DURBAN UNIVERSITY OF TECHNOLOGY

USING CONSUMER BEHAVIOUR THEORIES TO ANALYSE THE RELATIONSHIP BETWEEN GREEN TECHNOLOGY AND CUSTOMER EXPECTATIONS

MXOLISI BONGUMUSA MANQELE

NOVEMBER 2021

USING CONSUMER BEHAVIOUR THEORIES TO ANALYSE THE RELATIONSHIP BETWEEN GREEN TECHNOLOGY AND CUSTOMER EXPECTATIONS, M.B. Manqele 2021

USING CONSUMER BEHAVIOUR THEORIES TO ANALYSE THE RELATIONSHIP BETWEEN GREEN TECHNOLOGY AND CUSTOMER EXPECTATIONS

Submitted in fulfilment of the requirements of the
degree of Master of Management Sciences
Specialising in
Public Management
in the
Faculty of Management Sciences,
at the Durban University of Technology.

MXOLISI BONGUMUSA MANQELE

NOVEMBER 2021

Supervisor **Date:** 17 November 2021

Dr. Lawrence Lekhanya, PhD

DECLARATION

I, **Mxolisi Bongumusa MANQELE** hereby declare that the thesis titled "*Using Consumer Behaviour Theories to Analyse the Relationship between Green Technology and Customer Expectations"* is my own work and has never been submitted for any other degree at any other institution. I further declare that all the sources cited have been duly acknowledged.

Signature: **Date:** 14 November 2021

ABSTRACT

Green technology has become a welcome and popular development in most parts of the world, possibly due to the wide belief that green technology is a concept whereby nature and the environment are protected, retaining the environment's ecosystem. Various actions exist that may lessen environmental impact, yet much difficulty is encountered in converting customer intentions to action, highlighting the importance of bridging the existing gap between customer intent and action; not only in safeguarding the environment but also for business to meet sustainability goals. In this regard, literature highlights a fast-growing interest in innovation for sustainability, while studies draw attention to the development of green industries and green jobs, suggesting that "green" will grow into an important measure for companies and brands, with commendations based on environmental references featured strongly in consumer decision-making.

Within this context, the current study hopes to examine green technology-based products, in terms of customer expectations in the KwaZulu-Natal (KZN) province of South Africa (SA). Research shows customer expectations as the desires or wants of consumers, in terms of what they feel a service provider should offer, while customer expectations of service have been further presented as subjective and based on the needs and desires customers expect to fulfil in using the service. This study concedes that green technology-based products can contribute effectively to achieving customer expectations. The mode of green technology-based products could be used to achieve this objective thus becomes the key thrust of this research.

Using a quantitative methodology, this study is predicated on the assumption that because green technology preserves the environment, it is an interesting and effective method of achieving customer expectations.

DEDICATION

This project is dedicated to: My mother, my grandmother, my grandfather, my mother’s uncle. To the collective of the Manqele family; I value everything that you taught me.

ACKNOWLEDGEMENTS

I hereby express my sincere gratitude to the following people for support, motivation and input that enabled this work to be successfully completed accordingly:

In the beginning, God created heaven and earth. So reads the first chapter of Genesis, the first page in the holy book, The Bible. To God all the glory.

My supervisor Dr Lawrence Mpele Lekhanya, for being the best mentor. Your patience and encouragement are treasured, as is your always being positive.

Mr Deepak Singh for being punctual,

The very kind and helpful Helen Richter, my editor. The country needs more people like you.

My late grandfather, Zinyosi, my grandmother Njomane Mhunuva, my mother Zakithi, she is everything, my aunt Mrs T E Mthiyane and everyone who worked tirelessly helping, without me noticing.

I thank you all.

TABLE OF CONTENTS

LIST OF ABBREVIATIONS AND ACRONYMS

ASSAf	Academy of Science of SA
KMO	Kaiser-Meyer-Olkin measure
KZN	KwaZulu-Natal
PCA	Principal component analysis
SA	South Africa
SMME	Small, Medium and Micro Enterprises
SPSS	Statistical Package for Social Sciences

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE
GENERAL INTRODUCTION

1.1 Introduction

Currently, the idea of green technology has become a welcome development in most parts of the world with ‘‘green’’ most often used to refer to new technology and new products that sustainably impact nature and the environment. All indicators are that customers will support brands that embrace purposeful sustainability and “certain categories of products with sustainability claims showed twice the growth of their traditional counterparts” (White, Hardisty and Habib 2019: 1). While actions that lessen environmental impact include, for example, recycling or eco-purchasing (Yu, Li, and Jai 2017), White *et al.* (2019: 1) highlighted the difficulty in converting customer intentions to action and stressed the importance of bridging the existing gap between customer intent and action; not just for the environment but also for business to meet sustainability goals.

1.2 Background to the study

Much has been learnt through academic pursuit regarding the topic of green technology, the resultant products, their use, as well as how these are marketed. Sentiments by Shapira, Gok, Klochikin and Sensier (2014) indicated a rapid interest in innovation for sustainability, as well as the growth of green industries and jobs. In a similar vein, Da Silva (2010) had previously emphasised that firms would eventually afford green products high importance, while establishments would prioritise green technology, with recommendations citing environmental references playing an important role in consumer decision-making.

It is within the above context that this study hopes to examine green technology-based products in terms of customer expectations in the KwaZulu-Natal (KZN) province of South Africa (SA). Gures, Arslan and Tun (2014) explained that customer expectations are the desires or wants of consumers, in terms of what they feel a service provider should offer. Further to this, Björlin-Lidén and Skålén (2003) stated that customers’ expectations of the service are subjective and based on the needs and desires they expect to fulfil using the service. This study

concedes that green technology-based products can contribute effectively to achieving customer expectations. How green-technology-based products could be used to achieve this objective thus becomes the key thrust of this research.

In conducting the above investigation, this study employs consumer behaviour theory, which Saeed (2019) refers to as the study of the manner in which people make purchasing decisions, aiding businesses and marketers to exploit consumer behaviour through the likelihood of the means, manner and time-frame within which a purchase will be made by a consumer As outlined by Kotler and Keller (2011), consumer behaviour theory focuses on the ways individuals, groups and organisations buy and dispose of goods, services, ideas or experiences, in order to satisfy their needs and wants. Basically, the theory eulogises factors that contribute to the satisfaction of consumers in terms of their needs and wants. Thus, this theory is bound to provide an explanation of consumer perspectives, in terms of how green technology-based products can be used to achieve customer expectations.

Using a quantitative methodology, this study is predicated on the assumption that due to green technology being perceived as preserving the environment, it is an interesting and effective way of achieving customer expectations. Employing the eThekwini municipal in the province of KZN, South Africa, as the target market, this study hopes to investigate customer expectations in terms of their perception of green technology-based products.

1.3 Aims and Objectives

The study purpose is to investigate customer expectations in terms of their perception of green technology-based products. The specific objectives of the research were to:

i. To critically evaluate customer expectations of green technology-based products.
ii. To analyse how green technology-based products can be used to achieve customer expectations.

iii. To examine the relationship between green technology and customer expectations.

1.4 Statement of Problem

The study investigates how the use of green-based products can be used to achieve customer expectations using consumer and buying behaviour theory. O'Connor (2008: 19) stated that "for a service to remain competitive and financially successful, a central concern is the provision of an innovative service to meet customers' growing expectations"; thus, implying customers always want more. In a world where this holds true, part of the innovative ways of meeting customer expectations is the use of green technology-based products.

While Das Soni (2015) confirmed the continued rise in demand for green technology products, Lemke and Luzio (2014) identified a gap still exists between the wants of green consumer demand and the current services businesses are capable of supplying. As such, the major aim of this research is to investigate how green technology-based products can be used to achieve customer expectations in the KZN province of SA. The salient objectives of the study are highlighted through the questions posed by this study.

1.5 Research Questions

The research intends to answer the following questions:

i. What are customers' expectations of green technology-based products?
ii. How can green technology-based products be used to achieve customer expectations?
iii. What is the relationship between green technology and customer expectations?

1.6 Significance of the Study

Studies have examined different aspects of green technology, however, examining in what way green technology-based products can be used to achieve customer expectations, especially in KZN, necessitates academic attention. This study will not only contribute new materials to the areas of customer expectations in

entrepreneurial studies but also the areas of green product-technology, as there seems to be a paucity of academic literature in this domain. Moreover, Govender and Govender (2016) agreed there has been very limited investigation into consumer satisfaction and green products or its marketing in SA.

1.7 Defining Marketing and Green Products

During the past few decades, marketing has been transformed “through the introduction of modern information and communication technologies, changing consumer behaviour and lifestyles, global supply chains and increased regulatory attention”. Demands in competing for market share, including better customer service and speedy responses have resulted in companies adopting policies and approaches that are intended to provide more attractive offers to that of the competition. This has, at times, not seemed either socially or environmentally sustainable and has created a “misbalance in society and environment, hindering the sustainability agenda” (Narula and Desore 2016: 1).

Green marketing is perceived as the promotion and trading of products considered environmentally safe. As simple as this may sound, scholars have been unable to agree on a singular definition and have often addressed the phenomenon based on their different perspectives.

For instance, on the one hand, Lieskovska (2010: 157) sees “green marketing as multiple activities designed to ensure the key aspect of marketing-product exchange with minimal negative environmental impact” while, on the other hand, Peattie (2012: 193) observed it as “a holistic management process responsible for identifying, anticipating and meeting the needs of consumers and companies in an efficient and sustainable way”.

However, Dangelico and Vocalelli (2017: 2) offer a more detailed view when they perceive green marketing as “the process of planning, implementing and managing the development, pricing, promotion and distribution of products in a way that meets the criteria of meeting customer needs, achieving organizational goals of the business, and linking these processes to the ecosystem”.

In his study, Bhalerao (2014: 1757) states that green marketing has grown to become a natural phenomenon popular in our daily activities. The concept is further perceived as a tool used by many companies in various industries to follow this trend (Bhalerao 2014). Green marketing is further acknowledged to otherwise be referred to as Environmental Marketing and Sustainable Marketing, denoting an organisation's efforts at designing, promoting, pricing and distributing products that will not harm the environment or environmentally safe products that are also termed as environmentally beneficial. Hence, the implication is that products assembled through green technology and with no environmental dangers, can be considered green products.

Green products are defined as "part of green marketing activities that can be interpreted as a packaged product to reduce the environmental impacts caused by the production process" (Albino, Balice, and Dangelico 2009: 36). Thus, green product-technology can be best described as the activity by which goods and services are designed, through curtailing environmental impact in the course of the cycle of production.

For Mishra and Sharma (2010: 10), green marketing is defined as "all activities designed to generate and facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of these needs and wants occurs, with minimal detrimental impact on the natural environment". In clarifying the criteria used to define green products, Mishra and Sharma (2010: 12) developed the following measures:

i. Products that are originally grown;
ii. Products that are recyclable, reusable and biodegradable;
iii. Products with natural ingredients;
iv. Products containing recycled contents, non-toxic chemicals;
v. Product contents under approved chemicals;
vi. Products that do not harm or pollute the environment;
vii. Products that will not be tested on animals; and

viii. Products that have eco-friendly packaging, including, reusable, refillable containers, amongst others.

Based on the above explanation, and measures, it can be deduced that green marketing refers to the process of marketing products/services that are environmentally beneficial. Thus, among the factors to consider are whether the products are manufactured in a way that ensures sustainability; whether the products can be recycled; are manufactured from renewable materials; and whether the products are repairable. It would, therefore, be important that as this research study progresses, these explanations and tenets are kept as integral to further information in the upcoming chapters.

1.8 Introducing the study's target market

This work targets the eThekwini municipality in KZN, SA, as its area of research. Important to note, is that the first core value of the municipality is 'Sustainability', which is in consonance with the essence of the topical study on green technology. The other values of the municipality include being economically successful, caring, and smart as well as intent on reducing poverty. In all instances of these values, one can argue logically that in one way or the other, they share affinity with green technology, which then informs this study's necessity to present a background of the municipality being targeted for a study on green technology.

According to the eThekwini Municipality's official website (2017) the municipality is a Category A municipality found in the SA province of KZN. The area is topographically hilly, with many gorges and ravines, and almost no true coastal plain.

The municipality of eThekwini is considered the largest city in the province of KZN and the third largest in the whole of SA. It is a sophisticated cosmopolitan city of over 3 442 398 people (Census 2011). Known as the home of Africa's best-managed, busiest port, eThekwini is also a major centre of tourism because of the city's warm subtropical climate and extensive beaches. In fact, tourism in the

municipality is the leading domestic destination in SA with an estimated number of 9.95 million visitors in the 2010/2011 financial year (eThekwini Municipality 2017).

The value of the province's domestic tourism economic impact on the region's GDP is estimated to be eight percent per annum. Hotel occupancy in Durban for the year averaged 65.17 percent, which is better than the national average. The hospitality industry consists of many fine hotels, nightspots, shopping malls, and ethnic attractions, such as traditional villages and craft markets, along with dams and big-game parks (eThekwini Municipality 2017).

In addition, it is worth noting that the vision of the municipality is to enjoy the reputation of being Africa's most caring and liveable City by 2030, where all citizens live in harmony. Much of the municipality's focus is on the environment and nature – beaches, environmental tourist sites, and rural area tourism and so on, thus highlighting the importance of preserving the natural environment to achieve the municipality's vision (eThekwini Municipality 2017). Therefore, it remains to be seen, through the findings of this research, in what way the municipality can employ green technology to achieve the aim of being "the most liveable and caring city in Africa".

1.9 Research methodology

This study employs a quantitative research approach in actualising how the use of green technology-based products can be employed to achieve customer expectations. As such, the method focuses on gathering numerical data and generalising it across groups of people or to explain a particular phenomenon. In this case, a quantitative method is employed to study customer expectations of green technology. In addition, the study intends to be exploratory in nature, analysing and investigating how the use of green technology-based products can be employed to meet the expectations of customers, through a questionnaire as measurement instrument for the collection of data in the study.

1.10 Organisation of Thesis

Chapter One: In this chapter the thesis topic was introduced through the background to the study, its problem statement, aims and objectives, as well as the research questions, along with the study target population, and overview of what the reader can expect.

Chapter Two: A review of relevant literature on the issues of green economy and customer expectations are set out in this chapter.

Chapter Three: The methodology is dealt with in this chapter, discussing the research design, method, data collection, and sampling, as well as ethical issues, and methods employed for data analysis.

Chapter Four: In this chapter, gathered data and its analysis are presented.

Chapter Five: This chapter provides the findings, recommendations and concluding remarks to the research.

1.11 Conclusion

In summary, this chapter has offered an insight into the expectations of this research, with the study aim and objectives highlighted, as regards their significance. The problem statement has been set out and the study area introduced. The foregoing leads to the literature review in the next chapter.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

Having introduced the study topic and details in the previous chapter, this review chapter substantiates the research context as a guide to the subsequent analysis chapter. As such, relevant information is critiqued pertaining to the study, based on a review of academic literature on the concepts of green economy and customer expectations, where their applicability to the study is concerned.

2.2 Approaches to Green Technology

In recent times, studies on Green Technology have become exceedingly popular given the conscious effort of wanting to move towards a system that protects the environment. As such, academics from different disciplines have examined the aspect of green technology from their own disciplinary stance, thus contributing significantly to the growth of the field significantly.

“There has been growing interest in greenspace research due to evidence that nature positively impacts human wellbeing” (Taylor and Hochuli 2015). As a background to this literature review chapter, a quick insight is offered into the many scholarly dispositions within the field of green technology.

Won-Shik, Doo-Man and Sung-Hoon (2014: 973) admitted that, “Green Technology has attracted research attention from academics from diverse domains although these academics have addressed the issue from their disciplinary perspective.” Such disciplinary perspectives include: engineering, manufacturing, material science, and chemical engineering, along with humanities, environment science and energy areas. The authors noted that, “since energy consumption, environment concern, efficiency in manufacturing etc. become important issues, green technology has become a significant research area to find solutions to these matters” (Won-Shik *et al.* 2014: 973).

Das Soni (2015: 2) explained green inventions as “environmentally friendly inventions that often involve energy efficiency, recycling, safety and health concerns, renewable resources, and more”. In his understanding, Green Technologies comprise several aspects of technology that assist in reducing human impact on the environment and as a result, present ways of sustainable development. Das Soni (2015) employed three main premises in his study, namely: social equitability, economic feasibility and sustainability.

Using the above premise as his standpoint, Das Soni (2015: 1) argued that “today’s environment is fast moving towards a situation in which we would have done long-term uncontrollable damage to the planet earth as our current actions and inactions are gradually pulling the world towards an ecological landslide which may result in inevitable destruction”. As such, the author called for an approach that saves the earth by means of green technologies, through the use of renewable natural resources that never deplete.

The report on the state of green technologies in SA by the Department of Science and Technology (2014: 117), published by the Academy of Science of SA (ASSAf), simplified the notion of green technology through “sustainable manufacturing”, stating that sustainable manufacturing is a case of “doing more with less”. In other words, maintaining or increasing the levels of productivity while utilising fewer resources (materials, energy, water, transport, and so on) and thus creating less waste and pollution. The report further averred that “sustainable manufacturing encompasses aspects of product design such as ease of disassembly for refurbishment, re-use or recycling and minimizing or eliminating the use of hazardous or scarce materials” (Dept. of Science and Technology 2014: 117).

In a study by Aithal and Aithal (2016: 818), it was cautioned that “since our societies and communities have been adversely affected by technology, it was pertinent to worry about the feasibility of the surrounding environment, in order to bolster the comfort of people in society.” The study discussed the opportunities and challenges for green technology in areas such as agriculture, potable water,

renewable energy, and buildings, as well as aircraft and space exploration, education, food processing, and health and medicine in the 21st century (Aithal and Aithal 2016).

Das Soni (2015: 1) echoed this and stated that among the possible areas where green technologies were envisaged to emanate are areas such as “green energy, organic agriculture, eco-friendly textiles, green building constructions, and manufacturing of related products and materials to support green business”. Therefore, for Aithal and Aithal (2016) and Das Soni (2015), Green Technology is a form of environmental healing technology that mitigates damages to the environment. In other words, people and environmental conveniences are considered when green products are manufactured.

Iravania *et al.* (2012) appraised the green concept as well as green marketing, noting ascending growth in the last few decades which has, in turn, significantly impacted the global market and environment. In a similar vein, Thakur and Gupta (2012) acceded that green marketing has now attained a status and become a necessary component of most companies, insofar as incorporating it in their marketing processes.

There have been different disciplinary approaches to green technology. From an agricultural perspective, Boye and Arcand (2013) argued the existence of a strong connection between the food we consume and physical and environmental health, thus making it crucial to negotiate a balance between food supply and demand, with this being done in a redeemable manner that contributes to the long-term survival of the earth and nature. Thus, to increase agricultural productivity in a sustainable way, research, development, innovation, and education parameters should be put in place to derive approaches that can be considered in reducing the negative impact of agricultural practices in our environment, while ensuring adequate supplies of food to feed the ever-growing world population (Boye and Arcand 2013).

In a closely related vein to agriculture, now from an engineering point of view, Pandiselvam *et al*. (2019) noted that the food processing industry is continuously attempting to improve global food quality and safety. This is extremely relevant when one considers the opinion of Stephan *et al*. (2015: 14–17), who determined a significant “increase in the number of outbreaks of food-borne disease that has been a serious concern for public health”.

As a result, food industries and consumers share a common concern for microbial food safety, which then implies that appropriate technologies for preventing undesired microbial and fungal contamination are required throughout the processing and distribution chain (De Souza *et al*. 2018). Pandiselvam *et al*. (2019) further stated that various food preservation techniques have been used, however, while applying some of these technologies, they have adversely affected the appearance, colour, texture, and aroma, as well as nutrient contents of the food.

With regards to health sciences, McGain and Naylor (2014: 245-252) maintained that hospitals contribute significantly to the depletion of natural resources. Amongst the factors they discovered are “hospital design, direct energy consumption, water, procurement, waste, travel and psychology and behaviour”. Thus, it was suggested that environmental impacts be assessed, as the use of natural resources at hospitals are essential, especially since there are such areas where the interests of patients and the general environment correspond.

Where tourism is concerned, Bao (2018: 1) established that, “with the rapid development of industrialization and social economy, the ecological problems such as air pollution and environmental degradation emerge endlessly” and these can significantly affect tourism. For Bao (2018), an ecological civilisation, sustainable development, economic transformation and upgrading, along with other green ideas, have emerged as high concerns for tourist organisations. The author therefore tasked researchers and academics to initiate the development of ways that tourism, which is an economically viable phenomenon, may avoid the negative impact of unsustainable environment.

From the above discussion, it is obvious that green technology affects virtually every aspect of our lives, from health to agriculture to tourism and many more aspects that would have been superfluous for this study to engage. The underlying message is obvious in all the disciplinary literature cited; the constant phenomenon is that they all deal with customers or consumers. Thus, this study is an attempt that encapsulates all other disciplines with the focus on customer expectations, a phenomenon common to other disciplines. Hence, the mention of agriculture, tourism, and engineering, is an attempt to explain how this study shares affinity with several aspects of green technology, as it intends to examine issues related to consumers that are equally pertinent to green technology and other disciplines that employ green technology.

Given the above scholarly contributions, it becomes clear that green products are beginning to take over customer needs – a point echoed by several researchers from diverse disciplines. One can argue that green products may soon take over all aspects of our lives. While researchers, such as Lekhanya (2014), have discussed why marketers or businesses need to go the route of green marketing, it is equally important to observe customer perspectives.

As such, this study deviates from business owners' perspectives, instead, it is geared towards the consumer dimension. This phenomenon, of pursuing the route of green technology by marketers will, however, prove to be an effort in futility when consumers are not interested in green products. This strengthens this study's position, as far as its importance in gaining an understanding of the needs and requirements of consumers, through the management of green technology-based products.

2.3 Customer expectations: A Review

Studies abound on customer expectations and customer satisfaction. There is as much seminal literature as there is recent research. Although the two sometime work together, they are mutually exclusive, as noted by Ali *et al*. (2015: 1428) who find that the one cannot completely ignore the other, as they both play a vital role

in revealing customer behaviour regarding future repurchase decisions. However, the main objective of this study is that of customer expectation, although reference may from time-to-time be made to customer satisfaction to enable clarity.

Expectations of customers are stated as “pretrial beliefs about a product or service” by Olson and Dover (1979: 179). For Sheth (1973: 50-56), it is the “perceived potential of alternative suppliers and brands to satisfy a number of explicit and implicit objectives in any particular buying decision,” while for Kotler (2000: 78), it is “the key to customer satisfaction, delight and loyalty”.

To O’Connor (2008), customer expectations are essentially about dealing with the meeting of customer needs and their requirements and in the matter of the extent to which the delivered service level complements customer satisfaction. This point was echoed by Dale and van der Wiele (2007), insofar as the expectations are customer desires or wants, for example, what should be provided by the service provider, with these provisions typically based on an establishment’s previous experiences.

In these earlier extracts from literature, the opinion is held that the quality of a service is a result of consumer judgement and is often as a result of consumer expectations. Basically, this implies that for a consumer to return to purchase a specific product, the product must have met consumer expectations. Hence, this puts the consumer in a powerful space to determine how a service should be rendered or delivered; a point of utmost importance to service providers.

In more recent literature, Almsalam (2014: 83) indicated that customer expectation has a lasting and concrete effect on their satisfaction. It then becomes clear that when customer expectations are met, they are often satisfied. In this regard, Méndez-Aparicio, Izquierdo-Yusta and Jiménez-Zarco (2017: 1) noted that “the customer-brand relationship is fundamental to a company’s bottom line, especially in the service sector”.

It is further stressed by Méndez-Aparicio *et al.* (2017: 1-14) that for an organisation to maximise the effects of a customer-brand relationship, they need to first know which factors influence the formation of an individual's service expectations. Furthermore, "the influence of these expectations on the possibility of customers advocating for a product, prior to having tried the product themselves, also needed to be established." These suggestions can be transferred to green products, in that once different organisations adopted a green approach, the need existed to equally meet and in fact, exceed the expectations of consumers through the aforementioned techniques.

In other studies, Lassoued and Hobbs (2015) agreed that customer expectations of how a product is perceived, are influenced by customer perceptions of the producing brand, as well as the ability of such a brand to deliver on its promises. As such, green products that intend to protect the environment might attract more customers when they are confident in their approach to deliver their promises. In yet a different assertion, Bilgihan, Barreda, Okumus and Nusair (2016) noted the pressure exerted by a subject's immediate environment may also influence service expectations. Given the recurrent warning that we are fast exhausting the world's resources without a plan for replacement, it is no doubt that such pressure may positively affect customer expectations of green products.

Ali *et al*. (2015: 1428) argued "it is important that if a product or service fulfils the expectation of the customer, they will give more preference to such product or service next time". As such, service providers are encouraged to determine the wants and desires of their customers as a means of meeting customer expectations; their position is informed by the logic that carefully managing and achieving customer expectations is instrumental in achieving customer satisfaction. In a similar vein, customers are described as being "contented when their expectations are met or exceeded," while they will also be unhappy should the product or service fail to match their expectations (Narteh 2015: 363).

In a study by Pakurár *et al*. (2019), consumers were illustrated as generally becoming more demanding with the continued expansion of their expectations of

quality. Therefore, the authors recommended organisations be more customer-centred, by delivering superior value to customers. In the opinion of Pakurár *et al*. (2019), organisations should be abreast of customer expectations, their own performance, customer satisfaction, and even that of their competitors, which in this case would be traditional service providers, when compared to organisations that manufacture green products.

Al-Jazzazi and Sultan (2017) also supported that service quality can be understood as a wide-ranging evaluation by customers of a specific service, inclusive of the extent to which service quality meets customer expectations by providing satisfaction. In this light, the quality of green products should exceed that of non-green products in an attempt to work towards meeting customer expectations.

According to Naudé and Rudansky-Kloppers (2016: 55): “organizations should first have a knowledge of their customers’ expectations before embarking on production.” This knowledge is stated to enhance management’s ability to appease customer needs, which should, as a consequence “skyrocket their own bottom line and competitive standing.” To better clarify their standpoint, Naudé and Rudansky-Kloppers (2016) reproduced Zeithaml and Bitner’s (2003: 63) levels of expectations:

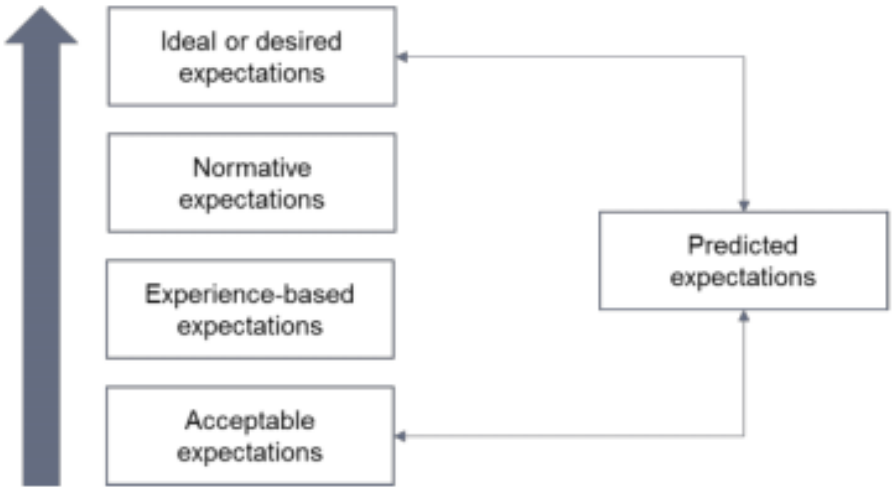

Figure 2.1: Levels of expectations (Zeithaml and Bitner 2003: 63)

The levels of expectations (Figure 2.1) presented by Zeithaml and Bitner (2003: 63) dwell on the customer's concrete service expectation. In their explanation, the highest or desired expectation is the service the customer hopes to receive, which connotes what "can be" and "should be" done. The second or normative expectations involve what a customer thinks should happen. With regard to the third, or experience-based expectations, the customer's past experiences shape the expectations. Lastly, acceptable expectations indicate the lowest level of service a customer will condone before becoming dissatisfied. These levels of expectations are applicable to the current study.

Regarding the desired or ideal level of customer expectation, the green consumer is likely to anticipate certain changes that differentiate the green product completely from those considered as non-green. Regarding experiences, green consumers are at liberty to attempt comparison of the green product with those seen as non-green using prior experiences of non-green products. At the acceptable expectation level, although the green consumer may be willing to sacrifice much in support of green products, they would be expected to become impatient should the objectives for supporting green products not be achieved or when the green products are found to be of an inferior quality (White *et al.* 2017: 1-16).

Kasapila (2006: 12) opines that "customer expectations originate from three main factors which are: internal, external and situational." Internal factors are stated to include personal needs, philosophies of service and lasting past experiences. External factors comprise social context and word-of-mouth recommendations, while situational factors involve situations, such as the weather and time constraints, among others, which also contribute to customer expectations of a service.

These submissions by Kasapila (2006) are not a complete removal from Zeithaml and Bitner's (2003: 63), with Kasapila in agreement that experience plays a role in customer expectations. However, the contribution by Kasapila (2006) is focused

on situational factors, which are relevant to the present study. The author cites the example of the weather as a factor contributing to customer expectations. This shares a close affinity with the expectation that not implementing a green approach will have a significant adverse effect on our weather, given related issues on global warming and climate change.

Having outlined the view of customer expectations adopted by this study, the next section presents a review of works on green products before solidifying all the literature presented in an interface of green technology products and customer perspectives.

2.4 Demystifying Green Products

There have been several attempts by academics to define green products. However, the definitions, though similar in terms of their major theme, are significantly different in their conception. A brief sampling of five definitions of green products are as follows:

Liu and Wu (2009: 104-111):

> Products whose functions or ideas deal with the process of material retrieval, production, sales, and utilisation, as well as waste treatment available for recycling, reduced pollution and energy saving.

Albino *et al.* (2009: 83-96):

> Products designed to minimise environmental impact during the entire lifecycle. In particular, non-renewable resource use is minimised, toxic materials avoided, and renewable resource use takes place in accordance with their rate of replenishment.

Pickett-Baker and Ozaki (2008: 281-293):

> Defining environmentally sustainable products is complex. In a strict sense, there is no such thing as a truly sustainable or green product, as all products we buy, own, use and discard in our everyday lives will have negative environmental impacts at some stage in their life cycles.

Triebswetter and Wackerbauer (2008: 30-44):

> Environmental innovations: techno-economic, organisational, social and institutional changes leading to an improved quality of the environment.

D'Souza, Taghian and Khosla (2008):

> One that has to represent a significant achievement in reducing environmental impact; they may also have to incorporate strategies of recycling, recycled content, reduced packaging or using fewer toxic materials.

From the above definitions, although conceptually different, there is a strong recurrent theme that green products are meant to preserve the environment through the methods and materials with which they are produced. This suggests green products are different from traditional types of products that do not pay attention to preservation of the environment. Hence, the onus in this study is to discuss and examine the relationships between green technology and customer perspectives.

2.5 Green Technology and Customer Perspectives: An Interface

Since Das Soni (2015) affirmed that consumers exhibit a high demand for green-technology products, it is therefore of maximum importance for service providers to accede to consumer requests. Das Soni (2015) is of the opinion that items where design includes information about environmental awareness and green technology products are used, may be considered as green products. As such, the products can reduce waste, prevent pollution, and even diminish fossil fuel use, among others.

Mishra and Sharma (2010: 13) defined green consumers as:

> “those who avoid products that are likely to endanger the health of the consumer or others; cause significant damage to the environment during manufacture, use or disposal; consume a disproportionate amount of energy; cause unnecessary waste; use materials derived from threatened

> species or environments; involve unnecessary use of, or cruelty to animals; adversely affect other countries."

Polonsky (2011: 1311–1319) warned that the term green marketing "has little to do with customer satisfaction, nor does it deal with improvement of the living standard originally, it in fact deals with sustaining the ecosystem and preventing ecological damages continually prompted by industrial advancement." As such, recent coverage within world-wide media is not far-fetched, as consumers are becoming "more conversant where environmental sustainability is concerned" and they are gradually demonstrating the desire to conserve the environment (Elham Rahbar 2011: 73).

Overt and covert keywords are highlighted by Das Soni (2015) in his study, where he stipulates that producers are now incontrovertibly shifting towards Green. The author stated that change is on the way, with industries at the helm of technology cognisant of the need for change and the rise in consumer demand for green technology products. Das Soni (2015: 4) further points out that products that reduce energy consumption offer the greatest opportunities:

> "For business customers, if they demonstrate a return on investment in green products, then demand will materialize. As such, a growing number of business buyers can be expected to be motivated by nothing more than the desire to be perceived as supporting environmental sustainability. Products are being reconfigured to use fewer hazardous substances, require less shipping material, operate on less energy and promote end-of-life recycling. They are changing to avoid negative consequences or to meet green demand or to achieve both."

From the above excerpt, it becomes evident that the uptake of a general use of green products is constantly rising, while it has become obvious that the environment needs to be safeguarded by, for example, employing reusable energy in the production of different products and services. This is even more evident

from the recent discourse on global warming and climate change, with the onus on human beings to protect their immediate environment from permanent damage.

This is, however, not to say there are no challenges. One such challenge is the issue of sensitisation and awareness on the part of producers and consumers, which is a point echoed by Shamsi and Siddiqui (2017), who state that unavailability of such products and unawareness result in consumers using such products.

The state of green technologies in SA report (Dept. Science and Technology 2014: 117) asserts that, “the creation of manufactured products that use processes that minimise negative environmental impacts, conserve energy and natural resources, are safe for employees, communities and consumers are economically sound”. This recognises increased pressure on manufacturing companies to comply with a growing raft of environmental and allied legislation to adhere to “green”, ethical and sustainable practices.

In a study by Cherian and Jacob (2012) on consumer attitudes towards environment-friendly products, a conceptual framework of green marketing was proposed, with several ways through which different consumer attributes are related to the concept of green marketing. It was discovered that a strong need for green marketing exists, as well as the necessity for a departure in the behaviour and attitude of consumers geared towards an environmentally friendly lifestyle.

Thus, Cherian and Jacob (2012) encouraged researchers to study consumer perceptions, while also urging consumers to cooperate with green marketing through green product usage. In a paper by Kumar (2015), an effort was made to examine how awareness among consumers about green marketing can be created and how consumer interest towards eco-friendly/green products may be generated.

Kumar’s (2015) study emphasises that marketers need to accentuate green marketing as consumers are ready to pay a premium price for green products. It

was, however, also observed that a major challenge to green products is the general lack of education and insufficient research in the field of eco-friendly products. As such, this study hopes to close this knowledge gap to a small extent, by contributing to research on green technology in SA.

A study conducted by Bhatia and Jain (2013) focused on environmental issues, green products, green consumer practices and consumer awareness levels, which implied that consumers are fast becoming aware of green marketing practices and products. In addition, Bhatia and Jain (2013) observed green values among consumers to be steadily on the rise. In a similar vein, Chen and Chai (2010) investigated the relationship between consumer attitudes towards the environment and green products and suggested government's role and consumers' personal norms towards the environment have a significant impact on the attitude towards green products.

Another study, on the impact of green marketing strategies on customer satisfaction and environmental safety by Yazdanifard and Mercy (2011) concluded that for the future generation, green marketing is seen as a tool for environmental protection, with a positive environmental safety impact. As such, consumers want to relate more with brands that comply with green products and are even willing to pay more for green services. From another perspective, Moravcikova, Krizanova, Kliestikova and Rypakova (2017: 10) argued that "accepting the principles of green marketing increases the value of the company's products, the company gains a competitive edge, improves its image, gets to new markets and is prepared to cope with the environmental pressures of stakeholders".

Research by Shamsi and Siddiqui (2017: 1545) contended that "with the growing markets and increasing consumer volumes, the production, as well as consumption patterns are degrading the environment drastically." As such, the government, consumers and producers have realised the issue in a similar way to academics. In this regard, researchers are continuously working to publish study findings that create environment-friendly awareness to encourage products that

cause less environmental destruction. Such products would be referred to as green products, as they can be recycled and promote healthy disposal.

Shamsi and Siddiqui (2017: 1552) maintain that “in the present era of development and growth, environment is being degraded at a rapid rate making it necessary to worry now rather than regret later”. They concede that green products can significantly reduce the negative impact on the environment and ensure a feasible future for the next generation. In their conclusion Shamsi and Siddiqui (2017) agreed that consumers are interested in using green products because of environmental sustainability and their personal consciousness towards the environment.

In other instances, some green technology products include energy creation products, green chemicals, sustainable or recyclable products, and technology that runs on alternative energy. It is now evident that consumers require reusable as well as energy-saving products. Most importantly, for Das Soni (2015) green technology products are relevant in avoiding negative consequences, thus enabling society to an undeniable shift toward green.

Joshi and Rahman (2015: 128) further noted that “a product that meets consumer needs without harming the environment and plays a role in the move towards a more sustainable world, can be considered as green”. The authors stipulated that consumer consumption of goods and services in the past few years has increased tremendously in the world, thereby leading to environmental damage and pollution.

According to Joshi and Rahman (2015), this has resulted in various countries having started to work on the means to reduce environmental damage, which has subsequently seen the advent of ‘sustainable development’, emphasising the requirement for the promotion of sustainability and encourages a kind of development that curtails the negative effect on society and the environment, in other words, green consumption. Research by Hughner *et al*. (2007) found consumers have continued to show a positive attitude towards purchases of organic food products.

For Lemke and Luzio (2014: 628), from a consumer's point of view, "buying and using green products that are sustainable corresponds to human nature". A desire for businesses to react to the green consumer's mind-set was identified, however, the consumer's ability to react seems to be missing. The greenness of products is, however, maintained as being an additional value-added or quality feature that consumers look-out for. Lemke and Luzio (2014) proceeded to encourage businesses to provide green economy products and to offer consumers intelligible, transparent, and trustworthy product information, as a way of communicating the environmental impact of such products.

Saifur-Rahman, Barua, Hoque and Rifat-Zahir (2017) researched the influence of green marketing on consumer behaviour, drawing mainly from Bangladesh. Green marketing is described by Saifur-Rahman *et al.* (2017: 9) as an attempt to lower the negative effects on our environment through "installing a new course of green concept through designing, producing, packaging, labelling and consuming products that are eco-friendly".

Some great ideas are suggested by the authors that can promote awareness of green marketing. First, Saifur-Rahman *et al.* (2017: 9) suggested that "marketers should develop new and innovative ways to change the consumer's perception of the green marketing, for instance, through pricing". They further suggest organising a variety of awareness programmes and providing green product information and the ecological benefit of these products.

Bhalerao (2014: 1757) discussed the broad range of activities employed in green marketing, positing that the activities include "product modification, changes to the production process, packaging changes, as well as modifying advertising as the promotion of green technology and green products is necessary for conservation of natural resources and sustainable development". It was also noted that establishments that employ green advertisement generally portray a perception of environmental friendliness and as such, they appeal to customers' decisions to purchase. It was submitted by Bhalerao (2014) that consumers prefer to identify

with environmentally-friendly companies because when a company communicates this through their advertisements, promotions, publicity and corporate social responsibilities, they are likely to accrue many loyal customers.

Further to this, Bhalerao (2014) proposes some rules to successful green marketing and identifies pricing, being genuine, educating the customer and being transparent as very important. To this he adds that customers must be afforded the opportunity to participate, while reassuring, knowing and empowering of consumers is also highlighted as important.

i. **Pricing:** green products should be affordable for the customer to encourage purchase. It is argued that many consumers cannot afford expensive products these days, specifically those considered as green, making it important to keep the target audience in mind.
ii. **Being genuine:** it is essential that producers remain genuine to the course of green products exactly as they present it in their green marketing campaign and that the rest of the business' policies are consistent with the quest of being environmentally friendly. It is held that this condition has to be met for a business to create "environmental credentials" that permit the success of a green marketing campaign. This is akin to the stance by Lassoued and Hobbs (2015), who earlier discussed that a consumer's expectation can be guided by a brand's ability to deliver on its promises.
iii. **Educate the customers:** it is important to not only make the audience aware of the green products but also inform them of the importance in protecting the environment and reducing environmental impacts on their own lives. In other words, the primary reason consumers buy certain products in the first place should be clear.
iv. **Be transparent:** Consumers must be able to ascertain the authenticity of a product and they should be able to verify the company's claims.
v. **Giving customers an opportunity to participate:** this has to do with individualising the advantages of actions that are environmentally friendly, typically done by permitting customer participation in environmental actions that are positive.

vi. **Reassuring the consumer:** they need to believe the product performs the job it is supposed to perform, as they may not simply forego product quality in the name of the environment.

vii. **Knowing the customer:** in selling a greener product to consumers, it is important to ensure the consumer is aware of and concerned about the issues the product attempts to address.

viii. **Empowering the consumer:** it is necessary to ensure consumers feel, by themselves or in concert with all other users of the product, that they can make a difference. This is called “empowerment” and is the main reason consumers buy greener products.

FuiYeng and Yazdanifard (2015: 18) discussed some green marketing tools that are important in ensuring increased awareness of green products in consumers. The following tools were identified: “eco-label, eco-brand and environmental advertisement” and it was argued that these tools “make perception easier and increase awareness of eco-friendly products’ features and aspects”.

As a result, consumers will purchase more environmentally friendly products. Delafrooz, Taleghani and Nouri (2014) also stated that the practice of these policy tools feature prominently in changing consumer purchasing behaviour to purchase environmentally friendly products; as a result, the undesirable effect on the environment by synthetic and fake products is diminished. FuiYeng and Yazdanifard (2015: 18-19) explain eco-labelling as an important green marketing tool that is employed on products marketed as eco-friendly due to it being a tool used by consumers to aid in their decision-making process when they choose eco-friendly products. Furthermore, this tool educates consumers on products’ manufacturing processes. “The labels, made up of a series of small pieces of paper, up to very complicated diagrams that are involved as a part of the goods packaging, include merely the brand products or a series of mixed information” (FuiYeng and Yazdanifard 2015: 18). Thus, eco-labelling allows consumers to easily distinguish environmentally friendly products as opposed to normal standard products.

Delafrooz *et al.* (2014: 22-30) suggest that “eco-label is positively correlated with consumer enthusiasm to buy”. FuiYeng and Yazdanifard (2015) pontificate that eco-labels were proposed to guide consumers to classify products that are more environmentally favoured than other identical products as a way of facilitating environmental consumerism. They admit a great deal of positive impact between the information of a green product and consumer’s willingness to buy. Cherian and Jacob (2012) also observe that consumers have positive green consciousness on eco-labelled products.

Eco-branding is explained by FuiYeng and Yazdanifard (2015: 19) as follows: “Eco-brand is a name, symbol or image of products that are harmless to the environment”. As such, Delafrooz *et al.* (2014) stated that eco-brand aspects can help consumers to distinguish green products from non-green products. They are of the opinion that a positive reaction will be elicited from consumers by products that feature environmental aspects and these products are referred to as “Eco-branded” products.

Hence, analyses of the impact of brands on consumers’ decision to purchase are found to be crucial for service providers. Delafrooz *et al.* (2014) asserted that green brands should be used to highlight the fact that green products function in the same manner as products that are non-green with the difference in their environmental impact. For FuiYeng and Yazdanifard (2015: 18), “the critical aspect persuading consumers to change actual purchase behaviour to buy eco-friendly products is emotional brand benefits”.

Environmental advertisement is noted by FuiYeng and Yazdanifard (2015: 19) as necessary to improve green movements worldwide and raise public awareness regarding environmental problems in stating that, “organizations prefer environmental advertisements through media or newspapers as green techniques for introducing their products to environmentally responsible consumers”. Green advertisement is further recognised by FuiYeng and Yazdanifard (2015) as a major way of influencing consumers’ purchasing behaviour given the inherent role of advertising to persuade.

Through advertising, Delafrooz *et al.* (2014: 22-30) averred that attention will be given to “positive consequences of their purchasing behaviour, for themselves as well as the environment”. Alniacik and Yilmaz (2012: 207-222) also highlighted that both advertising professionals and marketing managers should become skilled at communicating environmental information and presenting this information in their commercials.

Saini (2013) observed that consumers are at present increasingly acknowledging the necessity of taking care of the environment and becoming more responsible culturally. Moreover, company accountability has become essential where the inclination by consumers for neutral or environmentally safe products is concerned. Therefore, FuiYeng and Yazdanifard (2015: 21) discussed some of the important benefits of green technology for communities who accept these new concepts and identified revenue increase as crucial, “since a successful product that fulfils consumer satisfaction will have an increase in sales and revenue”.

In addition, FuiYeng and Yazdanifard (2015) also identified cost reduction in products as important, since the cost of raw materials is low. More importantly, these products are referred to as part of the move to save the environment and health of the nation, in what they refer to as world salvation. Thus, by making use of green practices, companies could prevent a negative impact on the world by saving peoples’ health along with that of the environment (Rajeshkumar 2012: 128). For this reason, and since consumers now seemingly want to align themselves with companies that are green compliant, not only is green marketing considered an “environmental protection tool” but it has also become strategy in marketing (Yazdanifard and Mercy 2011: 640).

From a South African perspective, Govender and Govender (2016: 77) determined that SA citizens are very knowledgeable on issues facing the environment and as such, “elements of the green products were found to raise awareness and encourage positive change in consumption behaviour”. Consequently, a large

population of consumers were found to support socially responsible retailers, implying that most consumers prefer green products over standard alternatives.

Govender and Govender (2016) admitted that most of their respondents indicated green products as healthy, good for the environment and superior to traditional products. An important factor worthy of note is respondent belief that packaging, labelling and product information strongly influence their purchase decisions, which is similar to the view of Lemke and Luzio (2014) as previously discussed.

In another study, the level of awareness regarding green marketing and its managerial implications was investigated by Lekhanya (2014) among selected SA Manufacturing Small, Medium and Micro Enterprises (SMMEs), in the province of KZN. The research by Lekhanya (2014: 633) highlighted the necessity for “South African manufacturing SMEs to increase green marketing awareness and understanding of green marketing concept benefits to the sector and its target market”. Lekhanya identified the need to have skilled marketing personnel in order to achieve this purpose, highlighting a major barrier facing most companies is found in relation to the lack of skilled personnel.

Following the above literature tendencies, this study intends to use consumer and buying behaviour theories as a theoretical framework for the investigation on how green technology-based products can be employed to achieve customer expectations.

Given the interest of consumer-buying behaviour theory in exploring buyer levels of involvement and interest in a product or a situation, the current study attempts to probe consumer perceptions on green technology-based products. Das Soni (2015) had also earlier mentioned that with green technology being fairly new to the industry, it is expected to attract new customers who will see the many advantages of using green technologies in their homes and elsewhere.

2.6 Theories of Consumer Behaviour in the current study

Consumer behaviour theory has been employed across diverse disciplines in an attempt to understand consumer reactions to products and services. In this study, consumer behaviour theory is employed as a conceptual inclination to investigate customer expectations on green technology products. One can thus argue that the field of study has significantly evolved over the last few years, given the growing interest from academics pertaining to different topics being examined.

Peighambari, Sattari, Kordestani and Oghazi (2016: 1) also admitted that "literature on consumer behaviour is diverse and extensive as changes in society, economics, and technology affect the way consumers behave". Consequently, consumer behaviour is an area of attention for academics and researchers in the fields of social science researchers, and the area has received great attention in the past years (MacInnis and Folkes 2010).

Issues of consumer behaviour can, according to Madhavan and Chandrasekar (2015: 75), be traced back 300-years, when early economists, such as Nicholas Bernoulli, John von Neumann and Oskar Morgenstern, began to investigate the basis of consumer decision-making. For them, consumer purchasing behaviour as they refer to it, tends to determine the actual factors that drive consumers when making buying decisions.

Madhavan and Chandrasekar (2015: 75) argued that the knowledge of consumer behaviour assists service providers in understanding how consumers think, feel and select from alternative products and brands, as well as how consumers are influenced by their environment. It was submitted that consumer behaviour may be influenced by cultural, social, personal and psychological factors. As such, service providers have to consider these factors in service production. Madhavan and Chandrasekar (2015: 75) admonished marketers should try to uncover as much as they can about their customers "by identifying their needs, understanding how they behave, investigating what influences them to decide to buy, and what processes they follow when selecting a product/service".

It is within such information that service providers are able to “target their marketing activities as precisely and cost effectively as possible” (Madhavan and Chandrasekar 2015: 75), especially when one considers the position by Stávková, Stejskal and Toufarová (2008) that some consumer behaviour research has proven that consumers purchase products for their subjectively perceived values, rather than their primary functions.

In summary, Madhavan and Chandrasekar (2015: 78) defined consumer behaviour theories as the study of individuals, groups, or organizations and the processes they use to select, secure, and dispose of products, services, experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and society”.

This is similar to Schiffman and Kanuk (2012: 136) who stated that studies on consumer behaviour “attempt to understand the buyer decision-making process through individual consumer characteristics such as demographics and behavioural variables in an attempt to understand consumers’ wants”. In turn, these research studies present subtle degrees of being aware and comprehension of the subject of purchases, as well as purchase intentions and regularity.

Sarvi Hampa (2007) identified key points in consumer behaviour and categorised consumer behaviour into different levels:

- It is stimulated, which suggests consumer behaviour is motivated by a specific purpose.
- It is a process wherein purchase, consumption and withdrawal of goods impact on consumer behaviour, just as the consuming process involves three steps, namely activities prior to purchase; purchasing activities; and the activities after purchase.
- It is influenced by external factors that suggest consumer behaviour has adaptive nature. Being compatible with their surrounding environment consumer decisions are largely influenced by external forces, with some of

these factors that include culture, family, reference groups, social class, and so on.

- It is impacted by different people who have different behaviours. This concept centres on the fact that no two customers are the same and as such, it is important to study consumers differently when the aim is to ascertain who the customers are, what they want, how they use and react to the product.

(Sarvi Hampa 2007)

Economists and scholars have contributed vastly to this field of study through several propositions of theoretical models. Among such scholars are:

- Nicosia's (1966) Model centred around an interactive design, where the firm tries to influence consumers and vice versa, through their actions and interaction;
- Kollat, Engel and Blackwell (1970) based their theory on the decision, information input, information processing and variables stage;
- The Stimulus-Response Model used a black-box analogy, where interpersonal and intrapersonal stimuli are used to examine consumer characteristics, while decision processes and consumer responses interact; and
- The Howard–Sheth (1968) Model, which distinguishes among three levels of learning namely: extensive problem solving, limiting problem solving and routinised response behaviour, to mention a few.

While all of these represent significant contributions, the 1968 Howard–Sheth Model seems more in line with the present research. The model speaks to consumer knowledge and beliefs about products/brands from three different decision-making perspectives. The first is from the perspective of a consumer with limited information and as such, the consumer constantly seeks information concerning a number of alternative products/brands. Second is that of a consumer who has partially established information about a product/brand but who is unable to fully assess the product/brand. Lastly, this occurs when the consumer's knowledge and beliefs about the brand and its alternative are well established.

The current study is premised on the assumption that green technology products, as well as their benefits, are still largely unknown to an extensive base of consumers. Hence, this coincides with Howard-Sheth's 1968 model, with regard to consumers whose knowledge about a product is limited or partial. With this in mind, the authors proposed a model with four consumer buying variables, as reproduced below:

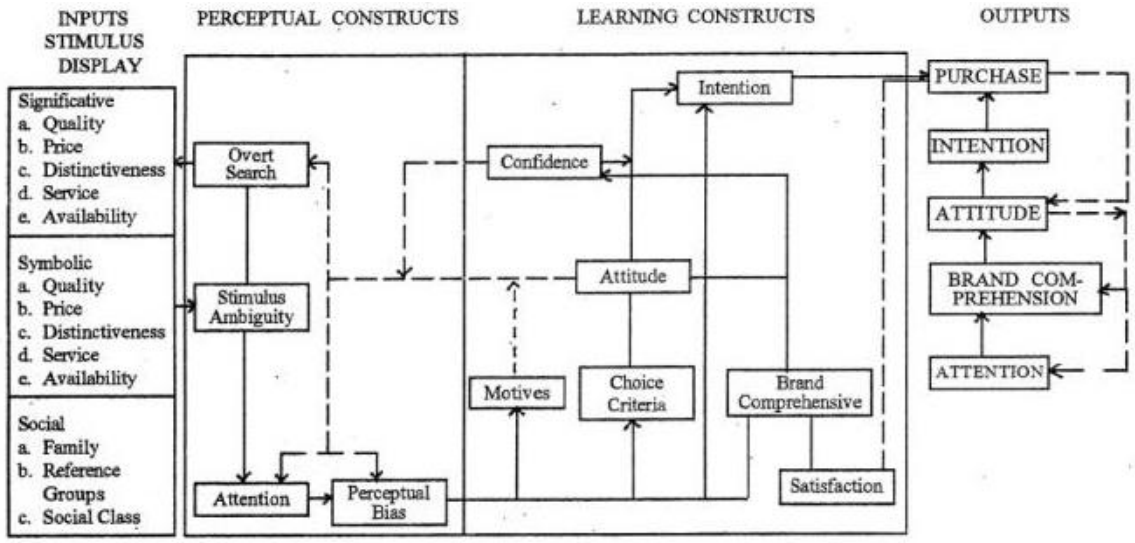

Figure 2.2: The Theory of Buyer Behaviour (Howard and Sheth 1968)

i. Input variables identify different types of stimuli, in other words, information sources, in the consumers' environment. Brand information, in terms of physical brand characteristics, is referred to as significative stimuli, while verbal and visual product characteristics are considered symbolic stimuli. The third type, however, belongs to the consumer's social environment (family, reference group, and social class). These stimuli all provide inputs concerning the product class or specific brands to the specific consumer.

ii. Perceptual and learning variables are concerned with psychological variables involved when consumers contemplate a decision, in other words, how the consumer receives and understands the information from the input stimuli.

iii. Output variables are the results of perceptual and learning variables and in what way consumers will respond to these variables (attention, brand comprehension, attitudes, and intention).

iv. External variables: Although these variables are not entirely a part of the decision-making process, they can also influence purchase. Examples of these variables are consumer personality traits, religion, and time pressure.

The 'Howard-Sheth model' creates a strong connection among practices of consumer behaviour in the purchasing and decision-making processes, in consonance with the characteristics of commodity in the markets. As such, apart from being a more comprehensive option, the model is sufficient for a study of this nature, given its potency in investigating buying behaviour of different types of products and consumers' brand choice behaviour.

Given this study's focus on customer expectations where green technology products are concerned, Fan, Qian and Huang (2012) identified major factors that influence consumer buying behaviour. Major factors that influence consumers according to Fan *et al.* (2012: 407), are "price consciousness, quality consciousness, familiarity with store brands and perceived quality of store brands". It thus remains to be seen what factors are important in achieving customer expectations through green technology products.

Oke *et al*. (2016 43) are of the opinion that there is "a positive link between decision making and consumer loyalty behaviours which are re-purchasing and word-of-mouth behaviour". Furthermore, factors identified include convenience to buy, taste, flavours, and price, along with packaging, as integral in influencing consumer decisions to buy or purchase. Moreover, perception values and perceived product or service quality are highlighted as significant factors that consequently lead to consumer loyalty behaviours.

Four main factors are identified by Lamb, Hair and McDaniel (2004) as influencing consumer buying behaviour. First, cultural factors are distinguished, inclusive of values, subculture and consumers' social class. The argument put forward by Lamb *et al*. (2004), is that these assertions create a basic value, perception, demands and behaviours influenced by the consumer's culture. Furthermore, social factors are identified whereby influence is exerted by family members and

friends, in addition to peer groups, colleagues and opinion leaders. This factor is seen to be important, specifically because of constant interactions between people and consumers thus being more likely to ask others' opinions to save the time and effort required by product search and evaluation.

The third factor, as determined by *Lamb et al*. (2004), is the individual factor that accounts for issues such as age, gender, personality, and family lifecycle stage, as well as lifestyle and self-concept, and so on. The opinion is that these individual features lead to perceptions and preferences. Lastly, the psychological factor comprises perception, motivation, learning, and attitudes, as well as beliefs, due to these often being the instruments consumers use to interact in society. Nonetheless, Lamb *et al*. (2004) suggested that consumer behaviour changes originate from the learning procedure of customers, which adds to their practices toward and experience of services or products.

2.7 Conclusion

In this chapter, relevant, global, scholarly literature was reviewed on the concept of green economy and customer expectations, while also finding a balance by appropriating the two concepts to provide a detailed view regarding the study objectives. Importantly, the theoretical perspective of this study was also discussed in relation to the significance of the study.

In the next chapter, the methodological underpinnings for this research are presented.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

Literature reviewed in the previous chapter allowed for a more in-depth view of the research topic and theories that underpin the study. In chapter three, the conceptual framework employed will be appraised with an examination of the research methodology employed. The chapter explains aspects such as research design and methods, target population and sampling, the data collection or measurement instrument, as well as the limitations of the study and method of analysis, in addition to validity, reliability, the pilot study and ethical issues.

3.2 Research Design

Research design offers the researcher an analytical approach to the coherent order of research. In other words, it creates an avenue for a researcher to work within a laid down frame, which serves as a guide to the work. According to Yin (2014: 13), “research design provides logical sequence for a researcher that will create a connection between the aims and objectives, questions of a research and the conclusion to the research”. This is further explained by Robson (1993: 38), as “the storyline according to which the research is to be conducted and the procedures that would be put to use in earmarking the answering of the research questions.”

While Kristonis (2009) explained research design as a general strategy by means of which a research study is conducted, including the steps that will be taken and the order in which the research will take place, Kerlinger (1986: 279) describes research design as the “plan and structure of the investigation, so conceived as to obtain answers to research questions”. It is further noted as the overall scheme or programme of the research, which includes an outline of what the investigator will do, from formulating hypotheses and their operational implications, to the final data analysis.

This study employs a quantitative research approach in actualising how green technology-based products can be used to achieve customer expectations. Yilmaz (2013: 311-315) defined quantitative research as “the use of numerical data in an approach that rationalises happenings or experiences, analysed through methods that are mathematically based, specifically statistics.” It is further also described as a “kind of experimentally observed study of a human problem or social phenomenon, putting a theory to the test that comprises variables analysed by means of statistics and measured with numbers.”

Along a similar vein, in Babbie’s (2010: 158) opinion, quantitative methods emphasise “objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques”. As such, the method focuses on gathering numerical data and generalising it across groups of people or to explain a particular phenomenon. In this case, a quantitative method is employed to study customer expectations of green technology.

Babbie (2010: 141) identifies the main characteristics of a quantitative research as follows:

i. Data is collected through structured research instruments.
ii. Results are based on larger sample sizes that are representative of the population.
iii. The research project can usually be replicated or repeated because of its high reliability.
iv. A set of research questions are employed for which answers are to be provided.
v. Different aspects of the study are thoroughly organised before data is gathered.
vi. Data are usually presented with numbers and statistics with the use of tables, charts, figures, or other non-textual forms.

vii. The project can be used to generalize concepts more widely, predict future results, or investigate causal relationships.
viii. The researcher employs instruments such as questionnaires or computer software to gather numerical data.

This study intends to be exploratory in nature, analysing and investigating how green-based products can be used to achieve customer expectations. Exploratory research, according to Swedberg (2018: 377), is common when “a topic has not been researched before or an existing topic is studied in order to produce new knowledge”. Scholars have established that an exploratory method is useful in examining a subject comprising high levels of uncertainty and ignorance. In other words, there may be very little existing information about the study topic.

Since the literature review established the current study topic as one that has not received enough attention from academics and researchers, this method seems appropriate to gain an understanding of customer expectations with regard to green technology products. Supporting literature exists to the fact that studies on green technology products remain in their infancy – as such, an exploratory method is considered necessary for this type of research.

3.3 Target Population

A target population is basically understood to be a group that possesses specific characteristics in which a researcher is interested (Brynard, Hanekom and Brynard 2014: 57). For Creswell (2007), the term “target population” refers to a group of participants or individuals with particular characteristics that are relevant to the study and of interest to the researcher. The target population for a survey is the entire set of units for which the survey data are to be used to make inferences. As explained by Welman, Kruger and Mitchell (2005: 46), a target population may be defined as a population that is “the study object, which may be made up of individuals, groups, organisations, humans, products and events”.

The study’s focal point is consumers of green technology-based products in the KZN province of SA, particularly the eThekwini municipality. According to the

eThekwini municipality's report on the "Analysis of green services and industries sector" (2013), there are 359 green industries in the eThekwini municipality.

These industries focus on the following: energy, waste management, environmental services, and natural resources, as well as retail/wholesale, property, agriculture, and water infrastructure, in addition to skills development. Research participants will mainly be drawn from target companies, in other words, consumers dealing in green technology-based products.

3.4 Sample size

A sample is perceived as a subset of a population. A sample population is used in this study by selecting a smaller category of the total population. It is hoped that the population selected can provide answers that will generalise the perceptions of consumers in the KZN province.

According to the eThekwini municipality's website (2017), there are approximately 3.5 million people in the municipality and as such, it is necessary to note it is impossible for this study to research the entire population. By implication, a sample needs to be selected, which is defined by Altinay and Paraskevas (2008: 89) as a "smaller group of elements drawn through a definite procedure, from a specified population, for inclusion in a study, from which the researcher hopes to gain generalisable knowledge about the entire population".

Across the different green sectors of green industries discussed above, a total of 400 consumers of green products were selected as respondents for the study. This is in line with Sekaran's (2003) assertion that sample sizes less than 500 and larger than 30 are appropriate for most research.

3.5 Sampling method

While Brynard *et al.* (2014: 56) stated sampling "is a technique employed to select a small group with a view to determining the characteristics of a large group", Pascoe (2014) identified two types of sampling, namely, probability and non-probability. Under the auspices of non-probability sampling, purposive sampling,

was employed in this research, which involves selection “based on the knowledge of a population and the purpose of the study which is exhibited by the researcher to suit the aims and objectives of the study” (Pascoe 2014: 137).

Purposive sampling is explained as a non-probability sampling technique where units to be sampled are selected by the researcher, based on the researcher’s professional opinion and knowledge (Altinay and Paraskevas 2008). This technique is advantageous because it can ensure each element of the sample assists with the research, due to each element corresponds with the study’s population parameters. In this regard, the investigator is able to select information that achieve the objectives of a specific purpose. Tongco (2007: 147) defined a purposive sampling technique “as the deliberate choice of an informant due to the qualities the informant possesses”. In this type of sampling technique, the researcher, make use of set criteria to identify what needs to be revealed in the study, and thus finds participants who can and are willing to provide the information by virtue of knowledge or experience (Bernard 2002).

In this research, only the consumers of green-based products will be purposely selected from target companies, as they would be the ideal population to discuss how these products meet their expectations.

3.6 Measuring instrument

According to Brynard *et al.* (2014: 49), measuring instruments “are used by researchers and practitioners to aid in the assessment of subjects”. The instruments are used to measure or collect data. A questionnaire was used as measurement instrument for the collection of data.

Plooy-Cilliers and Cronje (2014: 152) stated that a questionnaire is a useful method of gathering data in the social sciences because they can go to the depth of the people. Sansoni (2011) also considered a questionnaire as a document that is designed with the objective of obtaining specific information from participants and identified the strengths of using a questionnaire as its ability to reach a large

number of people within a limited time, while also yielding data not available by other means, resulting in a high level of generalisability.

For this research, the recruitment process will be based on several franchises in KZN that market green technology-based products. A questionnaire will be administered to consumers of green-based products, with the objective of understanding how much these green-based products meet their expectations.

3.7 Data analysis

Albers (2017) argued that the purpose of data analysis is to expose fundamental repetitions, tendencies, and associations of the “contextual situation” of a study. In this research, the data is described and analysed based on respondent responses through a statistical presentation. Results and findings derived from processed data are presented in the form of tables, graphs and charts. The quantitative analyses were quoted in software using the Statistical Package for Social Sciences (SPSS) version 26.0 (Muijs 2010).

3.8 Pre-testing

According to Hurst *et al*. (2017: 53–64), pretesting involves “the small-scale simulation of the prescribed process of data collection to distinguish functional problems with reference to instruments for the collection of data and the related method, as a means of discovering inaccuracies or defects in variables of survey measurement.” It is further argued that pre-testing can additionally provide advance warning about how or the reasons for the failure of a main research project by indicating where research protocols are not followed or impracticable.

Adequate pretesting was performed in order to determine that the questionnaire format was rightly and accurately understood by selected participants. Importantly, it was done to ensure the questions are relevant to the topical study. A total of 10 members, other than the respondents, were consulted for the pilot study.

3.9 Limitations and Delimitations

Several limitations were identified in this study including that the study only employed a quantitative approach. A mixed approach would perhaps have provided information from a qualitative perspective. The study would also have benefitted from a wide variety of literature; unfortunately, the array of literature present in the area of green technology and customer expectations was not considered sufficient.

In terms of delimitation, the study focused on KZN, a province in SA, with an estimated population of roughly 11 million people. Since it is impossible for a researcher to consult all possible samples, the study focused mainly on the eThekwini Municipality' as the municipality is the most populated one in KZN.

3.10 Validity and Reliability

Bonds-Raacke and Raacke (2012: 84) stated that validity is "the ability of your measurement to accurately measure what it is supposed to measure". Similarly, Heale and Twycross (2015: 66) defined validity as the "extent to which a concept is accurately measured in a quantitative study".

On the one hand, according to Koonin (2014: 252), reliability is the "credibility and consistency of a research, for example, whether a research would produce the same results if it were to be repeated by a different researcher using the same method or instrument". On the other hand, Heale and Twycross (2015) find that reliability relates to the consistency of a measure.

These two aspects of a research are inevitable. Where applicable, reliability will be tested using Cronbach's alpha. In other words, in what way a set of items are closely related as a group. Validity will also be ensured, as the instruments for data collection are strictly aligned to the aims and objectives of the research, in addition to that of the collected data.

The researcher ensured validity and reliability by testing the results derived more than once, by means of the test-retest method, in order to ascertain the reliability

of the findings. This yardstick ensured the founded facts were established by confirming and ascertaining the facts more than just once.

3.11 Anonymity and confidentiality

Louw (2014: 266) is of the opinion that “anonymity and confidentiality of participants are integral to ethical issues in research.” The concept is explained as a researcher’s ability to protect and conceal participant identity, in addition to sensitive information revealed by the participants. As such, it gives respondents enough freedom to share information without restraint. This research ensured anonymity and confidentiality by not requesting respondents’ names. As a result, no one could identify the respondents in any way. Furthermore, collection instruments were kept away from the public. This made it easy for respondents to freely share their true opinions without fear of being exposed.

3.12 Ethical considerations

Researchers must “act with integrity and adhere strictly to ethical principles and professional standards essential for practising research in a responsible way” (Louw 2014: 262).

The researcher was careful and sensitive to all information during data collection or fieldwork, in addition truth and honesty were ensured in the analysis and dealing with the data submitted by the respondents. Participants were, furthermore, informed that they were at liberty to withdraw from the research at any time should they no longer be interested in taking part in the research.

A consent form was provided to each respondent with expectations explained regarding the research. A community meeting was held by local authorities and councillors at which the researcher clarified the purpose and tenets of the research. Respondents signed the consent form when they were convinced of their willingness to participate in the research, before responding to the questionnaire.

3.13 Conclusion

This methodology chapter discussed the research design and methods employed for this study, while it also discussed sampling, the target population and data collection procedures. In addition, the limitations of the study, as well as the method of data analysis, were presented, along with issues such as validity, reliability, the pilot study undertaken and ethical issues.

The results and findings obtained from the study questionnaire are discussed in the next chapter.

CHAPTER FOUR
PRESENTATION OF DATA AND ANALYSIS

4.1 Introduction

After the previous chapter outlined the research methodology, this chapter presents the results and discusses the findings obtained from the study questionnaire; the primary tool used to collect data and distributed to consumers of green products within the eThekwini municipality. Data collected from the responses were analysed with SPSS version 26.0. The results will be presented as descriptive statistics in the form of graphs, cross tabulations and other figures for the quantitative data collected. Inferential techniques that include the use of correlations and chi square test values, which are interpreted using the p-values, were employed.

4.2 The Sample

In total, 500 questionnaires were despatched and 499 were returned, which gave a 99.8 percent response rate.

4.3 Biographical data

The biographical information of the respondents is described in this section.

4.3.1 Age

The age group of the respondents is detailed (Table 4.1). More of the respondents were within the age group 25-30 years (n=121; 24.2 percent), while the lowest representative number were found within the group aged 51-55 years (n=2; 0.4 percent). Overall, the majority of the respondents (n=318; 63.6 percent) were young adults, between 25-35 years old.

Table 4.1: Age group of respondents

Age group	Frequency	Percent
< 25	104	20.8
25 - 30	121	24.2
31 - 35	93	18.6
36 - 40	88	17.6

41 - 45	88	17.6
46 - 50	3	0.6
51 - 55	2	0.4
Total	499	100.0

4.3.2 Gender

The gender of the respondents is illustrated (Table 4.2), with 256 (51.3 percent) of the respondents being female and 243 (48.7 percent) identified as male.

Table 4.2: Respondents' gender

Gender	Frequency	Percent
Female	256	51.3
Male	243	48.7
Total	499	100.0

4.3.3 Respondents' race

The racial group of the respondents that participated in the survey are shown (Table 4.3). The majority of the respondents (n=443; 88.8 percent) are African, followed by White (n=23; 4.6), and Coloured (n=19; 3.8), while Indian respondents are part of the lowest representative group (n=14; 2.8 percent).

Table 4.3: Respondents' race

Race	Frequency	Percent
African	443	88.8
Coloured	19	3.8
Indian	14	2.8
White	23	4.6
Total	499	100.0

4.3.4 Residential area

The residential area indicated by the respondents is shown (Table 4.4), with more of the respondents (n=44; 8.8 percent) that reside in the Sizakela area.

Table 4.4: Respondents' area of residence

Area	Frequency	Percent
Bakea	35	7.0
Durban Central	36	7.2
Durban North	35	7.0

Hillcrest	35	7.0
Isiphingo	35	7.0
Kwadebeka	35	7.0
Kwamashu	35	7.0
Kwandengezi	36	7.2
Mlazi	36	7.2
Molweni	35	7.0
Ntuzuma	35	7.0
Pine Town	32	6.4
Sizekela	44	8.8
Toti	35	7.0
Total	499	100.0

4.3.5 Number of years

Prior to interpreting the data gathered, it was worth knowing the extent of time during which respondents had been using green technology products. It was found that more of the respondents (n=142; 28.5 percent) had made use of green technology products for between 6-10 years. Overall, more than half of the respondents (n=265; 53.1 percent) had used green technology for between 1-10 years (Figure 4.1).

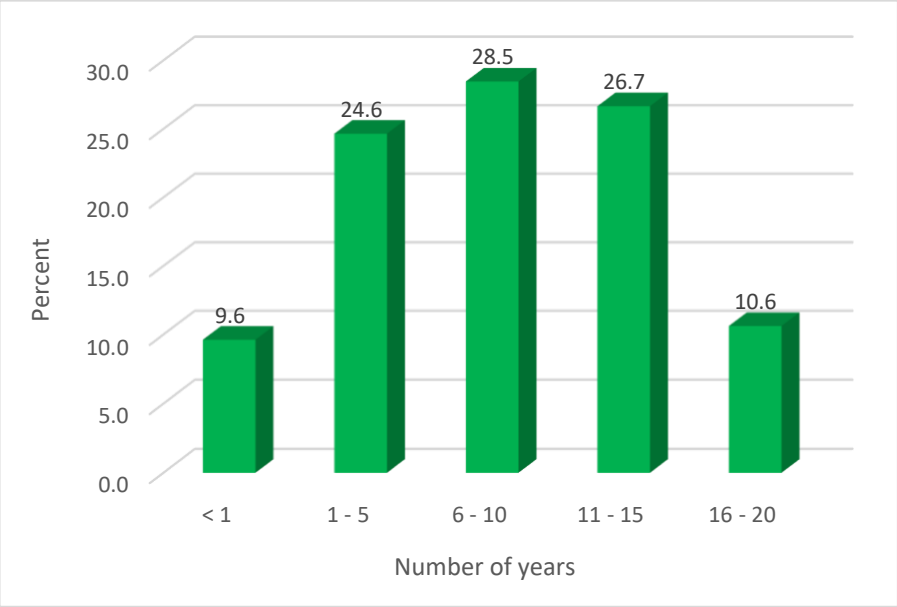

Figure 4.1: Number of years respondents had used green technology

4.4 Reliability of the research instrument

Reliability is computed by taking several measurements on the same subjects. A reliability coefficient with a Cronbach's alpha (α) of 0.60 or higher is considered as "acceptable" for newly developed constructs. Cronbach's alpha is defined as a measure of internal consistency, in other words, how closely related a set of items are as a group (UCLA Institute for Research and Education 2020). The calculated Cronbach's α coefficient was used to determine the internal consistency of the research instrument. The Cronbach's alpha score (Table 4.5) is reflected for all the items that constitute the questionnaire. It was observed that the reliability scores were lower than the recommended value. The lower alpha score measured may perhaps be attributed to inconsistencies due to varying levels of green product use.

Table 4.5: Reliability score

Cronbach's Alpha	N of Items
0.348	17

4.5 Perception of green products

The section that follows offers analyses of the scoring patterns of the respondents per variable per section. Results are first presented using summarised percentages for the variables that constitute each section, after which results are then further analysed according to the importance of the statements.

The Chi-Square test's task is to test the observed relationship's statistical significance, with regards to the expected relationship; the researcher uses this statistic to establish whether a relationship exists (Statistics Solutions 2020). As indicated by the level of significance (Table 4.6), the Chi-Square test revealed the scoring pattern per variable regarding the constructs measuring information on green products as statistically different ($p<0.001$). For example, the majority (n=383; 76.8 percent) of the respondents were in agreement (agree=39.1 percent; strongly agree=37.7 percent) that they very often use green technology-based products. Similarly, a high proportion (n=356; 71.4 percent) affirmed that they

prefer green technology-based products over other products (agree=32.5 percent; strongly agree=38.9 percent).

In terms of the statement, “The quality of green products meets your expectations”, the majority of respondents (n=363; 72.9 percent) believed (agree=33.9 percent; strongly agree=39 percent) the quality of green products meets their expectations. Regardless of this, only 59.6 percent (n=297) of the respondents were willing (agree=22.9 percent; strongly agree=36.7 percent) to always recommend green products to other people. Nevertheless, more of the respondents (n=341; 68.4 percent) claimed to be happy with green technology-based products (agree=31.9 percent; strongly agree=36.5 percent).

Regarding their experience with green technology-based products, the majority of respondents (n=381; 76.4 percent) revealed their experience has been excellent (agree=37.1 percent; strongly agree=39.3 percent). Hence, the majority of respondents (n=408; 81.8 percent) believed green technology-based products are easy to obtain (agree=36.3 percent; strongly agree=45.5 percent). While some of the respondents (n=191; 38.3 percent) were in disagreement (strongly disagree=8.6 percent; disagree=29.7 percent) that green technology-based products can be quite affordable, 212 (42.5 percent) were, however, in agreement (agree=25.9 percent; strongly agree=16.6 percent) with the statement.

Regardless of the above perceived contention on the affordability of green products, the majority of respondents (n=376; 75.4 percent) indicated agreement (agree=34.1 percent; strongly agree=41.3 percent) that green technology-based products are of high quality. Essentially, and owing to the perceived quality of green products, it was not surprising that the majority of respondents (n=443; 88.8 percent) indicated their family and friends use green technology-based products (agree=43.3 percent; strongly agree=45.5 percent). Given that both the respondents’ family and friends make use of green products, it was expected that the overwhelming majority of respondents (n=454; 91 percent) indicated green products are accessible in their area (agree=43.5 percent; 47.5 percent).

With reference to the environment issues, a high proportion of the respondents (n=444; 89.2 percent) believed green products are environmentally friendly (agree=41 percent; strongly agree=48.2 percent). Hence, the majority (n=452; 90.6 percent) claimed they will continue to use green products as a way of promoting an environmentally friendly society (agree=43.5 percent; strongly agree=47.1 percent). More so, the majority of respondents (n=473; 94.8 percent) claimed that they encourage others to use green products (agree=42.9 percent; strongly agree=51.9 percent).

Despite the above environmental benefits of green products, the majority of the respondents (n=425; 85.2 percent) were in disagreement (strongly disagree=46.5 percent; disagree=38.7 percent) that enough awareness is created about green products. Given the perceived lack of awareness, the majority of respondents (n=464; 93 percent) are of the view (agree=51.3 percent; strongly agree=41.7 percent) that there is a need to create more awareness regarding green products. The need for awareness regarding green products is critical as the majority of respondents (484; 97 percent) indicated the importance of everyone being environmentally friendly (agree=42.7 percent; strongly agree=54.3 percent).

Table 4.6: Respondents' perception on green product information

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
I use green technology-based products very often	B6	10	2.0%	75	15.0%	31	6.2%	195	39.1%	188	37.7%	0.000
I prefer green technology-based products over other products	B7	29	5.8%	49	9.8%	65	13.0%	162	32.5%	194	38.9%	0.000
The quality of green products meets your expectations	B8	2	0.4%	60	12.0%	73	14.7%	169	33.9%	194	39.0%	0.000
I recommend green products to other people always	B9	25	5.0%	63	12.7%	113	22.7%	114	22.9%	183	36.7%	0.000
I am happy with green technology-based products	B10	8	1.6%	13	2.6%	137	27.5%	159	31.9%	182	36.5%	0.000
My experience with green technology-based products has been excellent	B11	0	0.0%	1	0.2%	117	23.4%	185	37.1%	196	39.3%	0.000
Green technology-based products are easy to get	B12	2	0.4%	4	0.8%	85	17.0%	181	36.3%	227	45.5%	0.000
Green technology-based products can be much affordable	B13	43	8.6%	148	29.7%	96	19.2%	129	25.9%	83	16.6%	0.000
Green technology-based	B14	5	1.0%	7	1.4%	111	22.2%	170	34.1%	206	41.3%	0.000

products are of high quality												
My family and friends use green technology-based products	B15	0	0.0%	5	1.0%	51	10.2%	216	43.3%	227	45.5%	0.000
Green products are accessible in my area	B16	0	0.0%	0	0.0%	45	9.0%	217	43.5%	237	47.5%	0.000
Green products are environmentally friendly	B17	0	0.0%	0	0.0%	54	10.8%	204	41.0%	240	48.2%	0.000
I will continue to use green products as a way of promoting environmentally friendly society	B18	0	0.0%	0	0.0%	47	9.4%	217	43.5%	235	47.1%	0.000
I encourage others to use green products	B19	0	0.0%	0	0.0%	26	5.2%	214	42.9%	259	51.9%	0.000
Enough awareness is created about green products	B20	232	46.5%	193	38.7%	31	6.2%	20	4.0%	23	4.6%	0.000
There is the need to create more awareness regarding green products	B21	0	0.0%	0	0.0%	35	7.0%	256	51.3%	208	41.7%	0.000
It is important for everyone to be environmentally friendly	B22	0	0.0%	0	0.0%	15	3.0%	213	42.7%	271	54.3%	0.000
People should be encouraged to consider green products	B23	0	0.0%	4	0.8%	51	10.2%	186	37.3%	257	51.6%	0.000
Green products satisfy my needs	B24	37	7.4%	81	16.2%	84	16.8%	137	27.5%	160	32.1%	0.000
Green products are safe	B25	0	0.0%	0	0.0%	6	1.2%	229	46.0%	263	52.8%	0.000
Green products are healthy	B26	0	0.0%	0	0.0%	21	4.2%	228	45.7%	250	50.1%	0.000

Equally important is that the majority of respondents (443; 88.9 percent) were in agreement (agree=37.3 percent; strongly agree=51.6 percent) that people should be encouraged to consider green products. However, only 297 (59.6 percent) indicated the use of green products because it satisfies their needs, while more of the respondents (n=492; 98.8 percent) indicated their use of green products because these products are perceived as safe, and 478 (95.8 percent) indicated the use of green products because they were perceived as healthy.

4.5.1 Relationship between biographical information and perception on green products

This section detailed the relationship between respondents' biographical information (age, race, gender, and place of residence, as well as number of years they had used green products) and their perceived rating on information about green products. A second Chi-Square test was performed to determine whether there was a statistically significant relationship between the variables (rows vs columns).

As highlighted (Table 4.7), and in terms of the statement “I use green technology-based products very often”, it was found that rating of the respondents differs with respect to their residential area ($p<0.01$), and number of years they had used green products ($p<0.01$).

With regards to the statement “I prefer green technology-based products over other products”, it was found that respondents’ rating differs in respect of their gender ($p<0.01$) and residential area ($p<0.01$), while the statement “The quality of green products meets your expectations” significantly differs by residential area only ($p<0.01$). Regarding the statement “I recommend green products to other people always”, the rating of respondents differs with their residential area ($p<0.01$). However, the rating of respondents differs by the number of years they had used green products, as well as their residential area ($p<0.01$).

No difference was, however, observed with respect to the statement “My experience with green technology-based products has been excellent” ($P>0.05$). Notwithstanding this, it emerged that rating of the statement “Green technology-based products are easy to get” differs statistically with respect to respondents’ residential area ($p<0.01$), and race ($p=0.17$).

Furthermore, it emerged that the rating of respondents with respect to the statement “Green technology-based products can be much affordable” differs by their age ($p<0.01$), number of years they had used green products ($p=0.038$), their race ($p<0.01$), and residential area ($p<0.01$). More so, the rating of the statement “Green technology-based products are of high quality” also significantly differs with respect to respondents’ gender, race, and residential area ($p<0.01$).

In terms of the statement “My family and friends use green technology-based products”, it was observed that the rating of respondents differs only by their residential area ($p<0.01$). Moreover, it was found that the rating of the statement “Green products are accessible in my area” differs significantly by respondents’ number of years use of the products, gender, race, and residential area ($p<0.01$).

On the one hand, and regarding the statement “Green products are environmentally friendly, it emerged that the rating of respondents differs with respect to the number of years they had used the green product ($p<0.01$), their race ($p=0.039$) and residential area ($p<0.01$).

On the other hand, the rating of respondents only differs with respect to their residential area, with regards to the statement “I will continue to use green products as a way of promoting environmentally friendly society” ($p<0.01$). Additionally, and in terms of the statement “I encourage others to use green products”, it was found that the rating of respondents differs with respect to their race and residential area ($p<0.01$). Regarding the statement “Enough awareness is created about green products”, it was found that the rating of respondents differs by their age and residential area ($p<0.01$), while the rating of the statement “There is the need to create more awareness regarding green products” differs by their race and residential area ($p<0.01$).

Moreover, and regarding the statement “It is important for everyone to be environmentally friendly”, the rating of respondents differs by their age and residential area ($p<0.01$). However, only the rating of the statement “People should be encouraged to consider green products” differs by their residential area. Although respondents differ by their age, number of years they had used green products, and their residential area with respect to the statement “Green products satisfy my needs”, they, however, differ by their age ($p<0.01$) and gender ($p<0.01$), with respect to the statement “Green products are safe”, as well as gender ($p=0.043$) and residential area ($p<0.01$), with respect to the statement “Green products are healthy”.

Overall, and drawing from the above, it is sufficient to assume that the information on green products is largely dependent on the respondent’s residential area more than any other biographical factors.

Table 4.7: Relationship between biographical information and perception of green product information

Statement on Information on green products		Age	For how long have you been using green technology products?	Gender	Race	Residential place
I use green technology-based products very often	Chi-square	23.280	32.795	8.481	15.445	197.788
	df	24	16	4	12	52
	Sig.	0.503	.008*	0.075	0.218	.000*
I prefer green technology-based products over other products	Chi-square	24.444	19.512	14.051	15.496	238.529
	df	24	16	4	12	52
	Sig.	0.436	0.243	.007*	0.215	.000*
The quality of green products meets your expectations	Chi-square	22.538	24.639	1.358	18.527	183.750
	df	24	16	4	12	52
	Sig.	0.547	0.076	0.852	0.101	.000*
I recommend green products to other people always	Chi-square	21.871	20.931	1.340	17.134	143.794
	df	24	16	4	12	52
	Sig.	0.587	0.181	0.855	0.145	.000*
I am happy with green technology-based products	Chi-square	23.452	38.136	4.820	7.244	120.896
	df	24	16	4	12	52
	Sig.	0.493	.001*	0.306	0.841	.000*
My experience with green technology-based products has been excellent	Chi-square	11.381	10.881	1.031	7.108	51.962
	df	18	12	3	9	39
	Sig.	0.878	0.539	0.794	0.626	0.08
Green technology-based products are easy to get	Chi-square	30.214	24.779	1.055	24.542	133.190
	df	24	16	4	12	52
	Sig.	0.178	0.074	0.901	.017*	.000*
Green technology-based products can be much affordable	Chi-square	42.920	27.306	0.879	32.285	217.236
	df	24	16	4	12	52
	Sig.	.010*	.038*	0.928	.001*	.000*
Green technology-based products are of high quality	Chi-square	13.090	11.542	18.324	30.117	94.843
	df	24	16	4	12	52
	Sig.	0.965	0.775	.001*	.003*	.000*
My family and friends use green technology-based products	Chi-square	16.438	8.812	2.799	4.707	85.154
	df	18	12	3	9	39
	Sig.	0.562	0.719	0.424	0.859	.000*
Green products are accessible in my area	Chi-square	9.337	20.205	9.951	17.633	117.623
	df	12	8	2	6	26
	Sig.	0.674	.010*	.007*	.007*	.000*
Green products are environmentally friendly	Chi-square	12.434	26.133	1.181	13.289	141.234
	df	12	8	2	6	26
	Sig.	0.411	.001*	0.554	.039*	.000*
I will continue to use green products as a way of promoting environmentally	Chi-square	13.888	4.047	0.466	6.400	125.146
	df	12	8	2	6	26

friendly society	Sig.	0.308	0.853	0.792	0.38	.000*
I encourage others to use green products	Chi-square	16.807	15.206	3.305	40.674	115.525
	df	12	8	2	6	26
	Sig.	0.157	0.055	0.192	.000*	.000*
Enough awareness is created about green products	Chi-square	77.412	25.650	0.267	11.535	478.920
	df	24	16	4	12	52
	Sig.	.000*	0.059	0.992	0.484	.000*
There is the need to create more awareness regarding green products	Chi-square	12.293	11.044	4.696	26.185	105.499
	df	12	8	2	6	26
	Sig.	0.422	0.199	0.096	.000*	.000*
It is important for everyone to be environmentally friendly	Chi-square	32.146	12.692	1.991	10.045	130.967
	df	12	8	2	6	26
	Sig.	.001*	0.123	0.37	0.123	.000*
People should be encouraged to consider green products	Chi-square	20.713	18.023	3.011	7.934	123.345
	df	18	12	3	9	39
	Sig.	0.294	0.115	0.39	0.541	.000*
Green products satisfy my needs	Chi-square	41.141	48.205	5.146	8.787	194.422
	df	24	16	4	12	52
	Sig.	.016*	.000*	0.273	0.721	.000*
Green products are safe	Chi-square	47.767	9.032	0.877	37.639	31.467
	df	12	8	2	6	26
	Sig.	.000*	0.34	0.645	.000*	0.211
Green products are healthy	Chi-square	6.367	6.996	6.297	6.573	50.244
	df	12	8	2	6	26
	Sig.	0.896	0.537	.043*	0.362	.003*

4.6 Factor Analysis

Factor analysis is a form of analytical procedure often carried out using a combination of factor extraction and factor rotation (Knekta, Runyon and Eddy 2019), due to factor analysis having the ability to reduce the gathered items into smaller and more meaningful components or factors. Of importance is that a factor extraction method was employed to identify the underlying constructs and patterns of relationships among the items constituting the questionnaire. This was done in an attempt to validate the items that constitute information on green products, through exploratory factor analysis, making use of Principle component analysis (PCA) extraction method and Varimax rotation on all 21 statements that constitute the perceptions on green product information of the questionnaire was conducted. Before running the PCA, the suitability of the data for factor analysis was assessed. Using eigenvalues greater than-one, the principal component analysis revealed five components, with a total variance of 50.2 percent.

The correlation matrix revealed the presence of many coefficients of 0.5 and above. The Kaiser-Meyer-Olkin (KMO) value was 0.62 which exceeds the recommended value of 0.6 (Kaiser 1974) and the Bartlett's Test of Sphericity was statistically significant, thus supporting the suitability of the correlation matrix (Table 4.8).

Table 4.8: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.513
Bartlett's Test of Sphericity	Approx. Chi-Square	124.340
	Df	66
	Sig.	0.000

Table 4.9: Rotated Component Matrix

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.403	11.692	11.692	1.403	11.692	11.692	1.303	10.860	10.860
2	1.227	10.225	21.917	1.227	10.225	21.917	1.255	10.461	21.320
3	1.208	10.063	31.980	1.208	10.063	31.980	1.180	9.835	31.155
4	1.189	9.910	41.891	1.189	9.910	41.891	1.176	9.803	40.958
5	1.007	8.395	50.286	1.007	8.395	50.286	1.119	9.328	50.286

	Component				
	1	2	3	4	5
The quality of green products meets your expectations	0.267	0.512	0.032	0.036	-0.354
I recommend green products to other people always	0.666	0.028	-0.188	-0.210	-0.154
My experience with green technology-based products has been excellent	-0.213	0.488	0.125	0.245	-0.024
Green technology-based products are easy to get	0.237	0.552	-0.404	0.003	0.009
Green technology-based products are of high quality	0.016	-0.083	-0.192	0.768	0.079
My family and friends use green technology-based products	-0.066	0.612	0.055	-0.130	0.223
Green products are environmentally friendly	0.521	-0.076	0.121	0.345	0.215
I encourage others to use green products	-0.020	0.172	0.580	-0.063	0.325
It is important for everyone to be environmentally friendly	0.161	-0.061	0.721	0.038	-0.181
People should be encouraged to consider green products	0.617	0.025	0.162	0.024	0.028
Green products are safe	-0.032	0.155	0.170	0.581	-0.229
Green products are healthy	0.047	0.067	0.003	-0.044	0.822

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 8 iterations.

From the above factor extraction (Table 4.9), it was observed that the variables that constituted the perception on green product information loaded along five components (sub-themes). This means respondents identified different trends within the section; splits are colour-coded into five different factors.

These are highlighted as follows:
Factor 1: Recommendation of green products
Factor 2 and 4: Quality of green products
Factor 3: Environmental benefits of green products
Factor 5: Health benefits of green products

It is worth stressing that statements that loaded poorly were omitted from the factor analysis.

4.7 Conclusions

As per the summary of the above section, it can be seen that the majority of the respondents viewed green products as quality and environmentally friendly products. It was equally noted that green products are healthy and easy to use. However, the affordability of the product remains contentious amongst respondents, with the findings in this chapter having explicitly revealed a lack of awareness of green products, hence, the need to create awareness was highly recommended.

Overall, it was noted that rating of the statement measuring green products was largely dependent on respondents' residential area. In conclusion, the factor analysis performed revealed five different component analyses, grouped into four categories namely, quality of green products, environmental benefits, health benefits, and recommendation of green products.

The next chapter will provide a discussion of the study by drawing on relevant literature to support the results.

CHAPTER FIVE
SUMMARY OF FINDINGS

5.1 Introduction

Given the levels of concern with regards to climate change and the perceived negative impacts of human activities on the environment, the idea of green technology has become a welcome development in most parts of the world. Consequently, and owing to this, the last decade has witnessed a rise in the marketing of green technology-based products. This is perhaps as a result of the wide belief that green technology is a concept that protects nature and the environment. However, it has been documented in the literature that a gap remains between what green consumers demand and what businesses are currently able (or willing) to supply (Lemke and Luzio 2014). Bearing this in mind, the ultimate aim of this research was to investigate how green technology-based products can be used to achieve customer expectations in the KZN province of SA.

The research objectives undertaken in this study were:

- To critically evaluate customers' expectations of green technology-based products.
- To analyse how green technology-based products can be used to achieve customer expectations.
- To find the relationship between green technology and customer expectations.

5.2 Evaluation of customers of green technology-based products

In recent times, studies on green technology-based products have become exceedingly popular, given the conscious effort of customers generally proclaiming a move towards a system that protects the environment. While there has been an increase in the number of green products in the market, Yee and Yazdanifard (2014) claimed that product preferences play an important role in determining consumer intention of purchasing green products. According to the authors, consumers may be unwilling to buy green products when they perceive green products are of low quality in comparison to conventional products.

Consistent with this view, it was found that a high proportion of respondents that uses green products believed the quality of green products meets their expectations. As such, it is sufficient to assume that consumers' purchases of green products were largely dependent on the quality of the green products. This is in agreement with the notion by O'Connor (2008) that customer expectations essentially deal with meeting customer needs and requirements and in terms of how well the service level delivered matches customer satisfaction. Moreover, Al-Jazzazi and Sultan (2017: 275–297) further stressed that, "the quality of service can be understood as a comprehensive customer evaluation of a particular service and the extent to which it meets their expectations and provides satisfaction".

Essentially, it emerged that many respondents prefer green products instead of conventional products (Table 4.6). Corroborating findings by Ying-Ching and Chang (2012), it can be assumed that consumers are willing to buy green products rather than conventional products because they consider green products more effective. This is also reflected in the mood of consumers, with a large proportion that claimed to be happy with green technology-based products (Table 4.6). Thus, in support of Kotler's (2000) earlier assertion, it is sufficient to assume that customer expectation is the key to their satisfaction, delight and loyalty. This is supported by many of respondents' family and friends also using green technology-based products (Table 4.6).

In line with the assumption made by Almsalam (2014: 83), it can rightly be said that respondent satisfaction with green products is related to their expectation of green products being met. For example, it was observed that a large proportion of respondents viewed their experience with green products as excellent and they showed more willingness to recommend the product to other consumers (Table 4.6).

Despite the above, it emerged that the cost of green products may constitute a hindrance to the purchase or use of green products. It was found that some of the respondents had expressed misgivings with regards to the affordability of green

products (Table 4.6). Previously, others have shown that high prices are a major factor hindering green purchasing behaviour (Barber, Bishop and Gruen 2014; Steg *et al*. 2014).

As such, it can be assumed that when the price is much higher than consumer expectations, consumers may, on the one hand, choose not to buy green products. On the other hand, the cost of green products may be associated with benefits of green products over conventional products. As observed by Chen and Chang (2013), consumers have become more willing to pay extra for green products, due to having become conscious about the environment. This is also supported by the number of respondents in agreement that green products were much more affordable when compared against those who contended the affordability of green products (Table 4.6).

Furthermore, the accessibility of green products within respondents' residences gave credence to more consumers being able to afford green technology-based products. This, therefore, aligns with the observation by Chen and Chang (2013) that the green market has become an important new market for companies, as there is a high demand for more environmentally friendly products.

More importantly, and resonating with the Ying-Ching and Chang (2012) argument, the willingness to purchase green products, regardless of the price, will be greater than for that of conventional products. This willingness may be further heightened by the awareness of environmental issues and consequent experience of significant levels of environmental concern (Ying-Ching and Chang 2012).

In agreement with this, it was found that a high proportion of respondents claimed they would continue to use green products as a way of promoting an environmentally friendly society. Given the environmental benefits, it was not surprising to note that many of the respondents strongly appealed to other consumers to use green products, and become environmentally friendly (Table 4.6). Accordingly, it is sufficient to say that the environmental considerations are the actual reasons consumers are willing to purchase green products. This

supports the statement made by Shamsi and Siddiqui (2017) that consumers are motivated to use green products because of environmental sustainability and their personal consciousness towards protection of the environment. Hence, Bilgihan *et al*. (2016) conclusively suggested that the pressure exerted by a subject's immediate environment may influence service expectations.

Apart from the environmental benefits of green products, it was also found that health and safety benefits of green products were a strong motivation for its use among many respondents. Similar results were observed in a study by Govender and Govender (2016:77), wherein most respondents perceived green products as healthy, good for the environment and superior to conventional products. Arguably, the health and safety influence of green product purchases may be linked with the increase in the number of outbreaks of food-borne disease commonly associated with conventional products (Stephan *et al*. 2015). Thus, and corroborating study results of Mishra and Sharma (2010), it is sensible to suggest that green consumers may avoid products likely to endanger the health of the consumer.

Despite the above positive environmental, and health and safety benefits of green technology-based products, there was, however, poor awareness with regards to green products (Table 4.6). This finding agrees with Ottman (2017) who found that South Africans spend an insignificant amount on green products, due to the low level of awareness of green products in SA. On the contrary, Govender and Govender (2016: 17) found elements of green products raise awareness and encourage a positive change in consumption behaviour. Other scholars noted that due to environmental issues, consumers are fast becoming aware of green marketing practices and products (Bhatia and Jain 2013).

The difference between this study and other related studies may be associated with the level of green marketing. This is supported by the fact that many respondents advocated for the need to create more awareness regarding green products. Hence, and consistent with the opinion of Kumar (2015), the lack of awareness of green products may be attributed to a lack of education and

insufficient research work in the field of eco-friendly products. It is therefore suggested that marketers need to emphasise green marketing, as consumers are ready to pay a premium price for green products. Consistent with findings reported by Saifur-Rahman *et al*. (2017: 9), this can be achieved through the organising of a “different awareness program and provide information about the green products and its ecological benefit”.

5.3 Evaluating the relationship between green technology and customer expectations

According to Rahim and Musa (2018), the purchase intention of green products and consumer attitudes towards environmentally friendly products are affected by the socio-economic characteristics of the green consumer, such as gender, age, education, and income, as well as occupation. Consistent with this view, it was found that respondent age, race, gender, and more especially, the residential area, influence expectations and use of green products (Table 4.7).

It emerged that respondent gender and residential area greatly influence the preference of green products. As highlighted by Rahim and Musa (2018), both females and males have their own taste and preferences. This, perhaps, could have contributed to the differences found in the preferences of green technology-based products over conventional products. It was found that more females prefer green products over other products, when compared to the preferences exhibited by males. The finding agrees with Lee, Kang, Hsu, and Hung (2009), who stated that female consumers are more likely to intend to purchase green products because they are more environmentally conscious, when compared to male consumers.

In terms of the affordability of green technology-based products, it was found that the respondent age group was a vital determinant to product affordability. A study by Creusen (2010) has shown that age has an impact on buying products, with younger people shown to make simpler product purchasing decisions in comparison to older people, whose purchasing decisions are more complex because they are more cautious in choosing a product. In support of the above

author, the findings from this study revealed that younger respondents viewed green products as affordable. On the one hand, as stated by Lee *et al.* (2009), younger consumers are willing to accept new and innovative ideas and thus most likely to be supporters of green products, regardless of the cost.

On the other hand, it emerged that respondents who had used green products for longer, were also able to better appreciate the environmental benefits of green products. Further to this, previous research indicated female consumers as having a higher purchase intention for an environmentally friendly food product than male consumers, and younger people tend to have a negative position in relation to some environmental aspects (Finisterra do Paco and Raposo 2010). Nonetheless, the current study found no difference in the relationship between gender and age, and the environmental expectation of green products.

This may, however, be related to the recent global concern in respect of climate change and the need to conserve the environment by going green. This resonates with a general view that desires and expectations change, sometimes considerably, with the passage of time. Consequently, and as argued by Schiffman and Kanuk (2012: 136), “knowledge developed by individuals about the world and the attitudes they develop in response to it are constantly revised as the different life stages are experienced”.

5.4 Conclusion

Overall, it emerged from the study findings that the expectation of green products in terms of their quality, affordability, and environmental benefits differs with the residential area of the respondents. This may likely be associated with whether the setting is positioned in suburban, urban, peri-urban, or rural areas of the residential location. According to findings by Mncwabe (2019), suburban residents appreciate the quality and environmental benefits of green products, and thus, they are more likely to purchase green products, regardless of the price. Moreover, given the economic inequality in SA, it can be said that rural residents may struggle with the affordability of green products.

CHAPTER SIX
CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The severity of environmental problems in recent years has contributed to a growing demand and concern for green products. While green products are considered environmentally friendly products and are conducive to environmental protection, a significant gap remains between what green consumers are demanding and what businesses are currently able to supply. Therefore, the focus of this study was to investigate how green technology-based products could be used to achieve customer expectations in the KZN province of SA. This chapter concludes by drawing on the discussion of the study findings to provide recommendations on how business can meet customer expectations with regards to green products.

6.2 Conclusions

The findings of this study have explicitly underscored the expectations of green consumers where green technology-based products are concerned. It emerged that green consumers in the KZN province were most concerned with the quality, environmental and health benefits of green products. Although the affordability of green products was contentious, it was, however, noted that green consumers will be more willing to pay for green technology-based products when the quality exceeds that of conventional products. This is in line with achieving the research objective, which was to critically evaluate customer expectations of green technology-based products.

Despite the perceived environmental and health benefits of green products and its relationship with customer expectations of green products, it emerged from the study that there is limited awareness of green technology-based products in the KZN province. The findings from this study therefore suggest the need to increase awareness of green technology-based products. This is in line with achieving the research objective of analysing how green technology-based products can be used to achieve customer expectations.

In terms of the relationship between the socio-demographic determinants of green product expectations, and in line with achieving the research objective to determine the relationship between green technology and customer expectations, the prominent aspect of this study confirmed the respondent gender greatly influenced their preferences of green products. Equally, and in terms of the affordability and quality of green products, this study revealed that respondents' age, race, residential area and the number of years they had used green products, were determinants of green product usage. With regards to the environmental expectations of green products, the study further conclusively revealed that age and residential area were determinants in customer expectations of green technology-based products.

6.3 Recommendations

Despite the perceived environmental, health and safety benefits of green products, it emerged that the awareness of green technology-based products was very poor in the KZN province. Hence, the following recommendations are proposed on how to increase the awareness of green technology-based products in the province:

- Education of the public with regards to eco-friendly products and its importance to the environment.
- Marketers should focus on green marketing by way of labelling and advertising green products.
- Businesses dealing in green technology-based products should organise programmes that will provide information in respect of green products and its ecological benefits.

6.4 Further study

Scope for further study lies in broadening the geographical area to other provinces, in order that results may be generalised, while other aspects that should be investigated could include:

- Government initiatives in the promotion of green products;

- A comparison between South African and global green marketing initiatives;
- The state of green marketing initiates and their impact on consumer behaviour and expectations

6.5 Conclusion

In conclusion, this study has exhaustively evaluated and analyse the expectations of customers in the KZN province regarding green technology-based products. The results suggest that the product quality, affordability, environmental, and health and safety benefits are critical in meeting the expectation of green customers in the province. Therefore, the study recommends that businesses dealing in green products should educate the public on the ecological benefits of green products.

References

Aithal, S. and Aithal, S. 2016. Opportunities and Challenges for Green Technology in 21st Century. *International Journal of Current Research and Modern Education*, *I*(I): 818-828.

Albers, M. J. 2017. Quantitative Data Analysis – In the Graduate Curriculum. *Journal of Technical Writing and Communication, 47*(4): DOI: 10.1177/0047281617692067.

Albino, V., Balice, A., Dangelico, R. 2009. Environmental strategies and green product development: an overview on sustainability-driven companies. *Business Strategy and the Environment*, 18: 83-96.

Ali, R., Leifu, G., Rafiq, M. Y. and Hassan, M. 2015. Role of perceived value, customer expectation, corporate image and perceived service quality on the customer satisfaction. *The Journal of Applied Business Research*, 31(4): 1425-1436.

Al-Jazzazi, A. and Sultan, P. 2017. Demographic differences in Jordanian bank service quality perceptions. *Int. J. Bank Mark*, *35*: 275–297.

Almsalam, S. 2014. The effects of customer expectation and perceived service quality on customer satisfaction. *International Journal of Business and Management Invention*, 3(8): 79-84.

Alniacik, U. and Yilmaz, C. 2012. The effectiveness of green advertising: Influences of claims specificity, product's environmental relevance and consumers' pro-environmental orientation. *Economic Inferences*, *14*, 207-222.

Altinay, L. and Paraskevas, A. 2008. *Planning research in hospitality and tourism.* London: Routledge.

Babbie, E. R. 2010. *The Practice of Social Research*. 12th ed. Belmont, CA: Wadsworth Cengage.

Bao, C. 2018. Ecological civilization: A discourse in the making. *China Daily,* 31 August 2018.

Barber, N. A., Bishop, M. and Gruen, T. 2014. Who pays more (or less) for pro-environmental consumer goods? *Journal of Environmental Psychology, 40*, December, pp. 218-227.

Bernard, H. R. 2002. *Research Methods in Anthropology: Qualitative and quantitative methods*. 3rd ed. California: AltaMira Press.

Bhalerao, S. A. 2014. Green marketing: A new marketing strategy for environmentally compatible products. *International Journal of Development Research, 4*(8): 1757-1764.

Bhatia, M., & Jain, A. 2013. Green marketing: A study of consumer perception and preferences in India. *Electronic Green Journal, 1*(36), 1-19.

Bilgihan, A., Barreda, A., Okumus, F., and Nusair, K. 2016. Consumer perception of knowledge-sharing in travel-related online social networks. *Tour. Manag*. 52, 287–296.

Björlin-Lidén, S. and Skålén, P. 2003. The effect of service guarantees on service recovery. *International Journal of Service Management*, *14*(1): 36-58.

Bonds-Raacke, J. and Raacke J. 2012. *Research methods: are you equipped?* Boston: Prentice Hall.

Boye, J. I. and Arcand, Y. 2013. Current Trends in Green Technologies in Food Production and Processing. *Food Eng. Review, 5*: 1–17.

Brynard, D., Hanekom, S. and Brynard, P. 2014. *Introduction to research*. Pretoria: Van Schaik Publishers.

Chen, T. B., & Chai, L. T. 2010. Attitude towards the environment and green products: consumers' perspective. *Management Science and Engineering*, *4*(2), 27-39.

Chen, Y-S and Chang, C-H. 2013. Towards Green Trust: The influences of green perceived quality, green perceived risk and green satisfaction. *Management Decision, 51*(1). DOI: 10.1108/00251741311291319.

Cherian, J. and Jacob, J. 2012. Green marketing: A study of consumers' attitude towards environment friendly products. *Asían Social Science, 8*(12), 117-126.

Creswell, J. W. 2007. *Qualitative inquiry and research design: Choosing among five approaches.* 2nd ed. Thousand Oaks, CA: Sage.

Creusen, M. H. 2010. The Importance of Product Aspects in Choice: the Influence of Demographic Characteristics, *Journal of Consumer Marketing, 27*(1): 26-34.

Dale, B. G. and van der Wiele, T. 2007. *Managing quality.* Oxford, Blackwell Publishing: Oxford.

Dangelico, R. M. and Vocalelli, D. 2017. Green marketing: An analysis of definitions, strategy steps, and tools through a systematic review of the literature. *Journal of Clean Products*, 165: 1263–1279.

Das Soni, G. 2015. Advantages of green technology. *International Journal of Research, 3*(9): 1-5.

De Souza, L. P., Lê Faroni, R., D'Antonino, F. F., Heleno, P. R., Cecon, T. D. C., Gonçalves, G., Da Silva, J. and Prates, L. H. F. 2018. Effects of Ozone Treatment on Post Harvest Carrot Quality. *LWT - Food Science and Technology*, 90: 53-60.

Delafrooz, N., Taleghani, M. and Nouri, B. 2014. Effect of green marketing on consumer purchase behavior. *QScience Connect*, 1(5): 22-30.

Department of Science and Technology. 2014. The State of Green Technologies in South Africa. ASSAf, ISBN 978-0-9922286-6-8, November 2014, 240 pages.

D'Souza, C., Taghian, M., Khosla, R. 2007. Examination of environmental beliefs and its impact on the influence of price, quality and demographic characteristics with respect to green purchase intention. *Journal of Targeting, Measurement and Analysis for Marketing*, 15(2): 69-78.

Elham Rahbar, N. A. 2011. Investigation of green marketing tools' effect on consumers' purchase behaviour. *Business strategy series, 12*(2): 73-83.

eThekwini Municipality. 2013. *Analysis of the Green Services and Industries Sector in Ethekwini.* Economic Development & Investment Promotion Unit: eThekwini Municipality.

eThekwini Municipality. 2017. Official website. Available: http://www.durban.gov.za/Discover_Durban/Pages/AboutEM.aspx (Accessed 18 June 2020).

Fan, X., Qian, Y. and Huang, P. 2012. Factors influencing consumer behaviour towards store brand: A meta-analysis. *International Journal of Market Research, 54*(3): 407-430.

Finisterra do Paco, A. M. and Raposo, M. L. B. 2010. Green consumer market segmentation: empirical findings from Portugal, *International Journal of Consumer Studies*, 34(4): 429-436.

FuiYeng, W. and Yazdanifard, R. 2015. Green marketing: A study of consumers' buying behavior in relation to green products. *Global Journal of Management and Business Research, 15*(5): 17-23.

Govender, J. P. and Govender, T. L. 2016. The influence of green marketing on consumer purchase behavior. *Environmental Economics, 7*(2): 77-85.

Gures, N., Arslan, S. and Tun, S. 2014. Customer Expectation, Satisfaction and Loyalty Relationship in Turkish Airline Industry. *International Journal of Marketing Studies, 6*(1): 66-74.

Heale, R. and Twycross, A. 2015. Validity and reliability in quantitative studies. Evid *Based Nurs,* 18(3): 66-68.

Howard, J., & Sheth, J. N. 1968. *The theory of buyer behavior*. New York, NY: John Wiley.

Hughner, R.S., McDonagh, P., Prothero, A., Shultz, C.J. and Stanton, J. 2007. Who are organic food consumers? A compilation and review of why people purchase organic food. *Journal of Consumer Behaviour, 6*(3): 94-110.

Hurst, S., Arulogun, O. S., Owolabi, M. O., Akinyemi, R., Uvere, E., Warth, S., & Ovbiagele, B. 2015. Pretesting qualitative data collection procedures to facilitate methodological adherence and team building in Nigeria. *International Journal of Qualitative Methods, 14*(1): 53–64.

Iravania, M. R., Zadehb, M. S., Foroziac, A., Shafaruddind, N. and Mahroeiane, H. 2012. Study of factors affecting young consumers to choose green products. *Journal of Basic and Applied Scientific Research, 2*(6): 5534-5544.

Joshi, Y. and Rahman, Z. 2015. Factors affecting green purchase behaviour and future research directions. *International Strategic Management Review, 3*(1-2): 128-143.

Kaiser, H. F. 1974. An index of factorial simplicity. *Psychometrika*, 39, 31-36.

Kasapila, W. 2006. Young adults' satisfaction regarding their dining experience in casual dining restaurants in Hatfield, Pretoria. Master's Dissertation. University of Pretoria.

Kerlinger, F. N. 1986. *Foundations of behavioral research.* 3rd ed. Fort Worth: Winston.

Knekta, E., Runyon, C. and Eddy, S. 2019. One size doesn't fit all: Using Factor Analysis to gather validity evidence when using surveys in your research. *CBE Lif Sci Educ,* 1-17, Spring 2019. DOI: 10.1187/cbe.18-04-0064.

Kollat, D. T., Engel, J. F. and Blackwell, R. D. 1970. Current problems in consumer behavior research. *Journal of Marketing Research*, pp. 327-332.

Koonin, M. 2014. Validity and reliability. In: Plooy-Cilliers, F., Davis, C. and Bezuidenhout, R. eds. *Research matters*. Cape Town: Juta and Company Ltd., 252-261.

Kotler, P. 2000. *Marketing management*: The Millennium Edition. 14th ed. Pearson Prentice Hall: Upper Saddle River, N.J.

Kotler, P. and Keller, K. 2011. *Marketing management*. 14th ed. London: Pearson Education.

Kristonis, W. A. 2009. *Research design and methodology*. Available: http://www.slideshare.net/guestcc1ebaf/research-design-and-methodology (Accessed 10 June 2019).

Kumar, P. 2015. Green marketing products in India. *DAV Academic Review*, *1*(1): 1-12.

Lamb, C. W., Hair, J. F., McDaniel, C. 2004. *Marketing*. 7th ed. Oxford: Oxford University Press.

Lassoued, R., and Hobbs, J. E. 2015. Consumer confidence in credence attributes: the role of brand trust. *Food Policy 52*: 99–107.

Lee, A. H. I., Kang, H-Y, Hsu, C-F, Hung, S-C. 2009. A green supplier selection model for high-tech industry. *Expert Systems with Applications, 36*: 7917-7927.

Lekhanya, L. M. 2014. The level of awareness of green marketing and its managerial implications amongst selected South African manufacturing Small, Medium and Micro Enterprises (SMMEs) in KwaZulu–Natal. *Journal of Economics and Behavioral Studies, 6*(8): 625-635.

Lemke, F. and Luzio J. P. 2014. Exploring green consumers' mind-set toward green product design and life cycle assessment. *Industrial Ecology as a Source of Competitive Advantage, 18*(5): 619-630.

Lieskovska, V. Z. 2010. *Marketing*. Ekonóm: Bratislava, Slovakia.

Liu, M-S., Wu, S-D. 2009. Green Supplier Assessment: A Case Study of the Fire Extinguisher Industry. *Journal of American Academy of Business, 14*(2): 104-111.

Louw, M. 2014. Ethics in research, 262-273. In: Plooy-Cilliers, F., Davis, C. and Bezuidenhout, R. eds. *Research matters*. Cape Town: Juta and Company Ltd.

MacInnis, D. J. and Folkes, V. S. 2010. The disciplinary status of consumer behaviour: A sociology of science perspective on key controversies. *Journal of Consumer Research, 36*: 899-914.

Madhavan, M. and Chandrasekar, K. 2015. Consumer buying behaviour - an overview of theory and models. *St. Theresa Journal of Humanities and Social Sciences, 1*(1): 74-112.

McGain, F. and Naylor, C. 2014. Environmental sustainability in hospitals – a systematic review and research agenda. *Journal of Health Services Research and Policy, 19*(4): 245-252.

Méndez-Aparicio, M.D., Izquierdo-Yusta, A. and Jiménez-Zarco, A. 2017. Consumer expectations of online services in the insurance industry: an exploratory study of drivers and outcomes. *Front. Psychol.* 8: 1-14.

Mishra, P. and Sharma, P. 2010. Green Marketing in India: Emerging Opportunities and Challenges. *Journal of Engineering, Science and Management*, *3*: 9-14.

Mncwabe, S. B. 2019. Perceptions of retail managers and consumers of green products. MTech dissertation. DUT.

Moravcikova, D., Krizanova, A., Kliestikova, J. and Rypakova, M. 2017. Green marketing as the source of the competitive advantage of the business. *Sustainability, 9*: 1-10.

Muijs, D. 2010. *Doing Quantitative Research in Education with SPSS*. 2nd ed. London: SAGE Publications.

Narteh, B. 2015, Perceived service quality and satisfaction of self-service technology, *International Journal of Quality & Reliability Management, 32*(4), 361–380.

Narula, S. A. and Desore, A. 2016. Framing green consumer behavior research: opportunities and challenges. *Social Responsibility Journal, 12*(1): 1-22. ISSN 1747-1117.

Naudé, P. and Rudansky-Kloppers, S. 2016. Perceptions of customers regarding their expectations of service quality in South African full-service restaurants. *International Business and Economics Research Journal, 15*(2): 55-68.

Nicosia, F. M., 1966. *Consumer decision processes; marketing and advertising implications*. Prentice Hall.

O'Connor, M. 2008. To investigate customer expectations and perceptions of service in the restaurant sector. Master's Thesis, Dublin Institute of Technology.

Oke, A. O., Kamolshotiros, P., Popoola, O. Y., Ajagbe, M. A. and Olujobi, O. J. 2016. Consumer behaviour towards decision making and loyalty to particular brands. International Review of Management and Marketing, 6(4): 43-52.

Olson, J. C. and Dover, P. 1979. Disconfirmation of consumer expectation through product trial. *Journal of Applied Psychology*, 64(April): 179-89.

Ottman, J. 2017. *The New Rules of Green marketing: Strategies, Tools and Inspiration for Sustainable Branding*. J. Ottman Consulting, NYC

Pakurár, M., Haddad, H., Nagy, J., Popp, J. and Oláh, J. 2019. The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. *Sustainability 2019, 11*(4): 1113-1119.

Pandiselvam, R., Subhashini, S., Banuu Priya, E. P., Kothakota, A., Ramesh, S. V. and Shahir, S. 2019. Ozone based food preservation: a promising green technology for enhanced food safety, *Ozone: Science & Engineering, 41*:1, 17-34.

Pascoe, G. 2014. *Research Matters.* Chapter 11: Sampling. Juta & Company Ltd. Cape Town. pp. 131-146.

Peattie, K. 2012. *Marketing and sustainability*. Cardiff: Brass Centre.

Peighambari, K., Sattari, S., Kordestani, A. and Oghazi, P. 2016. Consumer behaviour research: a synthesis of the recent literature. *SAGE Open*, 1-9.

Pickett-Baker, J., Ozaki, R. 2008. Pro-environmental products: Marketing influence on consumer purchase decision. *Journal of Consumer Marketing, 25*(5): 281-293.

Plooy-Cilliers, F. and Cronje, J. 2014. Quantitative data collection. In: Plooy-Cilliers, F., Davis, C. and Bezuidenhout, R. eds. *Research matters*. Cape Town: Juta and Company Ltd., 147-194.

Polonsky, M. J. 2011. Transformative green marketing: Impediments and opportunities. *Journal of Business Research, 64*(12), 1311–1319.

Rahim, F. and Musa, H. 2018. Green technology awareness: A case of Malaysia, *Environment and Social Psychology, 3*(1): 1-5.

Rajeshkumar, L. 2012. An Overview of Green Marketing. *Naamex Management Research*, 2(1): 128-136.

Robson, C. 1993. Real World Research. A Resource for Social Scientists and Practitioner Researchers. Blackwell Publishers Inc.: Oxford.

Saeed, Z. 2019. A Study of Theories on Consumer Behavior. *Journal of computing and management studies 1*(3), January 2019. ISSN 2516-2047.

Saifur-Rahman, A. S. M., Barua, A., Hoque, R. and Rifat-Zahir, M. D. 2017. Influence of green marketing on consumer behaviour: A realistic study on Bangladesh. *Global Journal of Management and Business Research, 17*(1): 9-16.

Saini, B. 2013. Green marketing and its impact on consumer buying behaviour. (12): 61-64.

Sansoni, J. E. 2011. *Questionnaire design and systematic literature reviews*. Canberra: University of Canberra.

Sarvi Hampa, H. 2007. The effect of valuable variable on willingness to buy (test models of consumer behaviour). Master's thesis, University of Beheshti.

Schiffman, L. G. & Kanuk. L. L. 2012. *Consumer behavior.* New Delhi: Prentice Hall.

Sekaran, U. 2003. *Research methods for business: A skill-building approach*. 4th ed. New York: John Wiley & Sons, Inc.

Shamsi, M. S. and Siddiqui, Z. S. 2017. Green product and consumer behavior: An analytical study. *Pertanika J. Soc. Sci. & Hum, 25*(4): 1545–1554.

Shapira, P., Gok, A., Klochikin, E. and Sensier, M. 2014. Probing “green” industry enterprises in the UK: A new identification approach. *Technological Forecasting and Social Change, 85*: 93-104.

Sheth, J. N. 1973. A model of industrial buyer behaviour. *The Journal of Marketing*, 50-56.

Statistics Solutions. 2020. *Chi Square Test*. Available: https://www.statisticssolutions.com/chi-square-test/ (Accessed 20 June 2020).

Stávková, J., Stejskal, L. & Toufarová, Z. 2008. Factors influencing consumer behaviour. *Emedelska ekonomika-praha*, p. 276.

Steg, L., Perlaviciute, G., Van der Werff, E. and Lurvink, J. 2012. The Significance of Hedonic Values for Environmentally Relevant Attitudes, Preferences and Actions. *Environment and Behavior, 46*(2). DOI: 10.1177/0013916512454730.

Stephan, R., D. Althaus, S. Kiefer, A. Lehner, C. Hatz, C. Schmutz, M. Jost, N. Gerber, A. Baumgartner, H. Hächler, et al. 2015. Foodborne Transmission of Listeria Monocytogenes via Ready-To-Eat Salad: A Nationwide Outbreak in Switzerland, 2013–2014. *Food Control, 57*: 14–17.

Swedberg, R. 2018. On the uses of exploratory research and explanatory studies in social science. *Sociological Methods and Research,* 45(3): 375-391.

Taylor, L. and Hochuli, D. F. 2015. Creating better cities: How biodiversity and ecosystem functioning enhance urban residents’ wellbeing. *Urban Ecosystems, 18*(3): 747-762.

Thakur, K. S. and Gupta, S. 2012. Exploration of green shift: shift from trendy marketing to environmentally friendly green marketing. *International Journal of Arts and Commerce, 1*(7): 1.

Tongco, D. C. 2007. Purposive sampling as a tool for informant selection. *Ethnobotany Research & Applications, 5*: 147-158.

Triebswetter, U., Wackerbauer, J. 2008. Integrated environmental product innovation and impacts on company competitiveness: a case study of the automotive industry in the region of Munich. *European Environment*, *18*: 30-44.

UCLA Institute for Research and Education. 2020. *What does Cronbach's alpha mean?* Available: https://stats.idre.ucla.edu/spss/faq/what-does-cronbachs-alpha-mean/ (Accessed 20 June 2020).

Welman, C., Kruger, F. and Mitchell, B. 2005. *Research Methodology.* 3rd ed. Cape Town: Oxford Printing Press.

White, K. Hardisty, D. J. and Habib, R. 2017. *The Elusive Green Consumer.* Available: https://hbr.org/2019/07/the-elusive-green-consumer 1-16. (Accessed 19 June 2020).

Won-Shik, C., Doo-Man, C. and Sung-Hoon, A. 2014. Research advancement of green technologies. *International Journal of Precision Engineering and Manufacturing, 15*(6): 973-977.

Yazdanifard, R., & Mercy, I. E. 2011. The impact of green marketing on customer satisfaction and environmental safety. Proceedings of *International Conference on Computer Communication and Management* (pp. 637-641). Singapore: IACSIT Press. Available: https:// pdfs.semanticscholar.org/cb39/27334b3e89761d 573caaf47cff55c22ec2d6.pdf (Accessed 20 June 2020).

Yee, F. M. and Yazdanifard, R. 2014. How Consumer Behavior is Affected by "Sight" and "Hearing" in Terms of Promotion? *Global Journal of Management and Business Research: E Marketing*, 15(4) Version 1.0, pp. 17-22.

Yilmaz, K. 2013. Comparison of quantitative and qualitative research traditions: epistemological, theoretical, and methodological differences. *European Journal of Education, 48*(2): 311-315.

Ying-Ching, L. and Chang, A. 2012. Double Standard: The Role of Environmental Consciousness in Green Product Usage. *Journal of Marketing, 76*(5): 125-134. DOI: 10.2307/41714513.

Yin. R. K. 2014. *Case study research design and methods*. 5th ed. Thousand Oaks, CA: Sage.

Yu, Y., Li, X., Jai, T-M. 2017. The impact of green experience on customer satisfaction: evidence from TripAdvisor, *International Journal of Contemporary Hospitality Management*, 29(5): 1340-1361, Available: https://doi.org/10.1108/IJCHM-07-2015-0371 (Accessed 20 June 2020).

Zeithaml, V. A. and Bitner, M. J. 2003. *Services Marketing: Integrating Customer Focus Access to the Firm*. 3rd ed. New York: McGraw-Hill.

APPENDICES

APPENDIX A:

QUESTIONNAIRE: GREEN TECHNOLOGY PRODUCTS CUSTOMERS

Section A: Personal Biodata

1. **Age:**
   Younger than 20 ☐ 25-40 ☐ older than 40 ☐
2. **Gender:**
   Male ☐ Female ☐
3. **Race:** _____

Section B

Indicate the extent to which you agree or disagree with each of the following statements.

Strongly agree: SA **Agree:** A

Strongly disagree: SD **Disagree:** D **Neutral:** N

S/N	INFORMATION	SA	A	SD	D	N
1.	I have heard about green technology products before.					
2.	I prefer green technology products to alternative products.					
3.	I use green technology-based products very often.					
4.	The quality of green products meets your expectations.					
5.	I would recommend green products to other people					
6.	I am contented with green technology-based products.					
7.	Green technology can be used to achieve customer expectations of different products.					
8.	My experience with green technology products has been excellent.					

9.	Green technology products are affordable.					
10.	Green technology products should be made much affordable.					
11.	Green technology products are of high quality.					
12.	My family and friends use green technology-based products.					
13.	Green technology products have positive effects on the environment.					
14.	Green technology products have negative effects on the environment.					
15.	Green technology products are beneficial to human beings.					
16.	Green technology products are not beneficial to human beings.					
17.	Further comments to the attention of the researcher:					

APPENDIX B

LETTER OF INFORMATION

Title of the Research Study: Using consumer behaviour theories to analyst relationship between the green technology-based products to achieve customer expectations.
Investigator/s/researcher: Mxolisi Bongumusa Manqele
Co-Investigator/s/supervisor/s: Dr. L.M. Lekhanya

Brief Introduction and Purpose of the Study:
This study is carried out to investigate how customer expectations can be improved using green technology-based products.

Outline of the Procedures: The nature of the research does not place any risk on the participant. However, a participant can choose to withdraw at any time.

Participant May Be Withdrawn from the Study
No remuneration will be given to you for participating in this study.
Your participation in this study has absolutely no cost implications to you.
Your name will not be used in the final document. Whatever that is written on the questionnaire during this activity will be kept confidential by the researcher.
No injuries are expected to emanate as a result of your participation to this study.

Persons to Contact in the Event of Any Problems or Queries:

Should you have any queries regarding this study, please contact the researcher (035 786 1944**/**083 206 0525), my supervisor (0313736767) or the Institutional Research Ethics administrator on 031 373 2900. Complaints can be reported to the DVC: TIP, Prof F. Otieno on 031 373 2382 or dvctip@dut.ac.za.

General:

Potential participants must be assured that participation is voluntary and the approximate number of participants to be included should be disclosed. A copy of the information letter should be issued to participants. The information letter and consent form must be translated and provided in the primary spoken language of the research population e.g. isiZulu.

APPENDIX C

Department of Public Management & Economics
Faculty of Management Sciences
Date

Dear Participant

My name is Manqele Mxolisi Bongumusa and I am a postgraduate student at the Durban University of Technology. For the fulfilment of my study, I am inviting you to participate in this research study by completing the attached questionnaires.

The questionnaire will require approximately 5 minutes to be completed. There is no compensation for responding nor is there any known risk. In order to ensure that all information will remain confidential, please do not include your name. Copies of the project will be provided to Durban University of Technology and my supervisor. If you choose to participate in this project, please answer all questions as honestly as possible. Participation is strictly voluntary, and you may refuse to participate at any time.

Thank you for taking the time to assist me in the completion of this questionnaire. The data collected will provide useful information regarding how green products can be used to achieve customer expectations in the KwaZulu-Natal province of South Africa. Completion and return of the questionnaire will indicate your willingness to participate in this study. If you require additional information or have questions, please contact me through the details listed below.

Date: 06 August 2020

Student: Manqele Mxolisi Bongumusa

zinyosi@yahoo.com / 035 786 1944 **/** 083 206 0525

Date: 06 August 2020

Supervisor/Promoter: Dr. L.M. Lekhanya

Lekhanyal@dut.ac.za / 0313735835

APPENDIX D

Editor's Letter