al*., 2011:218; Rex & Baumann, 2007:569). This may be one of the reasons why many scholars (Chan & Bishop, 2013; Greaves *et al*., 2013; Niaura, 2013; Han *et al*., 2010; Oreg & Katz-Gerro, 2006) have adopted, and in some cases extended, the Theory of Planned Behaviour into their research methods designed to determine environmental behaviour, as the theory includes both environmental attitudes and environmental intention.

The majority of today's consumers have recognised that their purchasing behaviour has the potential to impact many ecological issues directly. As a result of heightened environmental concerns and knowledge, consumers are opting to favour environmentally friendly products over conventional products and this is evident in their purchasing patterns (Do Paco & Raposo, 2009:365; Mostafa, 2007:445-446; Peattie, 2001b:191). Laroche *et al*. (2001:503) add that consumers are recognising that their individual purchasing behaviour has

some degree of positive impact on the various environmental problems present today.

Consumers have taken action against this omnipresent ecological threat by envisioning environmental issues when they shop (Kumar *et al.,* 2011:62.3; Laroche *et al.,* 2001:503). These consumers who engage in environmentally friendly activities are changing their buying behaviours to more ecologically sound ways by purchasing products that are recyclable, biodegradable and environmentally friendly (Han *et al.,* 2010:327; Kumar *et al.,* 2011:62.3; Laroche *et al.,* 2001:503). As mentioned in Section 3.3.6.1, not only are more consumers willing to purchase environmentally friendly products, many are even willing to pay a higher premium for those products. Furthermore, the evidence suggests that consumers purchasing green products are doing so in order to preserve the environment (Rahbar & Wahid, 2011:73; Sodhi, 2011:177-178; Crane, 2000:279; Kalafatis *et al.,* 1999:442).

Anticipating and understanding the environmental behaviour of consumers has proven to be a difficult task for marketers (Haytko & Matulich, 2008:2). Past research (Ali *et al.,* 2011:224; Chang, 2011:19; Rahbar & Wahid, 2011:74; Han *et al*., 2010:331; Wells *et al*., 2010:828; Do Paco & Raposo, 2009:376; Mostafa, 2007:450-451; Peattie, 2001a:137) has concluded that even though consumers are developing strong feeling towards the conservation of the environment, their buying patterns are not necessarily transgressing into environmentally friendly or green purchase behaviour. This attitude-behaviour gap is somewhat perplexing, and definite reasons for this lack of green consumerism have yet to be identified (Gupta & Ogden, 2009:376-377).

Researchers, however, have postulated a few theories that may explain consumers' ambivalent environmental actions. Peattie (2001a:137) attributes the controversial ecological behaviour to be a product of "social over-reporting". Kanchanapibul (2014:533) believes that environmental knowledge is the key factor, and found that consumers who possessed higher knowledge about the environment in turn had a stronger intention to purchase green products. Chang (2011:19) believes that the attitude-behaviour gap may be

attributed to consumers having negative perceptions of green products, where green products are seen to be of an inferior quality and/or costing more. Ali *et al.* (2011:224) concur with Chang (2011:19) and indicate that despite consumers in Pakistan having pro-environmental attitudes and intentions towards green products, they failed to actually engage in pro-environmental purchase behaviour. Similarly, Do Paco and Raposo (2009:376) report that Portuguese consumers' environmental concerns did not translate into any significant environmentally friendly purchase behaviour.

In order to stimulate green purchasing behaviour, researchers such as Levine and Strube (2012:322), Peattie and Charter (2003:737) and Peattie (2001a:137) suggest that marketers turn their attention to understanding the green purchase behaviour of consumers in general and the determinants of pro-environmental purchasing rather than focusing on the green consumer, given that green consumers have some environmental knowledge and tend to compromise on convenience, price or quality.

The following section considers the literature on the effect of gender on environmental behaviour.

3.4 GENDER DIFFERENCES IN ENVIRONMENTAL BEHAVIOUR

Since the beginning of the green revolution, the common sentiment was that middle-aged mothers with an above-average education and income are at the forefront of green consumerism and the typical green consumer (Ottman, 2011:22; Straughan & Roberts, 1999:563). Ottman (2011:22) explains that these women have a natural desire to protect their loved ones' health, welfare and to preserve the environment for their offspring and for future generations. These women typically conduct most of the household purchases and make the majority of the brand decisions.

However, with the increase of environmental awareness over the past three decades (Crane, 2000: 280; Straughan & Roberts, 1999: 558; Leonidou *et al.,* 2010:1319-1320) all consumers have now become at least some shade of

green (Ottman, 2011:22), even though some studies today continue to support the previous literature that women are still the predominant environmentalists. Their level of environmental concern, knowledge and attitudes are just slightly higher than males (Sundströma & McCright, 2014:11; Xiao & McCright, 2013:16; Wells *et al*., 2010:818; Lee, 2009:92; Haytko & Matulich 2008:9; Zelezny *et al*., 2000:454). In contrast, some studies have concluded exactly the opposite. In the case of Xiao and Hong (2010:101) men were found to be more pro-environmentally active than woman. Similarly, in a study done on black Generation Y students in South Africa, Synodinos *et al*. (2013:88-89) found no significant gender difference concerning environmental advertising, environmental concerns, environmental attitudes and environmental behaviour. Zelezny *et al*. (2000:455) propose that environmental attitudes between genders may have transformed over time due to generational effects. This suggests that different generational cohorts may differ in their attitudes towards environmentalism.

The largest generation to date are the members of the Generation Y cohort. As the future leaders of the world, this generation represent an important target market to marketers. The following section discusses the Generation Y cohort with regards to the environment and South Africa.

3.5 GENERATION Y

As the Generation Y cohort begins to emerge into society's workforce, the marketer's world has seemingly been turned upside down overnight (Bleedorn, 2013; Weidauer, 2012:18). This vibrant, money hungry generation has been labelled with several names such as Echo Boomers, NeXters, Bridgers, Net Generation, Generation We, Generation Dot-com, Generation Next, Trophy Generation, First Digitals and Millennials (Sox *et al*., 2014:247; Bleedorn, 2013:24; Weidauer, 2012:18; Schwalbe, 2009:54). Although there are many definitions regarding the generations' exact start and end dates, most definitions range from the early 1980s to the late 1990s or early 2000s (Bolton *et al.,* 2013:246; Weidauer, 2012:18; Hedges & Crabtree, 2013:B1; Schwalbe, 2009:53). Markert (2004:21) suggests utilising 20-year increments when dividing generational cohorts, whereby Baby Boomers are defined as

individuals born between 1946 and 1965, Generation X between 1966 and 1985 and Generation Y between 1986 and 2005. This study follows Markert's (2004) definition.

This 70 million globally strong generational cohort is unique and is characterised as being very different from preceding generations (Sox *et al*., 2014:247; Kane, 2012; Wolburg & Pokrywczynski, 2001:33). Ferguson (2011:266) and Hume (2010:387) characterise these individuals as being confident, image conscious, highly media literate, individualistic, purposeful in nature, sceptical, as well as being conscious on a cultural, social and environmental front. Furthermore, this cohort loves to spend money, and annually it is estimated that they influence $300 to $400 billion in family purchasing and spend between $153 and $155 billion themselves (Bleedorn, 2013:24; Lazarevic, 2011:45; Martin & Turley, 2004:464).

Unlike previous generations, Generation Y individuals have been exposed to technology throughout their lives, having grown up with cellular/mobile telephones, camcorders, computers and online access via the World Wide Web, and they see digital connectivity as an everyday norm (Sox *et al*., 2014:247; Weidauer, 2012:18; Schwalbe, 2009:53). These multi-taskers are constantly plugged in and make use of multiple media devices to communicate electronically amongst themselves (Kane, 2012; Schwalbe, 2009:53). Communicating through blogs, social networks, texting and email, these individuals have the world at their fingertips, in an instant (Hedges & Crabtree, 2013:B3; Ottman, 2011:6). The Internet has introduced an easily accessible information platform, which this generation is using as a source of news, entertainment and online shopping (Smith, 2012:86; Ottman, 2011:6). Digital access is so common to this generation that computers and mobile devices are not merely an expectation but rather are regarded as essential tools in life (Clarke, 2012; Smith, 2012:86; Weidauer, 2012:18). The Internet allows these consumers to freely express and share opinions through various avenues, which may potentially influence vast amounts of other consumers (Smith, 2012:87).

Having multimedia electronic devices readily available, this cohort makes use of and sees social media as an everyday way of life, where they are connected instantly to information, global news, virtual social networking sites (Facebook, Instagram, MXIT), virtual social reporting (Twitter) and virtual social media (YouTube) (May, 2013; Bevan-Dye *et al*., 2012:5581). Moreover, social media and interactive technologies have empowered these "digital natives" to be more pro-active in promoting products and brands. This generation is highly expressive and they are not shy to write reviews, endorse favourable brands or provide product feedback (Bolton *et al*., 2013:248; Hedges & Crabtree, 2013:B3; Smith, 2012:87). The rapid advancement in instant communication technology, social networking and globalisation has shaped the generation's buying behaviours (Bolton *et al*., 2013:247). Highly impatient and satisfied only with instant gratification, this generation know what they want and when they want it (May, 2013). In the next decade, Generation Y consumers will, without a doubt, show that they are a powerful economic driving force (Weidauer, 2012:18).

Generation Y consumers are the largest generational group since the Baby Boomers (Smith, 2012:86), the eldest are approaching 30 and are beginning to show-boast their economic power (Weidauer, 2012:18). This has arisen from the amount of disposable income available to the generation, which is more so than any previous generation (Kanchanapibul, 2014:528; Hill & lee, 2012:478). Both Radebe (2013) and Foscht *et al.* (2009:224) suggest viewing the Generation Y cohort as a heterogeneous market rather than a homogeneous one, as these individuals differ. Furthermore, Barton *et al.* (2012) explain that these consumers' expectations differ from previous generations and marketing to them necessitates rethinking traditional marketing tactics, brand image and business models. Lazarevic (2012:45) agrees and argues that Generation Y consumers are impervious to traditional marketing efforts, difficult to retain as loyal customers and are notoriously disloyal to brands. Clearly, organisations will have to accept, understand and come to terms with the characteristics and values that resonate with this generational cohort if they are to capture this market successfully (Barton *et al*., 2012).

3.5.1 Generation Y and the environment

Existing literature suggests that the new environmentally concerned consumer is a younger, more educated, more affluent, and a more urban consumer who is willing to accept innovative ideas and to be socially or environmentally conscious, more so than previous generations (Kanchanapibul *et al*., 2014:529; Royne *et al*., 2011:332). Well informed and well-versed on a myriad of current topics, there is a strong possibility that the young generation will embrace environmentally pro-active endeavours (Kanchanapibul *et al*., 2014:530). Today's youth will have a significant influence on the future state of the environment, making them a vital target market for the environmentalist movement and green marketers (Zsóka *et al*., 2013:126; Lee, 2009:87). Being technologically astute and having vast amounts of information readily available in an instant, Generation Y consumers have been inundated with information regarding the various man-induced environmental crises (Chapter 2, Section 2.2.3). As a result, this generation has become socially concerned and aware of environmental threatening issues (Barton *et al*., 2012; Hill & Lee, 2012:478; Shaw & Fairhurst, 2008:373). May (2013) elaborates that Generation Y individuals have become eco-conscious and pro-active towards the environment, they seek to reduce their carbon footprint while simultaneously saving money on living costs such as ever rising electricity bills.

There is evidence to suggest that Generation Y consumers prefer to support organisations that incorporate sustainability programmes that benefit people, communities and the environment (Barton *et al*., 2012; Smith, 2012:87). This is important for the green movement, as this generation's actions will pass on the environmental message to future generations (Lee, 2009:87). For that reason, Kanchanapibul (2014:528) states that understanding the young generations' green purchase behaviours is important because they are society's future innovators, workers, consumers and, ultimately, the future of humanity. However, green marketers need to be wary of their offerings to this generation as they are highly sceptical and quick to spot bogus green marketing practices, which they deem untruthful or unauthentic (Ottman,

2011:6; Hill & Lee, 2012:479; Hume, 2010:387). Zsóka *et al*. (2013:127) suggest that this generation's behaviour is mostly shaped by external stimuli arising from friends, family, neighbours, education and the immediate environment. Therefore, Kanchanapibul *et al*. (2014:529) assert that organisations can develop appropriate, sustainable market strategies to target this segment by understanding the factors that affect their green buying behaviours.

3.5.2 Generation Y in South Africa

As indicated in Chapter 1, in 2014, the Generation Y cohort made up approximately 38 percent of the South African population. When segmenting the Generation Y cohort, the black Africans hold the majority share, comprising 84 percent of the Generation Y cohort and approximately 32 percent of the entire South African population (Statistics South Africa, 2014). Bevan-Dye and Surujlal (2011:49) point out that due to sheer size, the black Generation Y cohort poses an attractive and lucrative market segment, especially those who hold a tertiary education. Individuals who pursue a higher education are linked to higher future earning potential. This, in turn, often leads to an elevated social class status within a community, a higher standard of living and a trend-setting role amongst their peers. Furthermore, higher earning potential will result in greater future spending power (Bevan-Dye & Surujlal, 2011:49; Bevan-Dye *et al*., 2009:172; Wolburg & Pokrywczynski, 2001:33). As such, black Generation Y university graduates are likely to be future Black Diamonds, which is a term used to describe South Africa's growing black African middle-class.

Black Diamonds are characterised as being well-educated, financially sound, upwardly mobile individuals working in professional occupations, who are generally considered to be young (Radebe, 2013; Bevan-Dye *et al*., 2012:5578). This cohort is growing at a rapid pace both in population and in financial terms. In South Africa, the segment has doubled from 8 percent to 16 percent and their spending power has increased to R400 billion over the last eight years. In addition, their disposable income has increased by 35 percent since 2004 (Radebe, 2013; Goyal, 2010). Furthermore, this social class has a

need for instant success, and new Black Economic Empowerment (BEE) schemes are helping to make those needs become a reality (Maimane, 2007). Money hungry and willing to spend, Black Diamonds are commanding the South African market (Mhlanga, 2008; Maimane, 2007). For instance, an FNB Estate Agents Survey conducted in 2005 reported that the black Generation Y cohort accounted for over half of all the homebuyers in the entire country (May, 2013).

Overall, the Generation Y cohort is rapidly becoming an important market segment in today's business world. The reason for this is can be attributed to their significant size and the amount of spending power they yield. Generation Y individuals have been specifically chosen for this study as they are the most recent generation to enter the workforce, are technology astute and possess a large global market share. With regards to South Africa, the black Generation Y represents a significant target market not only for green marketers but also the preservation of the country's environment.

3.6 PROPOSED MODEL OF THE ANTECEDENTS OF BLACK GENERATION Y STUDENTS' GREEN PURCHASE BEHAVIOUR

The literature reviewed in Chapter 2 and Chapter 3 provided a useful basis for examining environmentalism, green marketing and the determinants of green purchase behaviour. The purpose of this section is to propose a model of antecedents affecting green purchase behaviours. This proposed model is based on the preceding literature review and indicates the factors that influence green purchase behaviour. In addition, the preceding literature review explains existing models, theories and empirical studies that may aid in supporting the hypothesised model. The proposed model is demonstrated in Figure 3.2 and hypothesises the numerous factors that serve as antecedents for green purchase behaviour.

Within the environmental context, certain factors act as antecedents to green purchase behaviour, as indicated in the model below. As such, the proposed model seeks to examine if environmental knowledge, subjective norms and

perceived behaviour control are significant predictors of environmental attitude, and whether environmental attitude is a significant predictor of green purchase intentions, as well as whether green purchase intentions are a significant predictor of green purchase behaviour. Moreover, the model includes mediating factors that are intended to determine if the path between green purchase intentions and green purchase behaviour is mediated by the effects of perceived price and perceived quality of green products. The model portrays the overall environmental intentions to predict purchase behaviour in the environmental domain. This model is an adapted version of Ajzen's (1991) Theory of Planned Behaviour. This theory has been used extensively to predict the behavioural patterns of various facets of studies.

The proposed model illustrated in Figure 3.2 depicts the antecedents that influence black Generation Y students' green purchase behaviours, as per the literature.

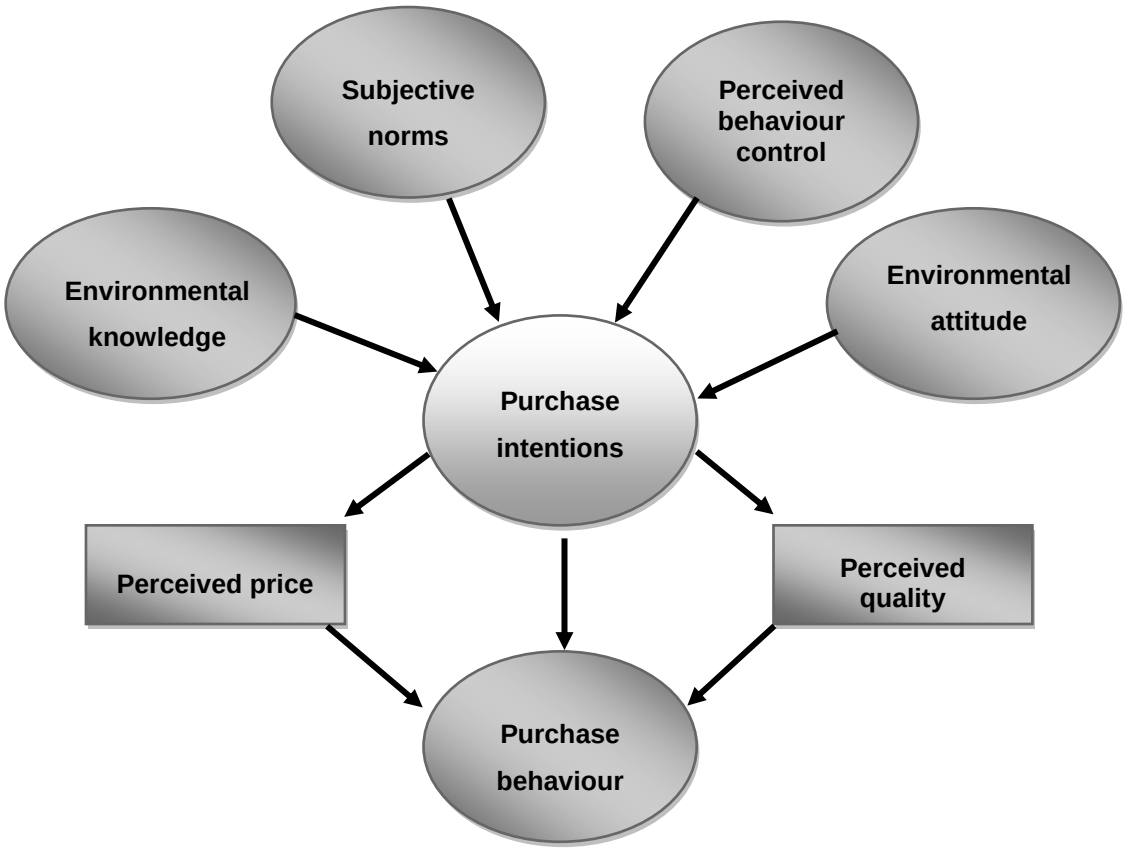

Figure 3.2: Proposed model of the antecedents of black Generation Y students' green purchase behaviour

In order to determine the relevance of these factors in determining green purchase behaviour, the hypothesised relationships insinuated by the research model in Figure 3.2 will be tested empirically, as reported on in Chapter 5.

3.7 CONCLUSION

This chapter reviewed the literature on the possible antecedents that may determine green purchase behaviour. In addition, it included a literature review pertaining to the Generation Y cohort and the black Generation Y cohort in South Africa.

Human characteristics play an important role in the formation of attitudes towards the environment as a whole, making it pivotal for marketers to understand these characteristics to ensure market success. However, marketers cannot rely solely upon attitudes of consumers to predict behaviour. This necessitates that marketers fully understand all the factors that may influence environmental behaviours. Consequently, environmental attitudes along with environmental knowledge, subjective norms and perceived behaviour control are factors believed to influence environmental purchase intentions and, ultimately, green purchase behaviour. However, perceived price and perceived quality of green products are also pertinent aspects to be considered in the green purchase behaviour equation.

The Generation Y cohort comprises individuals born into a media-saturated and brand conscious world. This has created a strong-minded, youthful, money hungry and elusive market segment. On the environmental front, this cohort displays more compassion than previous generations regarding their natural surroundings and they are willing to fight for the environment's preservation. Accordingly, organisations must adjust their marketing practices aimed at this enigmatic generation if they want to connect with this generation, as previous conventional marketing tactics do not resonate well with these individuals. This has forced marketers to rethink their approach to this generation but if executed correctly marketers stand to gain good returns.

Chapter 5 reports on the empirical testing the proposed model of the antecedents of black Generation Y students' green purchase behaviour presented in Figure 3.2. The following chapter, Chapter 4, discusses the research methodology followed to test these antecedents of environmental knowledge, environmental attitudes, environmental subjective norms, perceived behaviour control and green purchase intentions, together with the mediating effects of perceived price and perceived quality empirically. Chapter 4 includes a description of the sampling procedure, the research instrument and the statistical analysis techniques utilised in this study.

CHAPTER 4
RESEARCH METHODOLOGY

4.1 INTRODUCTION

In Chapter 3, a proposed model of the antecedents of green purchase behaviour based on the literature was introduced. The purpose of this chapter is to describe the research methodology that was followed in empirically testing that model on black Generation Y students in South Africa, as per the primary objective of this study.

Marketing research involves applying scientific methods to obtain relevant occurrences regarding marketing phenomena (Zikmund & Babin, 2013:6). A more detailed definition depicts marketing research as the systematic design, collection, analysis and reporting of data pertinent to a marketing situation or decision facing an organisation (Kotler & Armstrong, 2012:127). Information gathered from marketing research is used to identify both opportunities and problems in marketing and markets, in order to make more informed and effective decisions in the marketplace (Feinberg *et al*., 2013:6).

As indicated in Chapter 1, the primary objective of this study was to determine the antecedents that influence South African black Generation Y students' green purchase behaviours. This primary objective was then deconstructed into ten empirical objectives (refer to Section 1.3.3), which dictated the collection of the following data:

- South African black Generation Y students' environmental attitude.
- South African black Generation Y students' environmental knowledge.
- South African black Generation Y students' environmental subjective norms.
- South African black Generation Y students' perceived behavioural control concerning environmental issues.
- South African black Generation Y students' green purchase intensions.

- South African black Generation Y students' green purchase behaviour.
- The influence of perceived price and quality on South African black Generation Y students' green purchase behaviour.
- The extent to which male and female South African black Generation Y students differ in their environmental knowledge, attitude, subjective norms, purchase intentions and purchase behaviour.
- The extent to which South African black Generation Y students registered at city-based HEIs differ from those registered at country-based HEIs in terms of their environmental knowledge, attitude, subjective norms, purchase intentions and purchase behaviour.

Chapter 4 describes the theoretical background of the research methodology employed in collecting and analysing this data, including the questionnaire design, sampling procedure, data collection process and the statistical techniques used to analyse the data. The chapter begins with a discussion of the marketing research process in Section 4.2.

4.2 MARKETING RESEARCH PROCESS

Marketing research, as with any other scientific inquiry, encompasses a sequence of highly interrelated activities. The process varies in sequence for each marketing research design as the stages are continuous and constantly overlap each other (Zikmund & Babin, 2013:50; Shukla, 2008:19).

Whilst there is some debate as to the precise steps to be followed in a research process, making it difficult to identify a universal approach (Shukla, 2008:19), Malhotra (2010:41-42) proposes that a six-stage process be followed, as illustrated in Figure 4.1.

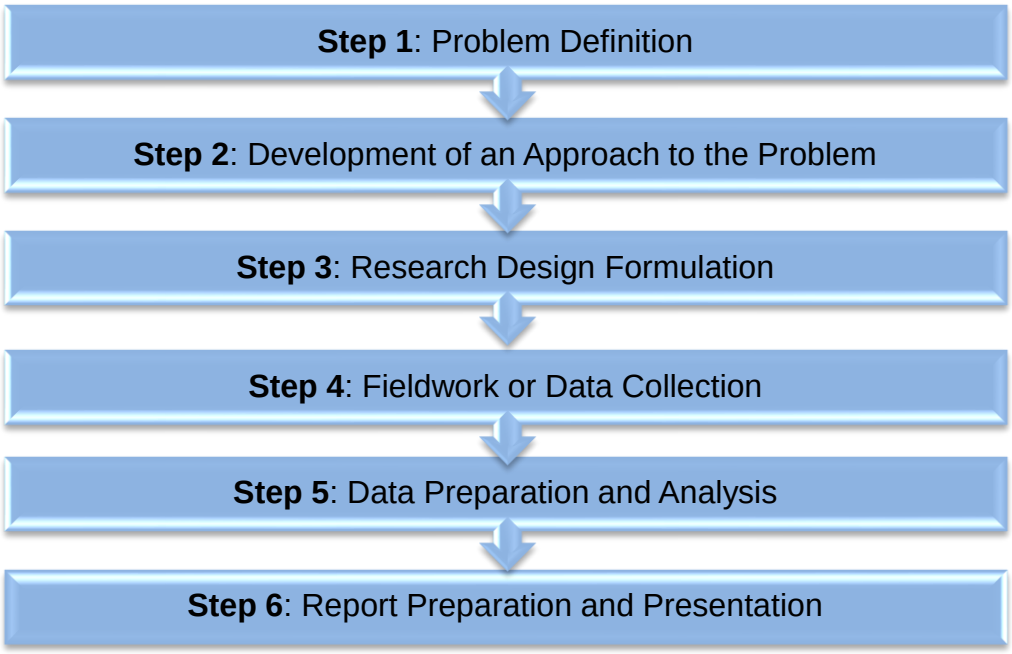

Figure 4.1: Marketing research process (Malhotra, 2010:41-42)

These six steps outlined in Figure 4.1 indicate the sequential tasks that should be undertaken when conducting a marketing research study. The steps include defining the problem that justified the need for the study, developing an approach to the problem in terms of formulating the objectives to be achieved by the study, formulating the research design to be followed in the study, collecting the required data, editing, coding and analysing the collected data. The final step in the process involves preparing and presenting a report on the findings of the study (Malhotra, 2010:41-42).

The problem identified in this study, as discussed under the problem statement in Chapter 1, was that there is a need to develop and empirically test the antecedents to green product purchase intentions and purchase behaviour amongst black Generation Y students in South Africa. Following the problem definition, one primary objective, five theoretical objectives and ten empirical objectives were formulated (refer to Chapter 1, Section 1.3).

The following section discusses the research design that guided the empirical portion of this study.

4.3 RESEARCH DESIGN

Once the research problem has been defined and the research approach to the problem developed, the next step is to formulate the research design. A research design outlays the structured framework or plan of action for undertaking the research project (Zikmund & Babin, 2013:61 McDaniel & Gates, 2010a:76). The research design presents a set of guidelines that detail the required procedures for attaining the formulated research objectives (Malhotra, 2010:102; McDaniel & Gates, 2010b:49).

Research designs are categorised into three broad streams, namely exploratory research, descriptive research and causal research (Hair *et al*., 2013:36-37; Silver *et al*., 2013:54; Malhotra, 2010:103), as illustrated in Figure 4.2.

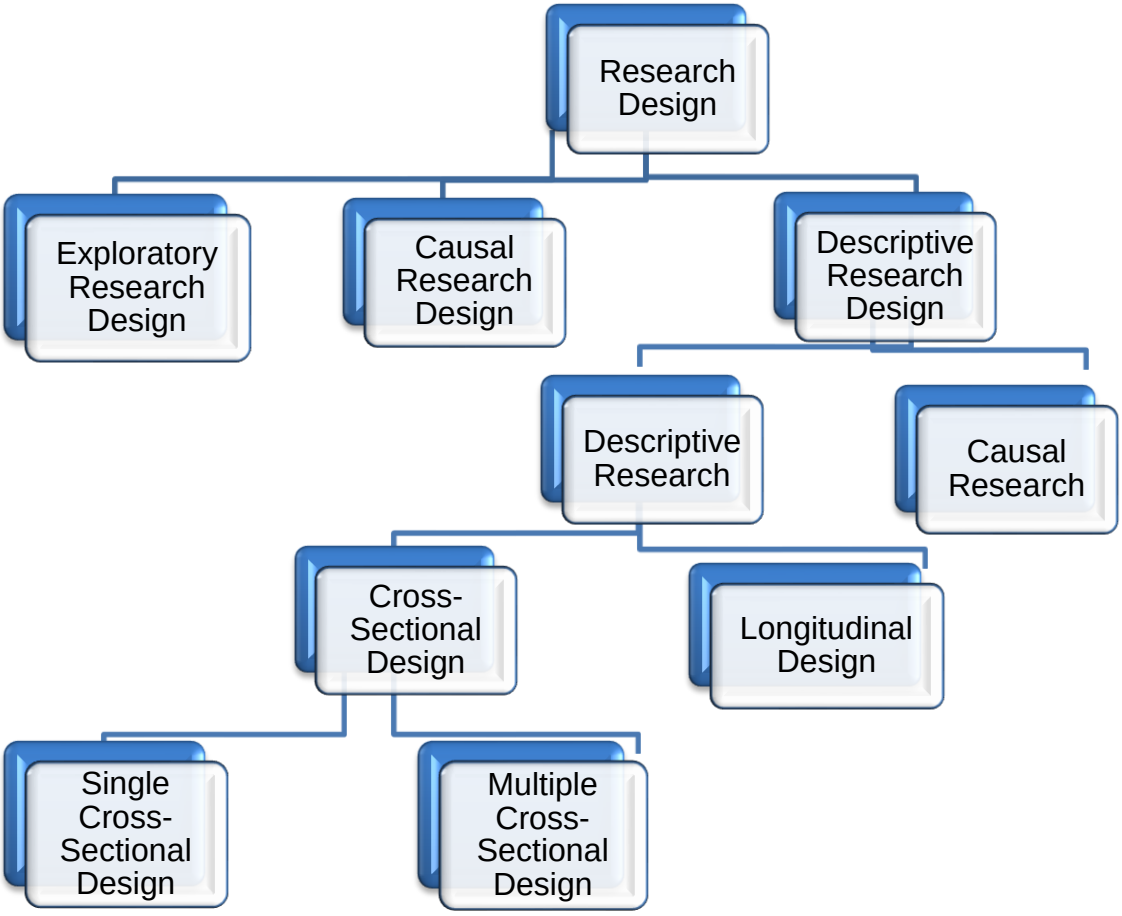

Figure 4.2: **Research design process** (Silver *et al*., 2013:54; Kotler & Armstrong, 2012:127; Malhotra, 2010:103)

4.3.1 Exploratory research

Exploratory research aims to obtain greater clarity and understanding of a concept or to assist further in the defining of a problem (McDaniel & Gates, 2010b:43). Iacobucci and Churchill (2010:60) add this preliminary information search also aids in the formulation of hypothesis. The objective of exploratory research is to narrow down the scope of a research topic and fine tune ambiguous research problems into clear ones that help obtain particular research objectives (Zikmund & Babin, 2013:58). Characteristically speaking, exploratory research is highly flexible and unstructured (Malhotra, 2010:104; McDaniel & Gates, 2010b:44).

4.3.2 Causal research

A causal research design aims to determine conclusively whether two or more variables are related causally by testing hypotheses (Hair *et al*., 2013:37; Silver *et al*, 2013:76). The primary objective of causal research is to determine how an independent variable affects a dependent variable in a specified or set anomaly (Malhotra, 2010:113), this is achieved in a highly structured and planned manner characterised with the use of controlled procedures (Silver *et al.*, 2013:76). Fienberg *et al*. (2013:59) add that causal research also seeks to gather information regarding cause-and-effect relationships operating within a market system; furthermore, allowing for reasonable unambiguous conclusions regarding causality to be deduced.

4.3.3 Descriptive research

Another form of conclusive research used in the majority of marketing research studies is the descriptive research design (Feinberg *et al.*, 2013:57). The primary purpose of descriptive research is to describe phenomena, such as market characteristics (Hair *et al*., 2013:36; Malhotra, 2010:106). This particular type of research is guided by a relationship between two variables (Shukla, 2008:40), and is appropriate when researching characteristics of groups, people, objects, organisations or environments (Zikmund & Babin, 2013:49). Fienberg *et al*. (2013:57) add that descriptive research is also

deemed appropriate when determining the frequency of occurrence of marketing phenomena and when predicting association between variables. However, Zikmund and Babin (2013:51) caution that descriptive research does not provide any direct evidence of causality.

In order to be of value, descriptive research necessitates that data be collected in a manner of definite purpose, high accuracy and must be clearly planned (Zikmund & Babin, 2013:51; Shukla, 2008:41). Therefore, descriptive research can be seen as highly structured and rigid compared to its unstructured and flexible counterpart, exploratory research (Silver *et al*., 2013:71). Moreover, descriptive research assumes that the researcher has prior knowledge of the problem and then seeks to answer the questions of who, why, what, when and how (Silver *et al*., 2013:71; Zikmund & Babin, 2013:49). Although exploratory research may postulate hypotheses, it is descriptive research that is used to test those hypotheses (Silver *et al*, 2013:71).

There are two main types of descriptive research, namely longitudinal studies and cross-sectional studies (Iacobucci & Churchill, 2010:86; Shukla, 2008:41). A longitudinal study entails the repeated measurement of the same population element (for example, participants) over a specified period of time (Malhotra, 2010:110). In comparison, a cross-sectional study involves the collection of data from specific sample(s) only once (Feinberg *et al*., 2013:58; Silver *et al*., 2013:74). A single cross-sectional design involves collecting data once from one sample, while multiple cross-sectional designs involve collecting data from two or more samples once (Malhotra, 2010:108).

In line with the primary objective formulated for this study, a descriptive research design using the single cross-sectional approach was adopted. The following section describes the sampling process utilised in the study.

4.4 SAMPLING PROCEDURE

This section explains the sampling procedure employed within the study and includes a description of the target population, the sampling frame, the sampling method and the sample size.

4.4.1 Defining the target population

A population, also referred to as a universe, is the total sum of all elements or entities that share at least some form of common characteristic pertaining to a particular marketing issue (Zikmund & Babin, 2013:312; Malhotra, 2010:371). The target population refers to the specified elements or entities that hold the data required to address and/or investigate the stipulated research issue (Malhotra, 2010:372; McDaniel & Gates, 2010b:326). Often, a researcher cannot measure every element in a given population due to various reasons; therefore, a sample of that specified population is drawn instead (Silver *et al*, 2013:152-153; Berndt & Petzer, 2011:39). A sample is a segment or microcosm of the population of interest (Iacobucci & Churchill, 2010:282). In order to ensure accurate and reliable estimates, it is imperative for the sample to be a true representation of the entire population (Kotler & Armstrong, 2012:138).

With regards to this study, the target population was defined as full-time black Generation Y students ranging between the ages of 18 and 24 years, enrolled at registered public South African HEIs during 2014.

4.4.2 Sampling frame

The sampling frame is a set list of elements or entities drawn from the target population. The sample is then selected from this list, and may come in various forms such as class lists, a telephone directory, registered voters, maps and so on (Feinberg *et al*., 2013:302; Zikmund & Babin, 2013:317).

For this study, the sampling frame consisted of the 25 public registered HEIs situated in South Africa (Higher Education in South Africa, 2013). From this initial list of 25 registered institutions, a judgement sample of four institutions in the Gauteng province was chosen, of which two included country-based universities and two city-based universities. Of the four universities, two were traditional universities, one a university of technology and one comprehensive university.

4.4.3 Sampling method

The sampling method chosen for a research study is a vital factor. There are two main methods in which to conduct a study sample, namely probability and non-probability sampling (Berndt & Petzer 2011:173). In probability sampling, every member or element in the population has a known, non-zero probability of being included in the study sample (Zikmund & Babin, 2013:322). Probabilities must be specifiable; however, they do not need to be equal (Feinberg *et al*., 2013:304). Probability sampling makes use of authentic mathematics because it is based on the sound theoretical principles of probability (Chisnall, 1992:66). Contrastingly, non-probability sampling exudes arbitrary and subjective traits, as a researcher's selection of participants is based on personal judgement alone. For that reason, the selected sample cannot be regarded with absolute certainty as a representation of the entire population (Feinberg *et al*., 2013:304; Zikmund & Babin, 2013:322). Results obtained using probability methods allow researchers to link validity and reliability to the defined target population, whilst in non-probability sampling, elements of the population are not known; therefore, projecting potential error between the sample and target population cannot be achieved (Zikmund & Babin, 2013:322; Shukla, 2008:58).

That being said, non-probability sampling methods are frequently used due to time and cost concerns (Welman & Kruger, 2001:47), as well as issues concerning accessibility to sampling units and may generate acceptable estimates of a characteristic of a target population (Malhotra, 2010:376).

Probability and non-probability sampling methods are classified into sub-groups, as represented in Figure 4.3.

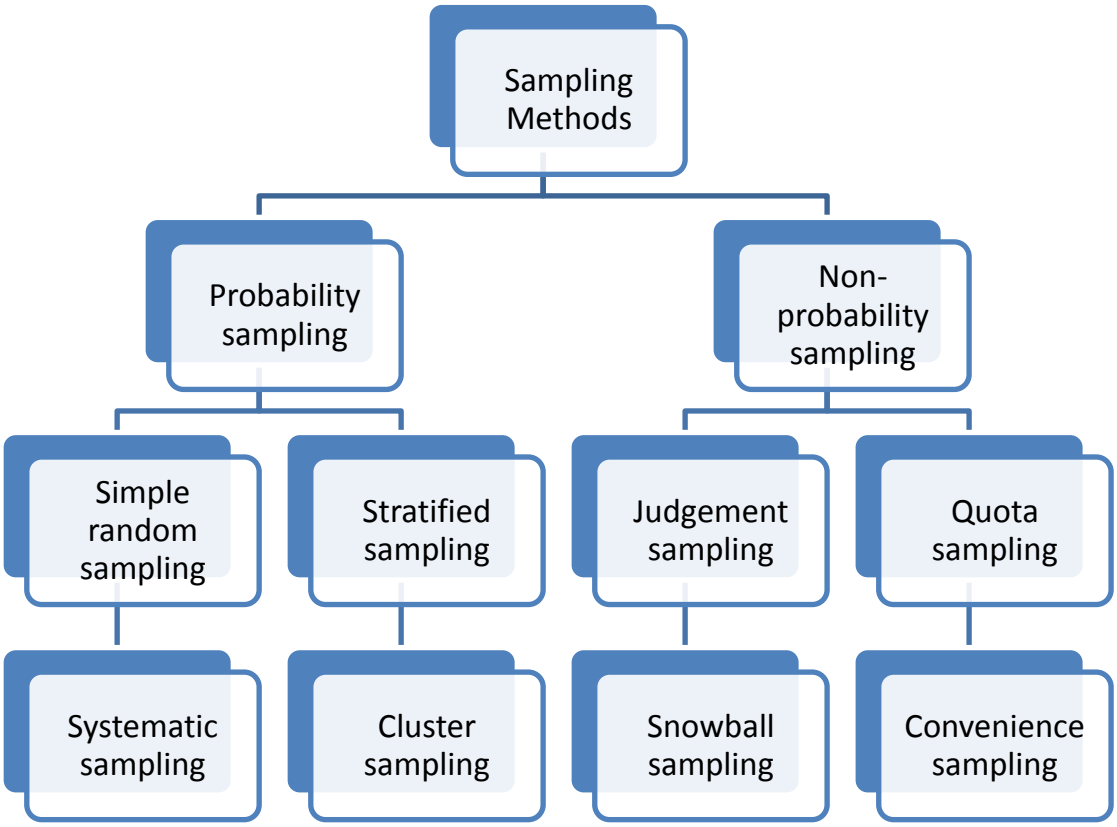

Figure 4.3: Probability and non-probability sampling methods (McDaniel & Gates, 2010b:335)

As is shown in Figure 4.3, probability-sampling methods consist of simple random sampling, stratified sampling, systematic sampling and cluster sampling. The non-probability sampling methods include judgement sampling, quota sampling, snowball sampling and convenience sampling (McDaniel & Gates, 2010b:335)

Owing to time and financial constraints, the non-probability convenience sampling method was selected for the purpose of this study. Silver *et al*. (2013:157) define convenience sampling as any process that collects sample elements in an easy and quick manner. Malhotra (2010:377) adds that the interviewer primarily has the choice of selecting the sample elements. Shukla (2008:62) explains that convenience sampling is used often because this method is the least time consuming and lowest in cost compared to all other methods. When convenience sampling is utilised, only a specific set of

participants at a predetermined time and place form part of the study, and examples include mall-intercept interviews, church groups, the use of students, and so on (Berndt & Petzer, 2011:174). Therefore, convenience samples cannot be considered an entirely true representation and caution should be taken when attempting to convey results of these samples to the population (Silver *et al*., 2013:157; Malhotra, 2010:377). Nonetheless, convenience sampling is used regularly, including on large samples (Malhotra, 2010:377).

This study utilised a non-probability convenience sample of full-time black Generation Y students, registered at four South African HEIs, aged between 18 and 24 years. Several demographic questionnaires were included in the questionnaire in order to determine the final sample's degree of representation of the target population in terms of gender, age, province of origin and language.

4.4.4 Sample size

A sample size is the number of participants needed within the study to draw conclusive findings using analysis (Berndt & Petzer, 2011:182). McDaniel and Gates (2010b:353) point out that determining a sample size depends on several factors, including financial (costs), statistical (analysis methods) and managerial issues. Malhotra (2010:374) adds that other considerations relating to determining the appropriate sample size include the sample sizes of similar studies, the number of construct-related items and the nature of the research (that is, conclusive versus exploratory research designs).

A sample size of 500 full-time students was selected for this study. This particular sample size is in the range of other studies similar in nature, such as those conducted by Ali *et al.* (2011:220) (sample size: 400), Cheah and Phau (2011:460) (sample size: 600), Leonidou *et al*. (2010:1328) (sample size: 500), Haytko and Matulich (2008:3) (sample size: 565) and Minton and Rose (1997:40) (sample size: 500). In addition, consideration was given to the planned statistical analysis techniques when determining the sample size. Hair *et al*. (2010:662) advises that structural equation models that comprise

seven or more constructs should have a sample size of between 300 and 500, and, as such, this sample size is considered sufficiently large and adequate.

In the following section, the process undertaken in collecting the required data from this sample of 500 black Generation Y students is described.

4.5 DATA COLLECTION METHOD

Data collection is the physical process of collecting data from participants in a given sample. The most common data collection methods used in quantitative studies is the observation and survey methods. Regardless of which collection method is utilised, researchers must ensure the development of a procedure/s within the study in order to standardise the data being collected (Berndt & Petzer, 2011:202; Struwig & Stead, 2001:86).

The measurement instrument typically employed in the survey data collection method is the structured questionnaire. The purpose of the questionnaire is to extract particular data from participants either in a written or verbal format (Feinburg *et al*., 2013:236: Shukla, 2008:47-48). Surveys have many variations, including door-to-door interviews, executive interviews, mall interviews, telephone interviews, mail surveys and computer assisted interviews (McDaniel & Gates, 2010b:129-134). In contrast, observational methods include the process of physically or mechanically observing or recording information from the population of interest, including the behaviour patterns from people, events and objects (Silver *et al*., 2013:137; Malhotra, 2010:230).

The data collection method chosen for this study was the survey method, in which a structured self-administered questionnaire was applied to gather the prerequisite data specified in Section 4.4. The questionnaire was submitted to the Ethics Committee of the Faculty of Economic Sciences and Information Technology at the North-West University (Vaal Triangle Campus) for ethics clearance. Once an ethics clearance certificate was obtained (Ethics Clearance Number: **Econit-Econ-2014-007**), lecturers at each of the four campuses were contacted and asked if they would act as gatekeepers to the student participants. Those lecturers then were shown the questionnaire

together with the ethics clearance certificate. Thereafter, the questionnaires were distributed to the students for completion after lectures to ensure no academic learning time was lost or disrupted. This was done for all four participating HEIs.

4.5.1 Design of the questionnaire

A questionnaire is a structured technique for collecting data in which a series of questions, written or verbal, are presented to participants who then proceed in answering them (Malhotra, 2010:335; Struwig & Stead, 2001:41). Questionnaires are designed to collect data relating to a problem, in line with the research objectives of the study (McDaniel & Gates, 2010b:287; Sciglimpaglia, 2010:106).

The design of a questionnaire should be seen as an art or exact science because constructing a poor questionnaire will produce inaccurate and/or incomplete data, along with higher costs (McDaniel & Gates, 2010b:287-288). For these reasons, a questionnaire must utilise simple direct questions that are not double barrelled or of an ambiguous nature (Feinburg *et al*., 2013:283; Berndt & Petzer, 2011:186). In addition, the questionnaire should make use of simple English language where unfamiliar terms are explained. Moreover, the questionnaire should be presented in a logical and structured format (Berndt & Petzer, 2011:186). Iacobucci and Churchill (2010: 221) point out that an attractive physical appearance of a questionnaire, along with a clear introduction and cover letter is salient in attaining co-operation from participants. Since the cover letter and the introduction are the first components seen by a potential participant, these facets must be alluring and capture the interest of the participant in order to entice the completion of the questionnaire.

The questionnaire in this study depicted simple and brief objectives. The length of the questionnaire was kept as short as possible. The use of simple English terminology ensured a clear understanding of all the questions. A simple yet enticing cover letter was attached to the questionnaires that

included the purpose of the study, relevant contact details and an explanation concerning why the study focused on Generation Y students.

4.5.2 Questionnaire content

The study utilised six previously validated scales and two individual items from the literature to obtain the necessary data. In order to measure black Generation Y students' environmental attitude, subjective norms and perceived behaviour control, scales from Leonidou *et al.* (2010:1331), Fielding *et al*. (2008:321), and Kim and Choi (2005:595) were used. The three constructs consisted of four, three and four items respectively. The environmental attitude scale used was that from Leonidou *et al.* (2010:1331), who initially adapted the scale from Kilbourne and Pickett (2008). It was decided to utilise the inward environmental attitude scale from Leonidou *et al.* (2010:1331) adaptation as these items were deemed more suitable for the study at hand.

The environmental knowledge scale (five items) and the environmental purchase intention scale (three items) were adopted from the study conducted by Mostafa (2007:472-473). Perceived price (one item) and perceived quality (one item) of green products was measured using items from the D'Souza *et al.* (2007:73) study. The green purchase behaviour of black Generation Y students was measured using Lee's (2008:580) four-item scale. All scaled responses made use of a six-point Likert scale, ranging from strongly disagree (1) to strongly agree (6). The Likert scale is a widely used scale used for measuring attitudes (Schiffman *et al*., 2010:61) that offers many advantages, such as being simple to administrate, interpret, compile and complete (Malhotra, 2010:309; Schiffman *et al.,* 2010:61). Zikmund and Babin (2013:266) commend the use of the multi-item Likert scale as these scales are deemed highly reliable and valid, making the scale more attractive in its use. As the Likert scale is understood fairly simply by participants, it may be used in multiple interview forms such as telephone, electronic, mail and personal interviews (Malhotra, 2010:309).

The questionnaire also had a section pertaining to the collection of demographic data where the questions in this section were measured using nominal scales. In addition, the questionnaire's final section ended with an open ended question where participants could share any thoughts or comments on green purchasing.

4.5.3 Layout of the questionnaire

The questionnaire for this study (refer to Annexure A) comprised three sections. Section A (A1-7) was designed to collect demographic data. Section B (B1-17) measured black Generation Y students' environmental attitude, subjective norms, perceived behavioural control and environmental knowledge. Section C (C1-10) measured green purchase intentions, effects of the perceived price and quality of green products, and green purchase behaviour.

4.5.4 Pilot testing of the questionnaire

Before the questionnaire is piloted, it should undergo a pre-test. Various authors (Silver *et al*., 2013:149; Zikmund & Babin, 2013:302-304; Iacobucci & Churchill, 2010:224; Malhotra, 2010:354; Shukla, 2008:91) state that the purpose of pre-testing a questionnaire is to ensure that questions are understood in the intended manner, and the questionnaire is free from any hindrances to its completion arising from layout, language, question difficulty and/or instructional issues. Regardless of the method of survey, a pre-test should always be undertaken using personal interviews. This allows the researcher to observe and record the participant's actions and attitudes towards the measuring instrument. Furthermore, the pre-test as well as the pilot study assist in the identification, correction and elimination of potential problems.

After the completion of the pre-test, the questionnaire should then be pilot tested. A pilot study is undertaken to determine if the questionnaire represents a reliable instrument and this is achieved by taking a small-scale replica of the study. The participants that partake in the pre-test and the pilot study should

be representative of the target population and should not be included in the main study (Zikmund & Babin, 2013:59-60; Iacobucci & Churchill, 2010:223).

In this study, the questionnaire was pre-tested on three individuals − one an experienced academic researcher and the remaining two, students who were representative of the target population. All three of these individuals were excluded from the pilot and the main sample. The feedback received from the pre-test stage was utilised to polish the wording of certain questions in order to make them more understandable.

After the pre-test stage and all necessary changes had been applied, the questionnaire was then piloted on a convenience sample of 50 students. This sample was captured from a HEI campus that did not form part of the main sample. The end purpose of the pilot test was to determine the reliability of the scales used in the questionnaire. Once the questionnaire was finalised, it was distributed for the main survey.

4.6 QUESTIONNAIRE ADMINISTRATION

A self-administered questionnaire was utilised for this study to gather the required data from participants. The main survey was conducted between April 2014 and May 2014.

The questionnaires were administered to students once they had completed class as to ensure that no academic learning was interrupted. This was done for all participating HEI campuses. A cover letter was attached to the questionnaire explaining the nature and purpose of the study and provided instructions on how the questionnaire was to be completed. In addition, the cover letter provided an assurance of the confidentiality of the data supplied as well as the name of the HEI at which the participant was registered at the time of the study. Participation in the study was voluntary.

In the following section, the data preparation process is outlined.

4.7 DATA PREPARATION

Once the fieldwork has been completed, the raw data needs to processed, interpreted and analysed (Malhotra, 2010:453; McDaniel & Gates, 2010b:384). The processing steps include data editing, coding and tabulation (Iacobucci & Churchill, 2010:350).

4.7.1 Step 1: Editing

Editing ensures that the obtained data is complete, accurate, follows the research objectives, is uniformly entered, and organised in a simple manner to code and tabulate (Shukla:2008:95). The editing process is often performed twice on questionnaires before the data is captured (McDaniel & Gates, 2010b:384). To this end, editing is the assurance of checking questionnaires for errors, illegibility and inconsistency (Zikmund & Babin, 2013:64).

The questionnaires in this study underwent the editing process twice. All questionnaires falling outside the non-black and the determined age bracket (18-24 years of age) were discarded. In addition, any questionnaire that was less than 90 percent completed was discarded.

4.7.2 Step 2: Coding

Once questionnaires have been edited, the data is ready for coding. Coding involves assigning numerical values to each individual response for each particular question asked in the questionnaire (Shukla, 2008:96). Moreover, coding is the conversion of raw data into numeric symbols in order to group responses of participants into a different categories, groupings or classes (Iacobucci & Churchill, 2010:351; Shukla, 2008:96). Coding involves assigning numbers or other symbols to answers so the responses can be grouped into a limited number of classes or categories (Shukla, 2008:96).

The questionnaire for this research study was divided into three sections. Section A was allocated to collect demographical data. Section B measured environmental attitude, knowledge, subjective norms and perceived behaviour control. Section C measured environmental purchase intentions, perceived

price and quality of green products, and green purchase behaviour. The questionnaire was pre-coded under the supervision of the promoter and with the assistance of a qualified statistician.

Data concerning this study was coded accordingly per construct as presented in Table 4.1.

Table 4.1: Coding information

TYPE OF DATA	VARIABLE	QUESTION NUMBER
Demographic data	**A1 to A7**	**Section A, Questions A1 to A7**
Attitudes and knowledge towards green purchasing	**B1-B17**	**Section B: Items B1-B17**
Environmental attitude	B1 to B4	Section B, Items B1 to B4
Subjective norms	B5 to B7	Section B, Items B5 to B7
Perceived behaviour control	B8-B12	Section B, Items B8-B12
Environmental knowledge	B13-B17	Section B, Items B13-B17
Purchase intentions and behaviours	**C1-C9**	**Section C: Items C1-C9**
Green purchase intentions	C1-C3	Section C, Items C1-C3
Perceived price	C4	Section C, Item C4
Perceived quality	C5	Section C, Item C5
Green purchase behaviour	C6-C9	Section C, Items C6-C9

4.7.3 Step 3: Tabulation

The third and final step is tabulation. A statistical table is one in which captured data is orderly presented or arranged in one or more classification system. This is attained by calculating the number of responses allocated for each of the questions (Silver *et al*., 2013:232; Iacobucci & Churchill, 2010:32). Tables take on various forms such as bivariate tabulation, univariate tabulation and multivariate tabulation (Struwig & Stead, 2011:152; Malhotra, 2010:467). This study made use of univariate tabulation, whereby the data

were calculated and tabulated individually; that being, one response for each given question.

Following the completion of the tabulation step, statistical analysis of the data set was undertaken. The following sections outline the statistical methods applied on the empirical data set.

4.8 STATISTICAL ANALYSIS

The captured data were analysed using the IBM SPSS and AMOS programs, Version 22.0 for Microsoft Windows.

4.8.1 Factor analysis

Uniquely different from other statistical techniques, factor analysis does not test hypothesis nor does it show if one group is significantly related or different from another (Pallant, 2010:181). Factor analysis focuses on the summarisation or reduction of large sets of variables into smaller sets of factors (Feinburg *et al*., 2013:480; Pallant, 2010:181). This is achieved by examining inter-correlations in a large data set from which a number of perfectly uncorrelated factors are extracted, ultimately leaving smaller factors behind, similar to the original variables (Feinburg *et al*., 2013:480).

There are two main types of factor analysis, namely confirmatory and exploratory factor analysis (Pallant, 2010:181). Confirmatory factor analysis seeks to test relations between observed variables and underlying factors based on theoretical knowledge, empirical research or both. In contrast, exploratory factor analysis is designed for determining the links between observed and latent variables that are unknown or uncertain. Thus, exploratory factor analysis aims to establish how or to what degree observed variables are linked to underlying factors (Byrne, 2010:5-6).

In order to conduct exploratory factor analysis, a suitable sample size is a necessity, where a larger sample size usually produces superior results (Pallant, 2010:182-183). As a general rule, a five to one ratio is recommended, which includes five valid observations per item to be factor

analysed (Hair *et al*., 2010:102). In order to test the factorability of the data, two sample audacity tests, namely Barlett's Test of Sphericity and the Kaiser-Meyer-Olkin (KMO) measure, may be used. A KMO value greater than 0.60 and a significant Bartlett Test of Sphericity indicates an adequate sample size (Pallant, 2010:183).

This study made use of exploratory factor analysis to determine the underlying factors of the measurement scale.

When looking to conduct any form of factor analysis, McDaniel and Gates, (2010a:617-624), Malhotra (2010:639) and Hair *et al*. (1998:94-101) suggest considering the following aspects to determine the order of operations when conducting factor analysis:

4.8.1.1 Method of factor analysis

Factor analysis encompasses two basic approaches, namely common factor analysis and principal component analysis where the latter of the two approaches is the more widely used technique (Malhotra, 2010:643). The primary objective of principal component analysis is to reduce large sets of correlating variables into a minimum amount of factors while still accounting for maximum variance (Malhotra, 2010:643; Blunch, 2008:51; Johnson & Wichern, 2007:430). Therefore, principal component analysis can be described as a variable reduction technique used for reducing highly correlated variables. Furthermore, Iacobucci and Churchill (2010:496) indicate that principal component analysis "transforms a set of interrelated variables into a set of uncorrelated linear combinations of these variables". This technique does have its flaws and a major limitation is the sample size needed to conduct the analysis. Generally speaking, a larger sample size results in higher component reliability (Pallant, 2010:182-183). Based on a reduced correlation matrix, common factor analysis extracts as many possible factors to explain common variances between items (Reise *et al*., 2000:294; Hair *et al*., 1998:88). This study made use of the principal component analysis method for factor analysis.

4.8.1.2 Factor rotation

Once the factors have been determined, the original loadings may not be readily interpretable. As such, these factors are rotated until a "simpler structure" is achieved (Johnson & Wichern, 2007:504). Essentially, factor rotation provides a clearer structure by categorising factors. Factor rotation is conducted using two main methods, namely orthogonal rotation and oblique rotation. Orthogonal rotation includes equamax, quartimax and varimax rotation techniques while oblique rotation includes direct oblimin and promax rotation techniques (Pallant, 2010:185). For the purpose of this study, the oblique promax rotation was used.

4.8.1.3 Number of factors to retain

Once the method of factor analysis and method of factor rotation have been decided upon, the next step is then to conclude how many factors should be retained. The number of factors is based on the amount of variation displayed in the original data set that is explained by each factor (McDaniel & Gates, 2010a:620). There are several factor retaining methods, amongst the most popular are the eigenvalue method, the scree plot method and the priori criterion method (Hair *et al*., 1998:103-104). The eigenvalue approach, also known as the latent root approach, entails discarding all factors that have an eigenvalue below one as they are regarded as non-significant and retaining all factors with eigenvalues greater than one, which are regarded as significant (Iacobucci & Churchill, 2010:497-498; Hair *et al*., 1998:103).

The scree plot method plots eigenvalues (y-axis) against the number of factors (x-axis) in their order of extraction. Therefore, the scree plot classifies the maximum amount of factors that can be extracted (Iacobucci & Churchill, 2010:497-198). Another approach to be considered is the priori criterion method. This approach is based on the researcher's prior knowledge of the theory under analysis. The researcher considers the number of factors to extract on a selective base, where often the researcher knows beforehand how many factors to extract (Malhotra, 2010:643).

Given that this study included scales from previous studies, the prior knowledge approach was used to guide the number of factors to extract, with due consideration to the eigenvalue method.

4.8.1.4 Factor loadings

Factor loadings interpret the role each observed variable plays in deriving each factor. These factor loadings can then be defined as correlations between each observed variable and the factors. Each factor is assessed for significance. When loading, items above a 0.30 estimate are regarded to have loaded significantly. Ideally, the closer loadings are to 1 the better, as higher loadings indicate greater representativeness of the factors (McDaniel & Gates, 2010a:618-319; Hair *et al*., 1998:106; Churchill, 1995:976).

4.8.1.5 Interpretation of the factors

Upon the completion of the factor analysis process, the output must be interpreted. The procedure requires allocating labels or meaning to the results obtained from the factor analysis. This process is highly subjective in nature. Hair *et al*. (1998:111) postulate that factor loadings above 0.40 are considered more important and loadings above 0.50 are deemed practically significant. When naming factors, Iacobucci and Churchill (2010:501-502), Hair *et al.* (1998:112-114), and Churchill (1995:976) propose following this five step procedure:

- In the rotated factor-loading matrix, begin with both the first construct and first factor. Moving horizontally from left to right locate the highest loading and circle that loading. Repeat the procedure for each of the other constructs.
- Examine each of the encircled loadings and scrutinise its significance. A loading's significance may be judged by statistical or practical criterion. A loading based on statistical criterion entails that the loading is practically significant on a specified alpha level, normally 0.05. Practical significance illustrates that the factor accounts for a certain percentage of the variation in the given variable.

- Underline other practically significant loadings using the same criteria stated above.
- Next, examine the loading matrix and locate all variables that do not show any significance on any factor. If an unimportant variable with a low factor loading is found, the researcher may opt to eliminate the variable and then derive a new factor solution excluding the eliminated variable.
- Focus directly on significant loadings and attempt to name the factors based on how the variables load upon their common traits.

4.8.2 Multicollinearity

An important consideration when applying multivariate statistical analysis to a data set is multicollinearity (Hair *et al*., 2010:21). Multicollinearity refers to a state where the inter-item correlation between the independent variables is excessively high, thereby making it difficult to assess the relative strength of a predictor variable in explaining the variation in a dependent variable (Malhotra, 2010:586).

The tolerance test is a common measure of multicollinearity and involves running a regression analysis whereby each independent variable is given a chance to act as the dependent variable in relation to the other predictor variables. The resulting coefficients of determination (R^2) are then subtracted from 1 to obtain the tolerance values. High tolerance values are indicative of a smaller degree of multicollinearity (Hair *et al.,* 2010:201).

Section 4.8.3 explains how to determine adequate internal-consistency reliability of a research instrument.

4.8.3 Internal-consistency reliability

Reliability as a measure refers to the extent in which the measurement process is free from random errors alone (Feinburg *et al.*, 2013:128). In research, reliability is the tool utilised to determine whether multi-item scales repeatedly produce consistent results when repetitive measurements are

conducted (Malhotra, 2010:318). A scale is considered reliable and free from random error when this criterion is met (McDaniel & Gates, 2010b:251; Shukla, 2008:83). Defined simply, reliability is the accurate, consistent or stable measurement of test scores (Struwig & Stead, 2001:130).

With regards to summated scales, as those utilised in this study, internal-consistency reliability is undertaken for the purpose of determining reliability of a scale (Malhotra, 2010:319). The spilt-half reliability measure involves dividing the multi-item scale measurement into equivalent groups randomly, or according to even or odd numbered items, and then correlating the resulting half scores (Feinburg *et al*., 2013:132; Malhotra, 2010:319).

A popular measure of internal consistency is the Cronbach alpha coefficient technique (Pallant, 2010:97; Shukla, 2008:84). The Cronbach alpha involves segmenting items in a scale or construct in every possible manner. This is achieved by calculating the correlation coefficient of each split item and then computing the mean of all possible split-half coefficients (Zikmund & Babin, 2013:257; Malhotra, 2010:319; McDaniel & Gates, 2010b:253). The Cronbach alpha computes whether or not items correlate with other items and the range in value, from one, indicating perfect correlation between items, to zero, indicating no correlation between scale items. However, perfect and non-perfect correlations are rarely achieved. As such, scales scoring coefficient values between 0.80 and 0.96 are deemed as having excellent reliability, while coefficient values scoring between 0.70 and 0.80 are considered as having good reliability, and values ranging between 0.60 and 0.70 are considered acceptable or fair (Silver *et al*., 2013:104; Zikmund & Babin, 2013:257; Malhotra, 2010:319).

As indicated previously, the eight scales used in this study were adopted from previous studies, where each achieved a 0.70 or higher Cronbach alpha value, indicating that the scales are reliable and suitable for this study (Leonidou *et al.*, 2010; Fielding *et al*., 2008; Lee, 2008; D'Souza *et al*., 2007; Mostafa, 2007; Kim & Choi, 2005). Pallant (2010:97) warns that constructs with fewer than 10 items may deliver low Cronbach alpha values and suggests in such cases it may be appropriate to report on the average inter-

item correlation value, which should be between 0.15 and 0.50 as an alternative to indicate reliability (Spiliotopoulou, 2009:12).

Determining the reliability of a scale is of utmost importance and should be done before attempting to assess validity because validity is reliant on reliability; that is, a weak reliability score will also translate into a weak validity score (Struwig & Stead, 2001:130).

4.8.4 Validity

Validity is the degree to which a measure accurately represents the characteristics being measured (Zikmund & Babin, 2013:258). Stated differently, a scale's validity makes it possible to determine if the scale is actually measuring what it is supposed to measure (Pallant, 2010:7). Validity as a measurement process ensures that scales are free from both random and systematic error (Feinburg *et al*., 2013:128). Perfect validity is represented by a scale that contains zero measurement errors (Shukla, 2008:82). Ultimately, a scale that does not yield good validity is of no empirical use because the scale does not measure what it was intended to measure. There are various forms of validity, such as content validity, criterion validity and construct validity. The following section briefly discusses each form of validity.

Content validity involves the degree with which a measure or scale actually represents the construct being measured. This is done mostly by a judgement call on behalf of the researcher (McDaniel & Gates, 2010b:253; Pallant, 2010:7; Shukla, 2008:82). In this study, two experienced marketing academics assessed the instrument in terms of its content validity. Criterion validity predicts in an accurate manner what the underlying theory suggests it should (Feinburg *et al*., 2013:131; Iacobucci & Churchill, 2010:256). This form of validity makes use of correlations between standard measures and measures that have similar criteria or constructs (Zikmund & Babin, 2013:259). Construct validity is a measure that assesses whether the measuring instrument logically represents and connects the underlying theory. This infers that construct validity merges the gap between theory and the construct

(McDaniel & Gates, 2010b:256). Construct validity consists of three measures, namely convergent, discriminant and nomological validity. Nomological validity refers to the degree to which different constructs in a theoretical model are systematically inter-related (Malhotra, 2010:321) and is typically assessed by constructing a correlation matrix (Hair *et al*., 2010:724). The other two construct validity measures (convergent and discriminant validity) are discussed in detail in Section 4.8.7 under structural equation modelling.

4.8.5 Descriptive statistics

Descriptive statistics are summary measures of a data set (Feinburg *et al*., 2013:369). Malhotra (2010:486) adds that descriptive statistics are interlinked with frequency distributions and are often used to summarise captured data. Furthermore, descriptive statistical methods are utilised to transform vast amounts of data into basic characteristics for easier interpretation (Zikmund & Babin, 2013:364; Struwig & Stead, 2001:158). Descriptive statistics also contribute to answering and attaining specific research questions and objectives (Shukla, 2008:99).

This study utilised three common techniques of descriptive statistics, namely measures of variability (standard deviations), measures of location (means) and measures of shape (skewness and kurtosis).

4.8.5.1 Measures of variability

Also known as measures of dispersion, measures of variability quantify the extent to which value scores are spread out in a given data set (Feinburg *et al*., 2013:398). Variability measures include the standard deviation, range and variance (McDaniel & Gates, 2010b:407). For this particular study, the standard deviation was applied, which Blunch (2008:238) defines as “the square root of the variance”.

4.8.5.2 Measures of location

Also referred to as the measures of central tendency, measures of location include three statistical measures, namely the mean, the median and the mode (Feinburg *et al*., 2013:396). Malhotra (2010:486) explains that the main purpose of measures of location is to determine a central point of a given distribution. A frequently applied and highly robust measure of location is the mean, which is the total sum of all variables in a data series divided by the total number of variables, or simply put it is the arithmetic average score (Zikmund & Babin, 2013:339; Malhotra, 2010:486; McDaniel & Gates, 2010b:406). The mean was the measure of location chosen for this study.

4.8.5.3 Measures of shape

In order to perform advanced statistical methods, it is necessary to determine the distribution's nature (Malhotra, 2010:488). Shapes of distributions must be taken into consideration and are important when performing parametric tests (Struwig & Stead, 2001:159). Skewness and kurtosis are useful measures of shape in establishing the normality of a distribution (Shukla, 2008:101). An upside down bell represents a distribution that is symmetric in shape and is indicative of a normal distribution, or at least approaching normality (Malhotra, 2010:405).

Skewness encompasses the degree of deviation from symmetry by the mean in one direction or another. Distributions may have a positive, negative or symmetrical presentation (Malhotra, 2010:488; Struwig & Stead, 2001:159). Positive distributions skew to the left, whilst negative distributions skew to the right of the curve (Shukla, 2008:101).

Kurtosis measures the extent of how flat or peaked a distribution is (Struwig & Stead, 2001:159). A kurtosis distribution equating to zero represents a normal distribution (Malhotra, 2010:488). Positive kurtosis values indicate that the distribution is more peaked than that of a normal distribution, whilst negative values represent a distribution that is flatter than a normal distribution (Kline, 2011:60; Shukla, 2008:101).

4.8.6 Correlation analysis

Correlation analysis is applied to measure the relationships between variables (Silver *et al*., 2013:204). McDaniel and Gates (2010b:448) add that correlation analysis seeks to determine the degree to which changes in one variable are directly associated with changes of another variable. There are many correlation techniques such as the point-biserial correlation coefficient, Spearman's rho and the phi coefficient. However, the most suitable coefficient to determine the strength of association between two metric variables is the Pearson's Product-Movement correlation coefficient (*r*) (Struwig & Stead, 2001:140). Pearson's Product-Movement ranges in value from +1 to -1, with *r* signifying the strength of the association between two variables. When a perfect negative relationship occurs between two variables, the correlation coefficient represents a value of -1, whilst a +1 value displays a perfect positive relationship between two variables. If no relationship exists between two variables, *r* equals zero or lies relatively close to zero (Berndt & Petzer, 2011:239; Pallant, 2010:134).

McDaniel and Gates (2010a:580) along with Pallant (2010:134) explain that the strength of the association between variables depends on the size (whether positive or negative) of the correlation value. A value ranging from 0.10 to 0.29 denotes a small relationship, values between 0.30 and 0.49 represent a medium relationship and a value of 0.5 to 1.0 depicts a strong relationship between the variables (Pallant, 2010:134).

Hair *et al* (2010:710) explain that a correlation matrix is useful to determine the nomological validity of a measurement model in structural equation modelling, as discussed in the following section.

4.8.7 Structural equation modelling

Structural equation modelling refers to a statistical procedure that incorporates many statistical techniques simultaneously into one process (Kline, 2011:7). Structural equation modelling integrates various statistical methods such as covariance structure analysis, factor analysis and multiple regression analysis

to perform its research investigation (Muijs, 2012:232; Kline, 2011:7; Hair *et al*., 2010:629). Therefore, structural equation modelling is a multivariate statistical technique that "considers and estimates the linear and/or causal relationships between multiple exogenous (independent) and endogenous (dependent) constructs through a simultaneous, multiple equation estimation process" (Babin & Svensson 2012:321). Simply put, structural equation modelling tests the underlying relationships between one or more independent variables and one or more dependent variables (Ullman, 2006:35).

In structural equation modelling, as with any other multivariate statistical technique, sample size is an important factor for consideration (Hair *et al*., 1998:604). Structural equation modelling is regarded as large sample technique. Therefore, structural equation modelling requires larger sample sizes to conduct the data analysis (Babin & Svensson, 2012:329; Kline, 2011:11). Sample size ratios differ between scholars, a general unwritten rule for sample sizes is that for each parameter to be estimated a minimum requirement of at least five participants (Reisinger & Mavondo, 2007:52), ten participants (Kline, 2011:12) and/or 15 participants (Hair *et al*., 2010:661) should be observed. A sample size of 200 and more is said to be critical and provides sufficient power for the data analysis (Reisinger & Mavondo, 2007:52). Kline (2011:12) agrees and states that a 200 sample size is the typical number for a structural equation modelling to be conducted. Furthermore, Barrett (2007:820) indicates a 200 case sample size is adequate. However, the author adds that any publication utilising a sample less than 200 should be rejected, with the only exception being a sample drawn out of a small or restricted population.

Structural equation modelling involves individual construct definition, measurement model specification and identification (Kline, 2011:92; Byrne, 2010:33; Malhotra, 2010:729 assessment of measurement model reliability and validity, structural model specification, and assessment of the measurement and structural model fit, (Kline, 2011:92; Malhotra, 2010:729; Weston & Gore, 2006:729).

4.8.7.1 Definition of individual constructs

A common characteristic of structural equation modelling is that it is based upon sound theory and prior knowledge (Lei & Wu, 2007:35). As such, Kline (2011:6) asserts that structural equation modelling requires construct measures that possess strong psychometric properties (that is, reliability and validity), which are defined by pre-existing theory, given that failure to do so may incur biased results. Once this is achieved, a measurement theory and structural theory are then concluded (Hair *et al*., 2010:638). Measurement theory stipulates how constructs are represented, whilst structural theory portrays the relationship between constructs. The formulated structural relationships are then converted into hypotheses (Malhotra, 2010:729).

4.8.7.2 Measurement model specification and identification

In structural equation modelling, the measurement model allows the researcher to evaluate the degree in which observed variables combine to identify hypothesised constructs (Weston & Gore, 2006:724). In other words, the measurement model seeks to define the underlying relationships between the unobserved and observed variables (Byrne, 2010:12). The measurement model is estimated through confirmatory factor analysis and the hypothesised factors are referred to as latent factors (Babin & Svensson, 2012:325; Lei & Wu, 2007:34; Weston & Gore, 2006:724). In addition, the measurement model provides an assessment of the overall model fit and indicates the amount of variance that is explained by the measured items (Babin & Svensson, 2012:325; Reisinger & Mavondo, 2007:43). Reisinger & Mavondo (2007:44-45) caution that the measurement model must be specified correctly in order for the structural model to have meaning.

Each latent construct comprises indicators that represent the observed variables (Malhotra, 2010:726). Observed paths or indicators for each latent construct must be specified; however, because the latent construct cannot be observed one factor loading is then fixed – usually at a value of one (Byrne, 2010:307; Malhotra, 2010:730; Reisinger & Mavondo, 2007:45). When assessing the measurement model, Lei and Wu (2007:37) suggest that the

standardised factor loadings should fall between zero and one, where higher values are indicative of better-observed variables for the latent variable. Furthermore, the model must be examined for any problematic estimates, such as negative error variances, known as Heywood cases, and any standardised factor loading above 1.0 or below -1.0 (Hair *et al*., 2010:706). If such problematic estimates are concluded, the measurement model may be subject to sample size error, model-implied matrices or model specification error (Brown, 2006:187).

The following section involves the reliability and validity pertaining to the measurement model.

4.8.7.3 Measurement model for reliability and validity

In structural equation modelling, reliability and validity are assessed by considering composite reliability (CR) and the average variance extracted (AVE).

Composite reliability (CR), as defined by Malhotra (2010:733), is “the total amount of true score variance in relation to the total score variance”. The CR formula is as follows:

$$[(Fl_1+Fl_2+Fl_3+...)^2 / (Fl_1+Fl_2+Fl_3+...)^2 + (err_1+err_2+err_3+...)]$$

Both Malhotra (2010:734) and Lee *et al*. (2005:1100) explain that a measurement model is deemed reliable when the CR values for each of the latent factors exceed 0.70, with an estimate ranging between 0.60 and 0.70 being considered as acceptable.

As indicated in Section 4.8.4, construct validity includes convergent validity, discriminant validity and nomological validity. Nomological validity was discussed in Section 4.8.4 and this section focuses on explaining how convergent and discriminant validity are assessed in structural equation modelling.

Convergent validity aims to determine the extent of correlation amongst different measures that measure the same or similar constructs (McDaniel &

Gates, 2010a:320, Struwig & Stead, 2001:142). When working with structural equation modelling, convergent reliability is commonly assessed by examining the factor loadings and by estimating the AVE. Factor loadings above 0.5 but preferably above 0.7 provide evidence that the indicators (observed variables) converge on the same latent factor (Malhotra, 2010:734). Hair *et al.* (2010:688, 709) define AVE as "the average percentage of variation explained (variance extracted) among the items of a construct", and indicate that AVE values of 0.5 or above suggest acceptable convergent validity.

The AVE is calculated using the following formula:

$$[(Fl_1^2+Fl_2^2+Fl_3^2+...) / (Fl_1^2+Fl_2^2+Fl_3^2+...) + (err_1+err_2+err_3+...)]$$

Discriminant validity represents the distinctiveness or uniqueness of a measure or measures, and the aim of this validity is to prove the lack of correlation amongst constructs or measures (Zikmund & Babin, 2013:260; Malhotra, 2010:321). Discriminant validity in structural equation modelling is concluded by equating AVE to the variance shared between constructs (Lee *et al*., 2005:1100). Another method of evaluating discriminant validity in structural equation modelling is to compare correlation coefficients of the measurement model to the square root of the latent factor AVE values. When the square root of the AVE value exceeds the correlation coefficient, there is evidence of discriminant validity (Hair *et al*., 2010:710; Malhotra, 2010:734,741; McDaniel & Gates, 2010b:256).

4.8.7.4 Structural model specification

In structural equation modelling, a structural model combines both the measurement model and the path model; this is then called the composite or full structural model (Reisinger & Mavondo, 2007:43; Weston & Gore, 2006:724). A structural model illustrates the theoretical relationships postulated between dependent and independent variables (Reisinger & Mavondo, 2007:43). As mentioned above (Section 4.8.7.2), it is imperative for a measurement model to be specified or identified correctly in order for the structural model to be of any accurate value or meaning.

Path analysis is a unique addition of structural equation modelling that involves simultaneously estimating multiple regression models or equations (Lei & Wu, 2007:34). A comparison is computed between the correlation matrix and the regression weights in the specified model, after which goodness-of-fit statistics are calculated. Furthermore, path analysis estimates the strength of each individual relationship using only a covariance or correlation matrix as input (Malhotra, 2010:748-749). In order to perform path analysis two main requirements must be met, namely all causal relationships between variables must flow into one direction only and the variables must have a clear time-ordering as one variable cannot cause another, unless it precedes it in time (Crossman, 2014; Kaplan, 2009:18). Path analysis is advantageous as it allows for the analysis of complex structures, diagrams or models and aids in the determination of hypothesised models, which will best suit or fit the data set (Hox, 2010:329-330). Malhotra (2010:735) adds that it is wise to interpret the squared multiple correlations of a data set − this is the name given to the statistic that depicts to what extent "the variance of an observed variable is explained by the associated latent construct".

4.8.7.5 Measurement and structural model fit

Structural equation modelling uses a number of goodness-of-fit indices that provide an indication of how well or true the model fits the data. It is necessary to assess both the measurement model and the structural model fit and it should be noted that, in the case of inadequate measurement model fit, this needs to be addressed before moving on to the structural model (Hair *et al*., 2010:738).

Typically, the chi-square statistic is regarded as a null hypothesis significance test and is used to assert whether the model under consideration fits the data (Byrne, 2010:76). Reisinger and Mavondo (2007:57) state that a non-significant chi-square value is indicative of good model fit whilst a significant chi-square value indicates poor model fit. However, several authors (Muijs, 2012:235; Hox, 2010:306; Byrne, 2010:77; Ullman, 2006:44) note that the chi-square is highly sensitive to larger sample sizes. In light of the limitations

pertaining to the chi-square statistic, several other goodness-of-fit indices have been developed to assert appropriate model fit (Byrne, 2010:77).

Model fit measures take on three forms, namely absolute fit, incremental fit and parsimonious fit. The absolute fit indices measure the extent to which the hypothesised model coincides with the empirical data in the study. The incremental fit indices assess the performance of the proposed model against the baseline or null models. The parsimony fit indices are utilised to measure fit in relation to the complexity of the model (Malhotra, 2010:725, 731-732). This study utilised the absolute fit indices of the chi-square, standardised root mean residual (SRMR), and root mean square of approximation (RMSEA) and the incremental fit indices of the comparative fit index (CFI), incremental fit index (IFI) and Tucker-Lewis index (TLI) indices. Hox (2010:307) stipulates that as a rule of thumb a value above 0.9 but closer to 0.95 indicates an acceptable model fit for the CFI, IFI and TLI indices, whilst a RMSEA value of below 0.8 is considered satisfactory. Furthermore, a SRMR value of 0.05 or less indicates a suitable model fit (Byrne, 2010:77; Malhotra, 2010:731-732).

When two or more models are compared it is recommended that Akaike's information criterion (AIC) and Bozdogan's consistent version of the AIC (CAIC) be considered (Byrne, 2010:82; Kaplan, 2009:116), where smaller AIC and CAIC values suggest better fit (Byrne, 2010:82).

Hair *et al.* (2010:672) postulate reporting on all goodness of fit indices is not needed as they are often redundant; however, a researcher must report on at least one incremental index and one absolute index in addition to the chi-square value. Hooper *et al.* (2008:56) concur and stipulate the following indices are the most commonly used indices; the chi square including the degrees of freedom and significance value, CFI, GFI, NFI, TLI, SRMR and the RMSEA.

4.8.7.6 Mediation

Once the structural model process has been completed, additional analysis in the form of mediation and/or moderation effects may need to be performed. Mediation or a mediating effect is created when a third variable interacts

between two other related variables (Hair *et al*., 2010:690). In other words, with reference to Figure 4.4, it is the effect Variable B has on the relationship between Variable A and Variable C. Ultimately, mediation aims to explain why a relationship between two constructs exists.

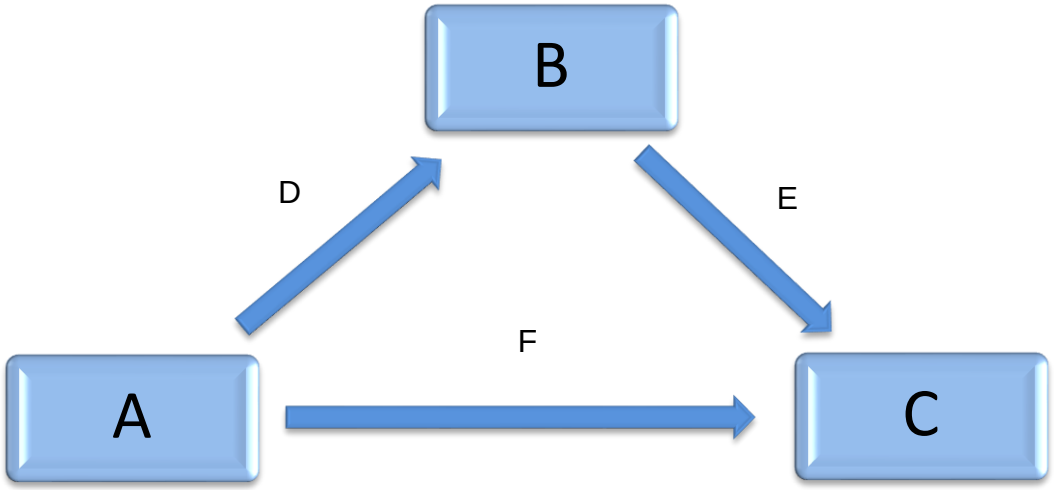

Figure 4.4: Mediating effect of B mediating the relationship between A and C (Holmbeck, 1997:600)

When working with structural equation modelling, mediation analysis uses the terms direct and indirect effects (Muthen, 2011:3). Direct effects are described as the relationship between two variables (A → B) linked by a single arrow. Indirect effects are relationships defined by a sequence of variables (A → B → C), with at least one intervening variable. Therefore, an indirect effect may be seen as a sequence of two or more direct effects depicted visually by multiple arrows (Hair *et al*., 2010:766).

In order for mediation to be conducted, all three variables or constructs must be significantly correlated (Hair *et al*., 2010:767). In addition, Baron and Kenny (1986:1176) assert that the following four conditions must be met if a variable is to be considered a mediator (Refer to figure 4.4.):

- The independent variable, A, must be significantly associated with the hypothesised mediator, B.
- The independent variable, A, must be significantly associated with the dependent variable, C.

- The mediating variable, B, must be significantly associated with the dependent variable, C.
- The impact of the independent variable, A, on the dependent variable, C, must be less after controlling for the mediator, B.

If these conditions are met and mediation is established, the next step is to determine what type of mediation is present. There are two types of mediation, namely complete mediation and partial mediation (Nga *et al*, 2011:247; Hair *et al*., 2010:767). Full mediation occurs when Path Line F is not significant but Path Lines D and E are significant, whereas partial mediation occurs when Path Line F is significant and Path Lines D and E are also significant (Nga *et al*., 2011:247). Baron and Kenny (1986:1776-1777) add that the best illustration of mediation occurs when Path F is zero. This, in turn, offers a way to determine the effect size of an indirect effect by examining the statistical significance of direct Path F. When an indirect effect has been established, it necessary to determine if that indirect effect has any significance attached to it. This is done by performing a bootstrapping analysis.

Bootstrapping is a statistical technique that is conventionally used to strengthen sample sizes smaller than 200 by simulating numerous random samples of a given population. In structural equation modelling, bootstrapping may also be used as a means of estimating indirect effects. This is done by repeatedly duplicating samples from the data set. The process is done thousands of times in order to build confidence intervals of the indirect effect *DE* (refer to Figure 4.4) (Kline, 2011:42; Preacher & Hayes, 2008:880).

Preacher and Hayes (2008:885) state that because structural equation modelling offers great flexibility in model specification and estimation, mediation models are estimated with greater accuracy when compared to other estimation methods. This study made use of bootstrapping in structural equation modelling in order to measure the relevant indirect effects of the proposed model.

4.8.8 Two independent-samples t-test

A t-test, frequently used in statistical analysis, is a technique used for testing differences between means (Silver *et al*., 2013:211; Pallant, 2010:105). There are three main types of t-tests, namely the one sample t-test, the two independent-samples t-test and the paired sample t-test (Zikmund & Babin, 2013:390; 394). A two-independent samples t-test attempts to measure possible variations between means that have been sampled from two independent groups or population samples (Zikmund & Babin, 2013:390; Pallant, 2010:239). This study made use of the two independent-samples t-test in order to assess whether there were any statistically significant gender or location (that is, country-based versus city-based participants) differences in terms of black Generation Y students' environment attitudes and behaviour.

4.8.9 Cohen's D-statistic

Whilst a t-test is used to determine whether there is a statistically significant difference between means, the Cohen D-statistic needs to be computed to determine if that difference is practically significant or not (Silver *et al*., 2013:211; Ofori-Dankwa & Tierman, 2002:280). The Cohen D-statistic shows the strength of different effect sizes in order to determine practical significance (Pallant, 2010:210). According to Pallant (2010:210) along with Ofori-Dankwa and Tierman (2002:280), the general representations of Cohen's D-statistics are as follows:

- $0.20 \leq d \leq 0.50$: denotes a small, relatively non-significant effect
- $0.50 \leq d \leq 0.80$: denotes a medium-sized effect steering towards practical significance
- $0.80 \leq d$: denotes a large effect that has attained practical significance.

The following section gives a summary of the methodology and statistical methods used within the study.

4.9 CONCLUSION

Chapter 4 provided a description of the research methodology that was followed in conducting the empirical portion of the study. The chapter outlined the research design, sampling procedure, and the measurement instrument that was used. In addition, the chapter examined the statistical methods that were used in the data analysis section for the pilot and main study. The identification of both the measurement model and the structural model were reviewed based on structural equation modelling analysis. The statistical programs, SPSS and AMOS Version 22.0 for Windows, were used to capture and analyse the collected data. The statistical analysis included frequencies, reliability, validity, descriptive statistics, correlation analyses, exploratory factor analysis, structural equation modelling analysis and tests of significance.

The following chapter, Chapter 5, presents and discusses the empirical findings of both the pilot study and the main study. The hypothesised relationships within the proposed model of antecedents that influence black Generation Y students' green purchase behaviour are tested in Chapter 5.

CHAPTER 5
ANALYSIS AND INTERPRETATION OF EMPIRICAL FINDINGS

5.1 INTRODUCTION

Chapter 4 explained the research methodology that was applied in carrying out this study and against the background of that chapter, this chapter reports on the empirical findings of the study. The purpose of Chapter 5 is to address the ten empirical objectives formulated in Chapter 1 under Section 1.3.3.

The chapter contains a summary of the results from the pilot test in Section 5.2. A description of the data gathering process is outlined in Section 5.3, and the preliminary data analysis is discussed in Section 5.4. In Section 5.5, a description of the sample is provided. Section 5.6 presents the results of the exploratory factor analysis and Section 5.7 reports on the internal-consistency reliability of the measurement instrument used in the main study. Section 5.8 discusses the descriptive statistics while Section 5.9 pertains to the correlation analysis conducted in the study. This is followed by Section 5.10, which outlines the various hypotheses that were formulated for the study.

Structural equation modelling is the focus of Section 5.11. In this section, the results of the empirical testing of the model of the antecedents of South African black Generation Y students' green purchase behaviour as proposed in Chapter 3 are reported. Section 5.11 also includes a section highlighting the mediation analysis conducted in the study. Section 5.12 discusses the results of the two independent-samples t-tests.

In order to perform the statistical data analysis, SPSS and AMOS, versions 22.0 for Windows was used. The data analyses were recorded in two main stages. The first stage analysed the pilot test results of the questionnaire, while the second stage reported on the main survey's findings. The following section discusses the data analysis procedures involved regarding the pilot phase of the study.

5.2 PILOT TEST RESULTS

Once the questionnaire had undergone pretesting for the purpose of establishing content validity, the questionnaire was piloted on a convenience sample of 50 black Generation Y students registered at a South African HEI campus that formed no part of the sampling frame in the main study. This pilot study was undertaken to establish the internal-consistency reliability of the scales utilised in the questionnaire. The initial 50 questionnaires were cleaned, which left 42 viable questionnaires. The results gathered from the pilot study, as presented in Table 5.1, indicated satisfactory reliability.

Table 5.1: Pilot testing results

Items	Number of variables	Mean	Std. deviation	N	Cronbach alpha	Average inter-item correlation
Section B:						
B1-B4	4	4.676	0.819	42	0.665	0.348
B5-B7	3	4.488	0.910	42	0.674	0.404
B8-B12	5	4.883	0.658	42	0.716	0.350
B13-B17	5	4.546	0.801	42	0.766	0.397
Section C:						
C1-C3	3	4.431	0.873	42	0.745	0.490
C4	1	4.024	1.214	42	-	-
C5	1	3.976	1.332	42	-	-
C6-C9	4	4.112	1.009	42	0.756	0.467

Note: Perceived price and perceived quality are one-item scales and, therefore, reliability and validity cannot be computed.

The six-point Likert scale yielded Cronbach alpha values for all constructs that were above the recommended level of 0.6, thereby indicating acceptable internal consistency reliability. Given that all constructs comprised less than 10 items, the average inter-item correlation values are also reported on in Table 5.1, as advised by Pallant (2010:97). The average inter-item correlation values ranged from 0.348 to 0.490, thereby suggesting an optimum relationship amongst the items in each construct (Spiliotopoulou, 2009:12).

As all Cronbach alpha and average inter-item correlation values for each construct fell within the recommended ranges, it was decided to proceed with the study. Moreover, the scales in question have proven to be robust measurement scales in the previous studies of Leonidou *et al*. (2010), Fielding *et al*. (2008), Lee (2008), Mostafa (2007), and Kim and Choi (2005).

5.3 DATA GATHERING PROCESS

The data required for this study were collected from black Generation Y students enrolled in 2014 at four HEI campuses situated within the Gauteng province. The data were collected using a self-administered questionnaire. The questionnaires were distributed after lectures to ensure that no academic learning was interrupted. It was made clear to all participants that participation in the survey was strictly voluntary and all information provided would remain confidential, including the names of the HEI at which they were registered. In accordance with the sampling plan set out in Chapter 4, 500 questionnaires were distributed; that being, 125 per HEI campus.

5.4 PRELIMINARY DATA ANALYSIS

The preliminary data analysis conducted included coding, data cleaning and tabulation.

5.4.1 Coding

The questionnaire utilised in this study contained three sections, namely Section A, Section B and Section C. Section A requested demographical data, while Section B pertained to traits affecting environmental attitudes and Section C measured environmental purchase intentions, the effects of price, quality and green purchase behaviour. All participating participants within the specified sample received the same questionnaire.

Table 5.2 presents the variable codes and assigned values.

Table 5.2: Coding

Question	Code	Variable	Value assigned to responses
Section A:			
Question 1	A1	Name of institution	A (1); B (2); C (3); D (4)
Question 2	A2	Year of study	1st (1); 2nd (2); 3rd (3); Post-graduate (4)
Question 3	A3	Gender	Female (1); Male (2)
Question 4	A4	Ethnicity	African (1); Coloured (2); Indian/Asian (3); White (4)
Question 5	A5	Home province	Eastern Cape (1); Free State (2); Gauteng (3); KwaZulu-Natal (4); Limpopo (5); Mpumalanga (6); North West (7); Northern Cape (8); Western Cape (9)
Question 6	A6	Mother tongue language	Afrikaans (1); English (2); IsiNdebele (3); IsiXhosa (4); IsiZulu (5); Sesotho sa Leboa (6); Sesotho (7); Setswana (8); SiSwati (9); Tshivenda (10); Xitsonga (11)
Question 7	A7	Age	Younger than 18 (1); 18 (2); 19 (3); 20 (4); 21 (5); 22 (6); 23 (7); 24 (8); Older than 24 (9)
Section B:			
Item	**Code**	**Construct measured**	**Value assigned to responses**
Item 1	B1	Environmental attitude	Strongly disagree (1), Disagree (2), Slightly disagree (3), Slightly agree (4), Agree (5), Strongly agree (6)
Item 2	B2		
Item 3	B3		
Item 4	B4		
Item 5	B5	Subjective norms	Strongly disagree (1), Disagree (2), Slightly disagree (3), Slightly agree (4), Agree (5), Strongly agree (6)
Item 6	B6		
Item 7	B7		
Item 8	B8	Perceived behaviour control	Strongly disagree (1), Disagree (2), Slightly disagree (3), Slightly agree (4), Agree (5), Strongly agree (6)
Item 9	B9		
Item 10	B10		
Item 11	B11		
Item 12	B12		
Item 13	B13	Environmental knowledge	Strongly disagree (1), Disagree (2), Slightly disagree (3), Slightly agree (4), Agree (5), Strongly agree (6)
Item 14	B14		
Item 15	B15		
Item 16	B16		
Item 17	B17		

Table 5.2: Coding (continued...)

Section C:			
Item	**Code**	**Construct measured**	**Value assigned to responses**
Item 1 Item 2 Item 3	C1 C2 C3	Green purchase intentions	Strongly disagree (1), Disagree (2), Slightly disagree (3), Slightly agree (4), Agree (5), Strongly agree (6)
Item 4	C4	Perceived price	Strongly disagree (1), Disagree (2), Slightly disagree (3), Slightly agree (4), Agree (5), Strongly agree (6)
Item 5	C5	Perceived quality	Strongly disagree (1), Disagree (2), Slightly disagree (3), Slightly agree (4), Agree (5), Strongly agree (6)
Item 6 Item 7 Item 8 Item 9	C6 C7 C8 C9	Green purchase behaviour	Strongly disagree (1), Disagree (2), Slightly disagree (3), Slightly agree (4), Agree (5), Strongly agree (6)

5.4.2 Data cleaning

During the data cleaning step, questionnaires completed by participants falling outside of the defined target population were discarded. Furthermore, questionnaires where more than 10 percent of the values were missing were discarded and those scaled-responses within questionnaires with missing values of less than 10 percent were estimated, based on the mode.

5.4.3 Tabulation of variables

After all data had been coded and cleaned, the next step followed was to tabulate the data. Table 5.3 illustrates the frequency table of responses recorded in this study this study.

Table 5.3: Frequency table of responses

Section B:						
Scale item	**Strongly disagree**	**Disagree**	**Slightly agree**	**Slightly agree**	**Agree**	**Strongly agree**
	1	**2**	**3**	**4**	**5**	**6**
B1	1	2	10	64	126	129
B2	6	4	21	82	127	92
B3	23	37	38	88	102	44
B4	30	47	41	92	78	44
B5	21	28	42	95	104	42
B6	5	14	29	77	131	76
B7	23	28	47	87	98	49
B8	4	20	21	65	132	90
B9	0	4	22	62	146	98
B10	2	9	12	60	131	118
B11	3	5	25	66	140	93
B12	6	11	21	71	142	81
B13	14	39	48	118	70	43
B14	8	27	53	81	102	61
B15	24	33	50	86	97	42
B16	11	24	40	82	115	60
B17	5	22	38	91	112	64
Section C:						
C1	5	24	29	94	119	61
C2	10	12	49	90	108	63
C3	7	12	50	97	117	49
C4	33	27	58	97	75	42
C5	21	39	50	87	85	50
C6	43	44	57	82	68	38
C7	13	16	43	81	121	58
C8	10	19	43	107	91	62
C9	43	44	55	68	79	43

Section 5.5 describes the demographical attributes of the sample of participants that took part in this study.

5.5 DEMOGRAPHIC ANALYSIS

This section provides a description of the demographic characteristics of the sample. Of the 500 questionnaires handed out, 422 were returned, of which 332 questionnaires were useable. As such, the response rate for this study equates to 66 percent.

As Figure 5.1 illustrates, there were more female (52.6%) than male (47.4%) participants in the sample, with 0.3 percent missing. Note the percentages in the figures have been rounded off.

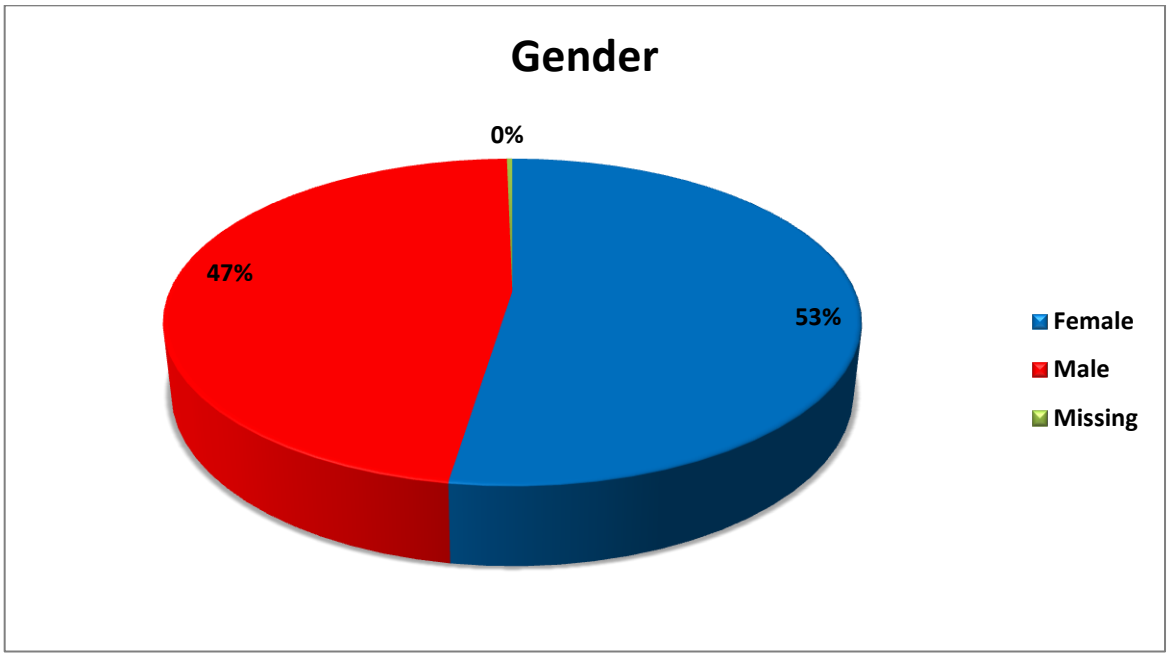

Figure 5.1: Gender profile of sample

Figure 5.2 depicts the participants' current year of study, where 41.6 percent were first year students, 25.5 percent second year students, 24.9 percent were third year students and 7.9 percent were post-graduate students.

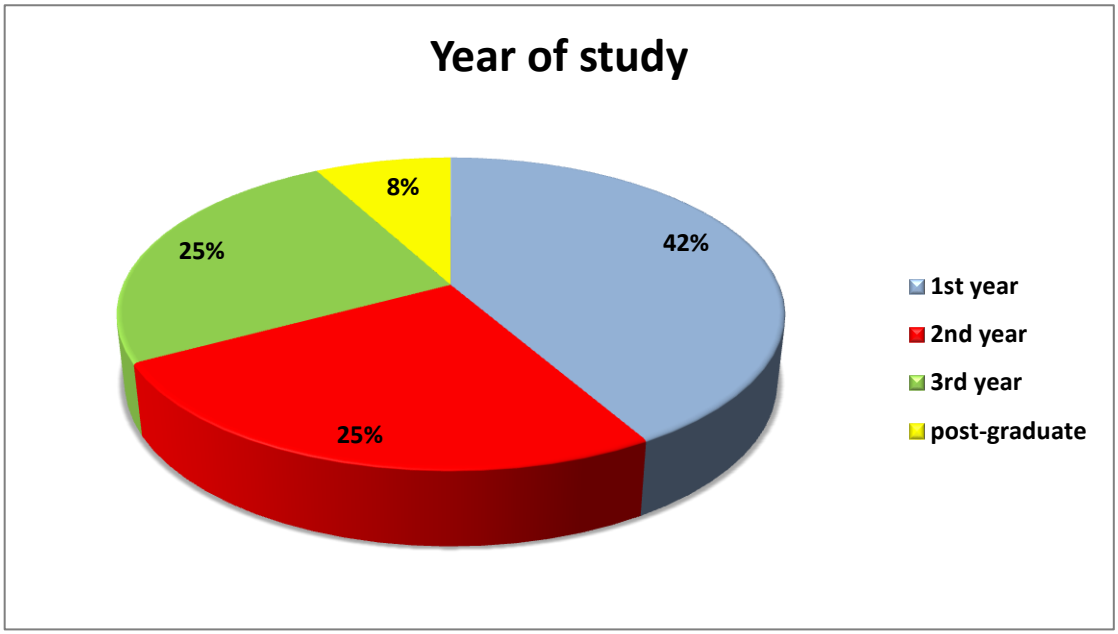

Figure 5.2: Current year of study

The participants' age distribution ranged from 18 to 24, as can be seen in Figure 5.3. Most of the participants indicated being 21 years of age (23.5%), followed by those who were 20 years of age (18.7%) and 19 years of age (17.2%). The remaining participants were made up of 14.8 percent 22 years of age, 13 percent 18 years of age, 9 percent 23 years of age and 3.9 percent 24 years of age. As such, all age groups specified in the target population were represented in the sample.

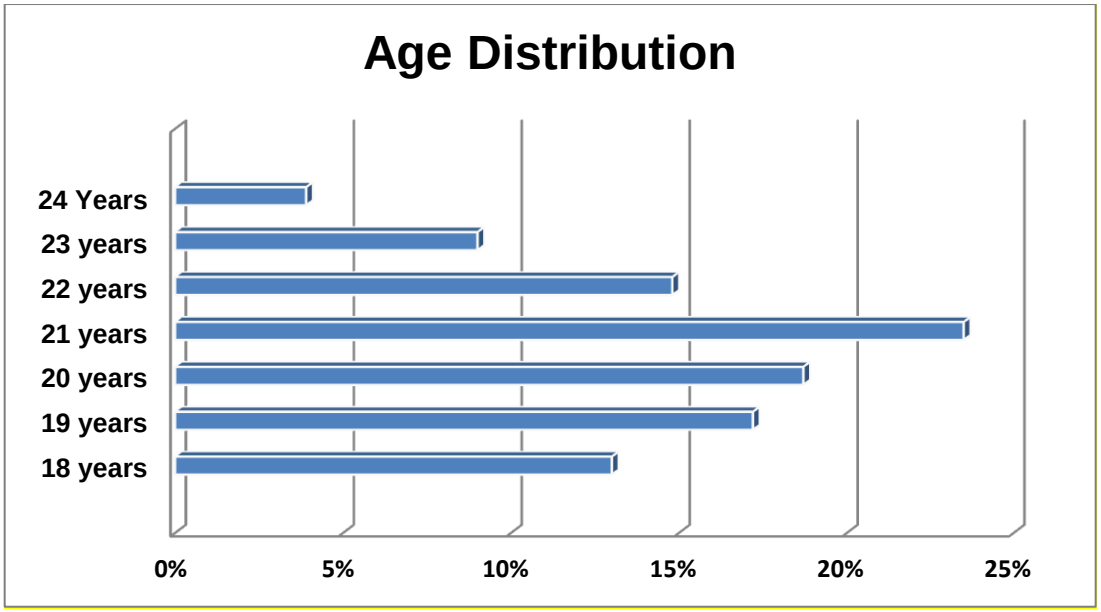

Figure 5.3: Age distribution of sample

Figure 5.4 illustrates the number of responses obtained from each of the four HEI campuses. The University of Technology, University B, had the highest response rate at 32 percent of the overall response. The three traditional universities (University A, University C and University D) collectively made up 68 percent of the remaining total response, where city-based University C yielded the lowest response of 19 percent.

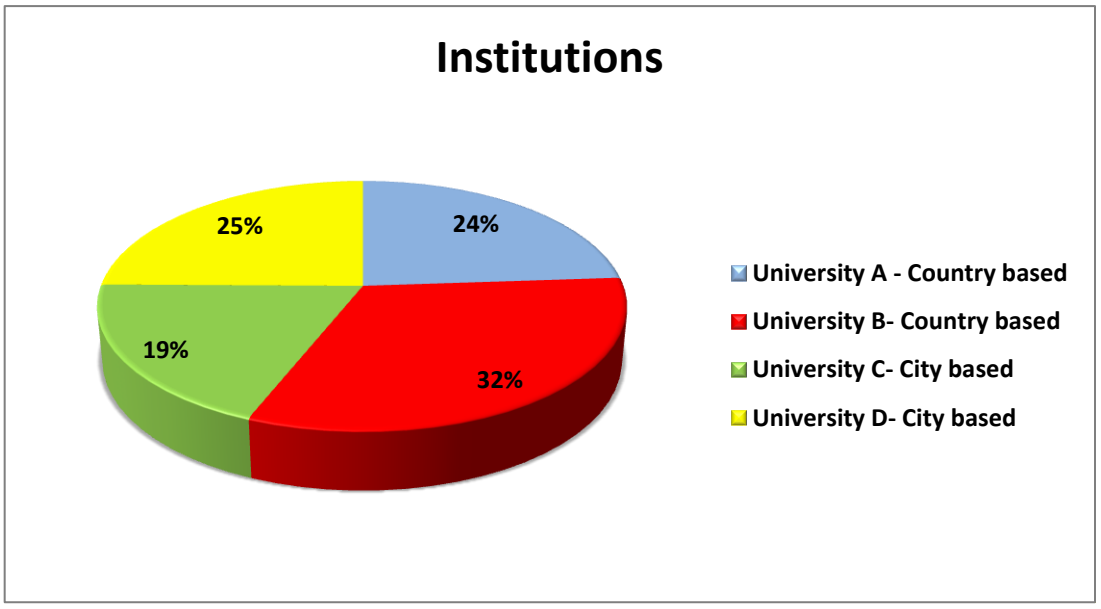

Figure 5.4: Response rate of institutions

Figure 5.5 depicts that 4.5 percent of the participants grew up in the Eastern Cape, 5.1 percent in the Free State, 50.6 in Gauteng, 6.3 percent in KwaZulu-Natal, 17.8 percent in Limpopo, 7.5 percent in Mpumalanga, 6.9 percent in the North-West, 0.3 percent in the Northern Cape and 0.6 percent in the Western Cape. Therefore, the sample was represented by participants from each of South Africa's nine provinces, with most being from the Gauteng province.

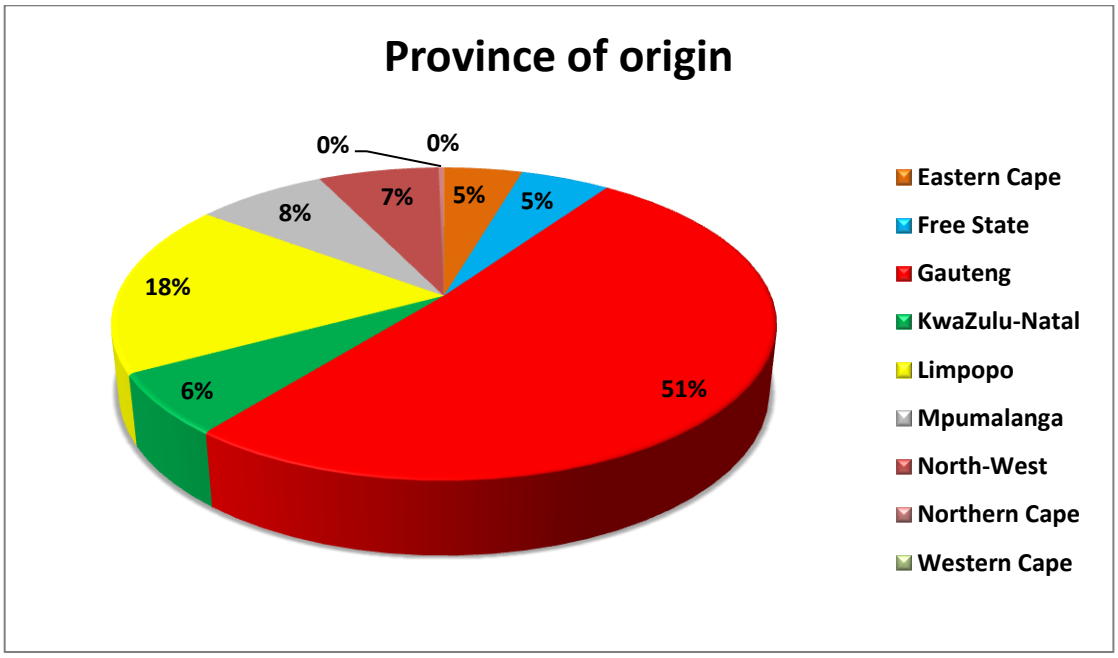

Figure 5.5: Participants' province of origin

Regarding respondents' language, as seen in Figure 5.6 most of the participants indicated their mother tongue language as IsiZulu (21.7%) closely followed by Sesotho (20.8%). The rest of the participants indicated that their mother tongue language was English (2.7%), IsiNdebele (2.7%), IsiXhosa (10.5%), Sesotho sa Leboa (9.6%), Setswana (12.7%), SiSwati (5.7%), Tshivenda (7.2%) and Xitsonga (6%). No participants indicated that they spoke Afrikaans (0%). Therefore, 10 of South Africa's 11 official language groups were represented in the sample.

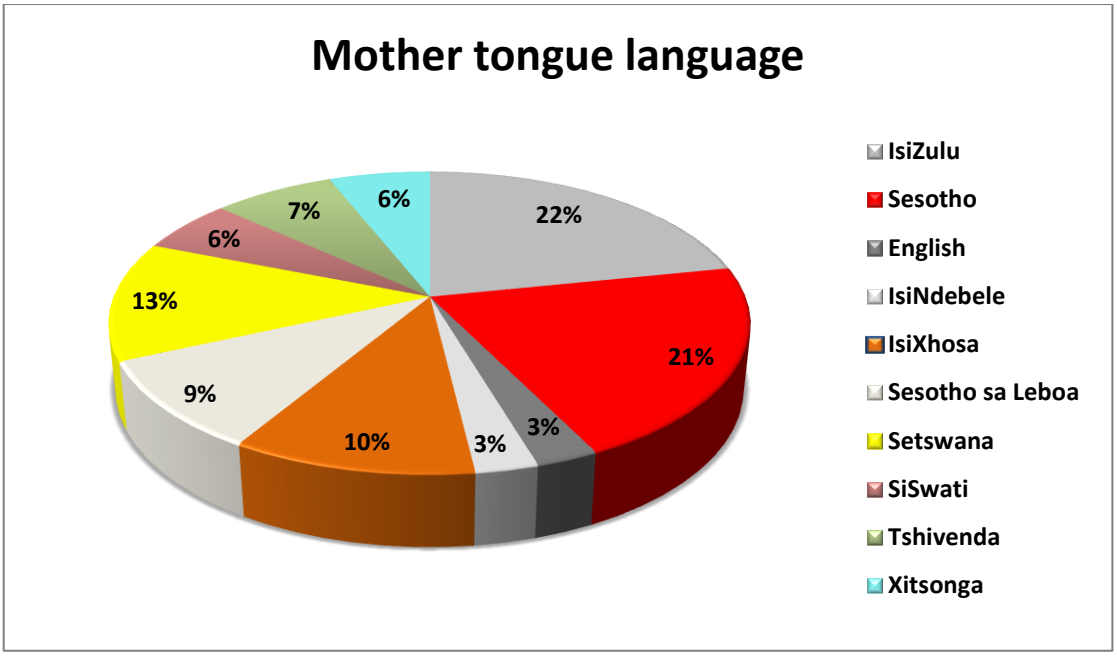

Figure 5.6: Home language

The following section describes the exploratory factor analysis conducted.

5.6 EXPLORATORY FACTOR ANALYSIS

An exploratory factor analysis was conducted on the scale-related items. In order to assess the factorability of the data, the KMO test and the Bartlett Test of Sphericity were performed. Pallant (2010:183) advises that a value of 0.6 and above for the KMO test and a significant Barlett's Test of Sphericity is indicative of sampling adequacy. For Section B, both of these tests returned satisfactory values with a KMO=0.874, chi square Bartlett test=1898.515 (df=136), p=0.000<0.05. Once the factorability of the data was established, principle component analysis, using promax rotation was performed on Section B. Based on the literature four factors were specified for extraction. These four factors, which had eigenvalues greater than one, explained 58.782 percent of the total variance.

All four factors aligned well with the specified scales. Of the items, three items (B4, B12 and B13) cross loaded or loaded on the incorrect factor. These three items were deleted once they had been examined to ensure that their elimination would not alter the original construct's conceptualisation in any way. The rotated factors from the pattern matrix are presented in Table 5.4.

Table 5.4: Rotated factors for Section B

	Factors			
Items	**1**	**2**	**3**	**4**
B1				0.769
B2				0.769
B3				0.594
***B4**			**0.321**	**0.465**
B5			0.903	
B6			0.622	
B7			0.857	
B8	0.689			
B9	0.789			
B10	0.716			
B11	0.523			
***B12**	**0.562**		**0.386**	
***B13**	**-0.301**			**0.488**
B14		0.861		
B15		0.738		
B16		0.778		
B17		0.770		

Note: *Bold items were deleted

Exploratory factor analysis was repeated for the items in Section C. The results of the analysis computed a KMO value of 0.875, chi square Bartlett test=1032.364 (df=21), p=0.000<0.05, which were deemed satisfactory for the study. Principle component analysis, using promax rotation was performed on items in Section C. Based on the literature, two factors were specified for extraction, which had eigenvalues greater than one and explained 70.353 percent of the total variance.

Each of the two factors aligned well with the constructs specified. All items loaded effectively and, therefore, none were deleted. The rotated factors from the pattern matrix are presented in Table 5.5.

Table 5.5: Rotated factors for Section C

	Factors	
Items	**1**	**2**
C1	0.886	
C2	0.915	
C3	0.801	
C6		0.778
C7		0.949
C8		0.697
C9		0.646
Excluded items: C4 and C5		

Items C4 and C5, which also formed part of Section C, were excluded from the exploratory factor analysis as both represent a single item scale.

Owing to the study including a multivariate method in the data analysis, a tolerance test was calculated for the purpose of checking for multicollinearity (Hair *et al*., 2010:161,201,339). The tolerance values indicated high scores, ranging from 0.77 to 0.79, thereby demonstrating only a small and, therefore, negligible degree of multicollinearity. The following section discusses the internal-consistency reliability of the scales used in the main survey.

5.7 INTERNAL-CONSISTENCY RELIABILITY OF THE MAIN STUDY

Table 5.6 provides a summary of the internal-consistency reliability measures of the research instrument utilised within this study.

Table 5.6: Internal-consistency reliability values of the scales in the main study

Constructs	Number of items in scale	Cronbach alpha	Average inter- item correlation
Environmental attitude	3	0.600	0.331
Subjective norms	3	0.757	0.509
Perceived behaviour control	4	0.757	0.437
Environmental knowledge	4	0.806	0.509
Green purchase intentions	3	0.841	0.638
Green purchase behaviour	4	0.817	0.528

As indicated in Table 5.5, with the exception of the environmental attitude construct (0.60) all Cronbach alpha values exceeded the recommended level of 0.60, thereby indicating satisfactory internal-consistency reliability. Whilst the environmental attitude construct scored a low Cronbach alpha value, the average inter-item correlation value is within the optimal range of 0.15 to 0.50 (Spiliotopoulou, 2009:12), thereby providing evidence of internal-consistency reliability.

The following section reports on the descriptive statistics computed in the study.

5.8 DESCRIPTIVE STATISTICS

Measures of location, shape and variability were calculated for all scaled items. Given that the six-point Likert scale used ranged from 1=strongly disagree to 6=strongly agree, higher mean values are associated with a more positive attitude or behaviour towards green purchasing amongst the sampled black Generation Y students. Table 5.7 presents these descriptive statistics.

Table 5.7: Descriptive statistics summary

Items	Valid N	Mean	Standard deviation	Skewness	Kurtosis
Environmental attitude					
Overall construct	332	4.642	0.841	-0.570	-0.109
B1	332	5.105	0.891	-0.928	1.079
B2	332	4.795	1.065	-1.044	1.581
B3	332	4.027	1.423	-0.585	-0.513
Subjective norms					
Overall construct	332	4.263	1.075	-0.709	0.198
B5	332	4.081	1.360	-0.655	-0.228
B6	332	4.636	1.141	-0.908	0.666
B7	332	4.072	1.410	-0.591	-0.401
Perceived behaviour control					
Overall construct	332	4.876	0.785	-0.767	0.337
B8	332	4.720	1.175	-1.026	0.692
B9	332	4.940	0.924	-0.758	0.270
B10	332	4.997	1.012	-1.190	1.683
B11	332	4.849	1.020	-0.983	1.171
Environmental knowledge					
Overall construct	332	4.258	1.033	-0.554	-0.161
B14	332	4.280	1.292	-0.517	-0.426
B15	332	3.979	1.415	-0.522	-0.536
B16	332	4.343	1.290	-0.729	-0.250
B17	332	4.431	1.201	-0.646	-0.360
Green purchase intentions					
Overall construct	332	4.401	1.030	-0.615	0.166
C1	332	4.449	1.186	-0.740	0.178
C2	332	4.395	1.223	-0.680	0.191
C3	332	4.361	1.140	-0.632	0.268
Perceived price					
C4	332	3.840	1.452	-0.422	-0.577
Perceived quality					
C5	332	3.980	1.433	-0.420	-0.673

Table 5.7: Descriptive statistics summary (continued…)

Green purchase behaviour					
Overall construct	332	3.992	1.137	-0.488	-0.299
C6	332	3.608	1.544	-0.207	-0.974
C7	332	4.370	1.267	-0.814	0.271
C8	332	4.313	1.247	-0.583	0.018
C9	332	3.678	1.587	-0.248	-1.061

As is evident from Table 5.7, all scales may be considered as distributed normally, since all skewness values fell within the -2 or +2 range. With regards to the peakedness of the data distribution, all kurtosis values provide no indication of irregularity and, therefore, the data may be considered as normally distributed.

Means above 3 were computed on each of the constructs of environmental attitude (mean=4.642), subjective norms (mean=4.263), perceived behavioural control (mean=4.876) and environmental knowledge (mean=4.258). Similarly, means above 3 were returned for green purchase intentions (mean=4.401), perceived price (mean=3.840), perceived quality (mean=3.980) and green purchase behaviour (mean=3.992). This suggests that black Generation Y students have a positive attitude towards the environment, are knowledgeable about the environment and take into consideration the pro-environmental opinions of their significant others. The score recorded on the perceived behaviour control construct suggests that black Generation Y students perceive that as individuals, they do have an influence on the environment. Furthermore, these students display positive intentions towards consuming environmentally friendly products and report behaving in a pro-environmental manner in terms of their purchasing.

The lowest recorded means were computed on the perceived price (mean=3.84) and quality (3.98) of environmentally friendly products. Despite these items having the lowest means, they were still above 3, thereby suggesting that the perceived higher price and lower quality of environmentally friendly products may negatively influence the actual purchase of green products by black Generation Y students.

Prior to conducting structural equation modelling, a correlation analysis was carried out for the purpose of determining if the relationships between the hypothesised antecedents of green purchase behaviour were significant. This is discussed in the following section.

5.9 CORRELATION ANALYSIS

According to Hair *et al*. (2010:710), constructing a correlation matrix is a useful tool in assessing the nomological validity of a proposed measurement model. For the purpose of this study, Pearson's Product-Movement correlation coefficients were computed.

The correlation matrix is reported on in Table 5.8.

Table 5.8: Correlation matrix

Constructs	1	2	3	4	5	6	7	8
1. Environmental attitude	1							
2. Subjective norms	0.350**	1						
3. Perceived behaviour control	0.453**	0.388**	1					
4. Environmental knowledge	0.379**	0.398**	0.372**	1				
5. Green purchase intention	0.460**	0.417**	0.419**	0.425**	1			
6. Perceived price	0.295**	0.515**	0.232**	0.435**	0.557**	1		
7. Perceived quality	0.341**	0.478**	0.332**	0.378**	0.556**	0.505**	1	
8. Green purchase behaviour	0.408**	0.515**	0.294**	0.486**	0.609**	0.650**	0.559**	1

**Correlation is significant at the 0.01 level (2-tailed)

As shown in Table 5.8, there was significant positive correlation at a significance level of *a*=0.01 between each of the pairs of constructs, which infers nomological validity.

The hypotheses to be tested using structural equation modelling and two independent-samples t-tests are set out in the following section.

5.10 HYPOTHESES TESTING

Hypotheses testing was carried out where the significance level was fixed at the conventional *a*=0.05 level. In accordance with the literature reviewed in Chapter 3 and the observed significant positive relationships computed in Table 5.8, the following hypotheses were formulated:

H_o1: Antecedents of green purchase behaviour is not a six-factor structure comprising environmental knowledge, environmental subjective norms, perceived behaviour control, environmental attitude, green purchase intentions and green purchase behaviour.

H_a1: Antecedents of green purchase behaviour is a six-factor structure comprising environmental knowledge, environmental subjective norms, perceived behaviour control, environmental attitude, green purchase intentions and green purchase behaviour.

H_o2: Environmental knowledge (+), environmental subjective norms (+) and perceived behavioural control (+) do not have a significant direct influence on black Generation Y students' environmental attitude.

H_a2: Environmental knowledge (+), environmental subjective norms (+) and perceived behavioural control (+) have a significant direct influence on black Generation Y students' environmental attitude.

H_o3: Environmental attitude (+) does not have a direct significant influence on black Generation Y students' green purchase intentions.

H_a3: Environmental attitude (+) does have a direct significant influence black Generation Y students' green purchase intentions.

H_o4: Green purchase intentions (+) do not have a direct significant influence on black Generation Y students' green purchase behaviour.

H_a4: Green purchase intentions (+) have a direct significant influence on black Generation Y students' green purchase behaviour.

H_o5: Perceived price does not mediate the effect of green purchase intentions on green purchase behaviour.

H_a5: Perceived price does mediate the effect of green purchase intentions on green purchase behaviour.

H_o6: Perceived quality does not mediate the effect of green purchase intentions on green purchase behaviour.

H_a6: Perceived quality does mediate the effect of green purchase intentions on green purchase behaviour.

H_o7: There is no difference between male and female black Generation Y students' environmental knowledge, environmental subjective norms, perceived behavioural control, environmental attitude, green purchase intentions and green purchase behaviour.

H_a7: There is a difference between male and female black Generation Y students' environmental knowledge, environmental subjective norms, perceived behavioural control, environmental attitude, green purchase intentions and green purchase behaviour.

H_o8: There is no difference between country- and city-based black Generation Y students' environmental knowledge, environmental subjective norms, perceived behavioural control, environmental attitude, green purchase intentions and green purchase behaviour.

H_a8: There is a difference between country- and city-based black Generation Y students' environmental knowledge, environmental subjective norms, perceived behavioural control, environmental attitude, green purchase intentions and green purchase behaviour.

The following section discusses the structural equation modelling used to test the proposed model of the antecedents influencing black Generation Y students' green purchase behaviour; that is, H_o1 to H_o6.

5.11 STRUCTURAL EQUATION MODELLING

This section pertains to the process utilised to conduct structural equation modelling in order to address the seventh and eighth empirical objectives.

5.11.1 Measurement model specification

In accordance with the model proposed in Chapter 3, the measurement model to be tested for the first hypothesis, is a six-factor structure that includes six latent or unobserved factors, namely environmental attitudes (F1) (three indicators), subjective norms (F2) (three indicators), perceived behaviour control (F3) (four indicators), environmental knowledge (F4) (four indicators), green purchase intentions (F5) (three indicators), green purchase behaviour (F6) (four indicators).

The hypothesised measurement model is specified in Figure 5.7.

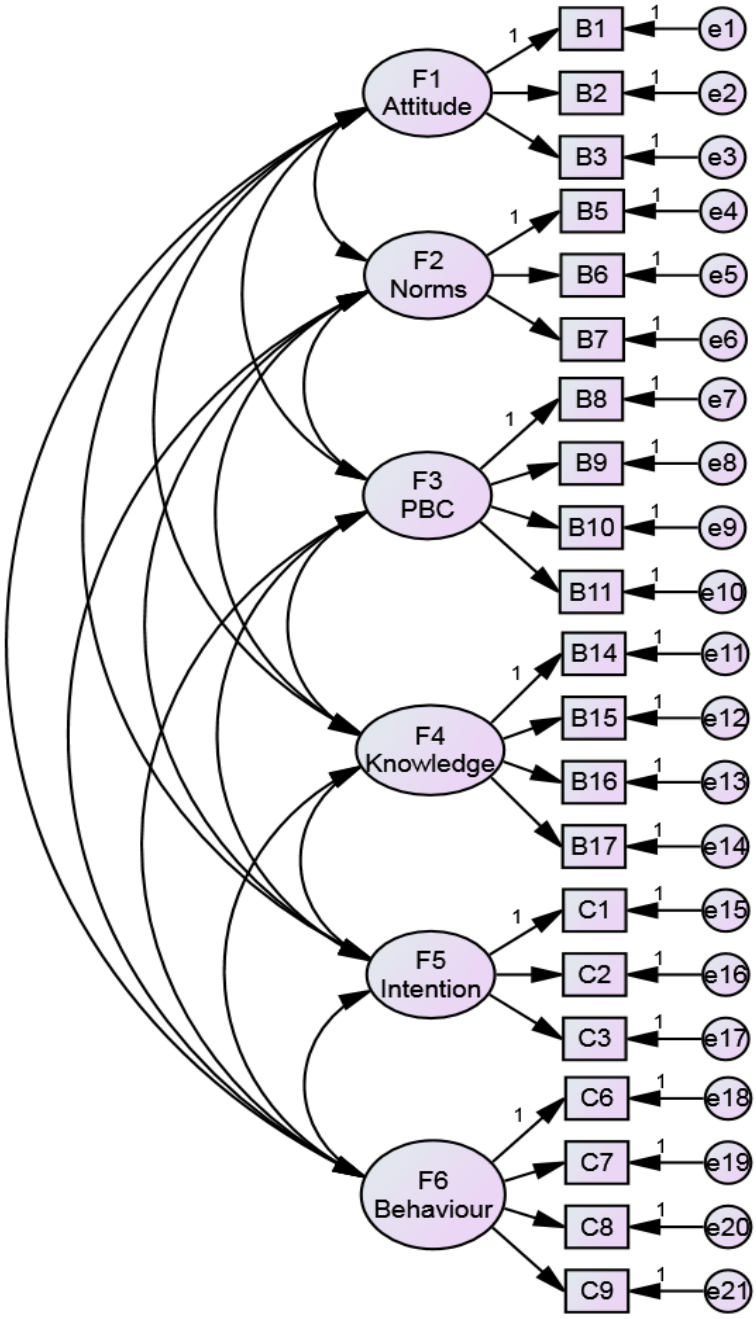

Figure 5.7 Specified measurement model

Knowledge = Environmental knowledge; ***Norms*** = Subjective norms; ***PBC*** = Perceived behaviour control; ***Attitude*** = Environmental attitude; ***Intention*** = Green purchase intentions; ***Behaviour*** = Green purchase behaviour.

For model identification purposes, the first loading of each of the six factors were fixed at 1.0. Accordingly, there are 231 distinct sample moments, and 57 parameters to estimate, leaving 174 degrees of freedom (df) based on the over-identified model, and a chi-square value of 317.901 with a probability level equal to p=0.000.

The model was assessed for any problematic estimates, such as negative error variances, also known as Heywood cases, and any standardised factor loadings below -1.0 or above 1.0 (Hair *et al*., 2010:706). As shown in Table 5.9, there were no problematic estimates in the model as all item loadings were above the 0.5 level. As such, no factor loadings above 1.0 or below -1.0 were recorded. Furthermore, no negative error variances were observed.

Table 5.9: Standardised coefficients of the measurement model

Latent factors	Constructs	Indicators	Factor loadings		Error variance
F1	Environmental attitude	B1	0.52	+	0.28
		B2	0.61	+	0.38
		B3	0.59	+	0.35
F2	Subjective norms	B5	0.82	+	0.67
		B6	0.57	+	0.33
		B7	0.79	+	0.62
F3	Perceived behaviour control	B8	0.68	+	0.46
		B9	0.71	+	0.50
		B10	0.69	+	0.48
		B11	0.58	+	0.34
F4	Environmental knowledge	B14	0.74	+	0.55
		B15	0.75	+	0.56
		B16	0.70	+	0.49
		B17	0.67	+	0.45
F5	Purchase intention	C1	0.75	+	0.57
		C2	0.78	+	0.61
		C3	0.86	+	0.74
F6	Purchase behaviour	C6	0.78	+	0.61
		C7	0.60	+	0.36
		C8	0.78	+	0.61
		C9	0.74	+	0.55

The model fit was assessed using the following indices produced by AMOS, namely the absolute fit indices of the chi-square, the standardised root mean residual (SRMR), the root mean square of approximation (RMSEA), the incremental fit of indices of the goodness of fit (GFI), the incremental fit index

(IFI), the comparative fit index (CFI), and the Tucker-Lewis index (TLI). A significant chi-square value of 317.901 was computed with 174 degrees of freedom. Even though this suggests poor fit, it is well known that this statistic is highly sensitised to sample size (Byrne, 2010:76; Malhotra, 2010:732). The remaining fit indices showed an acceptable degree of fit between the measurement model and the data, with SRMR=0.0545, RMSEA=0.05, GFI=0.91, IFI=0.95, CFI=0.95, and TLI = 0.93.

Following these results the reliability and validity of the model was computed and assessed.

5.11.2 Reliability and validity of the measurement model

An important component of this study was to validate the antecedents of the green purchase behaviour scale in the South African context. As such, the composite reliability (CR), average variance extracted (AVE) and the correlation coefficients were computed in order to determine the reliability and construct validity of the scale. Table 5.10 reports on the CR, AVE, the square root of the AVE and the correlation coefficients.

Table 5.10 Measurement model: construct reliability, average variance extracted and correlation matrix

	CR	AVE	√AVE	1	2	3	4	5	6
Environmental attitude	0.75	0.50	0.71	1					
Subjective norms	0.74	0.50	0.71	0.45	1				
Perceived behaviour control	0.80	0.50	0.71	0.66	0.42	1			
Environmental knowledge	0.80	0.50	0.71	0.53	0.48	0.46	1		
Purchase intention	0.75	0.50	0.71	0.64	0.49	0.52	0.52	1	
Purchase behaviour	0.80	0.50	0.71	0.56	0.64	0.36	0.60	0.75	1

As Table 5.10 shows, all CR values exceeded the recommended 0.70 cut off level, thus indicating the reliability of the constructs. In addition to the CR values, all factor loadings exceeded the 0.50 level (Table 5.9) and AVE values were computed at 0.50, thereby indicating convergent validity (Hair *et al*., 2010:709).

There is evidence of discriminant validity in that all the correlation coefficients were smaller than the square root of the AVE ($\sqrt{0.5}=0.71$), except for one out of the 15 cases (Malhotra, 2010:734). Since the six dimensioned model measures different aspects of green purchasing behaviour, some degree of inter-correlation was to be anticipated. Furthermore, due to the size of the correlation matrix, some violations may occur through chance.

As such, the specified measurement model demonstrates acceptable reliability, convergent validity and discriminant validity. The overall measurement model is not only valid and reliable, but also exhibits acceptable fit making it a suitable structural model for testing.

In conclusion, the evidence in the sample suggests that the null hypothesis, H_o1 be rejected and the alternative hypothesis, H_a1 concluded. This implies that the antecedent of green purchase behaviour is a six factor structure.

The hypothesised structural model is presented in the following section.

5.11.3 Structural model

In the initial hypothesised structural model (Structural model A), it was hypothesised that environmental knowledge (F4), subjective norms (F2), and perceived behaviour control (F3) have a direct positive influence on environmental attitude (F1), which in turn has a direct positive influence on green purchase intentions (F5). Moreover, it is hypothesised that green purchase intensions have a direct positive influence on environmental purchase behaviour (F6), while accounting for the mediating effects of perceived price (price) and perceived quality (quality).

Figure 5.8 depicts the regression path estimates for Structural Model A. For the purpose of improved visual comprehension, the indicator variables of the latent variables, the covariance lines between the independent variables, and the residuals of the dependent variables have been removed from the structural model figures. Refer to Annexure B for the complete detailed diagrams of the models.

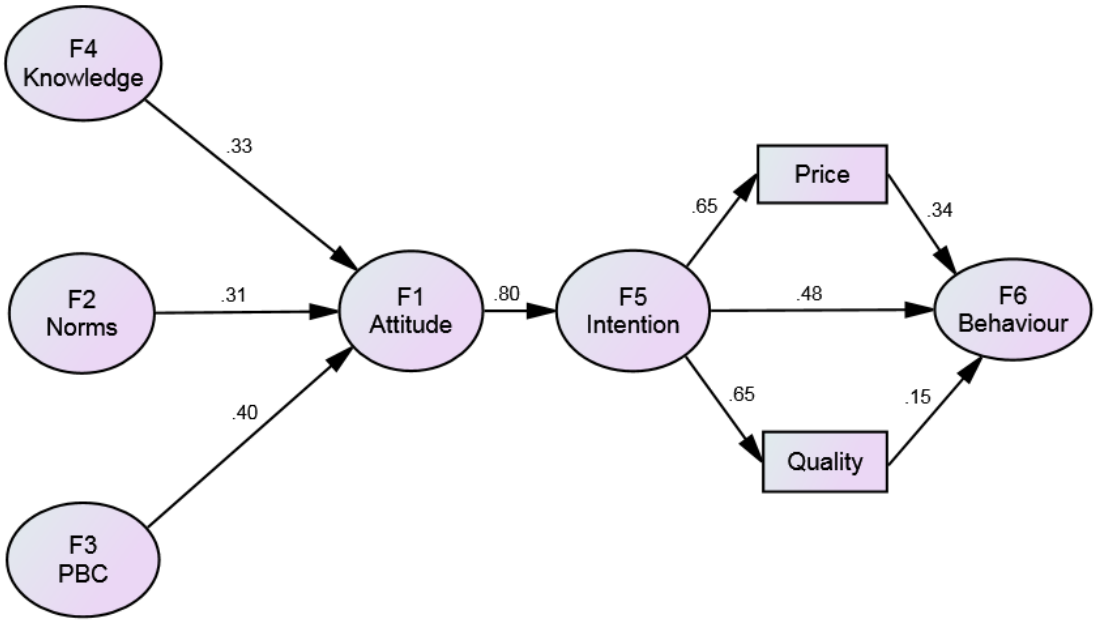

Figure 5.8 Structural Model A

Knowledge = Environmental knowledge; ***Norms*** = Subjective norms; ***PBC*** = Perceived behaviour control; ***Attitude*** = Environmental attitude; ***Intention*** = Green purchase intentions; ***Price*** = perceived price; ***Quality*** = Perceived quality; ***Behaviour*** = Green purchase behaviour.

Even though Structural Model A provided a problematic chi-square (481.637 (df=220), $p<0.05$) value, the model computed acceptable model fit indices of SRMR= 0.0697, RMSEA= 0.060, IFI= 0.92, CFI= 0.92 and TLI= 0.90.

Environmental knowledge (F4) ($p=0.000<0.05$), subjective norms (F2) ($p=0.000<0.05$), perceived behaviour control (F3) ($p=0.000<0.05$) all have a significant positive influence on black Generation Y students' environmental attitude (F1). This infers that the null hypothesis H_o2 be rejected and the alternative H_a2 concluded. Likewise, environmental attitude (F1) ($p=0.000<0.05$) has a significant positive influence on black Generation Y

students' green purchase intentions (F5), suggesting that the null hypothesis H_o3 be rejected and its alternative H_a3 concluded. Black Generation Y students' green purchase intentions (F5) have a significant positive influence on their green purchase behaviour (F6) ($p=0.000<0.05$), inferring that the null hypothesis H_a4 be rejected and the alternative H_a4 concluded.

Despite Structural Model A providing an acceptable model fit, Hair *et al.* (2010:647) suggest introducing a competing model in order to assert that the hypothesised Structural Model A represents the best possible model fit. Based on the literature, Structural Model B was then introduced as a competing model. Structural Model B posits that environmental knowledge, subjective norms and perceived behaviour control have an indirect influence on green purchase intentions via their influence on environmental attitude, as well as a direct significant influence on green purchase intentions. Structural Model B is presented in Figure 5.9.

When comparing two or more models, Byrne (2010:82) deems it wise to consider Akaike's information criterion (AIC) and Bozdogan's consistent version of the AIC (CAIC), where smaller values suggest a better fitting model. Structural Model A recorded a 593.64 AIC value and an 862.72 CAIC value.

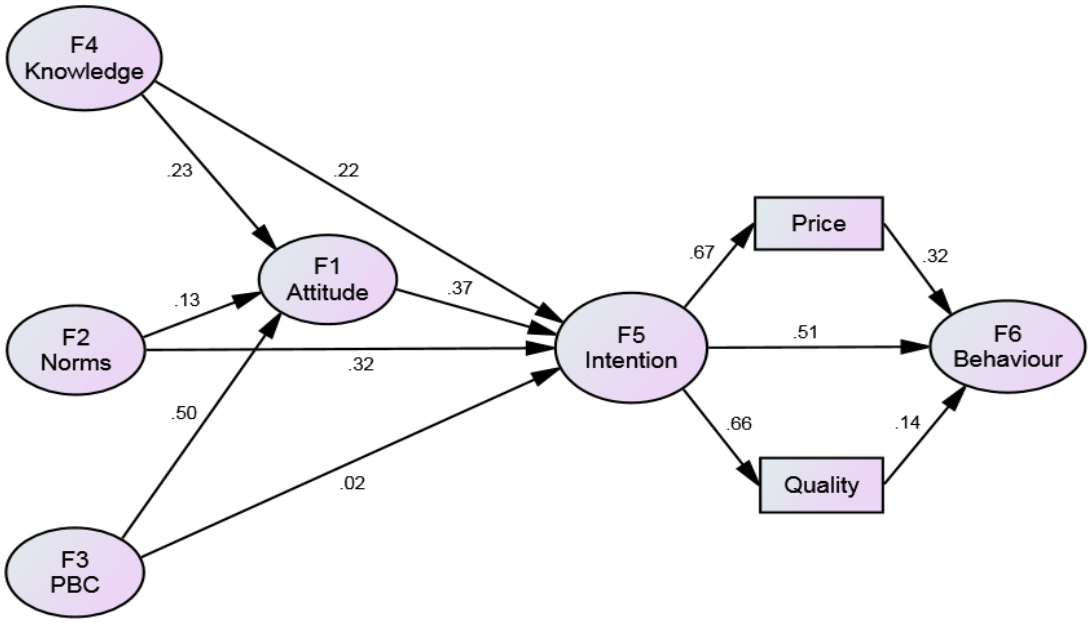

Figure 5.9: Structural Model B

Structural Model B delivered fit indices of chi-square= 455.99 (df=217), SRMR= 0.0630, RMSEA= 0.058, IFI= 0.92, CFI= 0.92, TLI= 0.91, AIC= 573.99 and CAIC= 857.50.

When compared to Structural Model A's AIC value of 593.64 and CAIC value of 862.72, Structural Model B has both a lower AIC value of 573.99 and a lower CAIC value of 857.50, suggesting that Structural Model B has a slightly better model fit. However, the path between green purchase intentions (F5) (p=0.806>0.05) and perceived behaviour control was not significant. This conclusion is not without grounds as studies by Kim *et al.* (2013:260), Fielding (2008:324) and Kelly and Breinlinger (1995:1430) also found perceived behaviour control to have no significant influence on purchase intentions. Similarly, the path between environmental attitude (P=0.145>0.05) and subjective norms was not significant. This finding is not surprising as the literature dictates that environmental attitude works together with subjective norms in predicting green purchase intentions rather than subjective norms predicting environmental attitude (Polonsky *et al*., 2012:240; Han *et al*., 2010:329-330; Gupta & Ogden, 2009:378).

Therefore, the competing model was then reviewed to test whether the removal of the non-significant paths (F5←F3, p=0.806 & F1← F2, p=0.145) would improve the model fit. This revised structural model, Structural Model C, is presented in Figure 5.10.

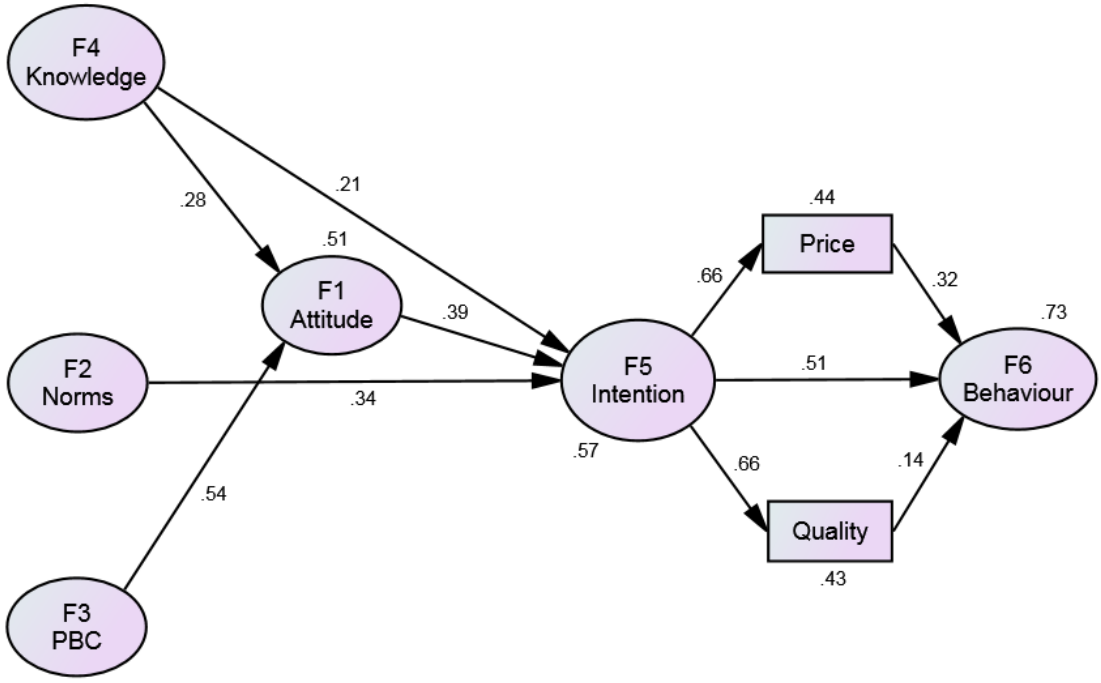

Figure 5.10: Structural Model C

Structural Model C delivered improved fit indices of chi-square= 458.08 (df= 219), SRMR= 0.0639, RMSEA= 0.057, IFI= 0.92, CFI= 0.92, TLI= 0.91, AIC= 572.08 and CAIC= 845.98.

Structural Model C presents acceptable model fit indices. More importantly, Structural Model C reports even lower AIC (572.08) and CAIC (845.98) values than both Structural Model A and B, thereby indicating an improvement in model fit.

According to Structural Model C in Figure 5.10, environmental knowledge (F4) (path estimate= 0.28, $p<0.05$) and perceived behavioural control (F3) (path estimate= 0.54, $p<0.05$) both have a significantly positive influence on environmental attitude (F1). The squared multiple correlation (SMC) coefficient for environmental attitude is 0.51, which indicate that these two predictors, namely environmental knowledge and perceived behaviour control, together explained 51 percent of the variance in the environmental attitude of black Generation Y students.

Environmental knowledge (F4) (path estimate=0.21, $p<0.05$), subjective norms (F2) (path estimate=0.34, $p<0.05$) and environmental attitude (F1)

(path estimate=0.39, p<0.05) have a significant positive influence on green purchase intentions (F5). The SMC coefficient value is 0.57, concluding that these predictors collectively explain 57 percent of the variance in black Generation Y student' purchase intentions towards green products.

Green purchase intentions (F5) (path estimate=0.51) have a significant positive influence on green purchase behaviour. The SMC coefficient for green purchase behaviour is 0.73, indicating that green purchase intentions explain 73 percent of the variance in black Generation Y students' green purchase behaviour.

Table 5.11 provides a comparison of Structural Models A through to C for easy interpretation of the fit indices.

Table 5.11: Structural model comparison

Measures	Recommended value	Model A	Model B	Model C
X^2	Low $\boldsymbol{X^2}$ value	481.64	455.99	458.08
IFI	≥0.90	0.92	0.92	0.92
TLI	≥0.90	0.90	0.91	0.91
CFI	≥0.90	0.92	0.92	0.92
SRMR	≤0.50	0.070	0.063	0.064
RMSEA	≤0.80	0.060	0.058	0.057
AIC	Small positive values	593.64	573.99	572.09
CAIC	Small positive values	862.72	857.50	845.98

As Table 5.11 indicates, the fit indices remained the same for all models, with the exception of the TLI value, which improved from Structural Model A to Structural Model C. In addition, there was an improvement in the final Structural Model C in terms of the X^2, RMSEA, AIC and the CAIC values when compared to Structural Model A. Above all, the AIC and CAIC indices for Model C are considerably lower than in Model A, demonstrating that the

competing model, Structural Model C, provides a better data fit than the initial hypothesised Model A.

The following section outlines the mediation analysis conducted for the study.

5.11.4 Mediation analysis

Using the Baron and Kenny (1986:1179) causal-steps approach, a mediation analysis was performed on the final structural model. In addition, a bootstrapped confidence level for the indirect effects of perceived price and quality on the path between green purchase intentions and green purchase behaviour was calculated. This was achieved using the bootstrap method procedure in the statistical program AMOS, as described by Preacher and Hayes (2008:884-886).

The initial causal variable was green purchase intentions, the outcome variable was green purchase behaviour and the proposed mediating variables were perceived price and perceived quality, as illustrated in Figure 5.11. A two-tailed significance level, set at the cut-off point p=0.05, was assumed.

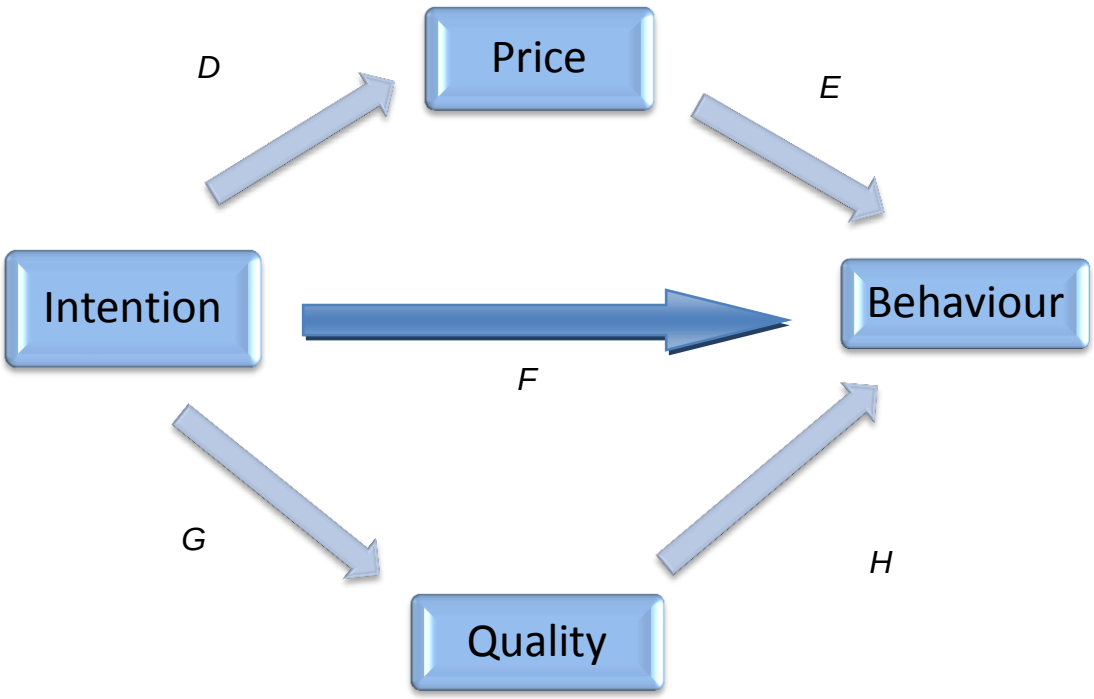

Figure 5.11: Mediation of perceived price and perceived quality

The results of the mediation analysis are displayed in Table 5.12.

Table 5.12: Mediation analysis

Relationship	Direct effect without the mediator	Direct effect with the mediator	Indirect effect
Intentions→ Price→behaviour	0.792 (***)	0.639 (***)	Significant mediated effect
Intentions→ Quality→ behaviour	0.792 (***)	0.633 (***)	Significant mediated effect
***Significant at p < 0.05 level (2-tailed)**			

The total effect of green purchase intentions on green purchase behaviour was significant at path *F*=0.792. Green purchase intentions displayed weaker paths but were still significantly predictive of the hypothesised mediating variables, Price path *D*=0.639 and Quality G=0.633.

In terms of the indirect effects, bootstrapping was performed, whereby 2000 samples were requested set at a 95 percent confidence level. Using this method, the indirect effect of green purchase intentions on green purchase behaviour through perceived price (*DE*) was statistically significant. Similarly, the indirect effect of green purchase intentions on green purchase behaviour through perceived quality (*GH*) was also statistically significant, as depicted in Table 5.12. As the direct path from green purchase intentions to green purchase behaviour (*F'*) was significant, it may be concluded that the effects of green purchase intentions on green purchase behaviour are mediated only partially by both perceived price and perceived quality.

A comparison of the direct versus the indirect paths (*F'*=0.792 vs. *DE*=0.639 and *F'*=0.792 vs. *GH*=0.633) suggests that a relatively small part of the effect of green purchase intentions on green purchase behaviour is mediated by both perceived price and quality. As such, both H_o5 and H_o6 are rejected and the alternative hypotheses H_a5 and H_a6 concluded.

The following section reports on the results of the two independent-samples t-tests.

5.12 TWO INDEPENDENT-SAMPLES T-TESTS

This study utilised independent samples t-tests to determine if any significant differences exists between genders as well as any differences between city- and country-based HEIs, concerning black Generation Y students' environmental knowledge, subjective norms, perceived behaviour control, environmental attitude, green purchase intentions and green purchase behaviour. The significance level was set at the conventional 5 percent level; that is, a=0.05.

The two independent-samples t-tests address the ninth and tenth empirical objectives outlined in Chapter 1.

5.12.1 Gender differences

The results from previous studies (Sundströma & McCright, 2014:11; Xiao & McCright, 2013:16; Wells *et al*., 2010:818; Lee, 2009:92; Haytko & Matulich 2008:9; Zelezny *et al*., 2000:454) suggest possible gender differences pertaining to green or environmental issues.

Table 5.13 shows the mean, standard deviation, t-statistic and p-value for the genders concerning environmental knowledge, subjective norms, perceived behaviour control, environmental attitude, green purchase intentions and green purchase behaviour.

Table 5.13: Gender difference

	Male Mean N=157	Male Std. Dev.	Female Mean N=174	Female Std. Dev.	t-value	p-value	Cohen's D
Environmental knowledge	4.297	0.957	4.222	1.102	-0.658	0.511	*****
Subjective norms	4.273	0.964	4.252	1.172	-0.177	0.860	*****
Perceived behaviour control	4.896	0.747	4.862	0.819	-0.398	0.691	*****
Environmental attitude	4.636	0.798	4.639	0.877	0.031	0.975	*****
Purchase intentions	4.435	0.9455	4.371	1.106	-0.559	0.577	*****
Green purchase behaviour	4.101	1.140	3.892	1.130	-1.677	0.094	*****

*	Statistically significant at $p < 0.05$
**	Small effect, practically non-significant
***	Medium effect and moving toward practical significance
****	Large effect, practically significant
*****	Cohen's D-statistic not calculated as the variable was not statistically significant

As Table 5.13 shows, there was no statistical significant difference between male and female black Generation Y students pertaining to their environmental knowledge, environmental subjective norms, perceived behaviour control, environmental attitude, green purchase intentions or green purchase behaviour. Therefore, at the 5 percent significance level the null hypothesis H_o7 cannot be rejected. Furthermore, as there was no statistically significant difference, there was no need to calculate the Cohen's D-statistic.

5.12.2 City- versus country-based university differences

The data for this study was collected from the campuses of four different HEIs, of which two HEIs were based in the countryside and the remaining two were based in the city. The point of interest here was to determine if there was any significant difference present in the black Generation Y cohort between the two geographical areas.

Table 5.14 shows the means, standard deviations, t-statistics and p-values pertaining to differences based on geographical area.

Table 5.14: Geographical difference

	Country-based Mean N=185	Country-based Std. Dev.	City-based Mean N=147	City Based Std. Dev.	t-value	p-value	Cohen's D
Environmental knowledge	4.324	1.033	4.175	1.031	1.307	0.192	*****
Subjective norms	4.358	0.988	4.142	1.169	1.821	0.069	*****
Perceived behaviour control	4.882	0.766	4.869	0.811	0.154	0.878	*****
Environmental attitude	4.705	0.772	4.565	0.918	1.507	0.133	*****
Purchase intentions	4.503	0.951	4.274	1.112	2.014	0.045	0.22**
Green purchase behaviour	4.110	1.115	3.845	1.150	2.114	0.035	0.23**

*	Statistically significant at $p < 0.05$
**	Small effect, practically non-significant
***	Medium effect and moving toward practical significance
****	Large effect, practically significant
*****	Cohen's D-statistic not calculated as the variable was not statistically significant

Table 5.14 indicates that there was no statistically significant difference between country-based and city-based black Generation Y students pertaining to environmental knowledge, subjective norms, perceived behaviour control or environmental attitude. Therefore, for these four aspects, the null hypothesis, H_o8, cannot be rejected at the 5 percent significance level. However, a statistical significant difference was found between black Generation Y students at country-based HEIs and those at city-based HEIs concerning their green purchase intentions and green purchase behaviour. Therefore, for green purchase intentions and green purchase behaviour, the null hypothesis, H_o8, is rejected and the alternative, H_a8, concluded. It may then be inferred that black Generation Y students at country-based HEIs

display a statistically significant more positive green purchase intentions and green purchase behaviour.

In order to test whether the difference in green purchase intentions and green purchase behaviour between black Generation Y students at country-based HEIs and city-based HEIs is of any practical significance, the Cohen's D-statistic was computed. The results of the analysis showed a Cohen's D value of 0.22 for green purchase intentions and a value of 0.23 for green purchase behaviour. These values indicate a small practical effect that is relatively non-significant.

5.13 CONCLUSION

Chapter 5 reported on the various empirical findings of the study and provided a discussion regarding the results of the pilot study, including the reliability of the scales. Those results indicated that the scales used displayed internal-consistency reliability. The initial analysis, involving coding, data cleaning and tabulation, was undertaken and reported on, and this was followed by a description of the demographical characteristics of the sample. In order to assess the factorability of the data, exploratory factor analysis (principal component factor analysis) was executed. After which the scales were assessed for internal-consistency reliability. Descriptive statistics, including the means and standard deviations were then computed. The results of the statistical analysis suggest that black Generation Y students engage in pro-environmental purchase behaviour. In order to determine if significant relationships existed between the hypothesised antecedents of green purchase behaviour, correlation analysis was conducted. This correlation analysis was also used to establish the nomological validity of the proposed model. Hypotheses were formulated from the observed relationships found in the correlation analysis, where the hypotheses were tested using structural equation modelling, path analysis and mediation analysis. Two independent-samples t-tests were employed in order to determine if differences were present in environmental attributes as a result from gender and geographical locations.

Based on the findings of the study reported in this chapter and against the background of the literature reviewed in Chapters 2 and 3, Chapter 6 sets out the conclusions drawn and the recommendations emanating from the study. In addition, the initial research objectives are revised in order to determine if they have been fulfilled.

CHAPTER 6
CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

Humans, with their ever-increasing population growth and consequent increasing consumption demands, have placed a significant physical strain on the natural environment. In the past few decades, there has been a growth in awareness that humans need to modify their behaviour, including their consumption behaviour in order to ensure the sustainability of the natural environment for future generations. In 2014, members of the Generation Y cohort made up the youth market and their actions are going to determine the direction that the green movement is going to take in the immediate future. Those with a tertiary education are likely to play an important role in influencing the environmental consciousness amongst the broader Generation Y cohort given that graduates with their higher future earning potential and typically higher social standing generally manifest as opinion leaders within society. In South Africa, the vast majority of the Generation Y cohort comprises black Africans, rendering their environmental attitude and behaviour particularly salient to the country's environmental sustainability.

Understanding the antecedents of black Generation Y students' green purchase intentions and behaviour is likely to make a valuable contribution to designing campaigns aimed at persuading this cohort to engage in more pro-environmental purchase behaviour. Based on this assumption, the primary objective of this study was to propose and empirically test a model of possible factors that may determine green purchase behaviour amongst black Generation Y students in South Africa.

This chapter represents the culmination of the study. It begins with an overview of the study and is followed by a discussion of the main findings of the study, which are set out in accordance with the empirical objectives formulated in Chapter 1. Thereafter, the proposed model of the antecedents that determine black Generation Y students' pro-environmental purchase

behaviour is presented. The chapter closes with a discussion of the limitations of the study and the recommendations for further research, together with the final concluding remarks of study.

6.2 OVERVIEW OF THE STUDY

In order to aid comprehension of the main findings (Section 6.3) and resulting recommendations (Section 6.4) of this study, this section provides a synopsis of the preceding five chapters.

Chapter 1 provided a brief background to the issue of environmentalism and highlighted the potential role that environmental knowledge, attitude, subjective norms and perceived behaviour control may play in influencing green purchase behaviour. In addition, this section introduced the idea that the perceived price and quality of green products may have a mediating effect on green purchase behaviour. Based on the problem identified, one primary objective, five theoretical objectives and ten empirical objectives were formulated in Section 1.3. The empirical objectives were then translated into hypotheses in Section 1.4. The remainder of the chapter provided a summary of the research methodology (Section 1.5) and a discussion of the ethical considerations (Section 1.6) of the study.

The purpose of Chapter 2 was to address the first two theoretical objectives of the study in the form of a literature review. The concept of environmentalism is explained in Section 2.2, with particular emphasis on the role that humans have played in the deterioration of the natural environment. In Section 2.3, the various aspects of sustainability and environmental sustainability as a recent addition to organisational strategies are described. This was followed by a review of the literature on green marketing in Section 2.4, including a discussion concerning the greening of the marketing mix in Section 2.5. The main findings emanating from the literature reviewed in this chapter are that consumers around the globe are becoming increasingly aware of and concerned about the sustainability of the natural environment, which is driving the environmental movement. Initial marketing efforts to tap into the growing pro-environmental consumer segment failed due to deceitful marketing tactics.

Having learnt a valuable lesson, organisations are now refocusing their attention on ways in which they can operate in a more sustainable way and green their marketing strategies in such a manner as to recapture consumers' confidence.

Chapter 3 sought to address the three remaining theoretical objectives of the study. This chapter began with a discussion of the Theory of Planned Behaviour as an extension to the Theory of Reasoned Action and included an overview of a sample of environmental studies that have applied the Theory of Planned Behaviour model in Section 3.2. In Section 3.3, the literature on the different variables thought to predict green purchase behaviour is reviewed. Section 3.4 provided a discussion concerning gender differences in environmental behaviour identified in previous published studies. Given the target population specified in this study, the characteristics of the Generation Y cohort are discussed in Section 3.5. The chapter concluded with a proposed model of the antecedents of black Generation Y students' green purchase behaviours (Figure 3.2).

As green marketing is a complex topic, scholars have attempted to define, characterise and identify the green consumer by using various attitudinal models (Section 3.2). The main findings of the literature reviewed in this chapter are that various adapted forms of the Theory of Planned Behaviour have been successfully used to predict behaviour in a range of consumption situations (Table 3.1), including environmental behaviour (Table 3.2). Several psychometric traits work together to enable an individual to make an informed decision concerning a purchase situation. The same notion applies to green purchase intentions and behaviour, which the literature indicates are influenced by consumers' environmental knowledge (Section 3.3.1), attitude (Section 3.3.2), subjective norms (Section 3.3.3) and perceived behaviour control (Section 3.3.4). These factors are thought to predict green purchase intentions (Section 3.3.5) and, ultimately, green purchase behaviour (Section 3.3.7). However, often two pertinent factors are omitted from the purchasing equation, namely the perceived price and perceived quality of green products (Section 3.3.6).

Today's youth, labelled the Generation Y cohort, comprises technologically astute individuals who have been raised in a media-saturated environment and who have instant access to a vast array of information on the Internet. In this age of virtual social networking and 24/7 global television news stations (Section 3.5), this generation have been inundated with news concerning the deteriorating environment and, as such, have grown up being more environmentally informed than any other preceding generation (Section 3.5.1). In South Africa, the Generation Y cohort is made up mostly of black Africans and the sheer size of this segment means that they will have a significant influence on the country's current and future environmental sustainability (Section 3.5.2).

In Chapter 4, the research methodology used in the empirical part of the study is described. A descriptive research design guided the study (Section 4.3). The target population comprised full-time black Generation Y students, in the age range of 18 to 24 years who were enrolled at a South African public HEI in 2014 (Section 4.4.1). The 25 public registered HEIs in South Africa formed the study's sampling frame, in which a judgement sampling method was employed to reduce the initial list to four institutions in the Gauteng province. The four campuses consisted of two traditional universities, one comprehensive university and one university of technology. Furthermore, two of the campuses were city-based and two were country-based (Section 4.4.2). Following the definition of the sampling frame, a single cross-sectional non-probability convenience sample of 500 black Generation Y students (125 per campus) was drawn (Section 4.4.3 & Section 4.4.4). The data were collected using a self-administered questionnaire consisting of existing validated scales (Section 4.5.2). The statistical methods applied in this study are reviewed in Section 4.8 and include exploratory factor analysis (Section 4.8.1), a test for multicollinearity (Section 4.8.2), internal-consistency reliability (Section 4.8.3) and validity measures (Section 4.8.4), descriptive statistics (Section 4.8.5), correlation analysis (Section 4.8.6), structural equation modelling (Section 4.8.7) and two independent samples t-tests (Section 4.8.8).

Against the background of Chapter 4, the empirical findings of the study are reported in Chapter 5. The results concluded in this chapter are in accordance with the empirical objectives outlined in Chapter 1, Section 1.3.3.

6.3 MAIN FINDINGS OF THE STUDY

The main findings in this study are in accordance with the empirical objectives stipulated in Chapter 1.

An exploratory factor analysis (Section 5.6) conducted on the B-scale yielded a four-factor solution comprising environmental knowledge, subjective norms, perceived behaviour control and environmental attitude, which explained 58.78 percent of the total variance. The second exploratory factor analysis conducted on the C-scale yielded a two-factor solution comprising green purchase intentions and green purchase behaviour, which explained 70.35 percent of the total variance.

Descriptive statistics (Section 5.8) were computed to address the first six empirical objectives formulated in Chapter 1. Means in the agreement area of the six-point Likert scale were recorded on all construct-related items. This suggests that in South Africa, black Generation Y students have a positive attitude towards the environment, are knowledgeable about environmental issues, take into consideration the pro-environmental opinions of their significant others and perceive that as individuals, they do have an influence on the environment. Furthermore, they display positive intentions towards consuming green products and report behaving in a pro-environmental manner in terms of their purchasing.

Correlation analysis (Section 5.9) was performed based on the factors extracted from the exploratory factor analyses. This was done to aid the structural equation modelling analysis, where both a measurement and structural model were developed for the purpose of establishing the causal relationships amongst these constructs. The results from the correlation analysis indicated that there was significant positive correlation between each of the pairs of constructs, thereby suggesting nomological validity. In addition, there was only a negligible degree of multicollinearity between the constructs

(Section 5.6). As such, structural equation modelling was deemed appropriate.

Structural equation modelling was carried out to address the seventh and eighth empirical objectives of testing a proposed model of the black Generation Y students' antecedents of green purchase intentions and green purchasing behaviour, and determining whether perceived price and quality mediate the effect of black Generation Y students' green purchase intentions on their green purchase behaviour.

The measurement model consisted of six latent factors, namely environmental knowledge, subjective norms, perceived behaviour control, environmental attitude, green purchase intentions and green purchase behaviour. Once the fit indices were computed, it was concluded that the measurement model displayed acceptable levels of model fit, as indicated in Section 5.11.1. In addition, there was evidence of composite reliability and construct validity (Section 5.11.2). In accordance with the literature reviewed in Chapter 3, a structural model (Structural Model A) was tested based on the measurement model, which included the mediating factors of perceived price and perceived quality of green products. As indicated in Section 5.11.3, environmental knowledge (F4), subjective norms (F2) and perceived behaviour control (F3) have a significant positive influence on environmental attitude (F1). Furthermore, Structural Model A revealed that environmental attitude (F1) has a significant positive influence on green purchase intentions (F5), which, in turn, has a significant positive influence on green purchase behaviour (F6). The relationship between green purchase intentions (F5) and green purchase behaviour (F6) is mediated partially by the perceived price and quality of green products. In addition, Structural Model A concluded acceptable model fit indices and represented a working structural model.

Even though Structural Model A provided an acceptable model fit, Hair *et al* (2010:647) advise that a competing model be considered in order to ascertain that the hypothesised model (Structural Model A) is the best possible working model. As such, a competing model (Structural model B) was introduced. Structural Model B proposed that environmental knowledge (F4), subjective

norms (F2) and perceived behaviour control (F3) have an indirect influence on green purchase intentions (F5) via their influence on environmental attitude (F1), as well as a direct significant influence on green purchase intentions. Whilst Structural model B presented a better model fit than Structural Model A, the paths between perceived behavioural control (F3) and purchase intentions (F5), as well as the path between subjective norms (F2) and environmental attitude (F1) were not significant. These results are in keeping with previous studies (Kim *et al.,* 2013:260; Polonsky *et al*., 2012:240; Han *et al*., 2010:329-330; Gupta & Ogden, 2009:378; Fielding 2008:324; Ajzen 2006:3; Kelly & Breinlinger 1995:1430; Ajzen 1991:184-185).

In line with the findings of previous studies, a revised model, Structural Model C, was then tested that excluded the two non-significant paths (F1← F2 & F5←F3). Structural Model C yielded better model fit indices than both Structural Models A and B. In Structural Model C, perceived behaviour control (F3) has a significant indirect positive influence on green purchase intentions (F5) via its significant direct positive influence on environmental attitude (F1). Subjective norms (F2) have a significant direct positive influence on green purchase intentions (F5). Environmental knowledge has a significant indirect positive influence on green purchase intentions (F5) via its significant direct positive influence on environmental attitude, as well as a significant direct positive influence on green purchase intentions (F5). Environmental attitude (F1) has a significant direct positive influence on green purchase intentions (F5), which, in turn, has a significant direct positive influence on green purchase behaviour (F6). The relationship between green purchase intentions (F5) and green purchase behaviour (F6) is mediated partially by both perceived price of green products and perceived quality of green products.

As such, the findings of this study suggest that the model presented in Figure 6.1 may explain the antecedents of black Generation Y students' green purchasing behaviour.

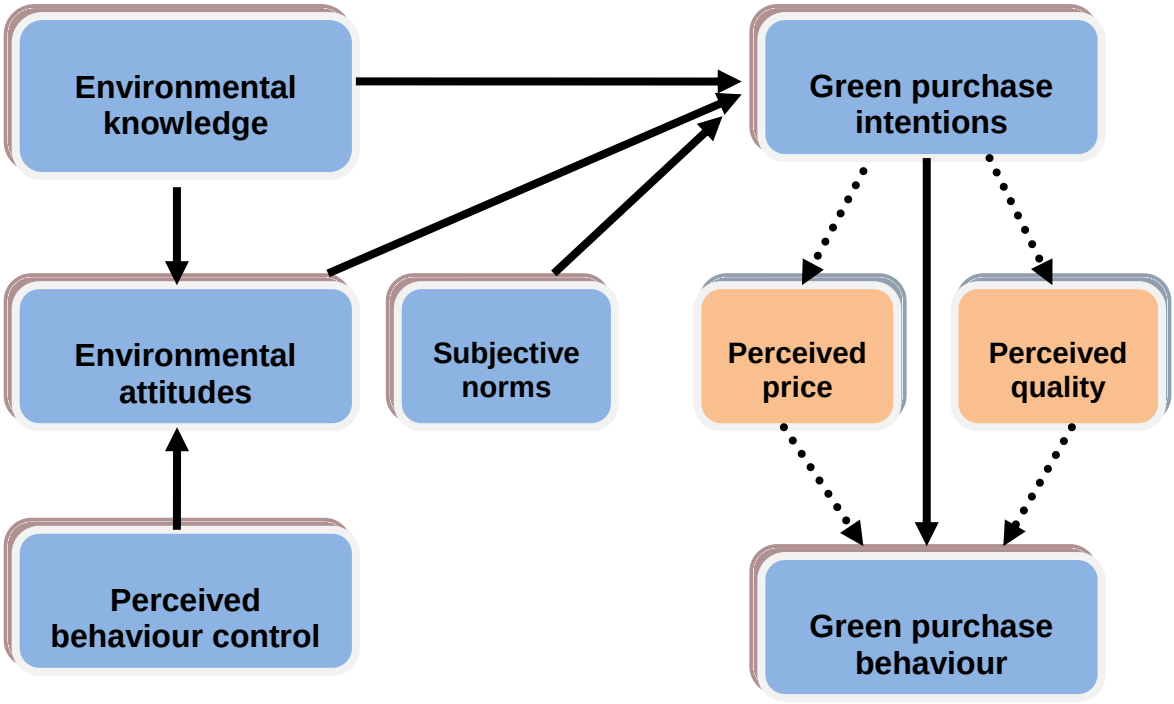

Figure 6.1: Antecedents of black Generation Y students' green purchasing behaviour

In order to address the last two empirical objectives pertaining to gender and geographical location differences, two-independent samples t-tests were conducted.

There was no statistically significant difference between male and female black Generation Y students pertaining to their environmental knowledge, environmental subjective norms, perceived behaviour control, environmental attitude, green purchase intentions or green purchase behaviour (Section 5.12.1). Furthermore, there was no statistically significant difference between country-based and city-based black Generation Y students' environmental knowledge, subjective norms, perceived behaviour control or environmental attitude. However, black Generation Y students at country-based HEIs have statistically significant stronger green purchase intentions and green purchase behaviour.

The following section explains the contribution made by this study.

6.4 CONTRIBUTION OF THE STUDY

The findings of this study contribute to the limited literature available concerning green consumer behaviour in the South African market, with specific reference to antecedents of black Generation Y students' green purchase intentions and green purchase behaviour. This was done by empirically testing a model of factors that influence black Generation Y students' green purchase behaviour. The hypothesised model postulated a six-factor structure composed of environmental knowledge, subjective norms, perceived behaviour control, environmental attitude, green purchase intentions and green purchase behaviour. Importantly, the model also accounted for the mediating effects of the perceived price and perceived quality of green products on green purchase behaviour. This model represents an important tool for predicting the black Generation Y cohort's green purchase intentions and behaviour across a range of green product categories in the South African context. The model may also have value in predicting other race and age cohorts' green purchase behaviour. In addition, the recommendations discussed in the following section will enable marketers targeting the black Generation Y cohort with green products to tailor their marketing efforts accordingly.

6.5 RECOMMENDATIONS

In accordance with the findings of this study, the following section outlines the recommendations for encouraging green purchase behaviour.

6.5.1 Educate consumers about environmental issues

In this study, environmental knowledge was found to have a significant direct positive influence on the black Generation Y cohort's environmental attitude and green purchase intensions. As consumers become more knowledgeable about the environment so too do their intentions to consume greener products (Peattie, 2001a:191). Green advertising messages should include factual content on environmental issues. In this regard, the government also has a responsibility to regulate green advertising to increase consumer confidence

in green marketing campaigns. Government, working in conjunction with business organisations, should launch environmental awareness campaigns at schools and HEIs to help make the Generation Y cohort more mindful of the impact their product choice has on the environment. Social networking sites may also offer an important platform for spreading awareness about environmental issues. The findings of this study suggest that black Generation Y students are environmentally knowledgeable, which makes them an important target market for marketers of green products.

6.5.2 Educate consumers about the influence a single individual can have on the environment

Perceived behavioural control was found to be a significant predictor of black Generation Y students' environmental attitude. If an individual does not believe that his/her individual efforts will have a positive influence on protecting the environment, he/she is less likely to engage in pro-environmental behaviour. As such, it is essential that marketing campaigns designed to encourage the purchase of green products convey a clear message that an individual's actions make an important difference. In this regard, it may be useful to encourage people to consider their environmental footprint over the period of their lifetime, given that the potential cumulative effect of their environmental actions may encourage them to think more carefully about their individual actions. An alternative angle here would be to try to quantify the environmental foot print of a green product versus its non-green counterpart from the sourcing of its raw materials right up to its disposal.

6.5.3 Work towards making pro-environmental behaviour a societal norm in South Africa

In this study, environmental subjective norms were found to have a significant direct positive influence on green purchasing intentions. This means that black Generation Y students take into consideration the pro-environmental opinions of their significant others, including family, friends and other reference groups. If government, alongside business organisations, worked towards making pro-

environmental behaviour a societal norm in South Africa, this would have a significant positive influence on the demand for green products. Social networking media may be used to make pro-environmental behaviour trendy amongst black Generation Y students, which is likely to have a snowball effect on the wider Generation Y cohort and even the country as a whole. Popular young local celebrities may also play an important role in this respect.

6.5.4 Appeal to the pro-environmental consumer

The success of green marketing efforts largely depends on the environmentally conscious consumer. According to Ottman (2011:22), concern over the environment has become the mainstream in today's society. As such, most individuals today may be categorised as exhibiting some type environmental awareness. Consumers that are willing to alter their consumption patterns are a necessity for the realisation of successful green marketing strategies.

If marketers want to make green marketing succeed, they need to appeal to the environmentally aware and concerned consumer. A possible way to do this would be to identify green consumers according to the level of their environmental knowledge, environmental attitudes and green purchase intentions. Marketers can then design specific marketing strategies to capture the identified segments. The findings of this study suggest that black Generation Y students are environmentally knowledgeable, have a positive attitude towards protecting the environment and strong green purchase intentions. Given their likely role model influence over the significantly sized, wider, black Generation Y cohort in South Africa, marketers of green products are advised to actively pursue this segment.

Another perspective marketers may adapt is to convert less eco-friendly consumers into more eco-friendly consumers by using green advertising strategies. Green advertising is regarded as the most common tool for conveying environmental messages to the public (Leonidou *et al*., 2011:6), this in turn increases consumer awareness, which may ultimately lead to increased green product purchases. Furthermore, green advertising may offer

organisations the luxury of a sustainable competitive advantage by appealing to consumers' emotional traits (Leonidou *et al*., 2011:25; Lee, 2009:92; Pickett-Baker & Ozaki, 2008:292), and this may encourage green purchase behaviour. Moreover, the government should introduce tax exemptions and subsidies for organisations that operate in an environmentally sustainable way. This may result in a stimulation of green product purchases.

6.5.5 Avoid greenwashing

One of the main problems green marketing has faced is that of greenwashing. Stemming back to the 1970s and 1980s, the deceptive marketing practice of greenwashing created a negative stigma for green products (Leonidou *et al*., 2011:8; Ottman, 2011:132-133). Organisations must be cautious to avoid committing any of the seven greenwashing sins when making green claims about their products (Section 2.4.3). Ottman *et al.* (2006:34) suggest focusing on the consumer value positioning, calibration of consumer environmental knowledge and the credibility of green product claims.

6.5.6 Ensure that green products offer value

When considering any business strategy, arguably the most important aspects may be attributed to the way consumers perceive price and quality of products. This is particularly true for green products, as past transgressions have tarnished the image of green products (Ha & Janda, 2012:468). However, there is evidence that consumers are willing to pay a price premium for green products (Rahbar & Wahid, 2011:73; Han *et al*., 2010:327; Gupta & Ogden, 2009:376; Laroche *et al*., 2001:503). D'Souza *et al*. (2007:77) stress that organisations must produce green products that are of higher quality than conventional products and that their pricing strategies must be used to make these green products both attractive and competitive in the market place. This suggests that organisations need to refine their production process in order to make green products more cost effective.

This study found that black Generation Y students are willing to purchase green products that are priced higher and have lower quality than

conventional products. Nevertheless, marketers should aim to produce green products that are at least of the same quality as conventional products. It is essential that organisations decrease the perceived risk associated with green products. Moreover, government can promote environmental sustainability through green consumer purchase behaviour by imposing surcharges on non-green products. This is already occurring in South Africa on items such as non-energy saving light bulbs.

6.5.7 Adopt green practices into business strategies

Organisations, more so than ever, need to adopt green practises into their marketing strategies and operations in order to remain or gain a competitive edge in today's volatile market (Ottman, 2011:91; Peattie & Crane, 2005:366). Environmental sustainable processes include adopting environment management systems, implementing ISO standards and abiding by SABS regulations. Adopting the aforementioned processes is a good way to promote an organisation's environmental image to its target market.

This study determined that the South African black Generation Y consumer intends to purchase green products and support environmentally friendly organisations. As such, implementing green marketing strategies is a good way to appeal to this consumer segment. As the Generation Y consumer is quick to spot bogus environmental organisations (Hill & Lee, 2012:479; Ottman, 2011:6; Hume, 2010:387) it may be wise for organisations to associate themselves with credible environmental corporations/groups and to support green initiatives.

The following section explains the limitations and future research opportunities for the study.

6.6 LIMITATIONS AND FUTURE RESEARCH OPPORTUNITIES

This study measured the antecedents of green purchase behaviour amongst black Generation Y students. As with any other study, this study had certain limitations that may present several future research opportunities.

A non-probability convenience sampling method was utilised to select the sample. Despite the inclusion of a several demographic questions to determine the extent to which the sample was representative of the target population, care should be taken in generalising the results to the population (Section 4.4.3). In addition, a single cross-sectional research design was undertaken (Section 4.3). Future research, utilising a longitudinal study, may provide a more accurate reflection of the extent to which the factors identified in this study influence black Generation students' green purchasing intentions and behaviour.

This study relied on self-reporting to measure green purchase behaviour. An observational research approach may provide a more accurate measure of actual green purchase behaviour.

Future research directed at testing this model amongst non-student members of South Africa's black Generation Y cohort, as well as amongst other generational cohorts would also contribute to the literature on South African's propensity to engage in green purchase behaviour.

6.7 CONCLUSION

In conclusion, there is little dispute that the natural environment is under threat and that the exponential growth in the human population is only exasperating the problem. Ensuring the sustainability of Earth for future generations necessitates that humans modify their behaviour, including their consumption behaviour. This study empirically tested a model of the antecedents of black Generation Y students' green purchase behaviour. Understanding the factors that influence different segments to select green products over conventional products helps marketers to tailor their attempts to promote green market efforts. This model may be applied to predict green purchase intentions and behaviour across a range of product categories and amongst different segments of the population.

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ANNEXURE A
QUESTIONNAIRE

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
VAAL TRIANGLE CAMPUS

Antecedents of green purchase behaviour amongst Generation Y students

Dear Student

My name is Costa Synodinos. I am registered as a full-time student for a PhD in Marketing Management at the North-West University (Vaal Triangle Campus) and I am currently working towards my thesis under the supervision of Prof A.L. Bevan-Dye.

The purpose of this study is to investigate Generation Y students' purchase behaviours towards green products. A Green product refers to any product that has a less harmful impact on the environment or contributes less detrimental effects to human health than conventional products. The study specifically focuses on Generation Y members as they make up 40 percent of South Africa's total population. Generation Y refers to individuals born between 1986 and 2005.

Please take a few minutes to assist me and complete the attached questionnaire. It should not take you longer than 20 minutes to complete. All responses are confidential and will merely be outlined in the form of statistical data in the analysis. All data will only be used for research purposes.

Thank you for your important contribution to this study.

Costa Synodinos

North-West University

072 990 3590

synodinos@webmail.co.za

Questionnaire

Section A: Demographical information

Please mark each question with a cross (**X**) in the appropriate box.

A1.	Name of institution	Traditional University	Comprehensive University	Traditional University	University of Technology

A2.	Year	1st year	2nd year	3rd year	Post-graduate

A3.	Gender	Female	Male

A4.	Race	African/black	Coloured	Indian/Asian	White

A5.	Home province	Eastern Cape	Free state	Gauteng	KwaZulu-Natal	Limpopo
		Mpumalanga	North West	Northern Cape	Western Cape	

A6.	Please indicate your mother tongue language:					
	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sesotho sa Leboa
	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga	

A7.	Please indicate your current age:							
Younger than 18	18 years old	19 years old	20 years old	21 years old	22 years old	23 years old	24 years old	Older than 24

Section B: Questionnaire

Please indicate the extent to which you agree or disagree with each of the following statements using a cross (**X)** where 1= Strongly disagree and 6= Strongly agree.

Attitudes and knowledge towards the environment		**Strongly disagree**	**Disagree**	**Slightly disagree**	**Slightly agree**	**Agree**	**Strongly agree**
B1	I am concerned about the environment.	1	2	3	4	5	6
B2	I would be willing to reduce my consumption to help protect the environment.	1	2	3	4	5	6
B3	I would donate part of my own money to help protect wild animals.	1	2	3	4	5	6
B4	I have asked my family to recycle some of the things we use.	1	2	3	4	5	6

Attitudes and knowledge towards the environment		Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
B5	People who are important to me behave in an environmentally friendly way.	1	2	3	4	5	6
B6	People who are important to me would approve of me behaving in an environmentally friendly way.	1	2	3	4	5	6
B7	People who are important to me encourage me to behave in an environmentally friendly way.	1	2	3	4	5	6
B8	By signing a petition that promotes environmental protection, every person can have a positive effect on society.	1	2	3	4	5	6
B9	I feel I can help solve natural resource problem by conserving water and energy.	1	2	3	4	5	6
B10	I can protect the environment by buying products that are friendly to the environment.	1	2	3	4	5	6
B11	There is a lot I can do about the environment.	1	2	3	4	5	6
B12	I feel capable of helping to solve the environment problems.	1	2	3	4	5	6
B13	I know that I buy products and packages that are environmentally safe.	1	2	3	4	5	6
B14	I know more about recycling than the average person.	1	2	3	4	5	6
B15	I know how to select products and packages that reduce the amount of waste ending up in rubbish dumps.	1	2	3	4	5	6
B16	I understand the environmental phrases and symbols on product packages.	1	2	3	4	5	6
B17	I know a lot about environmental issues.	1	2	3	4	5	6

Section C: Intention and Behaviours towards the environment

Please mark each question with a cross (**X**) in the appropriate box.

C1	Over the next month, I will consider buying products because they are less polluting.	1	2	3	4	5	6
C2	Over the next month, I will consider switching to other brands for environmental reasons.	1	2	3	4	5	6
C3	Over the next month, I plan to switch to an environmentally friendly version of a product.	1	2	3	4	5	6
C4	I prefer to purchase an environmentally safe product even if it is somewhat more expensive.	1	2	3	4	5	6

C5	I prefer to purchase an environmentally safe product even if it is somewhat lower in quality.	1	2	3	4	5	6
C6	When I want to buy a product, I look at the ingredients label to see if it contains things that are environmentally-damaging.	1	2	3	4	5	6
C7	I prefer environmentally friendly products over normal products when their product qualities are similar.	1	2	3	4	5	6
C8	I choose to buy products that are environmentally-friendly.	1	2	3	4	5	6
C9	I buy green products even if they are more expensive than the non-green ones.	1	2	3	4	5	6

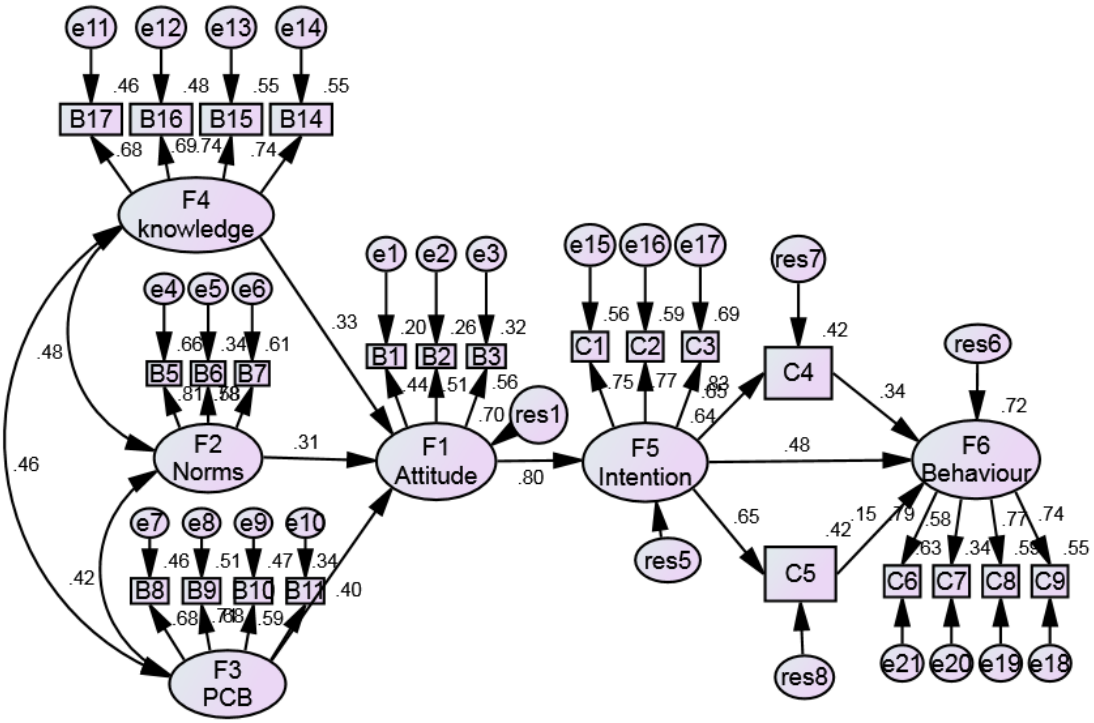
Do you have any comments to add about 'green' purchasing? Please specify:

Thank you for your cooperation

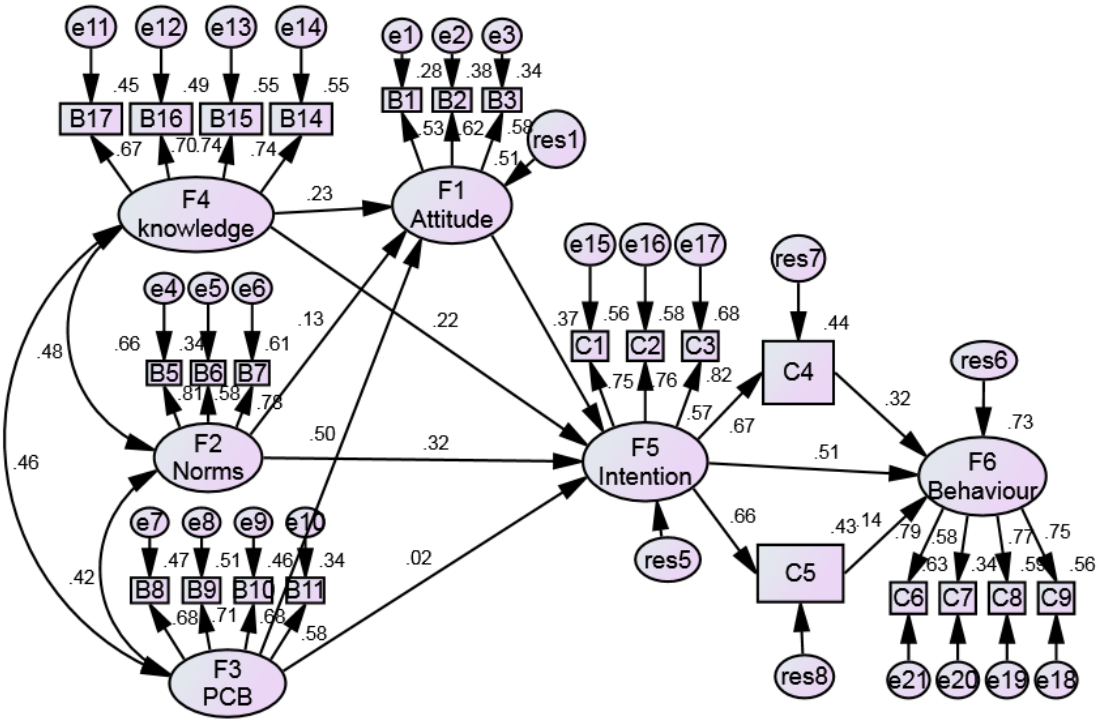
Ethical clearance number: ECONIT-ECON-2014-007

ANNEXURE B
STRUCTURAL MODELS

Structural Model A



Structural Model B



Structural Model C