Understanding green purchase behaviour among millennial consumers in South Africa

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

01 December 2023

Abstract

Context and Objective:

This study examined green purchase behaviour within a sample of 189 millennials in South Africa having a relatively high standard of living, namely living standard measure (LSM 8) and above, with the sole purpose of trying to identify the key antecedents that contribute most significantly to green purchase behaviour among millennials and how their green purchase intentions transition into actual behaviour.

Methodology:

Using an extended theory of planned behaviour, the research added environmental concern and personal norms to predict positive attitudes towards eco-friendly behaviour and determine if willingness to pay and perceived consumer effectiveness affect the translation of intention to behaviour. The data analysis was performed using the partial least squares structural equation modelling technique (PLS-SEM), as this is a suitable technique for analysing data for green studies.

Findings:

The findings show a significant relationship between environmental concerns, personal norms, and consumers' attitudes towards green products. These attitudes were found to be strong predictors of green purchase intentions. However, these intentions only moderately affected actual green purchase behaviour. Contrary to expectations, subjective norms did not significantly influence green purchase intentions, and the hypothesised moderation of willingness to pay and perceived consumer effectiveness on actual purchase behaviour was not substantiated.

Keywords

Green purchase behaviour, Intention-Behaviour gap, Millennials, Theory of planned Behaviour

Plagiarism Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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1. Chapter 1: Introduction to Research Problem

1.1. Introduction

Green consumerism is a type of behaviour where consumers actively purchase environmentally friendly products or products produced sustainably to protect the environment (Nekmahmud & Fekete-Farkas, 2020). Moreover, sustainability is firmly in the spotlight, driven mainly by the initiatives of the United Nations through the establishment of sustainable development goals (SDGs). These SDGs are 17 interlinked goals founded on the belief that progress in one area can influence results in others (UNDP, n.d.).

Within the framework of SDG 12 is a call for all consumers and businesses alike to be more responsible and strive for sustainable consumption and production. Consequently, green purchase behaviour has recently gained popularity, especially in developing nations (Sharma et al., 2020; Witek & Kuźniar, 2020). The rising popularity is mainly fuelled by the growing concerns of consumers regarding environmental issues. The purchase of green products among individuals is a mechanism to reduce pollution and mitigate the environmental crisis, thus prompting consumers to express interest in purchasing green products rather than traditional alternatives that may be detrimental to the environment (Kamalanon et al., 2022).

While interest in green products is high, actual sales remain below expectations (Kamalanon et al., 2022; White et al., 2019). For example, White et al. (2019) reported findings of a study that found that although 65% of participants expressed interest in buying green products, very few of them did. In fact, only 26% of the respondents converted their interest into actual purchases. This phenomenon is known as the intention-behaviour gap, which is the discrepancy between the consumer's expressed interest or intentions to purchase green products versus the actual purchase of these products (Qi et al., 2020)

This research paper seeks to provide insights that will enhance the understanding of the factors that may encourage or hinder green purchase behaviour amongst millennials in a South African context. Furthermore, the study aims to provide insights regarding the intention-behaviour gap.

Young consumers are a significant part of developing countries' population; moreover, if they are educated, they can be crucial in bringing about a desired change in society (Bhutto et al., 2022; Joshi & Rahman, 2019; Nguyen et al., 2018).

1.2. Research Problem

The Department of Forestry Fisheries and the Environment (n.d.) highlights that climate change presents significant social, economic and environmental challenges worldwide, and this impact is especially felt in South Africa, which is more susceptible to climate change repercussions.

Moreover, Scholes and Engelbrecht (2021) asserted that Southern Africa is warming up at twice the average rate of global warming, mainly due to its geographical location. In addition, there is a growing sense that we are running out of time to reduce and possibly reverse the adverse effects of global warming (Sharma et al., 2020; Stiell, n.d.; Witek & Kuźniar, 2020).

If this problem is not addressed, climate change has the potential to severely affect livelihoods and world economies negatively (Abdelzaher et al., 2020; Sautner et al., 2023; Yue et al., 2020).

Green product purchases have been identified as an effective way to counteract the detrimental effects of climate change (ElHaffar et al., 2020; Kamalanon et al., 2022; Yue et al., 2020). Yet not many consumers buy green products despite having intentions to purchase them, leading to an intention-behaviour gap (Kamalanon et al., 2022; White et al., 2019).

To add to the challenge, the intention-behaviour gap is under-researched and presents itself as a significant gap in the literature (Hassan et al., 2016; Tawde et al., 2023).

Thus, this study seeks to understand the factors that drive green purchase behaviour amongst millennials in South Africa from the initial intentions to the final purchase.

1.3. Purpose Statement

Climate change is a significant threat to the well-being of the world's economies, including the livelihoods of both individuals and firms; as a means of mitigation,

consumption of green products has been identified as an effective way to combat climate change, yet very few consumers buy them (ElHaffar et al., 2020; Kamalanon et al., 2022; Yue et al., 2020; Sautner et al., 2023).

The research aims to investigate the determinants that potentially drive green purchase behaviour among millennial consumers in South Africa and to gain insights into the gap that exists between consumers' intentions versus their purchase behaviour.

The study leverages the theory of planned behaviour as its foundational framework, which posits that the individual's intentions and subsequent behaviours are influenced by three main drivers: their personal attitudes regarding the behaviour, societal expectations and the belief in their abilities to perform the behaviour (Ajzen, 1991).

The theory of planned behaviour is a theory commonly used with green purchase studies to better understand the different aspects relating to green behaviour because of its ability to strongly predict behaviour (Joshi & Rahman, 2019; Ogiemwonyi, 2022)

1.4. The Need for Study

1.4.1 Business Need for Study

The threat that climate change poses to individual livelihoods and organisations today and in the future is significant, yet it is widely underestimated (Abdelzaher et al., 2020). Furthermore, Sautner et al. (2023) state that climate change will drastically alter business operations. Reinforcing this view, Dwivedi et al. (2023) highlight the looming threat of global supply chain disruptions due to climate change.

If purchasing green products is an effective way to combat climate change, as argued by ElHaffar et al. (2020), Kamalanon et al. (2022) and Yue et al. (2020). In that case, firms should provide the products to meet the demands of the environmentally-conscious consumer. However, the task of predicting the reaction of consumers to green products is daunting, but firms must understand it because it helps them segment and craft product development strategies (Sharma et al., 2020).

Moreover, understanding the factors that drive green purchase behaviour may help in removing the barriers preventing green consumption amongst consumers and ultimately help marketers develop this market further (Yadav & Pathak, 2017).

1.4.2 Theoretical Contribution

Numerous studies have addressed the green attitude-behaviour gap when studying green purchase behaviour. Still, more needs to be done to provide insights into the gap between green purchase intention and actual purchases, known as the intention-behaviour gap (Qi et al., 2020; Sharma et al., 2022; Vu et al., 2022).

The lack of research on the intention-behaviour gap was reported as early as 2016 in an empirical study by Hassan et al. (2016), who found that this phenomenon is understudied and presented a significant gap in the literature, which still exists today, as reinforced by Tawde et al. (2023) who state that intention-behaviour gap is under-researched.

It is clear that very little research exists covering the topic of green consumption, particularly in this part of the world (Dilotsotlhe, 2021; Traoré et al., 2023). This study seeks to contribute to the literature by providing insights into the intention-behaviour gap by studying the factors that drive green purchase behaviour amongst millennials in a South African context. The emphasis on young consumers is vital given their interest in buying green products and their choices, which are mainly driven by health and environmental concerns (Cheung & To, 2019).

1.5. Research Question

The aim of this study is to examine the factors that drive green purchase behaviour among millennials in South Africa and also provide insights into the Intention-Behaviour gap. Thus, the following overarching research question is posed to understand the levers of green purchase behaviour in South Africa.

RQ 1: What are the key antecedents that contribute most significantly to green purchase behaviour among millennial consumers in South Africa, and how do their intentions translate into actual behaviour?

This question is discussed in Chapter 3 and indexed using a consistency matrix found in Appendix 1.

1.6. Research Scope

While there are various ways of fighting climate change, this research paper focuses on consuming green products as a mitigation because it has proven itself to be effective in addressing the dire effects of climate change (Kamalanon et al., 2022). Moreover, this study specifically examines green purchase behaviour in a South African context, targeting millennial consumers born between 1980 and 1999 (Stats SA, 2020). In addition, the target population is further segmented to only focus on individuals earning a typical Living Standard Measure (LSM) 8 and above income level and who have purchased a green product before.

Furthermore, the study is grounded in the theory of planned behaviour, the theory introduced by Ajzen (1991), and thus, the constructs of this theory form the cornerstone of the research paper. The research is designed to probe and understand what drives green purchase behaviour using these key constructs: environmental concern, personal norms, subjective norms, perceived behavioural control, attitude and green purchase intention.

Lastly, another aspect of this study is understanding the role played by the two moderating factors: willingness to pay and perceived consumer effectiveness. Their impact will be tested on how they bridge or widen the gap between intention and actual behaviour.

1.7. Methodology

In this research, a deductive approach was used based on the theory of planned behaviour to understand millennial consumers' green purchase behaviour, mainly focused on those in the LSM 8 and above category. This theory, recognised by Joshi and Rahman (2019), Ogiemwonyi (2022), and Sharma and Foropon (2019), serves as the foundational framework to address the research question.

A non-probabilistic quota sampling method was used to sample the target population because of the specificity of the target population and the data collected using a five-

point Likert scale, relying on structured quantitative methods for its collection and analysis, as Saunders and Lewis (2018) suggested.

A detailed description of the methodology can be found in Chapter 4 of this research paper.

1.8. Ethics

Ethical considerations are crucial when conducting research to ensure that the rights of the research subjects are not impeded, and adequate consent has been provided for their participation. These considerations also guard against the research causing harm to the participants. (Saunders & Lewis, 2018).

Ethical Clearance to conduct this research was obtained from the Gordon Institute of Business Science refer to Appendix 2. Furthermore, the questionnaire used for the study can be found in Appendix 3. The questionnaire was self-administered, with no incentives provided to the participants, and they were under no obligation to participate without facing any penalty.

1.9. Definition of Terms

Table 1: Definition of Terms

Term	Definition
Green products	Green Products refer to products that prevent or reduce environmental harm through their manufacture or consumption (Shukla, 2019).
Green consumerism	Green consumerism refers to a behavioural trend of a consumer who willingly purchases green products with the aim of protecting the environment (Hojnik et al., 2020; Nekmahmud & Fekete-Farkas, 2020)
Green purchase behaviour	Green purchase behaviour refers to purchases made by the consumer of products or services that are environmentally beneficial or sustainable (Chang et al., 2021).

Green consumer	Green consumers strongly prefer eco-friendly products and often avoid purchasing or using a product that has a detrimental impact on the environment (Akhtar et al., 2021).
Greenwashing	Greenwashing refers to the practice where firms intentionally mislead customers regarding the environmental benefits of their products or the sustainable practices of manufacturing those products (Z. Yang et al., 2020).
Intention-Behaviour gap	The Intention-Behaviour gap refers to the discrepancy between the consumer's intention to purchase green products and their actual purchases (Qi et al., 2020).
Living Standard Measure (LSM)	The Living Standard Measure is a segmentation tool that classifies South Africa's population based on their material possessions and degree of urbanisation. This tool was developed in the latter part of the 1980s by the South African Advertising Research Foundation (SAARF) (McIntee, 2014).
Millennials	Millennials refer to a cohort of individuals born between 1980 and 1999 (Stats SA, 2020). Although there are debates in the literature regarding the specific birth year range of this cohort, the Stats SA definition has been adopted for the purposes of this paper.

1.10. Research Report Structure

The structure of this paper going forward is organised in this manner:

Chapter 2 offers an in-depth literature review that encompasses various concepts related to green purchase behaviour and the factors that influence it. Moreover, this chapter delves into what previous scholars have found in studying the disparity between green intention and actual buying behaviour. Lastly, this chapter outlines the theoretical framework that underpins this study

Chapter 3 introduces the conceptual model that details the constructs and maps their inter-relationships. This model seeks to address the research question posed as well as the hypotheses made that were drawn from the literature

Chapter 4 describes the research design and methodology used for this study. It also highlights the chosen research philosophy, approach, and the rationale behind the methodological decisions. Moreover, this chapter discusses the target population unit of analysis and describes the sample size and sampling techniques used. It also sheds light on how the data was collected and the methods used to analyse it. Lastly, the chapter outlines the steps taken to minimise errors and biases that may impact the study and discusses the study's limitations.

Chapter 5 presents the findings derived from the data collected and analysed as per the methods detailed in Chapter 4.

Chapter 6 provides a comprehensive discussion of the results presented in Chapter 5 and relates it to the literature reviewed in Chapter 2

Chapter 7 concludes the research by highlighting the key findings and their significance to the current scholarly debate. Furthermore, this chapter presents recommendations to stakeholders and outlines managerial implications derived from the findings. Finally, the study's limitations are shared, and recommendations are given for future research.

2. Chapter 2: Literature Review

2.1. Introduction

While the repercussions of climate change differ among countries, with lower-income countries facing more severe impacts than their wealthy counterparts (Kahn et al., 2021), a worldwide consensus acknowledges the potential of green purchases to mitigate these effects (ElHaffar et al., 2020; Kamalanon et al., 2022; Yue et al., 2020). Despite this consensus and a rise in intentions to buy green products, sales lag behind (Vu et al., 2022; White et al., 2019).

This discrepancy between the intention to buy green products and the actual buying behaviour is known as the Intention-Behaviour gap (Qi et al., 2020). Even though it is an essential concept in green literature, it has been overshadowed by research on the Attitude-Behaviour gap, leading to a significant knowledge void in the current literature (Dilotsotlhe, 2021; Sharma et al., 2022; Traoré et al., 2023).

Furthermore, a deeper understanding of this gap between intentions and actual behaviour is crucial because it could lead to better-informed strategies for promoting sustainable consumer practices, thus accelerating global efforts to combat climate change and protect the environment (Sharma et al., 2020; Yadav & Pathak, 2017). To effectively address and bridge this gap, we need to examine the intricate dynamics of what drives green purchasing decisions.

As Wibowo et al. (2022) and Zhang and Dong (2020) state, Green purchase behaviour is multifaceted and is shaped by a combination of personal consumer preference and external influences.

This chapter delves deeper into the nuances of green purchase behaviour as depicted in the current literature, with special attention to factors influencing this behaviour and the largely uncharted territory of the Intention-Behaviour gap. The Theory of Planned Behaviour serves as a foundational theoretical framework for this current study, offering a lens through which past studies and their methodologies can be evaluated.

2.2. Climate Change Impact Disparity Between Nations

At its core, climate change refers to altering atmospheric patterns and our material environment, leading to increasingly extreme weather events (Della Bosca, 2023). Climate change is caused predominantly by human activities, such as emissions of greenhouse gases from sources such as manufacturing and transportation, to mention a few (Dwivedi et al., 2023; Galletta et al., 2021).

Della Bosca (2023) argues that privileged individuals use modern technologies, such as air conditioning, to escape the harsh impact of climate change; thus, they can remain physically unaffected by extreme temperature changes due to climate change. She also notes that an individual's ability to adapt and cope with climate change is largely related to several factors, including geography, race, gender, and socio-economic class.

Although climate change affects the entire world, both Della Bosca (2023) and Kahn et al. (2021) agree that the impact on individuals and countries is not the same. More worryingly, climate change apathy is more widespread among wealthy countries (Della Bosca, 2023). Climate change apathy refers to the lack of interest, concern and motivation to participate in climate change issues (Davidson & Kecinski, 2022). This is because affluent nations are not as severely impacted as the lower-income countries, despite affluent nations being the most significant contributors of harmful emissions that drive climate change (Della Bosca, 2023; Shen & Wang, 2023). Highlighting this disparity, Shen and Wang (2023) point out that the G20 group of countries which account for 80% of the world’s GDP produces approximately 75% of global greenhouse gas emissions.

Given these disparities in contribution and impact, it becomes imperative to consider the role of personal responsibility, as argued by Bouman et al. (2020); if individuals feel a personal responsibility towards reducing climate change, their feelings could be pivotal to bridging the gap between just worrying about climate change to perform specific actions to protect the environment.

Although climate change apathy is most prevalent in affluent nations, as stated by Della Bosca (2023), it does not necessarily mean that all citizens in affluent countries are not concerned about climate change. In contrast, Crawley et al. (2020) highlight that the vast majority in most countries are concerned about climate change.

2.3. Green Consumerism

Green consumption amongst consumers is globally considered an essential contributor towards the achievement of sustainable development goals. This is because even if firms can produce green products, there is still a reliance on consumers to adopt these products and purchase them regularly (Tandon et al., 2023). Both Akhtar et al. (2021) and Tandon et al. (2023) highlight that consumption behaviour is ultimately driven by consumers who can decide to consume eco-friendly products or alternative products that may be detrimental to the environment. This preference for green products over other products can be referred to as green consumerism (Hojnik et al., 2020; Nekmahmud & Fekete-Farkas, 2020).

However, as Carrete et al. (2023) and Srivastava and Gupta (2023)have demonstrated, the definition of green consumerism is multifaceted and thinking of it as simply a product preference is an oversimplification of this concept. They clarify the definition by arguing that green consumerism encompasses not only purchase preferences but a range of factors such as awareness about environmental issues, including climate change and environmental concern, as well as having a sustainability mindset that directs actions towards reducing the negative impact of consumption to benefit the environment ultimately.

The expanded definition of green consumerism is supported by Akhtar et al. (2021), who note that consumers don't necessarily have to buy green products to practice green consumerism, but some green consumers can adopt an extreme stance towards firms that don't comply with environmental standards or promote the conservation of the environment by boycotting these firms.

Interestingly, while the motivation for consuming green products is often associated with environmental protection from climate change in general (Kamalanon et al., 2022), Carmanand Zint (2020) argue that consumers prioritise adapting their personal and household behaviours based on protecting themselves from immediate hazards caused by climate change impact in the daily lives rather than to focus on ones having a longer-term orientation. Thus suggesting that consumers do not uniformly approach green product consumption.

In addition, as consumers become more environmentally conscious, their buying decisions are not only favouring green products but also influencing and shaping industry trends, pushing firms towards sustainable practices (Sharma, 2021; White et al., 2019).

Conversely, it should be noted that on the other end of the green consumerism spectrum are consumers who, despite their environmental consciousness, do not always make eco-friendly choices (Sharma, 2021).

Perhaps for some of these consumers, their lack of eco-friendly choices could have resulted from scepticism. This mistrust might arise because unscrupulous firms mislead consumers about their product's environmental benefits to capitalise on the green trend in a practice known as Greenwashing (Yang et al., 2020).

2.3.1 Green Consumerism Amongst Millennials

The millennial generational cohort has attracted substantial interest from researchers. However, there is little consensus defining the exact period in which this cohort was born. For instance, Riva et al.(2022) suggest millennials were born between 1976 and 2000. While Dilotsotlhe (2021) indicates this cohort was born between 1980 and 2000. Furthermore, Stats SA (2020) defines millennials as individuals born between 1980 and 1999.

Beyond the challenge of pinpointing this cohort's exact birth years, there is an even greater debate surrounding their eco-friendly behaviour and practices. Researchers are divided in describing the environmental conduct of millennials. Some studies suggest that millennials are deeply concerned about the environment and actively participate in driving actions for environmental protection (Fani et al., 2023; Mehraj & Qureshi, 2022; Sharma et al., 2022; White et al., 2019). In contrast, other researchers report a conflicting view: they argue that although millennials are too vocal about climate change, their actions do not align with their words, and they believe that millennials are not more environmentally inclined than previous generational cohorts (Heo & Muralidharan, 2019; Skeirytė et al., 2022)

Worst of all, Arli et al. (2019) suggest that millennials are narcissistic with relaxed ethical views, and generally, this generation is misunderstood, particularly in developing countries. Narcissism is a behavioural trait whereby individuals view

themselves as superior to others and have an inflated self-entitlement (Arli et al., 2019).

Regardless of all the debates surrounding millennials, there is no denying this generation's importance and influence on the nation's economy and future (Heo & Muralidharan, 2019; Iyer et al., 2016). For instance, Heo and Muralidharan (2019) report that marketers in the United States of America valued the spending power of millennials in the United States to be over $200 billion US dollars. However, Arli et al. (2019) report that the spending power of this cohort is much more than Heo and Muralidharan (2019) state; instead, they assert that the spending power of millennials in the US is estimated at around $1.3 trillion US dollars.

The stark difference between the two amounts emphasises the inconsistency within the literature regarding yet another element pertaining to millennials. For example, Francis and Sarangi (2022) also report the spending power of millennials in the US as $200 billion US dollars, the exact figure quoted by Heo and Muralidharan (2019). However, this is attributed to the same source cited as input for both studies. On the other hand, the $1.3 trillion US dollar spending power of millennials communicated by Arli et al. (2019) is also reported by Iyer et al. (2016); however, they arrived at this figure citing different sources.

The only consensus in both camps is that the spending power of millennials is high, and they wield significant influence in the market(Arli et al., 2019; Heo & Muralidharan, 2019).

As undeniably impressive as millennial's spending power is, Heo and Muralidharan (2019) remind us that younger millennials, although they may not be working yet, are still important actors in the economy as they can influence family buying decisions, whether directly or indirectly thus making this segment highly sought-after by marketers

Given the level of influence millennials have, it is no wonder they are a high-priority target for marketers; however, effectively communicating a tailored message to cater for this segment is challenging (Heo & Muralidharan, 2019; Sharma et al., 2020). Especially when persuading younger millennials to buy green products because they tend to be less environmentally conscious than the older millennials (Heo & Muralidharan, 2019). This is concerning because younger people would have to

endure the repercussions of climate change much longer than their older counterparts might be subjected to (Skeirytė et al., 2022).

2.4. Green Purchase Behaviour in South Africa

2.4.1 Economic challenges

South Africa stands out as one of the world's most unequal countries, and this is evident from its alarming Gini coefficient being close to 0.70 (Ataguba, 2021; Cole, 2023; Hirschl et al., 2023; Khine & Langkulsen, 2023). The Gini coefficient is a metric that measures inequality by assessing the distribution of income and resources amongst the nation's population. The output of this analysis is a score between 0 and 1, with values closer to 1 indicating more significant levels of inequality (Yu et al., 2021).

Compounding this economic divide, South Africa grapples with a high unemployment challenge, particularly among its youth. Worryingly, current estimates suggest that the youth unemployment rate is at a staggering 66.5% (Geza et al., 2022). Given these socio-economic challenges, it would seem plausible to presume that the South African green market would be underdeveloped. This perspective is shared by Traoré et al. (2023), who argue that despite growing green demand in sub-Saharan Africa, the majority of the population represents the working class, and due to their constrained economic circumstances, their main priority is to satisfy their basic needs at the most affordable cost at the expense of environmental considerations.

This stance is echoed by Sharma (2021), who argues that the high prices often associated with green products may classify them as luxury products and hence would not be suitable for low-income consumers who prefer buying affordable products, Thus leading to growth in the green market predominantly driven by affluent consumers as suggested by Traoré et al. (2023).

In contrast, Moslehpour et al. (2021) offer a divergent perspective. Their research conducted in Thailand shows that Generation Y population treat green products not as luxury items but as necessities because being eco-friendly is extremely important to this generation more than the price charged for green products.

2.4.2 Climate Change Awareness

Beyond the socio-economic challenges, South Africans appear to be less informed about climate change as compared to their global counterparts. Astonishingly, only half of the nation knows about climate change despite the country being more susceptible to climate change effects (Kgomo & Modley, 2023; Scholes & Engelbrecht, 2021).

A possible root cause regarding the lack of awareness can be deduced from the study conducted by Ceyhan and Saribas (2022), who argue that public communication regarding climate issues is pivotal to encouraging a climate change response. Still, a lot of misinformation and disinformation is exposed to the public, which has the potential to create confusion and lack of awareness. Furthermore, Ceyhan and Saribas (2022) highlight the lack of consensus in the scientific community on how to communicate climate issues effectively may also hamper efforts in empowering consumers to know about climate change.

2.4.3 Academic Insight

In terms of academic research, South Africa has had limited research on green behaviour. However, a growing trend of new publications is emerging out of the country (Dilotsotlhe, 2021; Traoré et al., 2023). While this is encouraging, much of these studies focus on evaluating awareness, habits and green product knowledge, and little time has been devoted to studying how these factors contribute as antecedents to green purchase behaviour (Dilotsotlhe, 2021).

The study by Dilotsotlhe (2021) is one of the first articles that initiated a shift in South African literature by examining green purchase behaviour more closely and providing insights on the Intention-Behaviour gap, which is something that predominately had not been a focus for researchers prior to that study.

While this current paper and Dilotsotlhe (2021) study purchase behaviour amongst millennials in a South African context, they are fundamentally different in their execution. Dilotsotlhe (2021) related green products as an innovation and thus utilised the diffusion of innovation theory as part of her constructs in understanding green purchase behaviour. However, this current study explores the psychological

factors driving consumers to buy green products, as recommended by Traoré et al. (2023) and does not place a particular focus on product attributes.

2.5. Factors Driving Green Purchase Behaviour

From the systematic review conducted by Zhang and Dong (2020), it was reported that consumers do not make green purchasing decisions solely based on their personal preferences. Instead, various other factors, which are a combination of external and individual factors, significantly impact the consumer's decision-making process (Sharma, 2021; Zhang & Dong, 2020).

These factors include considerations such as the consumer's background and characteristics, the quality and features of the product itself, as well as the marketing strategies employed by the companies selling the green products (Zhang & Dong, 2020). All of these factors together play a role in influencing consumers' choices when it comes to buying green products (Sharma, 2021; Zhang & Dong, 2020).

2.5.1 Individual Factors

The individual factors discussed in this section refer to the aspects pertaining to the consumer's characteristics. These are mainly driven by psychological factors of how consumers perceive themselves from their moral compass, values, principles, goals and commitment to environmental actions. This structure mirrors the decision-making process outlined in a psychological theory known as the Image Theory, which was first introduced by Beach (1990). The essence of Image Theory is that individuals make decisions based on whether the various choices made will promote a better future for themselves without compromising their moral principles and beliefs (Beach, 1990, 1993).

Although the theory of planned behaviour underpins this study, it is crucial to understand consumers' decision-making process to buy and consume green products from a psychological standpoint. Traoré et al. (2023) suggested new research to link psychological theories as part of further green behaviour studies. This is also validated by Nassani et al. (2023) and Zhang and Dong (2020), who highlight the importance of psychological factors in determining the consumer's behaviour towards ethical consumption and note these factors assist in driving

behavioural change to adopt environmentally friendly strategies to solve environmental issues.

2.5.1.1 Environmental Awareness and Knowledge

Environmental awareness refers to the extent to which individuals are interested and are informed about environmental issues, including supporting and willing to contribute to actions towards resolving those issues (Omarova & Jo, 2022). Furthermore, environmental knowledge is critical in moulding the individual's attitude to green products and promoting green consumption (Chaihanchanchai & Anantachart, 2023).

As Chaihanchanchai and Anantachart (2023) argue, environmental awareness and knowledge are good first steps towards green consumption. They further justify their argument by highlighting that individuals cannot enact a behaviour they have no knowledge of.

Moreover, the basis of Chaihanchanchai and Anantachart's (2023) argument is that knowledge empowers consumers to better understand product attributes and the more knowledge these consumers have, the more they can consume green products. As highlighted by Ogiemwonyi (2022), consumers who have high environmental awareness demand green products and are willing to pay for them because they understand the benefits to the environment

However, it should be noted that the consumer's knowledge of green products is highly dependent on the available information regarding those products (Qi et al., 2020)

2.5.1.2 Attitude Towards Environmental Issues

Attitude, as referred to in the theory of planned behaviour by Ajzen (1991), is the extent of an individual's disposition towards a given behaviour, whether favourable or unfavourable. Moreover, Wang et al.(2018) and Tandon et al. (2023) emphasise that an individual's attitude is a significant motivating factor that drives their green purchase behaviour by affecting their intentions. However in contrast , it should be noted that although consumer's may have a favourable attitude towards green

products this does not necessarily translate into actual purchases resulting in a phenomenon known as green attitude-behaviour gap (Sharma et al., 2022).

Furthermore, Sharma and Foropon (2019) found that the relationship between attitude and green purchase intention was insignificant, thus leading to the conclusion that attitude does not influence green purchase intentions, contradicting findings reported by various other studies (Jaiswal & Kant, 2018; Tandon et al., 2023; Wang et al., 2018).

Given the contradicting perspectives, it is worth studying how attitude actually translates into purchase behaviour. The discrepancy between attitude and purchase behaviour can be attributed to two primary reasons: product attributes and environmental concerns (Sharma, 2021).

2.5.1.3 Personal Norms and Moral Obligation

According to Nguyen et al. (2018), consumers' pro-environmental behaviour is often a manifestation of their personal norms, which are characterised by a deep sense of moral responsibility. Moreover, personal norms are defined by the awareness to freely engage in a particular behaviour which carries associated consequences and entails a responsibility (Sharma et al., 2022).

Notably, as Bashir et al. (2019) explain, these norms are the basis that changes consumers’ general interest in the environment into active participation in initiatives that protect the environment. This is supported by Tandon et al. (2023), who found that personal norms are a significant predictor towards green purchase behaviour and as Wang & Chou (2020) suggest, if the behaviour is seen to be beneficial by the consumer, so will a favourable attitude towards green products manifest in that consumer.

In addition, Rosenthal (2022) states that deviations from personal norms could lead to consumers feeling guilty over not meeting their own standards. Moreover, as reinforced by (Dangelico et al., 2021) who argue that consumers have more satisfaction when they buy green products because of their values as opposed to purchasing them for social acceptance.

2.5.1.4 Environmental Concerns and Ethics

Kautish and Sharma (2020) argue that while environmental concern has been made out to be a simple construct ranging from low to serious concern, it is actually a multifaceted construct that includes self-concern, concern for others and a concern for the environment. Furthermore, environmental concern has been found to be a significant factor in buying and consuming green products (Kautish & Sharma, 2020). This is reinforced by Kumar et al. (2022) who states that environmental concern is a significant factor which predicts favourable attitudes towards green products.

Furthermore, Zahan et al. (2020) suggest that ecological issues not only worry environmentally concerned consumers but also make them think when they purchase conventional products. Consequently, these consumers tend to exhibit positive attitudes towards green products.

However, as explained by Heo and Muralidharan (2019), the relationship between environmental concern and eco-friendly behaviour is not linear. It often depends on the consumer's perception of how easy the behaviour is to perform and if the behaviour and attitudes are specific rather than broad.

Furthermore, Hojnik et al. (2019) explain that environmental concerns alone are insufficient to promote green consumerism. As suggested by Swanson and Jin (2023), consumers' ethics and environmental concerns can influence consumers' choices significantly. Ethics refers to the consumers' moral principles, obligations, and personal responsibility regarding what they perceive as right and wrong (Sharma et al., 2022).

2.5.1.5 Perceived Consumer Effectiveness

Perceived consumer effectiveness refers to the individual's confidence or belief that their personal efforts and actions can make a meaningful contribution towards addressing environmental issues (Kim & Lee, 2023).

Although individuals may have a positive attitude towards green products, that does not always translate into actual purchases (Götze & Naderer, 2019). However, as Joshi and Rahman (2019) argue, for individuals to transform their positive attitudes into purchase behaviour, they must believe that their actions can make a difference.

This is also highlighted by an earlier article by Joshi and Rahman (2015) wherein they argue that consumers rationally assess the benefits of buying green products and consider how their actions can positively contribute to both the environment and society.

Moreover, Joshi and Rahman (2015) continue to highlight that perceived consumer effectiveness significantly affects consumers' perceived behavioural control, attitudes, and subjective norms and thus positively influences consumers' green purchase intentions and behaviour. This is reinforced by Emekci (2019) and Lavuri (2022), who assert that consumers only act if they are convinced that their actions have a meaningful impact.

However, in stark contrast, Heo and Muralidharan (2019) differ, arguing that younger millennials may also not be motivated to act despite being confident that their efforts can solve environmental issues.

Furthermore, perceived consumer effectiveness is a complex variable to study and may be impacted by cultural aspects related to how individuals perceive themselves, whether individualistic or collectivistic (Mishal et al., 2017). As Mishal et al. (2017) explained, this perception may lead to perceived consumer effectiveness not always influencing green purchase behaviour..

2.5.2 External Factors

The external factors discussed in this section refer to the factors that are typically not in the direct control of the consumer, such as the firm's marketing strategies, product attributes and other situational factors that all play a role in influencing consumer choices in purchasing green products (Zhang & Dong, 2020).

2.5.2.1 Product Attributes

Product attributes denote the product's brand name, packaging, eco-labelling, price, marketing, functionality and reliability (Majeed et al., 2022).

Although consumers primarily buy green products as a result of concern regarding the degradation of the environment, their buying and use of green products do not promise environmentally friendly behaviour but merely indicate such behaviour

(Sharma, 2021). To illustrate the previous point, Sharma and Foropon (2019) argue that even consumers with low environmental concerns would be willing to purchase green products provided they have similar attributes and functionality as conventional products, such as price, quality, ease of use and durability.

2.5.2.2 Subjective Norms as Social Pressure

Social pressure presents itself as subjective norms in the literature, as explained by Wang et al. (2022), who argue that subjective norms function as a source of social pressure. They further say that social pressure is more effective in countries that are collectivistic in nature as opposed to western populations. However, in addition to the country, ethnicity and cultural backgrounds also influences consumer's buying choices as argued by Sheng et al. (2019).

While subjective norms may be more effective in collectivistic countries (Wang et al., 2022), this may not be the case in all settings as found by Alzubaidi et al. (2021) and Kumar et al. (2017) who found that social influence even in non-Western countries may be insignificant in influencing pro-environmental behaviour amongst consumers.

Although there may be differing views, the premise of social influence relies on a premise that a population who is highly interdependent tends to be more inclined to maintaining harmonious relationships with their communities and, thus, more likely to behave in unison with the group's expectations (Luo et al., 2020).

Given that individuals are more likely to behave in accordance with the group's expectations, Dilotsotlhe (2021) found that social pressure significantly influences green purchase intentions amongst millennial consumers. Interestingly, while de Groot et al. (2021) acknowledge that social norm interventions may be a convenient strategy to positively influence green behavioural change its effectiveness may be stifled by an individual's strong personal norms.

2.6. Barriers to Green Purchase Behaviour

Various factors present themselves as barriers to consumers wanting to purchase green products. These factors include high-priced products, unavailability of green products, and lack of trust and knowledge (Chaihanchanchai & Anantachart, 2023; Dangelico et al., 2021; Srivastava & Gupta, 2023).

2.6.1 Greenwashing

The term greenwashing was first introduced in 1986 by biologist Jay Westerveld in reference to the hotel industry encouraging guests to reuse towels as a form of saving water and promoting environmentally friendly practices when, in reality, the primary motive was to save on laundry costs and thus increase their profit margins through this deception (Seele & Schultz, 2022). Although Westerveld initiated the discussion in 1986, the term would only be popularised a decade later, after the release of an environmental marketing book by Greer and Bruno (Z. Yang et al., 2020).

In their systematic review of 67 articles related to greenwashing, de Freitas Netto et al. (2020) observed that, while various definitions of greenwashing are offered in literature, their essential meaning remains the same: firms perform an intentional act of deceit to mislead customers about the firm's environmental practices or overstate the environmental benefits of their products.

Moreover, with the surge in green consumerism, green advertising is often used as a tactic to entice consumers to consume green products; however, this tactic, while meant to promote green purchases, has inadvertently raised suspicion in some consumers, leading to them being sceptical of the products marketed due to an increasing practice of greenwashing (Apaolaza et al., 2023; Luo et al., 2020). Although scepticism about green products exists, scholars like Nguyen et al. (2018) and Zaremohzzabieh et al. (2021) advocate for greater environmental education as a solution to overcome this challenge and ultimately encourage green consumption.

The repercussion of greenwashing extend beyond consumer suspicion alone and is known to deter potential consumers from purchasing genuine green products; moreover, this malpractice erodes shareholder confidence and is disadvantageous for the environment, including the health of the consumer (Hameed et al., 2021; Z. Yang et al., 2020).

While greenwashing has a deterrence effect on some consumers buying green products, the overall green market has seen an increase in the number of consumers consuming green products, as stated by both Joshi and Rahman (2019) as well as Yarimoglu and Binboga (2019).

2.6.2 Willingness to Pay and Income Level

Income levels and willingness to pay cannot be ignored when studying green purchase behaviour because, although consumers exhibit positive attitudes toward ecologically friendly products, many are unwilling to pay the premium often associated with these goods and services (Kumar et al., 2022; White et al., 2019). Furthermore, the issue of high prices is reinforced by Chaihanchanchai and Anantachart (2023), who argue that where average incomes are relatively low and sufficient to cover the basic cost of living, a green lifestyle would be out of reach for many consumers due to the prices of these products.

Interestingly, according to Qi et al. (2020), even regular green product buyers attribute high prices to not purchasing green products. It seems intuitive that higher prices will drive customers away.

However, in contrast, as Sharma (2021) argued, the price issue may not be considered when it comes to higher-quality products. Moreover, this is emphasised by Dangelico et al. (2021), who state that the quality and performance of the product are essential predictors of whether the consumer will be willing to pay more for green products.

In addition, Wei et al. (2018) argue that with greater customer participation, the more willing the customer is to pay more; even more interestingly, these customers would pay more despite exhibiting low environmental concern. Similarly, Ambec and De Donder (2022) highlight that some customers are willing to pay more for green products based on a rationale that when the self-interest of firms and consumers prevails, it will all be for the detriment of the environment. Furthermore, Mehraj and Qureshi (2022) indicate that most young consumers are willing to pay more for green products, provided they are from firms that are considered to be engaging in sustainable business practices.

The contradictory findings on willingness to pay make it imperative to study its influence between green purchase intentions and green purchases in a South African context.

2.6.3 Product and Other Barriers

Green product unavailability could be a contributing factor to consumers being unable to consume green products, and as explained by Dangelico et al. (2021) and Srivastava and Gupta (2023), if green products were available in sufficient quantities and variety on the retail shelves including displaying them in a correct manner that would attract customers to purchase green products.

Another barrier is the lack of environmental knowledge about consuming green products because consumers cannot act on behaviour without first having the knowledge to perform the said behaviour (Chaihanchanchai & Anantachart, 2023). As a remedy, eco-labels are put on green products to show potential customers that these products are indeed green; however, they too pose a challenge because not many consumers know about them or there is no standardisation of labels, leading to consumers being confused (Dangelico et al., 2021).

A remedy for lack of knowledge is to inform customers and educate them through green advertising; however, for it to work, this advertising needs to be truthful and free from greenwashing (Carrete et al., 2023).

2.7. The Intention-Behaviour Gap Towards Green Purchase

Consumer intentions are central to behaviour enactment more, especially when viewed from the lens of the theory of planned behaviour framework, and these intentions are a key tool in predicting consumer behaviour. (Ajzen, 1991; Sharma et al., 2022). However, even though intentions may be a key predictor of actual behaviour, it is important to note that not all consumers who express the intention to purchase green products follow through and purchase them. In fact, very few of them make purchases despite intending to buy green products (Sharma et al., 2022; Vu et al., 2022; White et al., 2019). Thus leading to a significant discrepancy between intention and actual behaviour (Dangelico et al., 2021).

Given this discrepancy between intention and behaviour and the vast literature that exists on green consumerism, it seems odd that minimal research focuses on the gap between green intentions and, ultimately its behaviour. Instead, researchers have been focused on the green attitude-behaviour gap (Dilotsotlhe, 2021; Sharma et al., 2022; Tawde et al., 2023).

Perhaps one of the reasons that could be attributed to the gap between intention and behaviour lies with what Tawde et al. (2023) highlighted that individuals may not have intentions to buy green products and instead pretend to have these intentions, thus leading to a struggle to convert them into purchases. Interestingly, as pointed out by Sharma & Foropon (2019), intentions need not be an antecedent to green purchase behaviour, but the level of environmental concern together with product attributes may drive green purchases without reliance on intentions.

In resolving this gap, a practical approach has been offered by White et al. (2019), who also highlighted the challenge regarding the low conversion rate of green intentions to green purchases. They suggested that firms should take matters into their own hands by creating an enabling environment that could nudge potential consumers toward green purchase behaviour. The actions White et al. (2019) offer for firms is to consider using social influence and modelling good consumer habits. Once those habits are anchored, the consumers can leverage the domino effect whereby a spill-over of other positive changes in other areas can be made. Also, firms can tailor messaging aimed at consumers based on their preferences. The messages may either have an emotional or rational appeal to stimulate a call for action. Finally, firms are encouraged to favour experiences over ownership by ensuring their products can be positioned as experiences rather than material possessions.

This approach from White et al. (2019) is a fundamental shift from the existing literature in that it places more emphasis on practical actions that firms can perform rather than only focusing on green marketing activities or product attributes such as packaging. However, there is evidence that shows that product packaging attributes can influence consumer purchasing decisions due to the fact that product packaging elements attract the attention of consumers and what these consumers see may influence the product they choose (Orquin et al., 2020).

Because of the complexity of green purchase behaviour and the various factors involved that lead up to the behaviour, It is clear that more research is needed to ascertain what actually drives green purchase behaviour, especially closing the gap between intention and behaviour (Tawde et al., 2023).

2.8. Theory of Planned Behaviour

The Theory of Planned Behaviour has been the cornerstone of many studies examining green consumption (Joshi & Rahman, 2019; Sharma & Foropon, 2019).

This theory was introduced by Ajzen (1991) and is an extension of the Theory of Reasoned Action (TRA) formulated by Fishbein and Ajzen between 1975 and 1980. The central premise of both theories is that the individual's intentions to perform a given behaviour will ultimately lead to the action of that behaviour, especially when the conduct in question is at the discretion of the individual, and they can determine at will to perform or not the behaviour (Ajzen, 1991).

Furthermore, It is important to note that the factors driving the individual's intentions in the Theory of Planned Behaviour are influenced by their attitudes, subjective norms and perceived behavioural control (Ajzen, 1991). This is reinforced by Dilotsotlhe (2021) who found that all motivating factors of the theory of planned behaviour had a significant effect on consumers' green intentions. While Vu et al. (2022) could only confirm subjective norms and perceived behavioural control positively influenced intentions in their study.

As a general rule for this theory, it is argued that the stronger the intention of the individual to engage in a particular behaviour, the more likely the behaviour will be realised (Ajzen, 1991).

However, even though the theory is regarded as a sufficient framework to predict human behaviour (Ogiemwonyi, 2022; Sousa et al., 2022), it is not without its limitations. For example, according to Dilotsotlhe (2021) and Sharma and Foropon (2019), the theory does not account for proximity or the time lapse between the intention and the behaviour. This time-lapse may allow situational factors to affect the intentions, leading to the behaviour not being acted upon.

2.9. Conclusion

Climate change has negatively impacted individuals' livelihoods, firms and economies worldwide (Abdelzaher et al., 2020; Della Bosca, 2023). However, while climate change's impact is felt worldwide, its severity is not the same and lower-income countries are more affected as opposed to their more affluent counterparts

in the global north (Kahn et al., 2021). This is despite the wealthy nations contributing more towards emissions than the lower-income countries; in fact, according to Shen and Wang (2023), wealthy countries contribute 75% of the world's greenhouse gas emissions

To combat climate change, researchers have agreed that buying and consuming green products is an effective way for individuals to resolve environmental issues (ElHaffar et al., 2020; Kamalanon et al., 2022; Yue et al., 2020).

Moreover, to encourage buying and consuming green products, green consumerism, particularly amongst millennials, was encouraged because they represent a generational cohort that is outspoken about climate change and environmental issues as well as have influence in the market combined with high spending power (Heo & Muralidharan, 2019; Skeirytė et al., 2022).

However, influencing green consumerism, particularly the act of purchasing green products, is not straightforward and is driven by a number of factors, including both internal and external factors (Sharma, 2021; Zhang & Dong, 2020). Internal factors include psychological factors, such as environmental concern, knowledge, attitude, principles and perceived consumer effectiveness, which together play a role in influencing green purchase behaviour (Kautish & Sharma, 2020; N. Kim & Lee, 2023; Swanson & Jin, 2023).

On the other hand, external factors include product attributes, social pressure and firms' marketing strategies (Dilotsotlhe, 2021; Majeed et al., 2022; A. P. Sharma, 2021).

Furthermore, common barriers to purchasing green products include the lack of knowledge, high prices, greenwashing and product unavailability. These barriers, together with deficits of one or more of the factors that drive green consumption, has been identified as potential cause leading to an intention-behaviour gap.

Finally, the theory of planned behaviour was selected to better explain the relationships between the various factors. This theory is one of the best frameworks to predict consumer behaviour and allows the model to be extended with other constructs to enhance its efficiency.

3. Chapter 3: Research Question and Conceptual Model

The theory of planned behaviour is widely used in studies examining green purchase behaviour because of its ability to predict and understand human behaviour (Joshi & Rahman, 2019; Ogiemwonyi, 2022; Sharma & Foropon, 2019). However, as explained by Ogiemwonyi (2022) and Sousa et al. (2022), who argue that even though the predictive ability of the theory of planned behaviour is sufficient, extending the model with additional constructs increases the efficiency of its predictive capability. This leads to the research question posed, which seeks to understand the key contributing antecedents to green purchase behaviour as the first part of the question.

RQ 1: What are the key antecedents that contribute most significantly to green purchase behaviour among millennial consumers in South Africa, and how do their intentions translate into actual behaviour?

In addressing the second part of the question a moderation relationship is envisioned whereby the relationship between intentions and actual behaviour is regulated.

The author proposed the following conceptual model to help answer the research question posed. This is in accordance with the recommendation of Edmondson and Mcmanus (2007), who state that before data is collected, conceptual work must first be undertaken to develop ideas carefully.

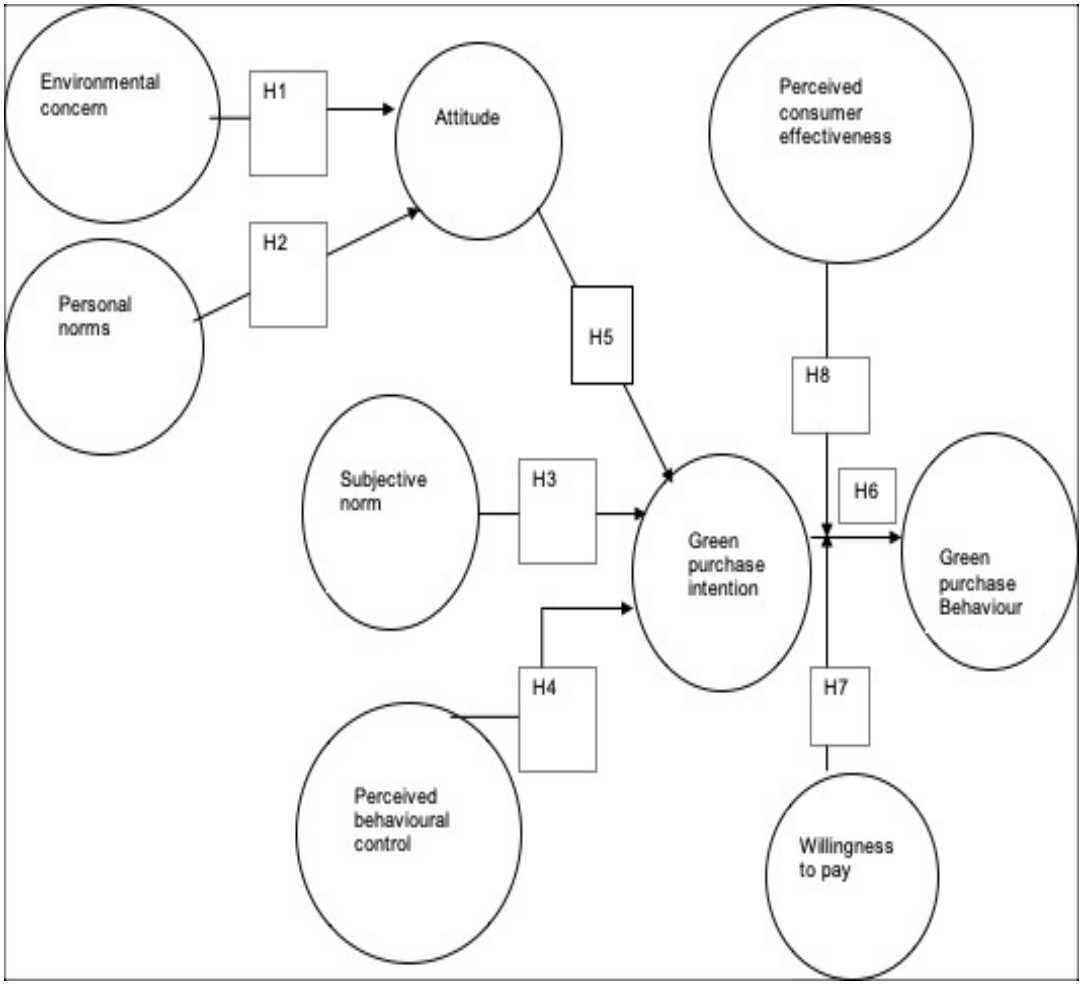

Figure 1: Hypothesised Conceptual model (Researcher's own)

3.1. Environmental concern

As defined by Kamalanon et al. (2022), environmental concern refers to the degree to which consumers view environmental issues as essential for the country's well-being. However, these consumers need to support initiatives directed at solving the environmental challenges or, at a minimum, indicate a willingness to personally contribute to the solutions provided (Dangelico et al., 2021). Additionally, Kautish and Sharma (2020) argued that a consumer's level of environmental concern is a major determining factor for buying green products, which is further reinforced by Tandon et al. (2023), who argue that ecologically concerned individuals tend to have a positive attitude towards green products and could be more influenced to perform green purchases.

Thus, the following hypothesis is presented

H1: Environmental concerns have a positive relationship with consumer's attitude toward green products

3.2. Personal Norms

Personal norms are how consumers perceive themselves and their strong moral obligation towards the environment, particularly for environmentally conscious individuals (Bashir et al., 2019; Dangelico et al., 2021). In essence, these norms are the guiding principles of how individuals should conduct themselves and comply with their beliefs (Chen et al., 2022). Moreover, violations of personal norms can trigger negative emotions in the consumer about themselves, such as feelings of guilt (Rosenthal, 2022)

As Ajzen (1991) explained, an individual's attitudes toward a behaviour are influenced by their underlying behavioural beliefs. Thus, the following hypothesis is proposed

H2: Consumers' personal norms have a positive relationship with consumer's attitude toward green products

3.3. Subjective norms

Social influence possesses a strong ability to shift a person's stance based on the opinions of others, and this is because people tend to modify their own behaviour, attitude and beliefs to conform to society (Wibowo et al., 2022). Thus, the following hypothesis is proposed

H3: Subjective norms have a positive relationship with consumer's green purchase intentions

3.4. Perceived behavioural control

Perceived behavioural control is the third element of the Theory of Planned Behaviour, and this construct deals with an individual's sense of control over resources, opportunities, and ability to perform a specific behaviour at will (Ajzen, 1991; Kautish et al., 2019). Thus, the following hypothesis is suggested

H4: Perceived behavioural control has a positive relationship with consumer's green purchase intentions

3.5. Attitude

Ajzen (1991) suggests that a person's attitude towards a particular behaviour encompasses their positive or negative assessment of it. This assessment is influenced by strong beliefs the individual holds

When relating attitudes to green purchases, Nguyen et al. (2018) suggest that pro-environmental attitudes are crucial to understanding eco-friendly behaviour, and these attitudes also provide important motivation for green purchases among the youth. Thus, the following hypothesis is suggested

H5: Attitudes towards green products have a positive relationship with green purchase intention

3.6. Green purchase intention

Multiple studies have examined these factors leading up to green purchase intentions individually and consistently reached the consensus that green purchase intention is the strongest predictor of actual green purchase behaviour (Lin & Niu, 2018; Joshi & Rahman, 2019; Sharma et al., 2020; Sharma et al., 2022). Thus, the following hypothesis is suggested

H6: Green purchase intentions have a positive relationship with green purchase behaviour

3.7. Willingness to pay as a moderating value

Green products, in general, are more expensive than conventional products, as Joshi and Rahman (2015) highlight that green products may cost five times more than a similar traditional product on the mere basis of being green.

Although green consumers are often more willing to pay a premium to purchase green products, their willingness to pay a premium has limits that would discourage these consumers from buying green products (Sharma & Paço, 2021).

Consumers may want to purchase green products but may be deterred by a higher premium often associated with these products, which leads to some consumers being unwilling to pay more for green products (White et al., 2019).

Moreover, Sharma and Paço (2021) reiterated that the economic factor could either encourage or discourage consumers from purchasing green products. Thus, it becomes crucial to understand in a South African context if consumers' intention to buy green products may be limited by their willingness to pay more for green products as opposed to traditional products; given the low growth in South Africa's economy. According to Stats SA (2023), the South African economy grew by 0.4% in the first quarter of 2023.

However, on the other hand of the spectrum, some consumers are willing to pay a premium to consume green goods (Wei et al., 2018). Thus, willingness to pay is proposed to moderate the relationship between green intentions and green purchase behaviour. Hence, the following hypothesis that is presented

H7: Willingness to pay moderates the relationship between green purchase intentions and green purchases

3.8. Perceived consumer effectiveness as a moderating value

At its core, perceived consumer effectiveness represents the belief or perception that a consumer's actions or determinations can make a difference in bringing about change through their decisions (Higueras-Castillo et al., 2019; Kautish & Sharma, 2020). This is a critical aspect to consider in green purchase behaviour because, according to both Emekci (2019) and Lavuri (2022), consumers will only take active measures to protect the environment if they believe their actions can contribute to resolving environmental challenges.

Furthermore, depending on the level of perceived consumer effectiveness, it can encourage or discourage consumers towards green purchase behaviour (Joshi & Rahman, 2019; Kautish et al., 2019). Thus, the following hypothesis is proposed

H8: PCE moderates the relationship between green purchase intention and green purchase behaviour.

4. Chapter 4: Research Methodology

In this study, the researcher employed a deductive approach, utilising an extended theory of planned behaviour framework as the foundation to address the research question. A deductive approach was used because this study involved testing hypotheses using questions from existing literature (Saunders & Lewis, 2018). In addition, as theoretical underpinning, the theory of planned behaviour was used for this study because it is a commonly used theoretical framework in this research field, as confirmed by Joshi and Rahman (2019)

The overarching methodology used for this paper in order to address the research problem was quantitative. This methodology was selected because the collected data was ordinal in nature through the use of a five-point Likert scale (Saunders & Lewis, 2018).

4.1. Population

According to the definition provided by Saunders and Lewis (2018), the population refers to the entire set of group members who are available and relevant to the study. This research focused on millennial consumers who have bought a green product before in their lifetime and have a relatively high Living Standard Measure (LSM), such as LSM 8 and above.

Moreover, the millennial cohort has received a lot of interest from researchers because they have distinguished themselves from previous generations due to their familiarity with smart technologies that give them easy access to information in order to make decisions (Kim & Park, 2020). Furthermore, Kim and Park (2020) highlighted that this cohort is more open to diverse cultures, languages and lifestyles. Hence, they became the target population for this study. However, there is a debate on the birth year range of this cohort, with different studies providing their own dates, as highlighted in section 2.3.1 in the literature review.

For this paper, the birth year range used for this cohort was from 1980 to 1999, as per Stats SA (2020). The Stats SA (2020) definition of millennials was adopted because Stats SA is a government entity responsible for conducting population census in South Africa. In addition to only focusing on millennials, the population was further segmented according to the Living Standard Measure (LSM).

According to McIntee (2014), the Living Standard Measure was introduced by the South African Advertising Research Foundation (SAARF) in the late 1980s as a segmentation tool used to categorise South Africa's entire population into sub-groups based on their living standards. In this measure, individuals are grouped according to their possessions and degree of urbanisation. Although income levels are not directly measured in LSMs, they emerge during the analysis.

There are ten LSMs, as highlighted by McIntee (2014), with LSM 1 being the group with the lowest standard of living and LSM 10 representing the highest standard of living.

For this paper, the researcher considered responses from individuals whose monthly income is equivalent to R13 210 or more, a typical LSM 8 and above income level (Ntloedibe & Ngqinani, 2020). An LSM 8 income level was selected because it represented the part of the population with a relatively high standard of living and access to a wide range of media, services and banking (McIntee, 2014). As highlighted by Shao et al. (2018), higher income levels are associated with a greater willingness to pay, thereby leading to a broader range of product choices available for the individual's consumption.

4.2. Unit of Analysis

The unit of analysis, as defined by Côté-Boileau et al. (2020), refers to the entity that is the main focus of the study and from which inferences can be drawn. They further highlight that potential units of analysis could be individuals, organisations, processes, and artefacts, to mention a few.

The research aimed to understand the factors that drive green purchase behaviour amongst millennials in a South African context and also sought to provide insights to bridge the gap between buying intentions and actual consumer buying behaviour. In order to achieve this understanding, the study focused on individuals born between 1980 and 1999, and these individuals served as the unit of analysis for the research paper.

4.3. Sampling Method and Size

While certain characteristics of millennials are known, such as the total population size, according to Stats SA (2018), was close to 20,5 million people, and only 49,5% of this cohort were employed. However, the researcher could not quantify the total population size with certainty, especially considering only millennials who have bought green products and of an income level synonymous with LSM 8 and higher were eligible to participate in the study. Because of the required segmentation parameters, the total population size could not be determined.

For this study, the researcher adopted a non-probabilistic quota sampling method. This sampling method was selected because the sample needed to exhibit specific characteristics such as age, previous green purchase and income level to confirm the participant's eligibility to partake in the study (Saunders & Lewis, 2018).

The sample size required for this study was a minimum of 184 responses. This sample size was calculated using a sample size calculator by Soper (2023 on a medium effect size. Refer to Appendix 4 for more details.

The questionnaire was distributed on various social media platforms, and a total of 223 responses were obtained; however, only 189 responses were valid, and the delta was disregarded because the respondents did not meet the eligibility criteria to participate in the study.

4.4. Measurement instrument

Respondents were given an online structured survey in which they were able to capture their responses. The questionnaire employed a five-point Likert scale ranging from (1) strongly disagree to (5) strongly agree. This followed the example of other papers used which conducted a similar type of research to this study (Bashir et al., 2019; Heo & Muralidharan, 2019; Kumar et al., 2022; Zhang et al., 2020)

Depending on the variable being measured, the proposed measurements will be adapted from a diverse set of scales. Furthermore, as recommended by Sürücü and Maslakçi (2020), researchers should choose measurement scales that have previously been validated and confirmed to be reliable. Therefore, all the scales used to measure the various constructs have all been validated, and their Cronbach's

alpha is above 0.67, which is a figure that is deemed acceptable for reliability as per Ursachi et al. (2015)

4.4.1 Questionnaire structure

The questionnaire began with an introductory screen that explained the purpose of the study together with the consent statement. By continuing onto the next screen, it was deemed that the respondent had provided consent. Refer to Appendix 3 to view the questionnaire.

After consent and a brief background of the study, pre-screening questions were asked to the respondents to ascertain the respondent's eligibility based on birth year, LSM income level and previous green product purchase.

Once pre-screening was completed, the survey proceeded to section A, whereby the environmental concerns construct was measured. The measurement from Kumar et al. (2022) was adapted. Section B measured the personal norms construct. The measurement from Bashir et al. (2019) was adapted.

Section C measured the perceived consumer effectiveness construct adapted from Heo and Muralidharan (2019).and Section D measured the willingness to pay for construct using the scale from Biswas and Roy (2015).

Finally, Section E measured five constructs from various sources. Both subjective norms and green purchase behaviour constructs used the scale adapted from Kumar et al. (2022). It should be noted that the construct of green purchase behaviour, referred to as actual buying behaviour by Kumar et al. (2022), contained three measurement items; however, only two items were retained in this study. The question Kumar et al. (2022) posed, stating: "I never mind paying premium price for organic products," was omitted from this study because of its similarity to the question asked in the willingness to pay construct adapted from Biswas and Roy (2015) which states "I am willing to pay more money to purchase green products". Therefore, the question in the green purchase behaviour construct was omitted to avoid duplication of questions.

To measure perceived behavioural control, the scale was adapted from Zhang et al. (2020), and the scale from Vu et al. (2022) was adopted to measure attitude. Lastly,

the scale from Kamalanon et al. (2022) was adapted to measure green purchase intentions. It should be noted that the measurement items for green purchase intention, as adapted from Kamalanon et al. (2022), is a four-item scale; however, the last question of the scale stating "I would consider switching to other products for ecological reasons" was ambiguous and therefore was omitted from the study to avoid confusing respondents.

Before the actual questionnaire was circulated, a pre-test pilot questionnaire was given to 25 respondents; however, only 21 responses were received. This was done to test two things: firstly, to test whether the constructs were reliable using Cronbach's alpha test and secondly, to ascertain through feedback if the questions in the questionnaire and the instructions given were clear and could be well understood.

4.5. Data gathering process and Time horizon

Prior to the data being collected, ethical clearance was sought from the university. As Saunders and Lewis (2018) explained, ethical considerations are essential and used to guard against the research causing harm to the respondents.

This study follows the survey strategy in which a survey was distributed electronically to the respondents. The researcher used Google Forms as a tool to create the survey, the same tool used by Tandon et al. (2023). The survey was distributed using email and various social media platforms such as WhatsApp, LinkedIn, and Facebook to solicit responses from willing participants. As explained by Kim and Park (2020), millennials have access to smart technologies, and thus, using social media to target them was an appropriate choice.

Due to the time constraints and nature of the research, a cross-sectional research design was used for this research paper, which is a snapshot of the data at a point in time (Saunders & Lewis, 2018). This approach was sufficient to provide the insights necessary for research purposes.

In order to limit and possibly eliminate common method bias, which is a significant concern among researchers, the researcher employed procedural measures as a way to alleviate the fears (Chen et al., 2022). The procedural measures taken were to use scales from different sources to measure variables, and steps were taken to

protect the respondent's identity (Chen et al., 2022). Furthermore, guidance from a statistician was enlisted to assist with the appropriate statistical techniques to overcome common method bias

4.6. Data Analysis

Under the supervision of a statistician, data analysis was conducted to guarantee the precision of the data interpretation. Since the empirical focus of the present work is to make predictions on the relationships among the variables and to determine the strength of these relationships, our dataset was therefore submitted to partial least squares structural equation modelling (PLS-SEM) analysis. The PLS-SEM analysis was performed using the open-source software R programming (Hair et al., 2021). At the same time, the author utilised SPSS to perform the dataset's descriptive analysis, which is deemed a suitable tool for such a purpose (Saunders & Lewis, 2018).

4.6.1 Data Cleaning Procedures

Before any analysis of the model or hypotheses could be performed, the researcher needed to perform a data check to ensure the data collected was complete and disregard incomplete data. This is a crucial step as it ensures the integrity of the findings; as Chai (2020) explained, data with missing values will affect the output provided, particularly when performing regression testing. Chai (2020) further explains that statistical software inserts a placeholder value where there is missing information, thus leading to a distorted regression output.

The data collected was from 223 respondents; out of those, 34 responses needed to be discarded because the respondents were not eligible to participate in the study, thus leaving 189 valid responses. The remaining 189 responses were taken through the missing value analysis, which showed no missing values within the data set.

4.6.2 Structural Equation Modelling (PLS-SEM)

This study used partial least square structural equation modelling (PLS-SEM) to analyse the hypotheses and inter-relationships between constructs. PLS-SEM was used for this study because of the following reasons. Firstly, this technique has been

used by other recent green studies, such as Ng et al. (2023),Essiz and Senyuz (2023) and Tang et al. (2023). Secondly, this technique is better suited for large complex models (Ng et al., 2023; Sharma et al., 2020), such as the model hypothesised in the current study, which has nine constructs in total.

Finally, PLS-SEM is said to perform better for testing models that are a theoretical extension because of its causal-predictive nature (Essiz & Senyuz, 2023); this study's model is an extension of the theory of planned behaviour. These assertions prompted the researcher of this study to follow this statistical procedure for the analysis of the data gathered.

4.6.3 Overcoming Bias

According to Yang et al. (2023), having a self-administered questionnaire may make the analysis more vulnerable to common method bias. They suggest that the study ensure respondents' anonymity and conduct Harman's single-factor test to overcome this Bias. In accordance with the recommendations, the questionnaire did not collect any identifying information relating to the respondents, thus ensuring the respondent's anonymity. In addition, a factor analysis was performed on the dataset to ensure that the study was not significantly affected by common method bias

4.7. Quality controls

Several interventions have been enlisted to maintain the quality of the paper, such as adopting a positivist philosophy, which, according to Saunders and Lewis (2018), uses structured methods to facilitate replication to produce generalisations in a law-like manner. In addition to the selected philosophy, the researcher used a pilot questionnaire that was distributed to a small sample size wherein 21 responses were used to evaluate the internal consistency of the constructs as well as determine the clarity of the questions before the main questionnaire was sent out for further responses.

The pilot questionnaire was done in accordance with best practices, followed by other studies exploring a similar topic to this paper (Dangelico et al., 2021; Riva et al., 2022; Wang et al., 2019). The pilot study provided the researcher with the ability to test the reliability of the instruments used and to ascertain whether the questionnaire

instructions given were clear and easy to follow (Dangelico et al., 2021; Riva et al., 2022; Wang et al., 2019)

Finally, to provide research that yields beneficial results, the most important aspects to ensure quality control are the validity and reliability of the study that has been undertaken (Sürücü & Maslakçi, 2020).Thus, the researcher enlisted the guidance of a statistician as an expert who assisted and guided with applying the correct statistical methods and procedures during data analysis to ensure the findings were valid and reliable

4.7.1 Reliability

According to Saunders and Lewis (2018), for the research to be reliable, the study must employ data collection and analysis methods that can produce consistent findings. For this study, the use of Cronbach's alpha was employed as a tool to test the internal consistency of the scales employed to measure the various constructs. The use of this tool is reinforced by Tavakol and Dennick (2011), who assert that alpha is a tool that is commonly used as a test of reliability. As a rule, an acceptable value of Cronbach alpha needs to be between 0.6 and 0.7, and a reading of 0.8 and higher represents excellent reliability; however, if values are higher than 0.95, it may not necessarily be good but may indicate a level of redundancy (Ursachi et al., 2015).

All the constructs were above the 0.6 threshold except for the perceived consumer effectiveness construct, which scored a low Cronbach's alpha score of 0.129, which was well below the acceptable threshold. To correct this scale, the last question was omitted in the analysis due to a low factor loading, which contributed to the low overall Cronbach's alpha of the construct. After omitting this item, the perceived consumer effectiveness' Cronbach's alpha showed a 0.790 value, which is an acceptable reliability level according to Ursachi et al., 2015).

4.7.2 Validity

Saunders and Lewis (2018) highlight that validity is about ensuring that the findings are credible and correspond to what they seemingly portray. One of the measures that was employed to reinforce the validity of the study was to provide a short description of green products to respondents along with examples to ensure that all

participants have a similar understanding of the concept. This is similar to what Vu et al. (2022) did.

Furthermore, to achieve content validity, measurement items from previous studies examining a similar topic to the current study were adapted to ensure that the questionnaire would provide the required data to answer the research question (Saunders & Lewis, 2018).

Another measure employed by the researcher to ensure the validity of the study was through pre-screening questions asked to the respondents after consent was given. This was to ensure that only the targeted population's responses were used in data analysis and not tainted by other respondents who were not the study's focus.

The survey was calibrated to ensure that if participants did not meet the eligibility criteria, the survey would end and provide respondents with a message indicating that they were not part of the targeted population. This also saved the individuals time not to complete a survey where their responses would be disregarded anyway.

Lastly, the constructs were measured using R programming language to ensure construct validity, where both discriminant and convergent validity were tested.

4.7.3 Observations and Lessons Learned from Pilot Study

From the pilot study, respondent 7 had many missing values in their response and thus would have had the potential to affect the study, as detailed in the data cleaning section. To counteract and prevent this from happening in the main study, the researcher adjusted the questionnaire to make all questions mandatory. However, this did not compromise the respondents' ability to leave the survey anytime they wished to without penalty.

Because the pilot study had a very limited sample size, the test for reliability was performed only to give a sense of the internal consistencies of the measurements. Most of the constructs were above the acceptable level of 0.6 to 0.7, as Ursachi et al. (2015) supported. However, the exception was the Perceived behavioural control and Environmental concern constructs, which scored 0.447 and 0.499, respectively. Albeit the Cronbach alpha of these two constructs was low, it was not a cause of concern because, as stated by Sürücü and Maslakçi (2020), the sample size has an effect on the reliability score of the scale notably, one of the most effective ways to

increase the Cronbach alpha is to increase the sample size. Thus, the constructs were left unchanged for the main study.

4.8. Limitations

This paper uses the theory of planned behaviour as a foundational theoretical framework. However, this theory predominately focuses on predicting the behaviour of rational individuals and may not be suitable when it has to grapple with impulsive consumer behaviour (Sharma, 2021).

Another limitation associated with using the theory of planned behaviour is, it does not factor in the time lapse between the intention and the consequent behavioural action (Sharma & Foropon, 2019). Joensuu-Salo et al. (2020) explain why this is a limitation by highlighting that as time elapses, there is an effect on the intention, which may result in that intention not producing the intended behaviour.

4.9. Chapter Summary

This study used a quantitative methodology to collect and analyse the data. Along with the quantitative methods, several other approaches were followed; the study employed a deductive approach, which followed a positivist philosophy. Moreover, the population selected, which became the unit of analysis, were millennials, defined as people born between 1980 and 1999. In addition, these millennials needed to have purchased a green product before in their lifetime and earn R13 210 or more net monthly income.

Furthermore, a non-probabilistic sampling technique was used, targeting a sample size of 184 respondents. These respondents participated in the research through a self-administered questionnaire that was distributed by email and various social media platforms.

The questionnaire was operationalised using a five-point Likert scale that used measurement scales from various sources within the literature. The measurement items were either adapted slightly to suit the study or adopted as they were. Furthermore, the collected data was analysed using IBM SPSS and R programming language as statistical software tools.

PLS-SEM was used to test the inter-relationships of the model and the hypotheses, and the study's validity was confirmed through testing the discriminant and convergent validity. In addition, the test for reliability was done using Cronbach's alpha.

5. Chapter 5: Findings

5.1 Introduction

In this chapter, the findings obtained from the data collected and analysed are shared, and a closer look at the patterns that emerged from the data is also reported. The findings will be reported in the following structure.

First, the demographic and other important characteristics relating to the participants of the study shall be shared so that context can be given on the type of people that participated in the study. This section is referred to as descriptive statistics.

After that, the results of the reliability and validity tests will be shared as stated by Sürücü and Maslakçi (2020), reliability and validity are the most important aspects when it comes to research to ensure the research yields beneficial results.

Lastly, the study's main findings will be presented, including the results of the hypotheses made in Chapter 3 of this study.

5.2 Descriptive Statistics

The questionnaire received a total number of 223 responses; however, 34 out of the 223 responses were invalid as the participants did not meet the set eligibility criteria detailed in section 4.1, which described the targeted population for this study. Therefore, only 189 responses were valid; thus, the data analysis was performed only on this dataset.

When looking at the data, out of the 189 valid responses, slightly more females than males participated in the questionnaire, with a split of 52.38% and 46.56%, respectively. Moreover, the overwhelming majority of the respondents were educated, with 95.77% having had higher education post-matric. Notably, most respondents, accounting for 31.22% of the entire sample, reported their monthly net income as R60 000 and above. In addition, the majority of the respondents, accounting for 70.37% of the entire dataset, were between the ages of 31 and 40 years old, and finally, a slight majority of the respondents were married, accounting for 51.32% and only 3.17% reported they were divorced, and the rest were single.

Table 2 presents a summary of the respondents' demographic characteristics.

Table 2: Demographic profile of respondents (n=189)

Variables	Classification	Sample (n=189)	Percentage
Gender	Male	88	46.56%
	Female	99	52.38%
	Prefer not to say	2	1.06%
Age	24-30 years	32	16.93%
	31-35 years	66	34.92%
	36-40 years	67	35.45%
	41-43 years	24	12.70%
Education	High School	8	4.23%
	Graduate (Diploma & Bachelors)	76	40.21%
	Postgraduate(Honours & Masters)	103	54.50%
	Doctorate	2	1.06%
Marital status	Single	86	45.50%
	Married	97	51.32%
	Divorced	6	3.17%
Monthly net Income level	R13 210 - R19 999	30	15.87%
	R20 000 - R39 999	50	26.46%
	R40 000 - R49 999	29	15.34%
	R50 000 - R59 999	21	11.11%
	R60 000+	59	31.22%

Figure 2 depicts a cross-tabulation of the data between gender and education, highlighting that 96.97% of females had post-matric education as opposed to 94.32% of males. The complete dataset for both genders was 99 females and 88 males.

Furthermore, the only two respondents who preferred not to disclose their gender all had a postgraduate qualification, either honours or a masters.

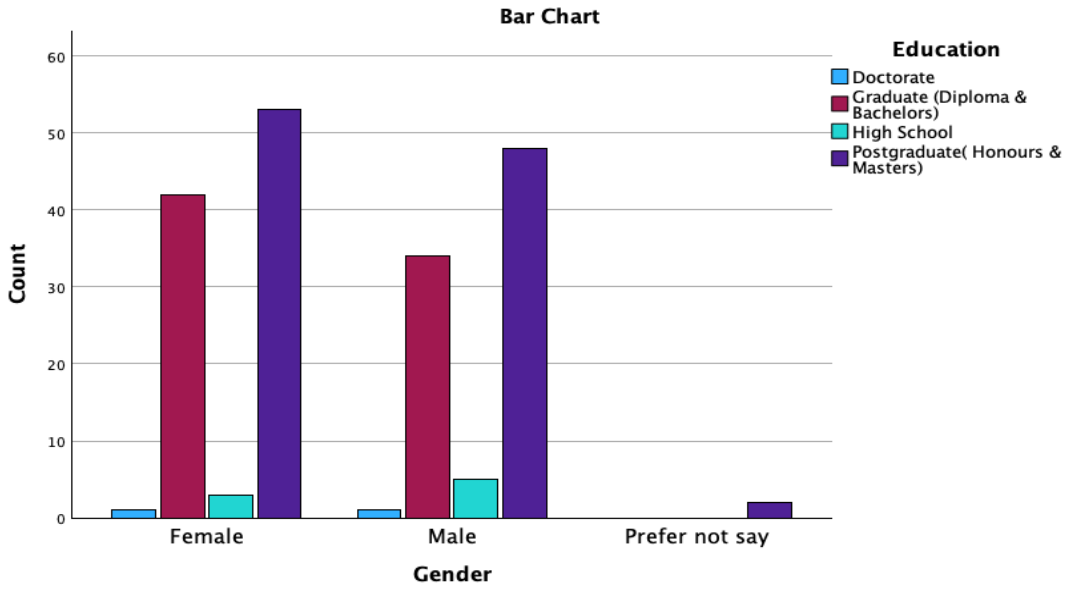

Figure 2: Gender vs Education

Figure 3 highlights that when comparing earnings between the genders within the dataset, males out-earned females despite the females having higher levels of education, as indicated in Figure 2. Notably, most of the males 45.45% of the total male respondents earned R60 000 or more as compared to only 19.19% of females who earned R60 000 or more.

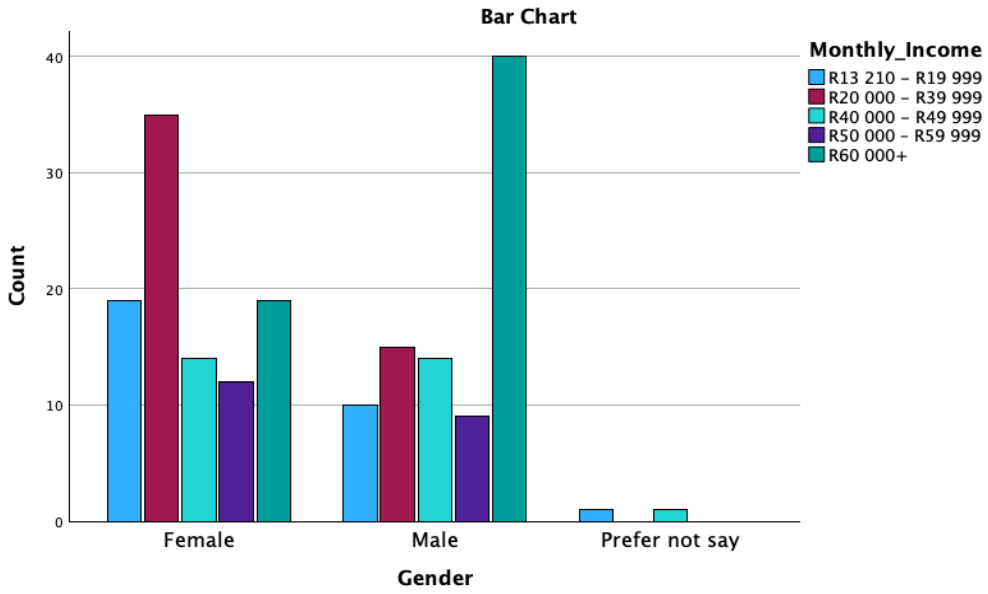

Figure 3: Gender vs Net Monthly Income

Moreover, figure 3 shows that most of the women, accounting for 35.35%, earned between R20 000 and R39 999. Finally, of the two respondents who preferred not to say their gender, one earned between R13 210 and R19 999 and the other earned between R40 000 and R49 999.

5.3 Validity and Reliability of the Results

Validity and reliability are critical aspects of research (SÜRÜCÜ & MASLAKÇI, 2020); however, before we test the validity and reliability, data checks were performed to ensure the data is complete and normal.

Figure 4 depicts the results obtained from performing the missing values analysis test, which was done to ensure the completeness of the responses obtained. This figure confirms no missing values from the 189 responses that were analysed.

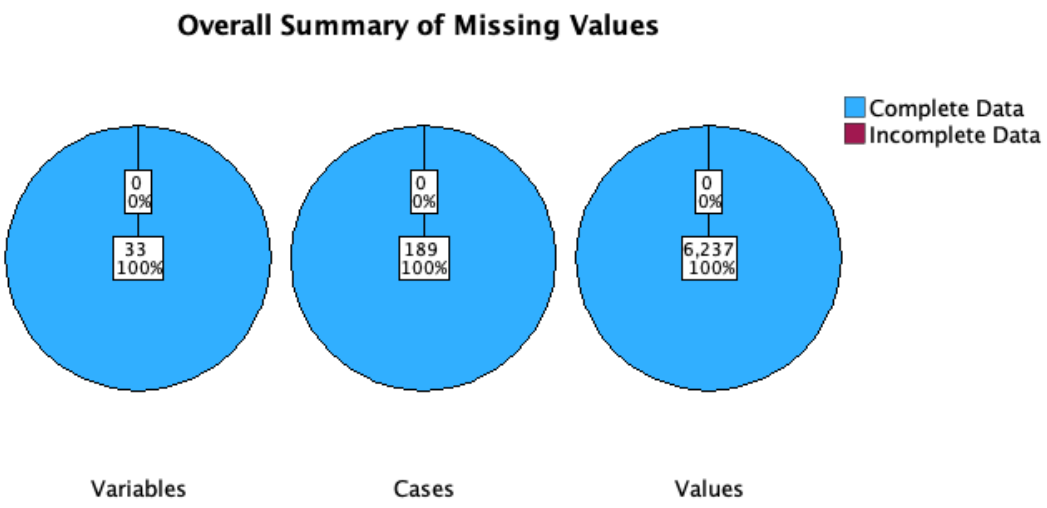

Figure 4: Missing value analysis

variables refer to the questions from the various scales used in addition to the demographic questions. The three pre-screening questions did not form part of the variables as they were only used to determine eligibility to participate in the survey and provided no other insights relevant to the findings.

The cases refer to the 189 individuals who participated in the study, and the values are the individual data points produced by these 189 respondents

The next test was to test if the data was free from skewness and if no outliers would affect the regression analysis. Thus, a Quantile-Quantile plot method was performed. According to Lindagato et al. (2018), the Quantile-Quantile (Q-Q) is a method widely

used to investigate how data is statistically distributed. With this method, it becomes easy to determine whether the data is distributed normally or not. Moreover, as explained by Cheng et al. (2023), Quantile functions provide improved accuracy when evaluating how covariates affect explanatory variables

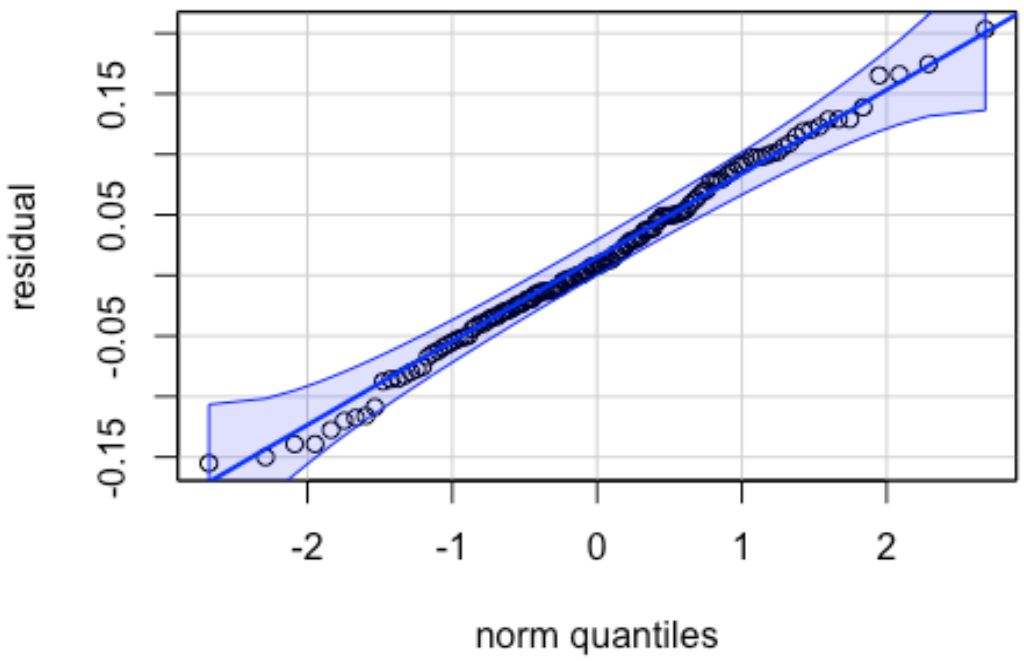

Figure 5: Quantile-Quantile (Q-Q) plot

Figure 5 depicts how the data collected was statistically distributed, which is predominately a normal distribution with minor deviation at the end, which should not significantly impact the outcomes. Although this is not required for a PLS-SEM analysis (Chen et al., 2022), the author performed this check to demonstrate rigour and to better understand the data collected.

After confirming the data checks, the construct reliability and validity were examined. Table 3 shows the reliability and validity results. For the actual R output, refer to Appendix 5 and Appendix 6

Table 3: Reliability and Validity

Variables	Factor Loading	Cronbach's Alpha	Composite Reliability	AVE
Environmental Concern (EC)		**0.812**	**0.890**	**0.730**
EC 1	0.754			
EC 2	0.892			
EC 3	0.893			
Personal Norms (PN)		**0.881**	**0.914**	**0.680**
PN 1	0.981			
PN 2	0.797			
PN 3	0.875			
PN 4	0.855			
PN 5	0.847			
Attitude (Att)		**0.885**	**0.921**	**0.746**
Att 1	0.776			
Att 2	0.912			
Att 3	0.913			
Att 4	0.842			
Subjective Norms (SN)		**0.645**	**0.824**	**0.706**
SN 1	0.961			
SN 2	0.695			
Perceived Behavioural Control (PBC)		**0.697**	**0.828**	**0.619**
PBC 1	0.688			
PBC 2	0.757			
PBC 3	0.908			
Green Purchase Intention (GPI)		**0.858**	**0.913**	**0.777**
GPI 1	0.849			
GPI 2	0.883			
GPI 3	0.911			
Willingness to Pay (WTP)		**0.916**	**0.947**	**0.857**
WTP 1	0.898			
WTP 2	0.950			
WTP 3	0.928			
Green Purchase Behaviour (GPB)		**0.818**	**0.917**	**0.843**
GPB 1	0.917			
GPB 2	0.923			
Perceived Consumer Effectiveness (PCE)		**0.790**	**0.905**	**0.826**
PCE 1	0.736			
PCE 2	0.718			

5.3.1 Convergent Validity

Convergent validity was tested using the average variance extracted (AVE) value and the indicator loadings. According to (Sharma et al., 2020), the value of AVE should be more than 0.5 to establish convergent validity, and the indicator loadings should be greater than 0.7. However, as Jun et al. (2019) noted, while indicator loadings above 0.7 are desirable, indicator loadings above 0.5 are acceptable.

The results shown in Table 3 support convergent validity because all construct's AVE values exceed the recommended 0.5 threshold. In addition, all indicator loadings were also above 0.5, which is acceptable per Jun et al. (2019). Furthermore, most of the loadings were above 0.7, which is desirable. Refer to Appendix 6 for the R output.

5.3.2 Discriminant Validity

Discriminant validity refers to the degree to which a construct is empirically separate from other constructs within the structural model(Hair et al., 2019).The discriminant validity was tested using the heterotrait-monotrait (HTMT) analysis, and all values were less than 1, as shown in Table 4. This is in accordance with the recommendation given by Becerra et al. (2023) thus, confirming discriminant validity.

In addition, the square root of each construct's AVE was calculated, and the results are shown diagonally in bold in Table 4. This was done as per the Fornell-Larcker measure, which dictates that each construct's square root of AVE be greater than its correlation with other constructs in order to confirm discriminant validity. The results shown in Table 4 confirm discriminant validity. Refer to Appendix 7 for the R output.

Table 4: Discriminant Validity

Constructs	EC	PN	Att	SN	PBC	GPI	GPB
EC	**0.854**						
PN	0.709	**0.825**					
Att	0.750	0.721	**0.864**				
SN	0.527	0.519	0.549	**0.840**			
PBC	0.406	0.397	0.586	0.518	**0.787**		
GPI	0.588	0.563	0.781	0.325	0.668	**0.881**	
GPB	0.610	0.609	0.638	0.689	0.534	0.395	**0.918**

Notes: EC= Environmental Concern; PN= Personal Norms; Att= Attitude; SN= Subjective Norms; GPI= Green Purchase Intention; PCB= Perceived Behavioural Control; GPB= Green Purchase Behaviour.

5.3.3 Reliability Measurements

Cronbach's alpha was used to measure the internal consistency of items within a construct. As shown in Table 3, all values exceed the minimum recommended threshold of 0.6, which is generally considered acceptable (Ursachi et al., 2015). However, it should be noted that initially, the perceived consumer effectiveness construct had a Cronbach's alpha value of 0.129, which was extremely low. The last item of that measurement scale was omitted from the analysis, thus resulting in an improved Cronbach's alpha that exceeded the minimum acceptable threshold, thus ensuring all constructs exhibited a high internal consistency within them.
In addition, Composite Reliability (rho_C), which is another indicator confirming reliability, showed desirable values that exceeded 0.7, as suggested by Rasool et al. (2023), thus indicating a high level of internal consistency and reliability.

5.3.4 Common method Bias

Common method bias is often a concern, particularly with self-reported data using a cross-sectional time horizon, such as this current study (S. Kumar et al., 2022). A factor analysis is required to examine its presence, using the KMO and Bartlett's test for sphericity, as shown in Table 5. The KMO value of 0.888 indicates that the data is suitable for a factor analysis to be performed.

Table 5: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.888
Bartlett's Test of Sphericity	Approx. Chi-Square	3592.860
	df	378
	Sig.	<.001

After confirmation that the data was suitable for factor analysis, the total variance explained analysis was undertaken using the Principal Component Factoring as an

extraction method. The analysis shown in Table 6 reveals that the first component explains 38.101% of the variance, which is less than the 50% threshold as recommended by Yue et al. (2020), thus confirming that common method bias is less likely within the analysed dataset.

Table 6: Total Variance Explained

	Initial Eigenvalues[a]			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.903	38.101	38.101	10.903	38.101	38.101
2	2.591	9.054	47.155			
3	2.234	7.808	54.964			
4	1.670	5.834	60.798			
5	1.282	4.482	65.279			
6	1.142	3.990	69.269			
7	.968	3.383	72.653			
8	.882	3.081	75.734			
9	.755	2.638	78.372			
10	.673	2.353	80.725			
11	.624	2.182	82.906			
12	.561	1.962	84.868			
13	.481	1.681	86.550			
14	.447	1.562	88.111			
15	.417	1.456	89.567			
16	.364	1.270	90.838			
17	.357	1.246	92.084			
18	.336	1.174	93.258			
19	.329	1.149	94.407			
20	.276	.966	95.373			
21	.266	.930	96.303			
22	.214	.748	97.051			
23	.200	.698	97.749			

24	.183	.639	98.388			
25	.163	.568	98.956			
26	.123	.431	99.387			
27	.115	.403	99.790			
28	.060	.210	100.000			

5.4 Structural Model Results

After reliability and validity were confirmed, the hypothesised structural model was evaluated using PLS-SEM because of the complexity and the fact that an existing theory was extended (Essiz & Senyuz, 2023; Ng et al., 2023; Sharma et al., 2020). As Hair et al. (2019) recommended, before evaluating the PLS-SEM results, the first step is to test the measurement models, and then the structural model can be assessed. Thus, the reliability and validity were tested first to confirm the strength of the measurement model.

5.4.1 Model's Predictive Power

According to Hair et al. (2019), R^2 is a measure of the model's predictive power, which ranges from 0 to 1; R^2 values that are 0.25 and lower are considered weak. However, Hair et al. (2019) remind us that the context of the study matters, and they report that a figure as low as 0.10 may be acceptable in some disciplines. The model's predictive power was tested; the results are depicted in Figure 7.

The R^2 values, as depicted in Figure 7, provide valuable insights into the strength of the hypothesised model's explanatory abilities. Firstly, when examining the Attitude construct, having an R^2 value of 0.507 suggests that 50.7% of its variability can be accounted for by its predictors, namely Environmental Concern and Personal Norms.

In examining the R^2 value of Green Purchase Intention, its 0.541 R^2 value indicates 54.1% of the variance, which can be attributed to its associated predictors. Although Green Purchase Behaviour's R^2 value of 0.401 is slightly lower than the other constructs measured, it still explains 40.1% of the variance, which is attributed to its predictor without moderation. Notably, the adjusted R^2 values closely correspond to the reported R^2 values, therefore confirming the model's overall predictive power. For R programming output for all the R^2 values reported, refer to Appendix 5.

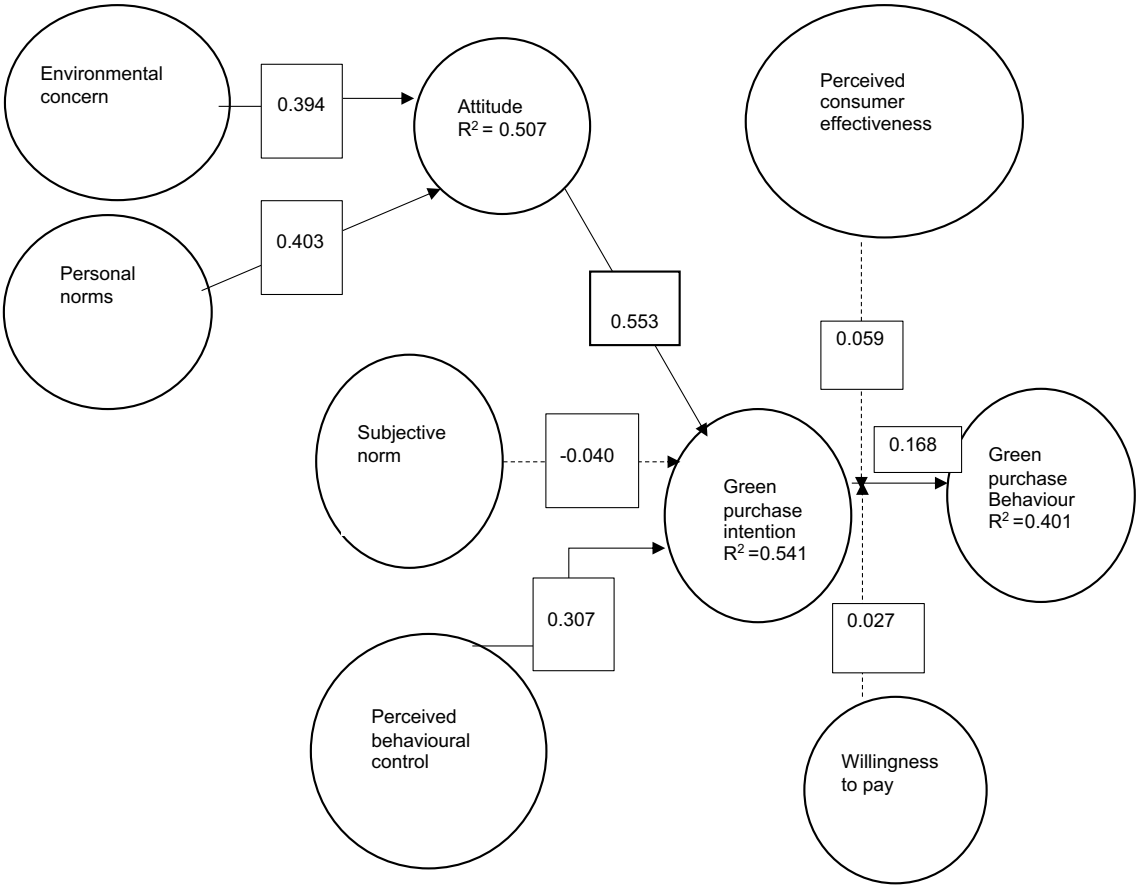

Figure 6: Results of the hypothesised model

Notes: the relationship that is drawn with a dash indicates a relationship that is not statistically significant.

5.4.2 Path coefficient and hypotheses testing

The Hypotheses made in Chapter 3 were then tested. Table 7 summarises the results regarding the hypotheses for R programming output; refer to Appendix 8.

Before the results are discussed to establish an understanding of the key statistical measurements that appear in Table 7, the following definitions are offered. Firstly, the definition of path coefficient refers to the measure that highlights the relationship that exists between two constructs (Zhang et al., 2020). Secondly, the confidence interval at 95% refers to the likely range in which the mean of the population lies. If that range includes a zero, then it indicates that the relationship is not statistically significant (Najmi et al., 2021). Finally, the t-statistic is a statistical measure used to

test the significance of the relationship between an independent variable and a dependent variable within a given dataset (Sinurat et al., 2021).

Table 7: Results of Hypotheses Excluding Moderation

Path/ hypotheses	Path Coefficient	95% CI Range	T-Stat	Results
EC ⟶ Att (H1)	0.394	0.262 to 0.527	5.754	Supported
PN ⟶ Att (H2)	0.403	0.273 to 0.533	6.205	Supported
SN ⟶ GPI (H3)	-0.040	-0.147 to 0.078	-0.678	Not Supported
PCB ⟶ GPI (H4)	0.307	0.169 to 0.450	4.227	Supported
Att ⟶ GPI (H5)	0.553	0.399 to 0.683	7.474	Supported
GPI ⟶ GPB (H6)	0.168	0.043 to 0.290	2.714	Supported

Notes: EC= Environmental Concern; PN= Personal Norms; Att= Attitude; SN= Subjective Norms; GPI= Green Purchase Intention; PCB= Perceived Behavioural Control; GPB= Green Purchase Behaviour

The following text will delve deeper into each hypothesis, reporting on the results obtained. However, it is important to note that to examine the significance of the relationship between the constructs, the t-stat value is used to determine whether the relationship is significant. As stated by Wang et al. (2018), t-stat values above 1.96 represent a significant relationship that is $p<0.05$.

H1: Environmental concerns have a positive relationship with consumer's attitude toward green products

The analysis for H1 showed that the path coefficient of 0.394 and the 95% confidence interval (CI) range of 0.262 to 0.527 combined with a t-stat value of 5.754 indicate that there is a statistically significant positive relationship between environmental concerns and the attitude of consumers towards green products. Thus supporting H1

H2: Consumers' personal norms have a positive relationship with consumer's attitude toward green products

The analysis for H2 highlighted a path coefficient of 0.403 and a 95% CI range of 0.273 to 0.533, together with a t-stat value of 6.205, showing a statistically significant

positive relationship between personal norms and consumers' attitudes towards green products. Thus supporting H2

H3: Subjective norms have a positive relationship with consumer's green purchase intentions

The outcome of H3 analysis showed a path coefficient of -0.040 and a 95% CI range of -0.147 to 0.078, which includes zero, combined with a t-stat value of -0.678, indicates that there is no statistically significant relationship between subjective norms and consumer's green purchase intentions. Therefore, H3 is not supported

H4: Perceived behavioural control has a positive relationship with consumer's green purchase intentions

The findings of H4 showed a path coefficient of 0.307 and a 95% CI range of 0.169 to 0.450 combined with a t-stat value of 4.227, indicating that there is a statistically significant relationship between perceived behavioural control and consumer's green purchase intentions. Thus, H4 is supported

H5: Attitudes towards green products have a positive relationship with green purchase intention

The analysis for H5 highlighted a path coefficient of 0.553 and a 95% CI range of 0.399 to 0.683, together with a t-stat value of 7.474, showing a statistically significant positive relationship between attitude and the consumer's green purchase intentions. Therefore supporting H5

H6: Green purchase intentions have a positive relationship with green purchase behaviour

The analysis for H6 highlighted a path coefficient of 0.168 and a 95% CI range of 0.043 to 0.290, together with a t-stat value of 2.714, showing that there is a statistically significant positive relationship between green purchase intentions and green purchase behaviour. Thus supporting H6

5.4.3 Moderation testing

Table 8 depicts the test result for moderation using the willingness to pay and perceived consumer effectiveness construct.

Table 8: Results of Moderation

Interaction Term	Path coefficient	Bootstrap Mean	Bootstrap SD	T Stat	95%CI Range
GPI * WTP → GPB (H7)	0.027	0.025	0.053	0.521	-0.081 to 0.127
GPI * PCE → GPB (H8)	0.059	0.043	0.075	0.780	-0.118 to 0.176

Notes: GPI= Green Purchase Intention; GPB= Green Purchase Behaviour; WTP= Willingness to Pay; PCE= perceived consumer effectiveness

The study hypothesised two moderator constructs: perceived consumer effectiveness (PCE) and willingness to pay (WTP). To examine the moderating effect of these constructs, the interaction term of green purchase intention (GPI) X willingness to pay (GPI X WTP) and green purchase intention X perceived consumer effectiveness (GPI X PCE) was added to the model, as illustrated in Table 8.

The results evidenced in Table 8 show that for H7, WTP does not appear to significantly moderate the relationship between GPI and green purchase behaviour (GPB). This is deduced by a low t-stat value of 0.521 and a 95% CI range of -0.081 to 0.127, which includes a zero reinforcing that this moderation effect is not statistically significant; thus, H7 is not supported.

Similarly, H8 was analysed, and the results presented in Table 8 show that H8 also did not significantly moderate the relationship between GPI and GPB. This is confirmed by a 95% CI range of -0.118 to 0.176, which includes a zero and a low t-stat value of 0.780, affirming that the moderation effect of PCE on the relationship between GPI and GPB is not statistically significant, and thus H8 is also not supported.

5.5 Results Summary

This chapter was arranged into three parts, reporting the descriptive statistics which describe the profiles of the respondents who participated in the study. Next, the findings relating to the reliability and validity of the study were reported, and finally, the findings of the hypotheses were reported.

The descriptive statistics showed that 223 respondents participated in the study; however, only 189 responses were valid based on the set eligibility criteria. Of these 189 respondents, 52.38% were females, and 46.56% were males, with a majority (70.37%) aged between 31 and 40 years. In terms of education, the sample analysed showed that 95.77% of respondents had pursued higher education post-matric. The gender split on education revealed that 96.97% of females had post-matric education, and 94.32% of males had post-matric education. Interestingly, despite females having a higher educational level, the data revealed that 45.45% of male respondents earned R60 000 or more, compared to 19.19% of females. Most females (35.35%) earned between R20 000 and R39 999.

Next, the test for reliability and validity was undertaken, revealing that most of the constructs had a good Cronbach's Alpha and were above the required acceptable threshold of 0.6, as suggested by Ursachi et al. (2015). The perceived consumer effectiveness construct initially scored low; however, omitting its last measurement item led to an improved Cronbach's alpha at 0.790, exceeding the minimum acceptable threshold. Convergent and discriminant validity were confirmed, ensuring the study was valid and reliable.

Finally, hypotheses testing followed the reliability and validity testing and revealed that all Hypotheses were supported except for H3, which showed a path coefficient of -0.040 and a 95% CI range of -0.147 to 0.078. Moderation testing revealed that the hypothesised moderators H7 and H8 did not have a statistically significant moderating effect on the relationship between green purchase intention and green purchase behaviour. Therefore, H7 and H8 were not supported

6. Chapter 6: Discussion of Results

6.1 Introduction

This study aims to understand which factors drive green purchase behaviour, particularly amongst millennials in a South African context. In addition, it seeks to provide insights into the disparity between consumers' green purchase intentions and their green purchase behaviour, which is an under-researched phenomenon in the existing literature on green consumer behaviour.

To bridge the intention-behaviour gap, this study developed a conceptual model that extends the planned behaviour theory to provide a framework for answering the research question. The theory of planned behaviour is suitable for this study as it highlights the individual's commitment when undertaking a particular action (Sharma et al., 2020).

Building on the theoretical foundation, the selection of participants was made intentionally to ensure the correct sample of respondents was targeted. In addition, it also provides credibility to the study from a validity and reliability standpoint. Thus, only respondents who had previously bought green products and had a relatively high living standard, as McIntee (2014) suggests, were selected to participate in the study.

In this chapter, the results reported in Chapter 5 are discussed and linked back to existing literature in order to provide a richer understanding of the results.

6.2 Theory of Planned Behaviour

The results of this study validate the use of the theory of planned behaviour as a robust model for explaining green purchase behaviour amongst millennials in South Africa. This finding is consistent with what was found in other studies which reported the robustness and validity of this theory in predicting consumer behaviour in different emerging markets (Dilotsotlhe, 2021; Joshi & Rahman, 2019; Ogiemwonyi, 2022; Sharma & Foropon, 2019; Sousa et al., 2022).

The robustness of the model is demonstrated by the fact that all but one of the developed hypotheses based on this theory were found to be statistically significant and thus received empirical support. The hypothesis (H3) that subjective norms have

a positive relationship with consumers' green purchase intentions was not confirmed. The possible reasons are discussed in the subsequent section.

6.3 Discussion On Findings Relating To Hypotheses Without Moderation

This study tested six direct hypotheses to examine the inter-relationships between constructs. This analysis was performed using a bootstrapping procedure as Hair et al. (2011) recommended to calculate the path coefficients and the significance of the relationship amongst the constructs in the model, as illustrated in Table 7.

The results indicate that most of the hypotheses, except for H3, were supported in accordance with what was initially predicted during the development of the conceptual model.

The following sub-sections delve deeper into each hypothesis to discuss their associated results.

6.3.1 H1: Environmental concerns have a positive relationship with consumer's attitude toward green products

The findings for H1, as illustrated in Table 7, indicate a positive and significant relationship between environmental concerns and consumers' attitudes towards green products. This suggests that as consumers' environmental concern increases, it influences a more favourable attitude towards green products. This finding is consistent with recent prior studies such as Swanson and Jin (2023) and Tandon et al. (2023), which assert that consumers' environmental concerns have the ability to influence their attitudes towards green products and ultimately influence their consumption choices significantly.

The path coefficient of 0.394 alongside a t-stat value of 5.754 suggests that environmental concern is a strong predictor of a favourable attitude towards green products, consistent with the findings of Kumar et al. (2022).

The outcome of H1 is not surprising because consumers' environmental concerns can promote an emotional response in consumers because of their worry about environmental issues. This worry is what motivates them to seek out solutions to minimise the impact of environmental degradation, which is consistent with what was reported by Zahan et al. (2020), who state that ecological issues and problems make

environmentally concerned individuals think before buying conventional products thus their attitudes become favourable towards green alternatives.

Although environmental concerns play a significant role towards pro-environmental behaviour, it does not occur spontaneously without stimulation or being developed. One of the effective ways of increasing environmental concern is through environmental education and marketing communication, as explained by Heo and Muralidharan (2019), who found that environmental education and marketing communication are key drivers that heighten environmental concern. However, caution must be exercised when providing marketing communication because misrepresentations may lead to greenwashing, which is a barrier to green purchase behaviour.

6.3.2 H2: Consumers' personal norms have a positive relationship with consumer's attitude toward green products

The results illustrated in Table 7 suggest that personal norms significantly predict a favourable attitude towards green products (H2). This is consistent with the findings reported by Wang and Chou (2020), who demonstrated that positive personal norms align with a favourable attitude towards purchasing green products.

The outcome of H2 being supported is expected, especially when considering that personal norms describe how an individual perceives themselves and the strong moral obligations and standards they hold themselves to in performing a particular task, such as environmental protection by environmentally conscious individuals (Bashir et al., 2019; Dangelico et al., 2021).

Additionally, as argued by Rosenthal (2022), if individuals violate their norms, this could trigger feelings of guilt. This emotional consequence may explain why personal norms show a stronger correlation with favourable attitudes than other predictors in this study's model.

6.3.3 H3: Subjective norms have a positive relationship with consumers' green purchase intentions

In contrast to the other hypotheses, the data did not support H3, indicating that subjective norms have no significant impact on consumers' green purchase

intentions despite the prediction suggesting the opposite. Furthermore, the path coefficient value of -0.040, as shown in Table 7, indicates that the relationship between subjective norms and green purchase intentions is slightly negative and not a positive relationship, as hypothesised. While this result is unexpected, similar results have been found in other studies, such as Alzubaidi et al. (2021) and Kumar et al. (2017), who reported that social influence has no significant effect on consumer's green purchase intentions.

This result is surprising considering that this study, as well as Alzubaidi et al. (2021) and Kumar et al. (2017), were performed in developing non-Western countries typically known for being collectivistic. Subjective norms are commonly expected not to play a significant role in shaping green purchase behaviour in Western cultures, as indicated by Wang et al. (2022), who argued that social influence is more effective in collectivistic countries as opposed to their Western counterparts who are more individualistic.

A possible reason why subjective norms are not as effective as anticipated in this study may lie in the study performed by de Groot et al. (2021), who found that when an individual's internal moral compass, i.e. personal norms are strong, it impacts the effectiveness of subjective norms in promoting a pro-environmental behaviour.

Another possible reason could be the study’s limitation, which did not account for the cultural and ethnic aspects of the respondents. This limitation could have influenced the outcome of this hypothesis because, as stated by Sheng et al. (2019), the buying patterns of consumers vary across different cultural backgrounds.

6.3.4 H4: Perceived behavioural control has a positive relationship with consumer’s green purchase intentions

Ajzen's (1991) addition of perceived behavioural control to the theory of reasoned action established the theory of planned behaviour and greatly enhanced the model's predictive power. This construct embodies the sense of control an individual believes they have to perform a specific behaviour at will based on their resources, opportunities and capacity to perform the behaviour with little to no impediments (Ajzen, 1991; Kautish et al., 2019).

Given the definition of perceived behavioural control, it is no surprise that the result in Table 7 indicates that perceived behavioural control (H4) positively influences the consumer's green purchase intention, given the level of education and earning power the respondents exhibit.

Traoré et al. (2023) state that growth in green consumption is predominantly driven by affluent consumers, which aligns with Sharma's (2021) argument that green products can be seen as luxury items. Notably, looking at the profile of the respondents who participated in the study, most participants are well-educated and earn significantly more than the R13 210 LSM 8 income level threshold specified by Ntloedibe and Ngqinani (2020). This suggests the respondents could have adequate resources and possibly more opportunities to access green products.

Although consumers may have the requisite resources and capacity to perform green purchase behaviour, it is critical that they have fewer impediments towards achieving this behaviour. A barrier could be the lack of green product availability, as explained by Dangelico et al. (2021) and Srivastava and Gupta (2023), who argue that the lack of green products could be a barrier to green purchase behaviour. Furthermore, as dictated by the essence of perceived behavioural control, to perform the behaviour, it needs to be easy to do and can be performed at will. Hence, if there is insufficient availability of green products, it becomes more challenging to buy eco-friendly products.

This current study's result is consistent with the findings reported by other studies, such as Dilotsotlhe (2021) and Vu et al. (2022), who found that perceived behavioural control significantly influences consumers' green purchase intentions.

6.3.5 H5: Attitudes towards green products have a positive relationship with green purchase intention

The result depicted in Table 7 shows that attitude positively influences green purchase intentions. Moreover, out of the predictors of green purchase intentions as stipulated in the hypothesised model, consumers' attitude has the most significant correlation towards their green purchase intention judging by the path coefficient value of 0.553 and a t-stat value of 7.474 presented in Figure 6 and Table 7.

Considering that attitude is the degree of the consumers' disposition towards a given behaviour (Ajzen, 1991), it is logical to deduce that a favourable attitude towards green products will yield positive intentions to buy green products. Hence the outcome of H5 being supported is an expected result which is in accordance with the findings of other prior studies, such as Jaiswal and Kant, 2018, Tandon et al. (2023) and Wang et al. (2018), who all found that attitude significantly influences intentions that promote pro-environmental behaviour.

However, it is critical to note that although attitudes of consumers' attitudes may significantly influence their intentions to purchase green products, they do not always translate into actual buying behaviour. This disparity between favourable attitudes and actual buying behaviour is known as the attitude-behaviour gap (Sharma et al., 2022).

6.3.6 H6: Green purchase intentions have a positive relationship with green purchase behaviour

The finding for H6, as illustrated in Table 7, validates that Intentions predict green purchase behaviour. This finding is consistent with the assertions of the theory of planned behaviour, which effectively argues that the stronger the individual's intentions, the more likely they will enact the intended behaviour (Ajzen, 1991).

Furthermore, as Ajzen (1991) posits, intentions are a culmination of three motivating factors: attitude, subjective norms and perceived behavioural control. As witnessed in this study, it is not necessary for all three factors to be present to evoke strong intentions towards enacting green purchase behaviour.

The results of this study validate the work performed by previous researchers, such as Bashir et al. (2019) and Kamalanon et al. (2022), who found that green purchase intentions significantly influence the purchase behaviour of green products.

Moreover, the results of this study show that green purchase intentions account for 40.1% of the variance towards actual purchase behaviour, as illustrated by the R^2 value depicted in Figure 6. This finding indicates that green purchase intentions have a moderate explanatory power for green purchase behaviour, as highlighted by Hair et al. (2019), who state that R^2 values of 0.70, 0.5 and 0.25 indicate substantial, moderate, and weak explanatory power, respectively.

Interestingly, this finding that intentions moderately explain green purchase behaviour aligns with the argument made by Sharma & Foropon (2019), who state that intentions need not be an antecedent of green purchase behaviour. This suggests that pro-environmental behaviour can exist even without the intention to make green purchases.

An additional consideration that could impact the translation of intentions into actual purchases could be the time that elapses between having the intention to buy green products and the actual time the purchase occurs. As suggested by Dilotsotlhe (2021) and Sharma and Foropon (2019), the more time there is between intentions and behaviour, the more opportunity there is for the intentions to diminish and eventually not be acted upon primarily due to situational factors.

In this study, the time factor was not considered, which represents a limitation of the study and may present research opportunities for future studies.

6.4 Discussion On Findings Relating To Moderation

As illustrated in Figure 6, green purchase intentions have a moderate explanatory power of green purchase behaviour, which further validates that there is a gap between intentions and actual purchase behaviour the phenomenon known as the Intention-Behaviour gap (Qi et al., 2020; Sharma et al., 2022; Vu et al., 2022).

To provide insights into this gap, the researcher proposed two moderators which were predicted to moderate the relationship between green purchase intentions and green purchase behaviour. The results of the hypothesis are discussed in the following sub-sections

6.4.1 H7: Willingness to pay moderates the relationship between green purchase intentions and green purchases

When evaluating willingness to pay as a potential moderator, the author suggests that consumers willing to pay more for green products are more likely to translate their green purchase intentions into actual purchases of green products. This suggestion follows the arguments made by Akhtar et al. (2021) and Tandon et al. (2023), who highlight that consumers drive consumption because they choose which products to consume. Therefore, if these consumers are willing to pay more for green

products, they will buy them, or alternatively, if they are unwilling to pay the premium price, they may not buy those products.

However, as illustrated in Table 8, this study's results show willingness to pay does not appear to moderate the relationship between the consumer's green purchase intentions and their actual buying behaviour, contrary to the prediction made.

Although the absence of a significant moderating effect of willingness to pay on the relationship between green purchase intention and green purchase behaviour is unexpected, a possible reason may be green products are valued based on their greenness and seen as necessities rather than discretionary purchase items (Moslehpour et al., 2021).

As Moslehpour et al. (2021) highlight, the products' eco-friendly credentials may be of utmost importance to consumers and the high prices of green products are often overlooked when they are treated as necessities.

Moreover, in developing nations such as South Africa, which face an energy crisis, consumers may have no choice but to turn to alternative energy sources such as solar to mitigate power outages, despite the large capital outlay required for these green energy sources. This is corroborated by Bwalya Umar et al. (2022), who argue that households are forced to seek alternative energy sources due to load-shedding challenges. Interestingly, this revelation could be linked to the argument made by Sharma and Foropon (2019) that consumers might not be environmentally concerned when choosing green products but may buy these products because of product attributes, which include functionality. Consequently, because consumers may feel they have no choice but to consume green energy due to load-shedding, this may negate the moderation effect and possibly explain the result obtained in the study.

6.4.2 H8: PCE moderates the relationship between green purchase intention and green purchase behaviour

The result of H8, as illustrated in Table 8, shows no significant moderation effect of perceived consumer effectiveness on the relationship between green purchase intentions and green purchase behaviour. This finding is unexpected considering that perceived consumer effectiveness represents the belief that a consumer has that

their actions can make a difference in protecting the environment; these consumers are likely to engage in behaviour consistent with their beliefs (Higueras-Castillo et al., 2019; Kautish & Sharma, 2020).

Moreover, Emekci (2019) and Lavuri (2022) explain that consumers will only act if they believe they can make a difference, thus suggesting that perceived consumer effectiveness can promote pro-environmental behaviour consistent with the (Joshi & Rahman, 2019; Kautish et al., 2019). Therefore, the result obtained in the current study is surprising.

However, a possible reason why perceived consumer effectiveness does not significantly moderate the relationship between green purchase intentions and green purchase behaviour could be attributed to the impact of an individualistic or collectivistic orientation of consumers within different cultures. Mishal et al. (2017) state that perceived consumer effectiveness is a complex construct that can be impacted by how consumers view themselves, whether individualistic or collectivistic, within a culture. This leads to the possibility that perceived consumer effectiveness does not always significantly impact green purchase behaviour (Mishal et al., 2017). Therefore, future studies should include cultural considerations when examining topics relating to consumer behavioural studies.

Another consideration for the deviation from the expected result could be the fact that perceived consumer effectiveness is a calculated variable wherein the benefits of partaking in green purchase behaviour are examined by consumers who consider how their actions can positively contribute to society and the environment (Joshi & Rahman, 2015). This suggests that if green purchases of the participants were made impulsively, the moderation impact of perceived consumer effectiveness may be negated similarly if consumers made the purchases having no choice due to load-shedding might have also circumvented this moderation.

Finally, as Heo and Muralidharan (2019) explained, younger millennials may not be driven to change their behaviour and engage in an environmentally responsible manner despite feeling confident that their actions can solve environmental challenges. This may also be a possible reason why perceived consumer effectiveness failed to moderate the relationship between green purchase intentions and green purchase behaviour.

6.5 Concluding Remarks

The discussion of the findings presented in Chapter 5 unravelled the complexities of consumer purchase behaviour, particularly relating to green products. Overall, this study presented eight hypotheses, six direct hypotheses examining the relationships between the variables in the hypothesised model and two moderator constructs.

All direct hypotheses were accepted except for subjective norms proven within the sample analysed that they do not significantly influence green purchase intentions.

A possible reason could be attributed to cultural nuances as a potentially contributing factor to the deviation from the expected result. This is supported by Sheng et al. (2019), who highlight that consumers' buying patterns vary across different cultural backgrounds.

This study validates the robustness and appropriateness of the theory of planned behaviour as a theoretical framework in studies examining green purchase behaviour, consistent with the arguments by Joshi and Rahman (2019) and Sharma and Foropon (2019) who highlight the use of the theory of planned behaviour in various green studies.

Furthermore, the unexpected results concerning the moderating effects of willingness to pay and perceived consumer effectiveness provoke further inquiry. However, a potential reason that could have nullified these variables' moderating capability could lie in what was stated by Bwalya Umar et al. (2022); their argument is households have no choice but to seek alternative energy sources due to load-shedding challenges. For example, in South Africa, many households turn to solar as an alternative energy source; thus, their consumption of green products may not be entirely out of choice.

7. Chapter 7: Conclusions and Recommendations

7.1 Introduction

The consumption of green products has gained popularity, particularly in developing nations (Sharma et al., 2020; Witek & Kuźniar, 2020), mainly due to the environmental challenges associated with climate change. However, while interest in green products is high, the sales have unfortunately not been able to align with consumers' interests (White et al., 2019). Thus, this disparity between what consumers intend to purchase and their actual green purchase behaviour, combined with a deteriorating natural environment, sparked this study's motivation.

This chapter is the culmination of the study that was undertaken, encapsulating the comprehensive journey to explore the factors that drive green purchase behaviour among South African millennials. Moreover, it also provides insights into the Intention-Behaviour gap — the gap between consumers' intentions as opposed to their actual purchases (Qi et al., 2020). The chapter begins with an overview of the research study, which revisits the aim of the study and its relevance within the broader context.

Next, through a literature synthesis, the researcher will discuss the existing knowledge and the knowledge gaps present before this study and answer the research question posed at the beginning of the study. Furthermore, the methodological choices will be revisited, showing how questions were answered and, most importantly, creating the blueprint of how this study was conducted to help replicate it in a different context.

Most importantly, key findings from the study shall be shared, and this study's various contributions will be highlighted. Finally, the researcher shall provide suggestions to future scholars to help them add to the body of knowledge in continuation of where this study left off.

7.2 Overview of Research, Context, and Importance

This research paper identifies key factors driving green purchase behaviour, particularly among South African Millennials. Moreover, the study sought to bridge the Intention-behaviour gap as this has been identified to be an under-researched topic and poses a knowledge gap within the literature worldwide and specifically in

Southern Africa despite the growing trend of new publications (Dilotsotlhe, 2021; Traoré et al., 2023).

The purchasing of green products has been recommended as one of the effective ways to fight climate change. However, very few consumers buy these products (Abdelzaher et al., 2020; Sautner et al., 2023; Yue et al., 2020).

Compounding the problem is the fact that South Africa is more vulnerable to the negative effects of climate change, mainly due to its geographic position (Scholes & Engelbrecht, 2021). Even more worryingly is the disparity in climate change effects between nations. Although climate change affects everyone, its effects differ (Della Bosca, 2023; Kahn et al., 2021). Notably, developing countries are more impacted by climate change, despite contributing less to greenhouse emissions as opposed to their affluent counterparts in the global North (Della Bosca, 2023; Shen & Wang, 2023).

At a practical level, climate change severely impacts both livelihoods and economies (Abdelzaher et al., 2020; Sautner et al., 2023; Yue et al., 2020). thus, it is crucial to find solutions that can address this problem.

This current study leveraged the theory of planned behaviour as a theoretical framework and extended it using psychological variables such as environmental concern and personal norms as antecedents to a favourable attitude to pro-environmental behaviour. As explained by Ogiemwonyi (2022) and Sousa et al. (2022), although the predictive ability of the theory of planned behaviour is adequate, extending the model with additional constructs enhances the efficacy of its predictive power.

Using these psychological variables combined with constructs from the theory of planned behaviour, the researcher developed a hypothesised model, which included two hypothesised moderators to predict the likelihood of millennials in South Africa engaging in green purchase behaviour. The research aimed to fundamentally understand the factors that drive or inhibit the consumption of green products in a South African context—moreover, looking at a demographic such as millennials who are known to have a high spending power (Heo & Muralidharan, 2019; Skeirytė et al., 2022) and are more open to diverse cultures, languages, and lifestyles.

7.3 Synthesis of Existing Knowledge

Green purchase studies have attracted the attention of scholars recently, as evidenced by the growing trend of publications published on this subject (Dilotsotlhe, 2021; Traoré et al., 2023).Although the interest is encouraging, little research has been done on the Intention-Behaviour gap. Instead, emphasis has been put on researching the Attitude-Behaviour gap, which is the disparity between favourable attitudes and actual consumer buying behaviour (Sharma et al., 2022), thus leaving a significant knowledge gap in the literature (Dilotsotlhe, 2021; Sharma et al., 2022; Tawde et al., 2023).

This study follows other green behavioural studies such as Dilotsotlhe (2021), Kamalanon et al. (2022), Sharma and Foropon (2019) and Vu et al. (2022) in using the theory of planned behaviour as a grounding framework for understanding and predicting consumer behaviour. The essence of the theory centres around intentions that are influenced by three motivating factors: attitudes, subjective norms, and perceived behavioural control, which lead to the action of the intended behaviour (Ajzen, 1991). As a general rule, the stronger the intentions, the higher the likelihood of that behaviour being enacted (Ajzen, 1991).

The theory of planned behaviour has been widely used and tested and is considered to be a robust framework for predicting consumer behaviour (Dilotsotlhe, 2021; Joshi & Rahman, 2019; Ogiemwonyi, 2022; Sousa et al., 2022). However, different studies have found contrary results to the theory of planned behaviour, challenging the relationships between its variables and their impact on each other. For instance, Sharma and Foropon (2019) found attitude does not influence green purchase intentions significantly. Moreover, Alzubaidi et al. (2021) and Kumar et al. (2017) found that social influence, i.e. subjective norms, do not influence pro-environmental behaviour amongst consumers. Interestingly, the central premise of the theory of planned behaviour that intentions influence behaviour also came under question as Sharma and Foropon (2019) highlighted that intentions need not be an antecedent of behaviour.

This revelation highlights the complexity of green purchase behaviour as a multifaceted concept. According to Sharma (2021) and Zhang and Dong (2020), green purchase behaviour is driven by a combination of factors, including both

internal and external factors. However, these factors' roles and significance vary across different cultural contexts because, as Sheng et al. (2019) stated, consumers' buying patterns vary across different countries and cultural backgrounds. Thus, although the constructs are well-defined and tested in other studies, their impact will vary from one study to the next, depending on the set context.

7.4 Reflection on Research Question and Principal Findings

In accordance with the study's primary aim of understanding green purchase behaviour among South African millennials and providing insights into the Intention-Behaviour gap, the following research question was posed as a beacon that would guide the research study and ensure meaningful contribution can be made theoretically and practically.

RQ 1: What are the key antecedents that contribute most significantly to green purchase behaviour among millennial consumers in South Africa, and how do their intentions translate into actual behaviour?

As illustrated in Table 7 and evidenced in Figure 6, this study found that consumers' attitudes towards green products were shaped by their environmental concerns and personal norms. The favourable attitudes emerged as the strongest precursor to green purchase intentions, which subsequently have a moderate explanatory power for green purchase behaviour. Additionally, the study also found that perceived behavioural control significantly influenced green purchase intentions leading up to green purchase behaviour. This implies that consumers are more inclined to buy green products when they believe they have the ability to do so (Ajzen, 1991; Kautish et al., 2019). Thus, the key antecedents for green purchase behaviour are environmental concerns, personal norms, attitudes, and perceived behavioural control.

Additionally, in addressing the second part of the question, it is revealed through this study that intentions only moderately explain the variance toward green purchase behaviour, and a significant part of this behaviour is unaccounted for via intentions. This is despite intentions being identified as a key predictor of behaviour, as asserted by Ajzen (1991) and Sharma et al. (2022)

Furthermore, the envisaged moderators of perceived consumer effectiveness and willingness to pay appeared not to have any significant moderating effect on the

relationship between green purchase intentions and its associated behaviour. A possible reason could be that some products are viewed as necessities instead of luxury items. For example, Bwalya Umar et al. (2022) state that households have no choice but to find alternative energy sources to mitigate load-shedding challenges. Therefore, the moderation effects may have been negated because of this burden.

7.5 Methodological Review

In alignment with the study's aim, the researcher deliberately selected the population and the unit of analysis for this study, which were millennials, defined as people born between 1980 and 1999 residing in South Africa. Additionally, they had to have a relatively high living standard according to the living standard measure (LSM). LSM 8 and above living standards were selected as appropriate levels for this study's purpose. Notably, consumers at this level can access a wide range of media, services and banking (McIntee, 2014).

Moreover, their incomes give them a broader choice of products (Shao et al., 2018). Finally, as part of the criteria, the research only focused on people who have bought green products before because these individuals would have exhibited green purchase behaviour and not just have intentions to consume the products. In essence, because of the specificity of the respondents required, a non-probabilistic sampling method was used, as described by Saunders and Lewis (2018).

This study followed practices of previous studies to enhance the validity and credibility of the research thesis as it sought to address the research question posed. For example, the research employed a quantitative methodology, using a questionnaire to collect the data, which was analysed using a PLS-SEM procedure similar to what was done by other recent studies such as Ng et al. (2023),Essiz and Senyuz (2023) and Tang et al. (2023).

7.6 Theoretical contribution

The findings presented in this study provide several theoretical contributions, firstly this study validates the explanatory power of the theory planned behaviour as a robust theoretical framework that can be used in predicting and explaining consumer behaviour even in an emerging market such as South Africa. This finding is aligned to what other scholars found who used this theory in their respective studies and

cultural settings (Dilotsotlhe, 2021; Joshi & Rahman, 2019; Ogiemwonyi, 2022; Sharma & Foropon, 2019; Sousa et al., 2022).

Furthermore, this study highlights that green purchase intentions only moderately influences green purchase behaviour, which implies that a significant amount of green purchase behaviour is not explained by consumer intentions. Thus to some extent validating the work of Sharma and Foropon (2019) who argued that intentions may not necessarily be antecedents of behaviour. The implications to the Intention-Behaviour gap is while it exists and consumers do not always translate their intentions into actual purchases the effect of it may not be as significant especially when considering the moderate influence that green purchase intentions have on green purchase behaviour.

Additionally, the results highlighted in this study indicate that subjective norms played an insignificant role in influencing consumers' green purchase intentions. In fact subjective norms had a negative relationship with green purchase intentions. In stark contrast to what is believed about non-western societies like South Africa, which tend to exhibit higher levels of dependence and collectivism (Zaremohzzabieh et al., 2021).

7.7 Business and Managerial Implications

According to Shukla (2019), green products prevent or reduce environmental harm through their manufacture or consumption. This definition aligns with the United Nations' sustainable development goals (SDG), particularly SDG 12, which promotes sustainable consumption and production.

Thus, green purchase behaviour becomes vital to achieving this goal, and this study's findings offer valuable insights for marketers and managers alike. As White et al. (2019) recommended, firms need to create an environment that encourages the consumption of green products. For instance, firms need to ensure sufficient availability of products on the shelves and eliminate as many barriers as possible preventing consumers from buying the products. Reinforcing this point, the study found that perceived behavioural control (PBC) positively influences green purchase intentions toward green purchase behaviour. PBC is a variable linked to the consumers' belief that they can perform a desired behaviour at their discretion,

provided they have the capacity to do so and there are few to no impediments preventing them from enacting this behaviour (Ajzen, 1991).

This study highlights that a favourable attitude is the strongest predictor of green purchase intentions, and environmental concerns and personal norms shape it. This suggests that if firms can increase environmental concerns and personal norms among consumers, the more favourable the attitudes of these consumers will be, and consequently, they will produce strong green purchase intentions. This has a material impact on green purchase behaviour because, as a general rule, the stronger the intentions, the more likely the behaviour will be acted upon (Ajzen, 1991).

Firms can increase consumers' environmental concerns by providing them with information to boost their environmental education. As explained by Heo and Muralidharan (2019), environmental education and marketing communication are key enablers that heighten environmental concerns.

Finally, as revealed in this study, social influence, i.e. subjective norms, does not play a significant role in influencing green purchase intentions towards pro-environmental behaviour. This implies that firms should avoid having campaigns based on social influence as a mechanism to entice consumers to buy green products, contradicting the recommendations of White et al. (2019).

7.8 Limitations and Future Research Opportunities

The research scope solely focused on the South African market, and the results obtained may need to be examined further in different settings and market conditions to validate the general applicability of the findings.

According to Sheng et al. (2019), the consumer’s green buying patterns vary across different countries and cultural backgrounds. A future study can explore these factors to ascertain the level of impact ethnicity and culture may have on green purchase behaviour in a South African context.

Moreover, to understand some of the reasons behind the disparity between consumer intentions and their actual buying patterns, a mixed method study may need to be undertaken inclusive of interviews to enable the researcher to probe responses further. As stated by Sharma (2021) and Zhang and Dong, (2020) there

are various factors, which act together to impact the consumers' decision-making process, thus a single method to study such a complex topic may be a limitation.

Furthermore, the complexity associated with green purchase behaviour and how intentions do not always lead to the intended behaviour (Sharma et al., 2022; Vu et al., 2022; White et al., 2019), it may warrant a longitudinal study to be undertaken so that the influence of the factors identified in this study could be examined over a period of time to see how their influence grows or diminishes over time towards green purchase behaviour.

Finally, future studies needs to distinguish between the consumption of green products as necessities as opposed to luxury discretionary items, because depending on how consumers view these products they provoke different actions. For instance as argued by Moslehpour et al. (2021) consumers will almost always favour consumption of green products because of their green credentials and their view of them as necessities.

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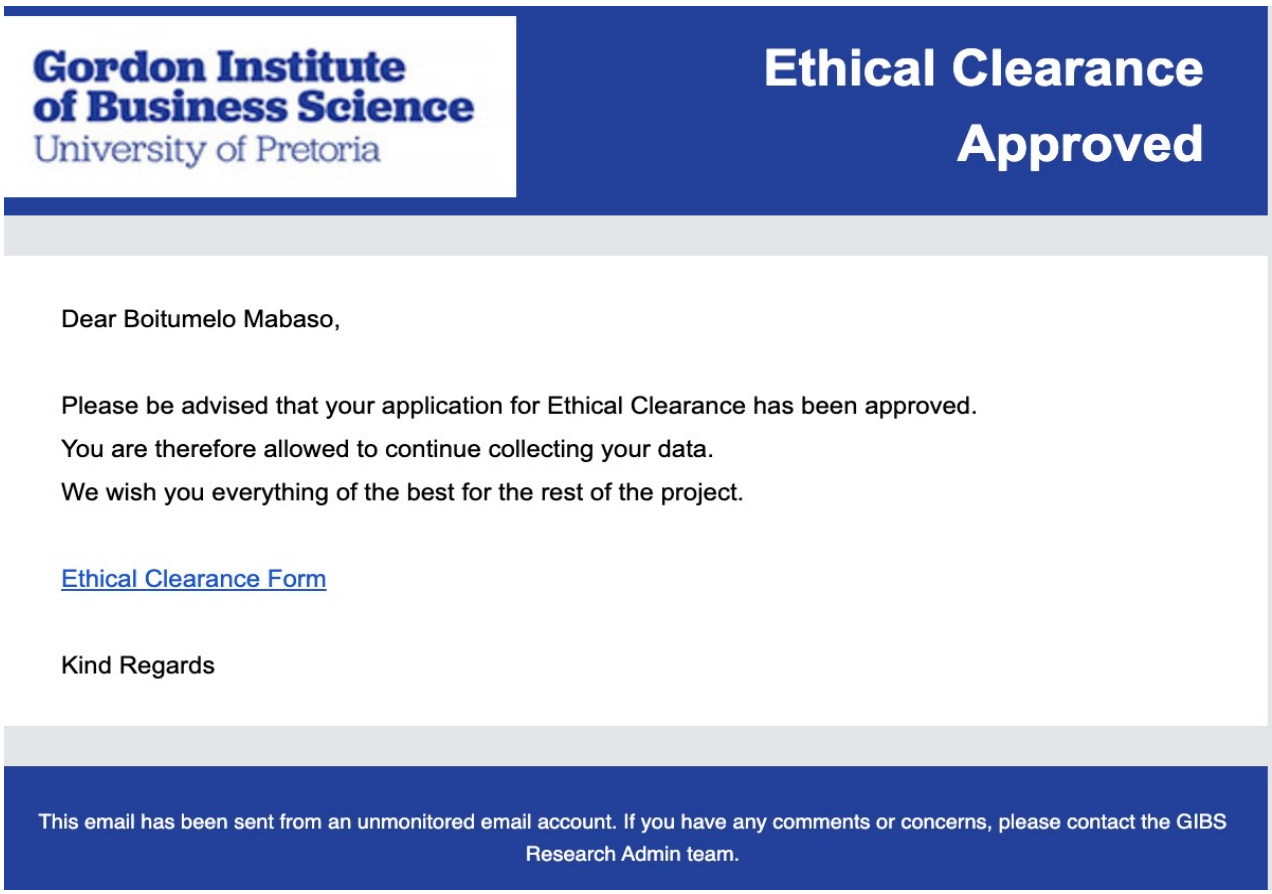
Appendix

Appendix 1: Consistency Matrix

Research Question	Sections in the Literature review	Data Collection Tools	Analysis Technique
RQ 1: What are the key antecedents that contribute most significantly to green purchase behaviour among millennial consumers in South Africa, and how do their intentions translate into actual behaviour?	2.4. Factors Driving Green Purchase Behaviour 2.7. The Intention-Behaviour Gap Towards Green Purchase	Questionnaire	PLS-SEM Bootstrapping technique

Appendix 2: Ethics approval



Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear Boitumelo Mabaso,

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards

This email has been sent from an unmonitored email account. If you have any comments or concerns, please contact the GIBS Research Admin team.

Appendix 3: Questionnaire

The start of the questionnaire was a brief introduction of the researcher and the research being conducted its purpose and the use of the data collected. In addition, consent was requested from the participant

Consent:
I am currently a student at the University of Pretoria's Gordon Institute of Business Science and completing my research in partial fulfilment of an MBA.

I am conducting research on the factors that drive green purchase behaviour amongst millennials in South Africa. To that end, you are asked to complete a survey that will enable us to better understand green purchase behaviour.

The survey should take no more than 15 minutes of your time. Your participation is voluntary, and you can withdraw at any time without penalty. Your participation is anonymous, and only aggregated data will be reported. By completing the survey, you indicate that you voluntarily participate in this research. If you have any concerns, please contact my supervisor or me. Our details are provided below.

Researcher name: Boitumelo Mabaso
Email: 04947356@mygibs.co.za

Research Supervisor: Chris Osakwe
Email: chris.osakwe12@outlook.com

Pre-Screening questions

1) Please confirm that you were born between 1980 and 1999
   - ☐ Yes
   - ☐ No

2) Please confirm your income is equivalent or above R13 210 per month
   - ☐ Yes
   - ☐ No

Green Products refer to products that are environmentally friendly and their consumption is meant to cause very little to no harm to the environment. These products typically either save energy, reduce emissions and minimize wate. Examples include LED light bulbs, solar panels, energy-saving appliances, organic food, rechargeable batteries, reusable shopping bags, biodegradable products.

3) Have you bought a green product before in your lifetime

☐ Yes

☐ No

Construct	**Question**	**Likert Scale**				
		1 Strongly disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
Section A						
Environmental concern adapted from (S. Kumar et al., 2022)	I purchase green products considering the environment.	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	Green products are better for environment than traditional products.	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	Green product purchase improve the state of Environment.	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Section B						
Personal norms	Using environment friendly products	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree

adapted from Bashir et al.(2019)	would make me a better person.					
	Instead of a conventional product, buying green products will make me feel as a morally obliged person.	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	Saving the environment should be the first priority for a person like me.	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	Regardless of what other people do, I feel buying green products as a moral obligation.	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	Saving energy as much as possible is my personal obligation.	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Section C						
Perceived consumer effectiveness adopted from Heo and Muralidharan (2019)	It is worthless for the individual consumer to do anything about pollution (R).	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	Since one person cannot have any effect upon pollution and natural resource problems, it doesn't make any difference what I do (R).	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	Each consumer's behaviour can have a	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree

	positive effect on society by purchasing products sold by socially responsible companies.					
Section D						
Willingness to Pay a premium Adapted from Biswas and Roy (2015)	To me, it is worth purchasing green products despite their premium pricing.	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	I am willing to purchase green products at a higher price for their environmental benefits.	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	I am willing to pay more money to purchase green products.	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Section E						
Subjective Norms adapted from (S. Kumar et al., 2022)	My close friends and family consume green products.	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	My loved ones expect me to purchase more green products for them	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Perceived behavioural control adapted from Zhang et al. (2020)	Whether or not I purchase green products is completely up to me	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	I have resources, time, and opportunities to	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree

	purchase green products					
	I am confident that if I want to, I can purchase green products	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Attitude adopted from Vu et al. (2022)	Environmental protection is important to me when making product purchases	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	I believe that green products help to reduce pollution (water, air, etc.)	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	I believe that green products help to save nature and its resources	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	Given a choice, I will prefer a green product over a conventional product	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Green Purchase Behaviour adapted from (S. Kumar et al., 2022)	I have been a regular buyer of green products	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	I still buy green products even though conventional alternatives are on sale	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Green purchase intentions adapted	I am willing to buy green products	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	If prices are not different from others, I	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree

from (Kamalanon et al., 2022)	may purchase green products					
	If qualities are not different from others, I may purchase green products	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree

Demographic Questions:

Gender:

- ☐ Male
- ☐ Female
- ☐ Prefer not say

Age :

- ☐ 24-30 years
- ☐ 31-35 years
- ☐ 36-40 years
- ☐ 41-43 years

Education level:

- ☐ High School
- ☐ Graduate (Diploma & Bachelors)
- ☐ Postgraduate(Honours & Masters)
- ☐ Doctorate

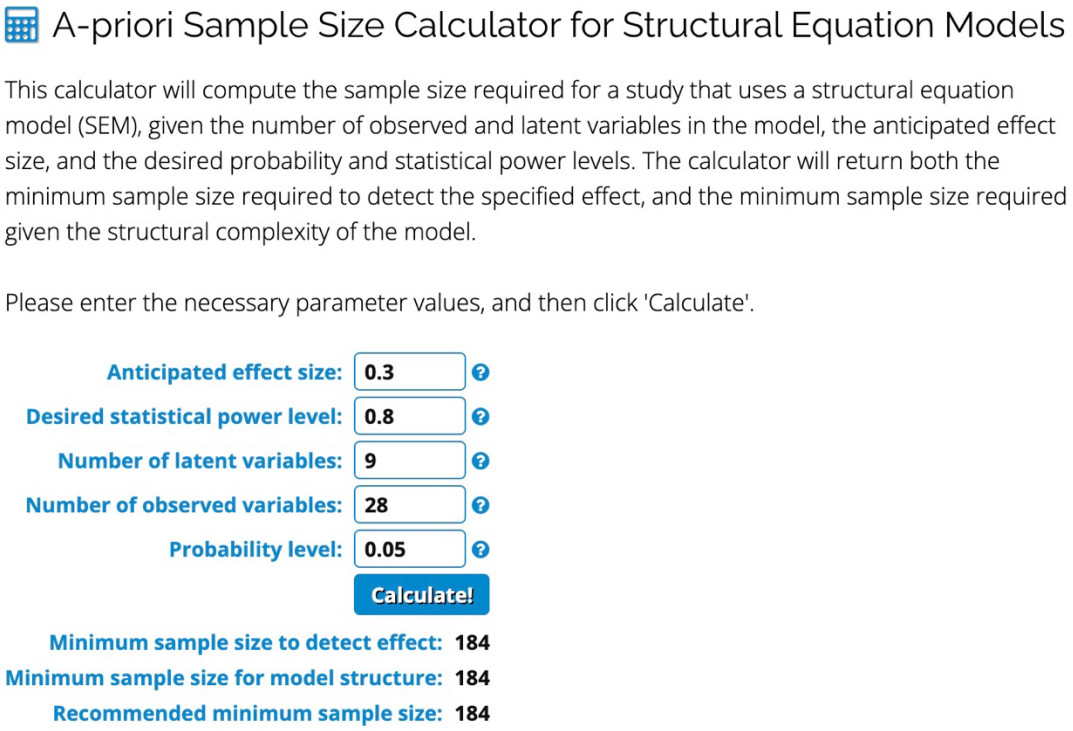
Marital status:

- ☐ Single
- ☐ Married
- ☐ Divorced

Monthly net Income level:

- ☐ R13 210 - R19 999
- ☐ R20 000 - R39 999
- ☐ R40 000 - R49 999
- ☐ R50 000 – R59 999
- ☐ R60 000+

Appendix 4: Sample Size Calculation



A-priori Sample Size Calculator for Structural Equation Models

This calculator will compute the sample size required for a study that uses a structural equation model (SEM), given the number of observed and latent variables in the model, the anticipated effect size, and the desired probability and statistical power levels. The calculator will return both the minimum sample size required to detect the specified effect, and the minimum sample size required given the structural complexity of the model.

Please enter the necessary parameter values, and then click 'Calculate'.

Anticipated effect size:	0.3
Desired statistical power level:	0.8
Number of latent variables:	9
Number of observed variables:	28
Probability level:	0.05

Calculate!

Minimum sample size to detect effect:	184
Minimum sample size for model structure:	184
Recommended minimum sample size:	184

Appendix 5: R programming output Path Coefficients, R^2 and Reliability

```
summary(mod_pls)
```

```
##
## Results from  package seminr (2.3.2)
##
## Path Coefficients:
##                                          Attitude Adopted Green Purchase
Intent
## R^2                                                 0.507
0.541
## AdjR^2                                              0.502
0.533
## Environmental Concern                               0.394
.
## Personal Norms                                      0.403
.
## Attitude Adopted                                        .
0.553
## Subjective Norms                                        .                -
0.040
## Perceived Behavioural Control                           .
0.307
## Green Purchase Intent                                   .
.
## Willingness to Pay                                      .
.
## Green Purchase Intent*Willingness to Pay                .
.
##                                          Green Purchase Behaviour
## R^2                                                         0.401
## AdjR^2                                                      0.391
## Environmental Concern                                           .
## Personal Norms                                                  .
## Attitude Adopted                                                .
## Subjective Norms                                                .
## Perceived Behavioural Control                                   .
## Green Purchase Intent                                       0.168
## Willingness to Pay                                          0.561
## Green Purchase Intent*Willingness to Pay                    0.027
##
## Reliability:
##                                          alpha  rhoC   AVE  rhoA
## Environmental Concern                    0.812 0.890 0.730 0.823
## Personal Norms                           0.881 0.914 0.680 0.885
## Attitude Adopted                         0.885 0.921 0.746 0.890
## Subjective Norms                         0.645 0.824 0.706 1.105
## Perceived Behavioural Control            0.697 0.828 0.619 0.794
## Green Purchase Intent                    0.858 0.913 0.777 0.866
## Willingness to Pay                       0.916 0.947 0.857 0.920
## Green Purchase Intent*Willingness to Pay 1.000 1.000 1.000 1.000
```

Appendix 6: R Programming Output Indicator Loadings

```
Bootstrapped Loadings:
##
Original Est.
## EC1  ->  Environmental Concern
0.754
## EC2  ->  Environmental Concern
0.899
## EC3  ->  Environmental Concern
0.903
## PN1  ->  Personal Norms
0.797
## PN2  ->  Personal Norms
0.875
## PN3  ->  Personal Norms
0.855
## PN4  ->  Personal Norms
0.847
## PN5  ->  Personal Norms
0.742
## WP1  ->  Willingness to Pay
0.898
## WP2  ->  Willingness to Pay
0.950
## WP3  ->  Willingness to Pay
0.928
## SN1  ->  Subjective Norms
0.963
## SN2  ->  Subjective Norms
0.695
## PBC1  ->  Perceived Behavioural Control
0.688
## PBC2  ->  Perceived Behavioural Control
0.757
## PBC3  ->  Perceived Behavioural Control
0.900
## AA1  ->  Attitude Adopted
0.776
## AA2  ->  Attitude Adopted
0.912
## AA3  ->  Attitude Adopted
0.917
## AA4  ->  Attitude Adopted
0.842
## GPB1  ->  Green Purchase Behaviour
0.917
## GPB2  ->  Green Purchase Behaviour
0.923
## GPI1  ->  Green Purchase Intent
0.849
## GPI2  ->  Green Purchase Intent
```

Appendix 7: R programming Output Bootstrap HTMT Result

```
Bootstrapped HTMT:
##
Original Est.
## Environmental Concern  ->  Personal Norms
0.709
## Environmental Concern  ->  Attitude Adopted
0.750
## Environmental Concern  ->  Subjective Norms
0.527
## Environmental Concern  ->  Perceived Behavioural Control
0.406
## Environmental Concern  ->  Green Purchase Intent
0.588
## Environmental Concern  ->  Willingness to Pay
0.558
## Environmental Concern  ->  Green Purchase Intent*Willingness to Pay
0.113
## Environmental Concern  ->  Green Purchase Behaviour
0.610
## Personal Norms  ->  Attitude Adopted
0.721
## Personal Norms  ->  Subjective Norms
0.519
## Personal Norms  ->  Perceived Behavioural Control
0.397
## Personal Norms  ->  Green Purchase Intent
0.563
## Personal Norms  ->  Willingness to Pay
0.513
## Personal Norms  ->  Green Purchase Intent*Willingness to Pay
0.247
## Personal Norms  ->  Green Purchase Behaviour
0.609
## Attitude Adopted  ->  Subjective Norms
0.549
## Attitude Adopted  ->  Perceived Behavioural Control
0.586
## Attitude Adopted  ->  Green Purchase Intent
0.781
## Attitude Adopted  ->  Willingness to Pay
0.554
## Attitude Adopted  ->  Green Purchase Intent*Willingness to Pay
0.168
## Attitude Adopted  ->  Green Purchase Behaviour
0.638
## Subjective Norms  ->  Perceived Behavioural Control
0.518
## Subjective Norms  ->  Green Purchase Intent
0.325
## Subjective Norms  ->  Willingness to Pay
```

Appendix 8: R output of Bootstrap structural paths

```
summary_boot$bootstrapped_paths

##                                                                    Original Est.
## Environmental Concern  ->  Attitude Adopted                              0.394
## Personal Norms  ->  Attitude Adopted                                    0.403
## Attitude Adopted  ->  Green Purchase Intent                              0.553
## Subjective Norms  ->  Green Purchase Intent                             -0.040
## Perceived Behavioural Control  ->  Green Purchase Intent                 0.307
## Green Purchase Intent  ->  Green Purchase Behaviour                      0.168
## Willingness to Pay  ->  Green Purchase Behaviour                         0.561
## Green Purchase Intent*Willingness to Pay  ->  Green Purchase Behaviour
0.027
##                                                                    Bootstrap Mean
## Environmental Concern  ->  Attitude Adopted                              0.395
## Personal Norms  ->  Attitude Adopted                                    0.403
## Attitude Adopted  ->  Green Purchase Intent                              0.548
## Subjective Norms  ->  Green Purchase Intent                             -0.032
## Perceived Behavioural Control  ->  Green Purchase Intent                 0.313
## Green Purchase Intent  ->  Green Purchase Behaviour                      0.168
## Willingness to Pay  ->  Green Purchase Behaviour                         0.558
## Green Purchase Intent*Willingness to Pay  ->  Green Purchase Behaviour
0.025
##                                                                    Bootstrap SD
## Environmental Concern  ->  Attitude Adopted                              0.069
## Personal Norms  ->  Attitude Adopted                                    0.065
## Attitude Adopted  ->  Green Purchase Intent                              0.074
## Subjective Norms  ->  Green Purchase Intent                              0.060
## Perceived Behavioural Control  ->  Green Purchase Intent                 0.073
## Green Purchase Intent  ->  Green Purchase Behaviour                      0.062
## Willingness to Pay  ->  Green Purchase Behaviour                         0.059
## Green Purchase Intent*Willingness to Pay  ->  Green Purchase Behaviour       0
.053
##                                                                    T Stat.
## Environmental Concern  ->  Attitude Adopted                              5.754
## Personal Norms  ->  Attitude Adopted                                    6.205
```

```
## Attitude Adopted  ->  Green Purchase Intent                          7.474
## Subjective Norms  ->  Green Purchase Intent                          -0.678
## Perceived Behavioural Control  ->  Green Purchase Intent              4.227
## Green Purchase Intent  ->  Green Purchase Behaviour                   2.714
## Willingness to Pay  ->  Green Purchase Behaviour                      9.475
## Green Purchase Intent*Willingness to Pay  ->  Green Purchase Behaviour   0.52
1
##                                                  2.5% CI
## Environmental Concern  ->  Attitude Adopted                           0.262
## Personal Norms  ->  Attitude Adopted                                 0.273
## Attitude Adopted  ->  Green Purchase Intent                           0.399
## Subjective Norms  ->  Green Purchase Intent                          -0.147
## Perceived Behavioural Control  ->  Green Purchase Intent              0.169
## Green Purchase Intent  ->  Green Purchase Behaviour                   0.043
## Willingness to Pay  ->  Green Purchase Behaviour                      0.433
## Green Purchase Intent*Willingness to Pay  ->  Green Purchase Behaviour  -0.08
1
##                                                  97.5% CI
## Environmental Concern  ->  Attitude Adopted                           0.527
## Personal Norms  ->  Attitude Adopted                                 0.533
## Attitude Adopted  ->  Green Purchase Intent                           0.683
## Subjective Norms  ->  Green Purchase Intent                           0.078
## Perceived Behavioural Control  ->  Green Purchase Intent              0.450
## Green Purchase Intent  ->  Green Purchase Behaviour                   0.290
## Willingness to Pay  ->  Green Purchase Behaviour                      0.663
## Green Purchase Intent*Willingness to Pay  ->  Green Purchase Behaviour    0.1
27
```