

**Contribution of Eco Labeling and Green Advertising towards  
Responsible Consumption and Production (SDG 12)**



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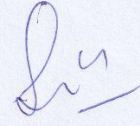
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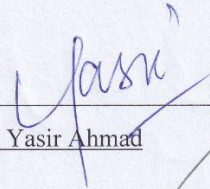
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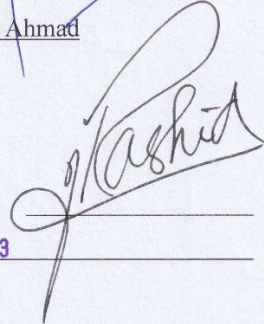
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## **Dedication**

*Dedicated to my family, whose unwavering support, love, and encouragement have been the bedrock of my success.*

*To my professors and mentors, who have guided me with wisdom and patience, imparting knowledge and skills that have shaped my intellectual development.*

*To my friends, who have provided laughter, camaraderie, and a sense of belonging throughout this journey.*

*To all the participants who contributed their time and insights to this research, your contributions are invaluable.*

## **ACKNOWLEDGEMENT**

I am thankful to Almighty Allah for everything. Without His incredibly significant favors, I could have done nothing. I am grateful to my cherished guardian, my father for his tremendous and extraordinary support and belief and adored siblings for all their support throughout my life.

Similarly, I would like to express my heartfelt gratitude to my supervisor, Dr. Shahbaz Abbas for his support throughout my thesis. I can confidently state that the research would not have been completed without their support.

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I would not have been able to finish my research if it had not been for their help. Throughout the thesis, I admire their knowledge and guidance.

*Dedicated to my parents, adored siblings, and dear friends.*

*Hania Munir*

## **ABSTRACT**

This thesis examines the contribution of eco-labeling and green advertising towards achieving Sustainable Development Goal 12 (SDG 12) on responsible consumption and production. SDG 12 aims to promote sustainable patterns of consumption and production worldwide. Eco-labeling and green advertising are strategies employed to inform and influence consumers towards making environmentally conscious choices. The research adopts the measurement and structural model to assess the impact of eco-labeling and green advertising on consumer behavior related to responsible consumption and production. The study explores how these strategies influence consumer perceptions, attitudes, and purchase intentions towards environmentally friendly products. Participants were exposed to a questionnaire including questions on eco-labeled products, green advertising campaigns, or a combination of both. Data was collected on consumer perceptions of eco-labeling and green advertising, their understanding of sustainability concepts, their attitudes towards responsible consumption, and their purchase intentions for environmentally friendly products. Statistical analyses was conducted to examine the impact of eco-labeling and green advertising on consumer behavior, with a focus on SDG 12 indicators. The findings of this study are expected to contribute to the understanding of how eco-labeling and green advertising can facilitate responsible consumption and production practices. The research will provide insights into the effectiveness of these strategies in influencing consumer behavior and their potential for promoting sustainable development. The results will have implications for policymakers, businesses, and marketers in their efforts to encourage environmentally conscious choices and achieve SDG 12 targets. Overall, this research aims to shed light on the role of eco-labeling and green advertising in promoting responsible consumption and production and their contribution towards the achievement of SDG 12. By exploring the effectiveness of these strategies, this study will provide practical recommendations for leveraging eco-labeling and green advertising to foster sustainable behaviors and support global sustainability goals.

Keywords: Consumers Purchasing Behaviour, Sustainability, Responsible Consumption and Production, Green Purchase Intention

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## **LIST OF ABBREVIATIONS**

|      |  |
|------|--|
| SCP  | Sustainable Consumption and Production   |
| ELI  | Ecolabel Involvement                     |
| CEA  | Consumers Environmental Awareness        |
| GAC  | Green Advertisement Credibility          |
| CGT  | Consumer's Green Trust                   |
| CPE  | Consumer's Perceived Effectiveness       |
| CPIQ | Consumer's Perceived Information Quality |
| CPP  | Consumer's Perceived Price               |
| CGPI | Consumer's Green Purchase Intention      |

# CHAPTER 1: INTRODUCTION

Background of the research is discussed in this chapter, emphasizing the existing study related to the research and discussing the research need in the research rationale section. It also includes the objectives and problem statement of research carried out and some important operational terms explanations that are used throughout the research.

## 1.1. BACKGROUND OF STUDY

In the face of mounting environmental challenges and resource constraints, the concept of the circular economy has emerged as a transformative model, offering a beacon of hope for a sustainable future. Unlike the traditional linear "take, make, dispose" approach that has characterized our economic system for centuries, the circular economy presents a novel and holistic vision aimed at minimizing waste, maximizing resource efficiency, and regenerating natural ecosystems (Obayelu, A. E., 2019). At its core, the circular economy seeks to decouple economic growth from the relentless consumption of finite resources, forging a new path that is restorative, regenerative, and resilient.

In a circular economy, products and materials are viewed as valuable assets rather than disposable commodities. The lifecycle of a product is extended through strategies like remanufacturing, refurbishment, and recycling, ensuring that materials remain in use for as long as possible. By closing the loop on material flows, waste is drastically reduced, and the burden on the environment is alleviated (United Nations, *Goal 12*). Furthermore, this paradigm shift fosters innovation, as businesses are compelled to redesign products, processes, and business models to be more resource-efficient and ecologically sound.

The increasing urgency of environmental challenges, such as climate change, resource depletion, and waste accumulation, has propelled the integration of sustainability principles into economic paradigms. Among these principles, the circular economy and sustainable consumption and production (SCP) stand out as complementary approaches that address the interrelated issues of resource efficiency, waste reduction, and environmental preservation (Obayelu, A. E., 2019). This research aims to delve into

the intricate relationship between the circular economy and SCP, highlighting their synergistic potential to foster a more sustainable future.

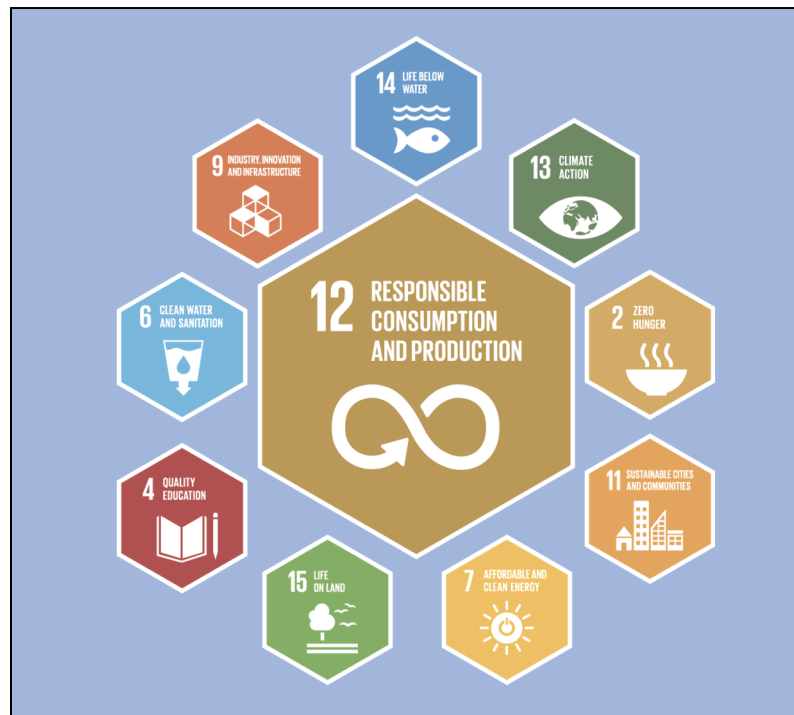
SCP involves the optimization of resource use, the reduction of environmental impacts, and the promotion of sustainable lifestyles. At its core, SCP encourages responsible consumption patterns, urging individuals and businesses to make informed choices that consider the full lifecycle of products and their environmental implications (Indriani, et al., 2019). By encouraging the uptake of sustainable practices along the value chain, SCP strives to achieve a more sustainable and equitable society, aligning with the United Nations Sustainable Development Goal 12.

SCP serves as a catalyst for the circular economy by influencing consumer behavior and business practices (Mungkung, 2021). By raising awareness about the environmental consequences of excessive consumption and wasteful production, SCP encourages businesses to adopt circular principles. Through eco-labeling, certification schemes, and consumer education, SCP creates a demand-driven pull for circular products and services, incentivizing businesses to embrace circularity. The SDG targets are the result of international negotiations, and as such may not reflect local or national sustainable development priorities (United Nations, *Goal 12*).

The purpose of this study, supported by two original studies, is to explore whether eco labeling and green advertising contribute towards SGD12: product's green benefits affects consumers' perceptions of its instrumentality in other dimensions (Kumar, 2023). Specifically, we investigate how individuals perceive a product's ability to perform its intended function when green benefits are emphasized. Despite the fact that modern green products are typically more effective than their predecessors, false expectations can persist.

People tend to believe that an entity focused on a single function or goal (such as cleaning) performs that function better than another entity that pursues that same function as well as additional goals (such as cleaning and being environmentally friendly). This is known as the dilution effect (Zhang, Fishbach, & Kruglanski, 2007). In other words, adding goals to a product is likely to dilute its perceived effectiveness in achieving each

goal, making it less likely that consumers will use that product when looking to achieve any one of the considered goals.



**Figure 1.1: SDG 12, Responsible Consumption and Production**

The indicators for SDG 12 as depicted in figure 1.1 help measure progress toward achieving this goal. These indicators are like yardsticks that help us understand how well countries and communities are advancing toward sustainable consumption and production practices (United Nations, *Goal 12*). Here are some simplified explanations of some key SDG 12 indicators:

**Domestic Material Consumption (DMC):** This indicator measures the total amount of raw materials used within a country to produce goods and services. A decrease in DMC suggests that the country is becoming more efficient in using resources, reducing waste and overconsumption.

**Waste Generation:** This indicator measures the amount of waste produced by a country or community. A reduction in waste generation indicates improved waste management practices and lower environmental impact.

**Food Loss and Waste:** This indicator focuses on the amount of food lost or wasted along the supply chain, from production to consumption. Reducing food loss and waste helps conserve resources and ensures that food is distributed more efficiently.

**Hazardous Waste:** This indicator tracks the amount of hazardous waste generated and how it is managed. Proper handling of hazardous waste is crucial to avoid environmental contamination and protect human health.

**Resource Efficiency:** This indicator evaluates the economic efficiency of resource use in relation to the GDP generated. It helps assess how effectively a country is using resources to achieve economic growth.

**Carbon Footprint:** This indicator measures the amount of greenhouse gases (expressed in carbon dioxide equivalent) emitted by a country. Reducing the carbon footprint is essential in mitigating climate change.

**Sustainable Tourism:** This indicator assesses the impact of tourism on the environment and local communities. Sustainable tourism promotes responsible travel practices that preserve natural resources and support local cultures.

**Environmental Performance:** This indicator looks at a country's overall environmental performance, considering factors like air and water quality, waste management, and conservation efforts.

**Sustainable Consumption and Production Policies:** This indicator evaluates the existence and implementation of policies and regulations aimed at promoting sustainable consumption and production practices at national and local levels.

**Green Public Procurement:** This indicator measures the proportion of public procurement that follows environmentally friendly criteria, such as purchasing products with lower environmental impacts.

Overall, these indicators help countries track their progress in adopting sustainable practices, supporting the global effort to build a more sustainable and resilient future for all. The nexus between the circular economy and sustainable consumption and production

represents a powerful and promising approach to address pressing environmental challenges while fostering economic growth.

## **1.2 INDUSTRY SETTING**

Sustainable consumption and production (SCP) represents a relatively novel and evolving research domain, characterized by its lack of well-defined structure and fluid boundaries (Vergragt et al., 2014, p.8). The Intergovernmental Panel on Climate Change (IPCC) emphasized in its Fifth Assessment Report (2014) that substantial reductions in greenhouse gas emissions can be achieved through alterations in consumption patterns. Nevertheless, the scientific community's level of agreement and evidence base supporting this statement were reported to be comparatively lower than other aspects of the report, prompting a clear call for the research community to strengthen the evidence base in this area. Over time, SCP has matured into a multidisciplinary field, attracting researchers from various disciplines, including natural scientists, environmental economists, psychologists, sociologists, philosophers, innovation researchers, political scientists, historians, and scholars in the humanities, all contributing diverse perspectives. In recent years, SCP has expanded its scope to incorporate the concept of sustainable lifestyles, incorporating the study of individual behaviors alongside the examination of components within our production and consumption systems.

## **1.3 RESEARCH RATIONALE**

Informing consumers about an improvement that is significant and does not objectively affect other dimensions is a persuasive marketing strategy. This principle is particularly effective for modern green products, as it is applicable even when other dimensions remain the same. Additionally, this approach is intuitively appealing to consumers. While it may seem straightforward to inform consumers about green improvements that do not affect other product dimensions, the reality is more complex. Consumers may mistakenly believe that greening efforts have led to a deterioration in other product dimensions.

Schubert (2017) argues that while providing additional information may improve consumer choices in theory, this is not always the case in practice. Research in behavioral

sciences indicates that well-designed eco-labels can serve a broader purpose, including reducing cognitive dissonance, overcoming loss aversion, and conveying social norms (Beretti, Grolleau, & Mzoughi, 2009; Grolleau et al., 2016; Schubert, 2017).

Similarly, it can be argued that eco-labels are sometimes viewed as detrimental to a product's image rather than enhancing it. As a result, many manufacturers choose not to promote the environmental benefits of their products, to avoid negatively impacting consumers' perception of the product's performance on conventional dimensions (The Economist, 2015).

#### **1.4 RESEARCH OBJECTIVE**

Behavioral sciences have uncovered two significant findings that help to explain why real-world outcomes often deviate from traditional predictions. The first finding is known as "construal," which refers to the idea that decision-makers must construct a mental representation of the situation they are facing. The second finding is the "power of the situation," which suggests that the context in which the decision is made heavily influences the construal. As a result, behavioral scientists emphasize the importance of designing messages and contexts that not only convey accurate information but also encourage the intended construal (Shafir, 2008; Schubert, 2017 also supports this idea).

Building on these insights, we contend that eco-labeling schemes create particular contexts and construals that can impact how people perceive other quality dimensions. In the following, we outline three non-mutually exclusive mechanisms that can shed light on why promoting the environmental benefits of a product may decrease consumers' perceived effectiveness of the product on more conventional dimensions.

#### **1.5 PROBLEM STATEMENT**

In the contemporary global landscape, the escalating environmental concerns stemming from non-green and unsustainable consumption patterns have magnified the urgency of achieving Sustainable Development Goal (SDG) 12 - Responsible Consumption and Production. The problem at hand lies in the detrimental environmental impact caused by the prevailing patterns of non-green consumption, which contribute to



resource depletion, pollution, and climate change. Amidst this context, the role of ecolabeling and green advertising emerges as a potential solution for steering consumer behavior towards more environmentally-conscious choices. However, the efficacy of these strategies remains an area of contention, necessitating a comprehensive investigation into their collective contribution. This thesis aims to delve into the intricate interplay between ecolabeling, green advertising, and their combined influence on SDG 12, with the overarching goal of providing insights that can inform policy, industry practices, and consumer decisions for a more sustainable future and circular economy.

## **1.6 DEFINITION OF TERMS**

To fully comprehend the subject matter, one must be acquainted with the following terms that are being used throughout the research:

### **1.6.1 Sustainable Development Goal SDG 12**

SDG 12 refers to Sustainable Development Goal 12, which is one of the seventeen goals outlined by the United Nations in the 2030 Agenda for Sustainable Development. SDG 12 is titled "Responsible Consumption and Production" and aims to ensure sustainable patterns of consumption and production worldwide (United Nations, *Goal 12*). It recognizes the need for more efficient and sustainable use of resources, reduction of waste and pollution, and the promotion of sustainable lifestyles.

### **1.6.2 Green Product**

Green products are those that pose no harm to human health or the environment. They are characterized by their efficient use of resources, minimal generation of waste, and absence of animal cruelty (Mungkung, 2021). To qualify as green products, consideration must be given to the environmental aspects of the entire product life cycle in order to minimize adverse impacts on nature. These efforts to minimize negative effects on the environment encourage all stakeholders to contribute to the development of technology for environmentally friendly products (D'Souza, 2019). In the production sector, there are various approaches that can be taken to ensure the creation of

environmentally friendly products, and one of these approaches is the adoption of the concept of sustainable green products.

### **1.6.3 Ecolabels**

Ecolabels are certifications or labels that indicate a product's environmental performance or sustainability credentials. They are designed to inform and guide consumers in making environmentally conscious purchasing decisions by providing information about a product's environmental attributes, such as its energy efficiency, resource usage, carbon footprint, or adherence to specific environmental standards (Wojnarowska, 2021). Ecolabels aim to promote sustainable production and consumption practices by encouraging companies to meet certain environmental criteria and by enabling consumers to identify and choose products that align with their environmental values.

### **1.6.4 Environmental Awareness**

Environmental awareness refers to the level of consciousness and understanding individuals or societies have about the environment, including its ecosystems, natural resources, and the impact of human activities on the Earth's health and sustainability (Indriani, et al., 2019). It involves recognizing the interconnectedness between human actions and the environment, as well as the importance of responsible stewardship and sustainable practices.

### **1.6.5 Dilution effect**

A phenomenon in which the presence of more individuals in a group decreases the likelihood of any one individual being attacked or predated upon (Grolleau, 2019). The dilution effect is often observed in animal groups, but it can also apply to human behavior, such as in the context of safety in numbers.

### **1.6.7 Perceived Consumer's Effectiveness**

The literature has proposed various definitions of perceived consumer effectiveness (PCE), each highlighting different dimensions of conceptualizing a consumer's perceived effectiveness. One dimension relates to whether PCE is seen as a

stable personal characteristic across outcome domains (i.e., generalized) or as a characteristic that can vary between different outcome domains (i.e., domain-specific). Our own definition aims to incorporate these dimensions, which we consider important for operationalizing PCE, utilizing PCE to explain individual contributions to sustainable development, and targeting PCE for promotion.

Many authors have conceptualized PCE as a domain-specific construct, focusing on a consumer's beliefs in their ability to achieve outcomes in a specific area of activity (Wojnarowska, 2021). The most commonly addressed outcome domain in such definitions is environmental preservation. For example, Kinnear et al. (1974), who introduced the term PCE, defines it as the extent of belief "that an individual consumer can be effective in pollution abatement" (p. 21), specifically addressing pollution abatement as the outcome. Other definitions refer to a more general outcome domain.

#### **1.6.8 Consumer's Green Trust**

Green trust, as defined in the literature, refers to the level of trust or confidence that consumers have in the environmental claims, commitments, and actions of companies, brands, or organizations promoting environmentally friendly products, practices, or initiatives (Grolleau, 2019). It is a specific form of trust that focuses on the environmental aspect of the entity's behavior and its credibility in delivering on its environmental promises (D'Souza, 2019). Green trust is influenced by several factors, including the credibility and reputation of the entity, the perceived quality and effectiveness of its environmental initiatives, and the alignment of its values and practices with consumers' own environmental concerns and values. It is also shaped by the communication and transparency of environmental information provided by the entity, such as eco-labels, certifications, and reports.

#### **1.6.9 Green Purchase Intention**

Green purchase intention refers to the likelihood and inclination of a consumer who is concerned about environmental and ethical matters to opt for environmentally friendly products instead of conventional ones, considering that the production process of many products often disregards the environmental consequences (Correia, et al., 2023).

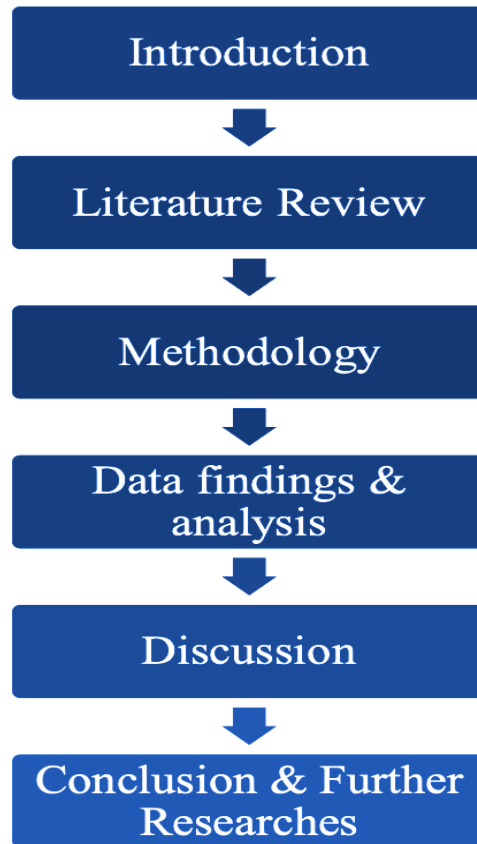
This intention arises from the recognition that conventional production processes often neglect environmental considerations. Consumers who possess green purchase intention actively seek out and select products that are produced and sourced in a manner that minimizes harm to the environment, such as those made from sustainable materials, utilizing renewable energy, or reducing waste (Witek, L. 2017). By expressing their preference for environmentally friendly products, consumers aim to contribute to a more sustainable future and promote responsible consumption patterns.

### **1.7.0 Consumer's Perceived Price**

Consumer's perceived price of a green product refers to the subjective assessment or judgment made by consumers regarding the cost or monetary value associated with purchasing and owning a green or environmentally friendly product. It represents the consumer's perception of the price or price premium that they believe they would need to pay to acquire a green product compared to conventional alternatives (Haider, et al., 2022). The consumer's perceived price of a green product can play a crucial role in their purchase decisions. If consumers perceive the price of a green product to be high, it may create a perception of lower affordability or value for money. This perception could potentially discourage some consumers from choosing the green product, particularly if they perceive that the environmental benefits do not justify the price premium.

On the other hand, if consumers perceive the price of a green product to be reasonable or justified by the perceived environmental benefits, it can positively influence their purchase intention. The perceived price of a green product interacts with other factors, such as perceived quality, perceived environmental benefits, and personal values, to shape consumers' decision-making process and their willingness to pay for environmentally friendly alternatives.

## 1.8 THESIS STRUCTURE



*Figure 1.8: Thesis Structure*

The thesis adheres to a well-organized and widely recognized structure that researchers commonly follow to present their study's findings effectively and contribute significantly to the field of research. It begins with a comprehensive introduction that sets the stage by outlining the research problem, objectives, and the importance of the study. Figure 1.8 illustrates the comprehensive thesis structure that is followed throughout this thesis writing process for making it more organized.

The literature review is carefully conducted to provide an in-depth analysis of existing research related to the topic, demonstrating a thorough understanding of the subject matter and identifying gaps or areas that warrant further investigation.

In the research methodology section, the chosen research design, data collection methods, and data analysis techniques are detailed, ensuring transparency and offering the potential for future replication of the study. The results and findings are presented in a

clear manner, supported by relevant graphs, tables, or statistical analyses, to substantiate the research outcomes.

The discussion section interprets and analyzes the results, linking them back to the research objectives and the broader literature. It will emphasize the implications of the findings, acknowledge any limitations encountered during the study, and propose areas that warrant further exploration in future research endeavors.

Finally, the conclusion section succinctly summarizes the key findings and reiterates their significance in the context of the research question. The thesis emphasizes its overall contribution to the field, and proper citation and referencing is diligently employed throughout the document to acknowledge the sources of information and prevent plagiarism.

## **CHAPTER 2: LITERATURE REVIEW**

Numerous studies have examined the impact of ecolabelling on consumer purchasing behavior. Research indicates that ecolabels significantly influence consumer attitudes, intentions, and actual purchasing decisions. Consumers perceive ecolabelled products as more environmentally friendly, and they are more likely to purchase such products. The presence of ecolabels can also act as a signal of product quality and trustworthiness, further enhancing consumer confidence in sustainable choices.

### **2.1 EVALUATION OF THE EXISTING BODY OF KNOWLEDGE ON THE TOPIC**

Eco-labels are used to provide consumers with information about the overall environmental performance of a product. These labels were created to avoid confusion among consumers regarding claims of environmental friendliness. A comprehensive eco-label program should consider all aspects of the product's life cycle, including production, distribution, use, and disposal. The first program of this kind was Germany's Blue Angel program, which was established in 1978. Other countries have also developed similar programs, such as the Swan (Nordic Eco labeling), Environmental Choice (Canada 1988), Eco Mark (Japan 1989), Green Seal (US 1990), Eco-Mark (India 1991), and Eco-label (EU 1993).

Eco-labels can serve as useful tools for informing consumers, institutions, and governments about the environmental impact of their purchasing decisions. At the same time, they can provide producers with a way to capture market share by catering to consumer preferences (Iraldo, 2020). Eco-labels can be broadly classified into two types: self-declaration claims and independent third-party claims. Self-declaration claims are made by the manufacturer, retailer, or marketer, and can pertain to a single attribute or an overall assessment of the product. These claims, such as "organic," "degradable," or "recyclable," are often printed on the product's packaging but are typically not verified by an independent authority (Iraldo, 2020). In contrast, independent third-party claims are based on compliance with predetermined criteria that are verified by a competent authority. These criteria usually follow a product life-cycle approach.

According to a study by Teisl, Roe, and Hick (2002), eco-labels can have a positive impact on consumers and increase the market share of eco-labeled products. Thøgersen's (2002) extensive study in four different countries found that a large majority of respondents pay attention to eco-labels at least some of the time. Grankvist, Dahlstrand, and Biel (2004) discovered that eco-labels containing information about environmental outcomes, whether positive or negative, influenced product preference, especially among those who are highly concerned about the environment (Haider, et al., 2022). They also observed that women, graduates, and young people held a positive attitude toward eco-labeled products. Loureiro and Lotade (2005) noted that consumers in highly developed countries are willing to pay a higher price for eco-labeled products. Research by Thøgersen (2012) found that ecolabeling increased consumers' willingness to pay for eco-friendly products and positively influenced their purchase decisions.

On the other hand, there are studies that raise doubts about the effectiveness of eco-labeling programs in motivating consumer behavior (Wessells et al., 1999). Erskine and Collins (1997) analyzed the strengths and weaknesses of eco-labeling schemes and concluded that it would be challenging to implement a practical and effective eco-labeling system that could genuinely improve the environment. Magnusson et al. (2001) reported a weak correlation between environmental concern and the preference for eco-labeled products. Moreover, even if consumers trust a particular environmental label, they may not use it due to information overload (Jacoby, 1984).

In summary, the effectiveness of eco-labels in generating positive responses from consumers is dependent on various external factors (Sharma, et al., 2019). The credibility of the source, the level of environmental concern, and the availability of eco-labeled products on the retail shelf are some of the exogenous factors that could influence the impact of eco-labels on purchase decisions. This implies that the mere presence of an eco-label on a product does not necessarily guarantee a positive response from consumers. (Cary, Bhaskaran and Polonsky, 2004; Erskine and Collins, 1997; Nilsson, Tuncer and Thidell, 2004; Grankvist, Dahlstrand and Biel, 2004; Thøgersen, 2000).



All of the studies mentioned above have treated eco-labels as a dependent variable and discussed their influence on consumer behavior (Witek, L. 2017). However, this approach may not be applicable to societies that are not yet familiar with the concept of eco-labeled products. Therefore, this study aims to take a different approach by examining the independent role of eco-labels in moderating the relationship between predictor variables and purchase decisions.

### **2.1.1 Attitudes toward environmental protection**

The term "environmental attitude" refers to an acquired tendency to react in a consistently favorable or unfavorable manner towards environmental issues. Research consistently supports a positive association between environmental attitude and behavior, regardless of one's level of environmental knowledge. Emotional attachment to environmental wellbeing can be strong even when knowledge is limited (Ling-ye, 1997). Attitude is the strongest predictor of consumers' willingness to pay a premium for eco-friendly products, compared to knowledge and behavior (Laroche et al., 2001). Prior studies have also defined attitude towards environmental protection as a unidimensional construct (Noe and Snow, 1990; Minton and Rose, 1997; Sharifah et al., 2005), which is consistent with the approach taken in this study.

### **2.1.2 Environmental Knowledge**

Several studies have demonstrated the significance of knowledge and the impact of lack of knowledge in the decision-making process (Verdugo, 1996; Oskamp et al., 1991; Laroche et al., 2001). While ecolabeling has shown promise, its effectiveness can be influenced by various factors. Research by Ottman, Stafford, and Hartman (2006) highlighted the importance of factors such as consumer knowledge, perceived credibility of the label, and perceived benefits of eco-labeled products. Understanding these factors is crucial in designing effective eco labeling schemes that resonate with consumers and drive sustainable purchasing behavior. Therefore, consumer knowledge plays an essential role in their decision-making process. Initially, this study conceptualized consumer knowledge as comprising two dimensions: Knowledge of Environmental Issues and Knowledge of Green Product Features. Factor analysis was conducted on the 20 items

measuring perceived knowledge of selected environmental issues, which resulted in three dimensions. The first dimension is the perceived knowledge of attributes of green products, such as "natural ingredient cosmetics, wood product from sustainable forest, organic vegetables, ozone-friendly aerosols, biodegradability, unleaded petrol, and no animal testing." The second dimension is the perceived knowledge of general environmental issues, such as "destruction of the rain forest, vanishing wildlife habitat, the greenhouse effect, and pollution from pesticides." The last dimension, concrete knowledge, refers to the respondent's perceived knowledge of "waste management, hazardous waste, and recycled material," which is related to their actual activities at their workplace or factory.

### **2.1.3 Green Purchase Intention**

The intention to purchase green products, or green purchase intention (PI), refers to an individual's probability and willingness to prioritize products with eco-friendly characteristics over traditional products in their purchasing decisions (Larsson, 2011). In this study, the green product used for comparison was the energy-saving bulb, in contrast to the traditional tungsten bulb. A comprehensive and visual representation of both products was presented to participants, who were then asked to indicate their preferred choice.

### **2.1.4 The Role of Consumer Perceptions in Green Advertising**

Consumer perceptions play a critical role in shaping the effectiveness of green advertising. Research by Chan and Lau (2000) demonstrated that consumers' perceived environmental knowledge, environmental concern, and perception of advertising credibility significantly influenced their responses to green advertising. Understanding consumer perceptions can help marketers tailor their green advertising messages to resonate with target audiences effectively.

### **2.1.5 Synergistic Effects of Ecolabeling and Green Advertising**

Several studies have explored the combined effects of ecolabeling and green advertising on consumer behavior (Piyanoth, 2022). For instance, research by Vermeir and Verbeke (2006) found that the presence of ecolabels in advertisements enhanced the

persuasive impact of green advertising, leading to more positive consumer attitudes and increased purchase intentions toward eco-labeled products. These findings suggest that ecolabeling and green advertising can work synergistically to drive sustainable purchasing behavior.

## **2.2 RESEARCH GAP**

Existing research on ecolabeling or green advertisement has primarily focused on isolated effects, often neglecting the interplay and synergistic outcomes resulting from the simultaneous implementation of these strategies. Studies tend to focus on either ecolabeling or green advertisements separately. A research gap exists in terms of comprehensive research that investigates the combined effect of these two strategies on consumers' purchasing decisions and subsequent behavior (Ja-Shen, 2022). To address this research gap, this study seeks to investigate the nuanced relationship between ecolabeling, green advertising, and their cumulative impact on fostering responsible consumption practices aligned with SDG 12 (Grolleau, 2019). By examining the ways in which consumers interpret and respond to ecolabeling and green advertising initiatives, this research aims to provide a comprehensive understanding of how these strategies can collectively mitigate the environmental repercussions of non-green consumption.

There is a dire need to explore the potential synergies or conflicts between eco-labeling and green advertising, as they may have different effects on consumer perceptions and decision-making processes (Grolleau, 2019). For example, eco-labeling may provide consumers with objective and reliable information on the environmental attributes of a product, while green advertising may appeal to consumers' emotions and values related to environmental sustainability.

When ecolabeling and green advertising work together, they create a reinforcing cycle:

Consumer Empowerment: Ecolabeling provides consumers with credible information, allowing them to make sustainable choices. Green advertising amplifies this information, making it more accessible and appealing.

Market Transformation: Ecolabels drive businesses to adopt sustainable practices, and green advertising encourages them to communicate these efforts effectively, building consumer trust and loyalty.

Societal Shift: As more consumers demand eco-labeled products and respond to green advertising, businesses are motivated to improve their environmental practices, ultimately contributing to a shift toward responsible consumption and production at a larger scale.

## **2.3 THEORETICAL FRAMEWORK**

A theoretical framework in research serves as a conceptual foundation that helps researchers understand, explain, and analyze various aspects of their study. It provides a structured framework for organizing and interpreting data, guiding the research process, and developing hypotheses. Several studies have been explored to understand the different variables in terms of ecolabeling and green advertisement and how they are impacting the consumer's purchase intention, which might lead to achieving SDG 12.

From a conventional perspective, successful eco-labeling programs have primarily addressed the issue of information asymmetry by converting a credence attribute into a search attribute, thereby decreasing consumers' uncertainty regarding the validity of their environmentally conscious purchases. This has been demonstrated by various studies (Caswell & Grolleau, 2006; Darby & Karni, 1973; Nelson, 1970; Pedersen & Neergaard, 2006; Teisl & Roe, 1998; Testa, Iraldo, Vaccari, & Ferrari, 2015). As a result, it appears logical to inform consumers about an enhancement that is important, particularly if the improved aspect is independent and does not objectively affect other dimensions (Wojnarowska, 2021). This fundamental marketing principle appears to be well-suited for contemporary green products, as long as other dimensions remain unaltered.

Despite the assumption that providing consumers with more information improves their choices, the reality is more complex. According to Schubert (2017), consumers may perceive that greening efforts inferred from green claims have deteriorated other dimensions of the product. This can create cognitive dissonance and loss aversion issues, and convey social norms. In this context, eco-labels do much more

than solve an information asymmetry problem. However, eco-labels can also be perceived as harming the product rather than improving it, leading manufacturers to avoid advertising the green benefits of their products (The Economist, 2015). Therefore, the reality of eco-labeling and green claims is complex and requires careful consideration.

The field of behavioral sciences has identified two robust findings that help explain why real-world outcomes often differ from traditional predictions. The first is the concept of "construal," which highlights the importance of decision-makers forming a mental representation of the situation they are facing. The second is the "power of the situation," which suggests that this construal is heavily influenced by the context of the decision (Grolleau, 2019). As a result, experts in behavioral sciences emphasize the need to design messages and contexts that not only convey accurate information but also shape the intended construal (Shafir, 2008; Schubert, 2017). In line with these insights, we argue that eco-labeling schemes create specific construals and contexts that can impact consumers' perceptions of other quality dimensions. In the following sections, we outline three non-mutually exclusive mechanisms that may explain how advertising the green benefits of a product could diminish the perceived effectiveness of the product on traditional dimensions.

The goal dilution model, which suggests that pursuing multiple goals with a single means reduces the perceived effectiveness of achieving each goal, has been supported by several studies (Meyvis & Janiszewski, 2002; Zhang et al., 2007). This perception occurs regardless of the actual effectiveness of the means in achieving each goal. This is because people instinctively believe that an entity performing a single function is better at that function than an entity performing the same function and additional ones. The dilution effect can lead to a reduced likelihood of using the means when trying to achieve any one of the goals. This effect can be further reinforced by negative previous experiences with first-generation green products, which can cause consumers to base their decisions on prior expectations rather than actual experience (Lin & Chang, 2012; Ottman, Stafford, & Hartman, 2006).

The second mechanism is called the zero-sum heuristic (Chernev, 2007; Chernev & Carpenter, 2001). This theory suggests that consumers tend to believe that increasing quality in one product dimension is automatically compensated by decreasing quality in other dimensions, even if the situation is actually non-zero-sum. When it comes to green products, this bias leads consumers to assume that investing in green benefits means that the company invested fewer resources in other quality dimensions (Newman, Gorlin, & Dhar, 2014). This can make consumers perceive green products as sacrificing fundamental qualities that justify their purchase. Since green benefits are often credence attributes that are difficult for consumers to verify, they must rely on credible third parties for information. This informational asymmetry can make consumers believe that the resources invested in certification processes are not available for other goals, leading them to assume that other dimensions have been negatively affected (Grolleau, 2002).

Thirdly, there is a common belief that choosing green alternatives entails making sacrifices. Although this may not be true, this implicit association can lead individuals to perceive pro-environmental options as requiring personal sacrifices such as higher prices, inconvenience, or reduced performance. Studies have shown that such subtle linguistic associations can result in biased perception and decision-making in various fields (Farrow, Grolleau, & Mzoughi, 2018). For example, eco-friendly cleaning products are often believed to be less effective and more expensive than conventional ones (Lieber, 2005). This perception of higher cost can result not only from actual price increases but also from the need to use more products to achieve the desired results (Lin & Chang, 2012).

## **2.4 RESEARCH QUESTIONS**

1. How does eco labeling and green advertisement influence the consumer's green trust?
2. How does a consumer's environmental awareness affect the consumer's perceived effectiveness about a green product?
3. How does eco labeling influence the consumer's perceived information quality?

4. How does eco labeling and green advertising practices influence consumer's green purchase intention?
5. How does a consumer's perceived price about an eco labeled product contribute to the consumer's green purchase intention?

## **2.5 RESEARCH HYPOTHESES**

The research hypotheses are designed such that they examine the relationship between green advertisement awareness involving ecolabelling and consumer perceptions in various dimensions:

- perceived quality,
- perceived price,
- perceived risk,
- perceived value,
- perceived innovation, and
- purchase intention.

**Hypothesis 1:** Ecolabel involvement positively influences the consumer's green trust.

Ecolabels serve as third-party certifications that verify the environmental credentials of products or services. When consumers see a product with a recognized ecolabel, they are assured that it has undergone rigorous assessments and meets specific environmental standards. This assurance helps to build trust in the environmental claims made by the product or brand, as the involvement of ecolabels implies transparency and accountability. Ecolabels are typically established by reputable organizations with expertise in environmental sustainability and certification processes. The involvement of these organizations adds credibility to the ecolabel and the associated products or services. The figure 2.5 illustrates the research model developed which clearly portrays the influence of both ecolabeling and green advertising on the responsible consumption and production patterns which ensures SDG 12. Consumers are more likely to trust ecolabels that are well-known and recognized in the market, as they have confidence in the rigorous evaluation and certification procedures carried out by these trusted entities. By choosing products with ecolabels, consumers feel they are making a positive

environmental impact and contributing to sustainability goals. This active involvement enhances their trust in the brand or product, as they perceive themselves as responsible consumers who support environmentally conscious practices.

**Hypothesis 2:** Green Advertisement positively influences the consumer's green trust.

Green advertisements play a crucial role in raising awareness about environmental issues and promoting sustainable practices. They inform consumers about the positive environmental attributes of a product or brand, such as energy efficiency, recycling, or reduced carbon footprint. By providing this information, green advertisements help educate consumers and increase their understanding of the environmental benefits associated with the advertised products or services. This increased awareness contributes to the development of trust in brands that actively promote green initiatives. Such advertisements often emphasize transparency and openness about a company's environmental practices. They highlight the steps taken to reduce environmental harm, the use of eco-friendly materials, or the implementation of sustainable production processes. By showcasing these efforts, green advertisements build trust by providing consumers with tangible evidence of a brand's commitment to environmentally responsible practices. Moreover, these advertisements often evoke emotions such as empathy, hope, or empowerment, as they portray a positive vision of a sustainable future. When consumers feel emotionally connected to a brand's green message, it enhances their trust and loyalty towards the brand, as they believe in its ability to make a positive impact.

**Hypothesis 3:** Consumer's environmental awareness positively influences the consumer's green trust.

Consumers who have a higher level of environmental awareness tend to possess more knowledge and information about environmental issues, such as climate change, pollution, and resource depletion. This knowledge equips them with a better understanding of the importance of sustainable practices and their impact on the environment. Consequently, they are more likely to trust brands or products that align with their values and contribute to environmental preservation. Environmental awareness often leads to a heightened sensitivity towards greenwashing, which refers to the



deceptive marketing practices employed by some companies to falsely portray their products as environmentally friendly. In contrast, consumers with higher environmental awareness are more adept at recognizing genuine green initiatives and sustainable practices. This increased discernment enables them to identify trustworthy brands and products, fostering their green trust. Moreover, consumers who are environmentally aware tend to feel a sense of responsibility towards making sustainable choices and reducing their environmental impact. When they encounter brands or products that promote sustainability and environmental stewardship, it reinforces their trust and confidence in those offerings.

**Hypothesis 3a:** Consumer's environmental awareness positively influences the consumer's perceived information quality.

Consumers with higher environmental awareness tend to possess better critical evaluation skills when it comes to environmental information. They are more knowledgeable about environmental issues, which allows them to discern credible and reliable information from misleading or inaccurate content. Environmental awareness involves understanding key environmental concepts, such as climate change, pollution, and biodiversity. Consumers who are environmentally aware have a better grasp of these concepts and their interconnectedness. This familiarity enables them to assess the quality of information more effectively, identifying whether it aligns with scientifically accepted knowledge and reliable sources. Consumers who prioritize environmental awareness tend to actively seek out information from a variety of sources, such as reputable scientific journals, environmental organizations, and experts in the field. By accessing diverse and trustworthy sources, they increase their exposure to high-quality information. This habit of seeking reliable sources contributes to their perception of higher information quality when evaluating environmental information.

**Hypothesis 3b:** Consumer's environmental awareness positively influences the consumer's perceived effectiveness.

Individuals who are more environmentally aware tend to perceive green products as more effective in addressing environmental concerns. They are more aware of the specific

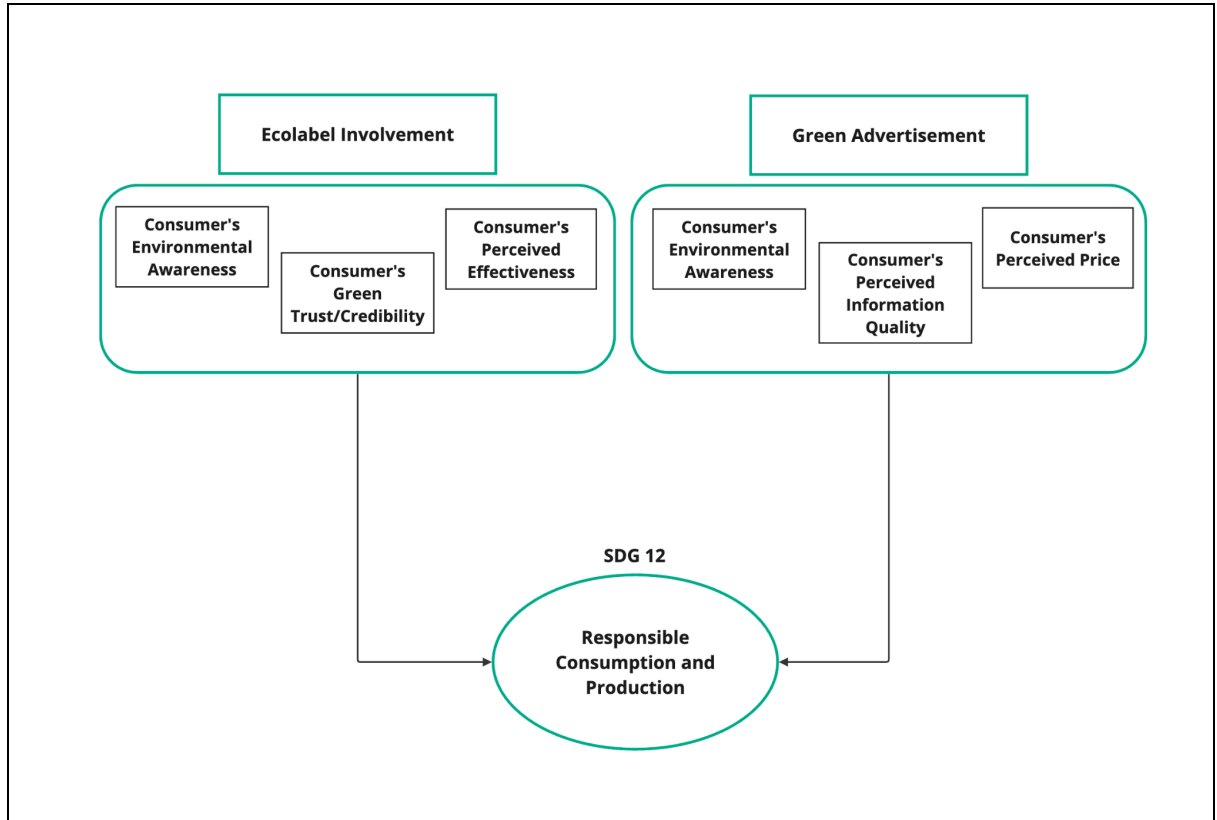
features or attributes of green products that contribute to environmental sustainability, leading to a perception of higher effectiveness when using or purchasing such products.

**Hypothesis 4:** Consumer's perceived information quality positively influences the consumer's green trust.

When consumers perceive the information they receive about green products or practices to be of high quality, they are more likely to believe that the claims made by companies or organizations are reliable and accurate. This positive perception of information quality enhances their trust in the entities promoting the products or practices. Research studies have provided empirical evidence supporting the positive relationship between perceived information quality and green trust. These studies have shown that when consumers perceive the information about environmental products or practices to be accurate, transparent, and consistent, it leads to higher levels of trust in the entities promoting those products or practices.

**Hypothesis 5:** Consumer's green trust positively influences the consumer's perceived effectiveness.

Perceived effectiveness has a significant impact on consumer behavior. When consumers perceive a product, practice, or initiative as effective in addressing environmental concerns, they are more likely to engage in pro-environmental behaviors, purchase green products, and support sustainable brands. This positive behavioral change stems from the belief that their actions can contribute to positive environmental outcomes. Trust and credibility are closely linked. When consumers trust a company or organization, they perceive it as more credible in its environmental claims and initiatives. This credibility, in turn, enhances the perception of effectiveness.



*Figure 2.5: Research Model*

**Hypothesis 6:** Consumer’s perceived effectiveness positively influences the green purchase intention.

When consumers perceive the green product as effective in addressing environmental concerns along with providing the desired quality by meeting or exceeding their expectations, it leads to an increased intention to make green purchases. According to Chaudhuri (2002), the level of perceived quality plays a significant role in consumer satisfaction, as higher perceived quality leads to increased purchase intention. Zeithaml’s (1988) causal relation model also demonstrated that purchase intention is dependent on perceived value, which is influenced by perceived quality. This indicates that an increase in perceived quality results in a higher purchase intention. Additionally, Dodds et al. (1991) found that perceived quality positively affects perceived value, which, in turn, has a positive influence on purchase intention. Petrick (2004) discovered that when consumers perceive a product to have high quality, it increases their perceived value and subsequently their purchase intention. Furthermore, Tsotsou (2006) demonstrated a direct positive correlation between perceived

effectiveness and purchase intention, suggesting that perceived effectiveness can be used to predict purchase intention.

**Hypothesis 7:** Consumer's perceived price toward a green product has a negative influence on consumer's purchase intention.

This hypothesis suggests that when consumers perceive the price of a green product to be high, it leads to a decreased intention to purchase that product. Consumers are generally price-sensitive and consider the cost of a product as a significant factor in their purchase decisions. This sensitivity extends to green products, where consumers compare the price of green products with conventional alternatives. Moreover, when consumers perceive the price of a green product to be high, it can create a perception of lower value for money, as they may question whether the environmental benefits justify the price premium. Consumers often evaluate the trade-off between the price of a green product and the environmental benefits it offers, and prioritize their budget constraints or prioritize other product attributes over the environmental aspects, leading to a reduced purchase intention for green products perceived as high-priced.

## **CHAPTER 3: RESEARCH METHODOLOGY**

In this chapter, the research process is thoroughly elucidated, encompassing the chosen research approach, design, and the rationale behind it. The data collection method and its various stages, such as sampling technique, sample size determination, data analysis, and the formulation of interview questionnaires for experts, are also presented. Additionally, the chapter outlines the methodology employed to test the hypotheses formulated in pursuit of answering the research questions and attaining the research objectives.

### **3.1 RESEARCH PARADIGM**

Scholars have offered various definitions for the term "paradigm" in the context of research. It can be understood as a way of perceiving the world that shapes how researchers approach their study topics. A paradigm involves a set of assumptions about the nature of specific problems and the approach to investigate them. In the realm of schooling research, paradigms are considered as systems of ideas that influence human behavior. Social scientists, implicitly or explicitly, bring their notions about the nature of the world and how to study it in their research. Paradigms act as the starting point for research projects, where researchers' understanding of knowledge and reality is shaped. These perspectives influence researchers' ideas about the world, themselves, and others. In essence, paradigms are researchers' perspectives and ideals about the world, how they describe it, and how people respond to it. The chosen paradigm guides researchers' inquiry, including data gathering and analysis methods. A research paradigm serves as an example of how a researcher views the growth of knowledge and the approach used to develop a research strategy.

The type of research methodology a researcher selects is influenced by the research philosophy they adhere to. This choice considers the study's objectives, the methods employed, and the researcher's quest for solving the research problem. Historically, two main research theories have been prominent: empiricism and rationalism. They emerged from the debate between materialists, who favored induction, and realists, who favored reductivity. The difference between deductive and inductive

reasoning can be seen as the first significant scientific paradigm. The inductive approach, known as the bottom-up process, begins with specific observations and progresses to generalizations or theories. It involves three processes: observation, discovering patterns from observations, and using these patterns to create generalizations. On the other hand, the deductive method involves three distinct but opposing stages: presenting a hypothesis based on an existing theory or prior research, collecting relevant data to test the hypothesis, and accepting or rejecting the original hypothesis based on the evidence.

The research paradigm encompasses a collection of guidelines and principles that form the philosophical foundation of a study. Its significance lies in enabling the selection of an appropriate research approach once established. In this study, the positivist research paradigm is adopted to provide an explanation. Similar to previous positivist research, this study observes the research subject from an external perspective, maintaining objectivity and avoiding personal biases that could influence the findings. The data gathered for this investigation is quantitative in nature. Analysis is conducted following the positivist paradigm's methodology to comprehend, define, and communicate the results to the broader audience. Hypotheses were formulated based on the theoretical framework, assessed using statistical data analysis, and correlations between variables were examined.

### **3.2 RESEARCH SETTINGS**

This study utilizes a quantitative design, specifically chosen for its investigative nature. By employing the method of quantitative research, statistical analysis was performed with participants primarily from universities, aiming to explore both general and high precision level outcomes. The quantitative approach proved beneficial in establishing relationships between variables. To gather information from participants simultaneously, we adopted a cross-sectional survey methodology. The main objective was to collect information about the consumer's perception of the green products and their flexibility in adopting sustainable choices from a diverse group of individuals, representing different segments of the population. The questionnaire forms were distributed among diverse consumers in Pakistan as part of this study to gain insights into their purchasing behavior.

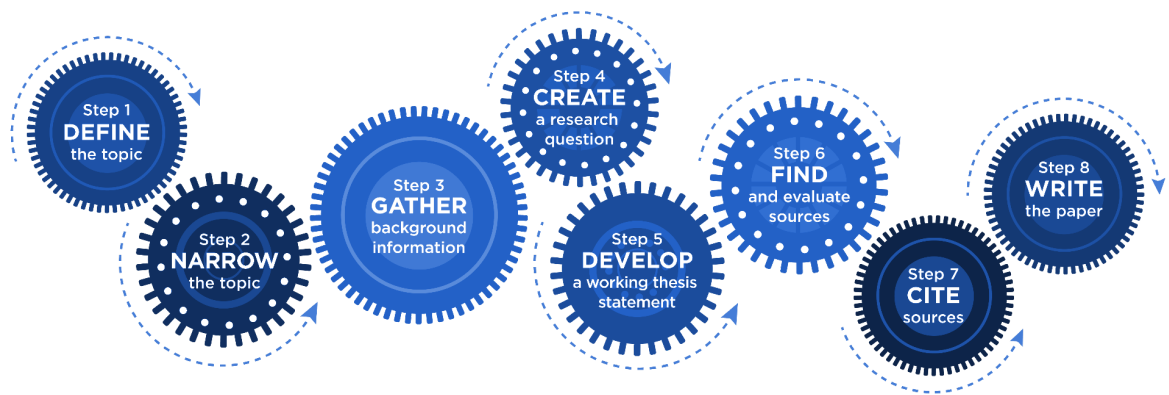
### 3.3 RESEARCH STRATEGY

A research approach comprises methodological guidelines that steer a scientist's thought process, enabling a systematic and organized completion of the work in accordance with the plan. The primary objective is to outline the essential elements of the study, encompassing the research topic, key objectives, major design elements, and ultimately, the research methodology. Figure 3.3 depicts the research approach adopted to conduct a seamless and smooth research in a sequential order.

For a strategy to be deemed appropriate, it must fulfill the following criteria:

- Alignment with the research topic and objectives
- Consideration of time constraints and available resources
- Integration with the researcher's philosophical foundations

In essence, a well-considered research approach accounts for all these factors to ensure a coherent and successful research endeavor.



*Figure 3.3: Research Approach*

Research approaches can be broadly categorized into two types: **inductive** and **deductive**. The inductive approach is employed when the researcher aims to discover solutions to the research questions set forth at the beginning of the study. On the other hand, the deductive approach is utilized when the study's objectives necessitate testing hypotheses to reach conclusions (Ja-Shen 2022). The selection between these approaches

is influenced by various factors, including the nature of the research topic, the study area, and the underlying research philosophy.

### **3.3.1 Quantitative vs Qualitative Data**

Qualitative and quantitative data are two main types of data used in research and analysis. They differ in their nature, methods of collection, and the types of insights they offer. Here are the key differences between qualitative and quantitative data:

#### **Nature of Data**

**Qualitative Data:** Qualitative data is descriptive and deals with qualities or characteristics. It is non-numeric and is typically expressed in words, images, or observations. It aims to understand the meaning, context, and underlying reasons behind phenomena.

**Quantitative Data:** Quantitative data is numerical and deals with quantities or measurements. It involves quantifying variables and relationships using statistical methods, focusing on objective and measurable data.

#### **Methods of Collection**

**Qualitative Data:** Qualitative data is often collected through methods like interviews, focus groups, observations, case studies, or open-ended survey questions. These methods allow researchers to gather in-depth and subjective information from participants.

**Quantitative Data:** Quantitative data is usually collected through structured surveys, experiments, or systematic observations. These methods aim to gather data in a standardized and measurable way, often using closed-ended questions.

#### **Analysis Approach**

**Qualitative Data:** Qualitative data analysis involves interpreting and making sense of textual or visual data. Researchers use techniques like thematic analysis, content analysis, or narrative analysis to identify patterns, themes, and meanings.

**Quantitative Data:** Quantitative data analysis involves using statistical tools and methods to analyze numerical data. Researchers use techniques like inferential statistics, correlation analysis, and regression analysis to draw conclusions and test hypotheses.



### **Insights and Generalizability**

**Qualitative Data:** Qualitative data provides rich and detailed insights into specific cases or contexts. While it may not be easily generalizable to a broader population, it offers a deep understanding of the subject under study.

**Quantitative Data:** Quantitative data provides generalizable findings, as it typically involves larger sample sizes and statistical representativeness. The results can be applied to a broader population with a certain level of confidence.

### **Research Focus**

**Qualitative Data:** Qualitative research is exploratory and seeks to understand the complexities of human behavior, attitudes, and experiences. It is often used when the research question requires an in-depth understanding or when little is known about the topic.

**Quantitative Data:** Quantitative research is confirmatory and aims to test hypotheses and establish relationships between variables. It is often used to measure trends, patterns, and cause-and-effect relationships.

In summary, qualitative data provides in-depth insights into the "how" and "why" of a phenomenon, while quantitative data offers numerical measurements and statistical conclusions for broader generalizations. Both types of data play crucial roles in research and can be used together to provide a more comprehensive understanding of complex issues. The choice between qualitative and quantitative methods depends on the research question, the nature of the data required, and the objectives of the study.

## **3.5 LIMITATIONS OF THE RESEARCH DESIGN**

All research has limitations. These limitations may be caused by technical or study design limitations. Of course, this may affect the research as a whole or the research report. The majority of researchers choose not to draw attention to their research's shortcomings because they think doing so could dilute its significance in the mind of the reader. It's critical to let your audience know what your research's limitations are. Table 1 demonstrates the research limitations which are faced by researchers during the research

process. You must be conscious of the constraints in question and any possible consequences. It's vital to discuss how your study limitations could affect the conclusions and suggestions you make after performing your research.

From the standpoint of sustainability, this study solely included empirical data from Pakistan's industrial sectors.

- Because Asian working cultures differ from Western ones, there are several cultural factors that may be used to control how exploration and exploitation relate to good management practices and sustainable performance. Therefore, in addition to the mediation analysis, the cultural environment might be included while looking for the moderating influence.
- Primary data was also gathered for the purpose of this study. The use of secondary data is possible in the future.
- The nature of this study is cross-sectional. Future research may employ longitudinal investigations.

In a normal dissertation, the following issues may be related to the research limitations:

***Table 1: Points to which Research limitations in a typical dissertation may relate***

|  |   |
|--|---|
| Refining Research Objectives and Goals | It's conceivable that the research objectives and goals may benefit from a more nuanced approach. Consider methods to enhance the precision of your research objectives and goals to sharpen the study's focus.   |
| Data Collection Techniques             | As someone with limited experience in collecting primary data, there is a potential for shortcomings in the implementation of your data gathering approach.   |
| Sampling Considerations                | The size of the sample plays a pivotal role in shaping the research problem's characteristics. Inadequate sample sizes have the capacity to render statistical tests ineffective in detecting significant relationships within a dataset. One could assert that conducting your research with a larger sample size might yield more accurate results. |

|   |  |
|---|--|
| Lack of Previous Studies in the Research Area | A comprehensive literature review stands as a critical element in any research endeavor. It serves the vital function of identifying the breadth of existing work within your chosen topic area. Researchers rely on the insights gained from the literature review as a springboard for the formulation of their research objectives. |
|---|--|

### 3.6 ETHICAL CONSIDERATIONS

Research ethics play a pivotal role in upholding the integrity of scientific inquiry, safeguarding human dignity, and fostering a strong connection between science and society. These guidelines ensure that participants are willing, informed, and protected throughout the research process. Striking a balance between achieving significant learning objectives and adhering to ethical research methods is crucial to avoid potential harm, intentional or unintentional. Upholding research ethics is essential for maintaining the credibility of the study, as unethical practices can undermine the acceptance of findings by others.

While the research hypothesis may hold importance for society, it does not grant the researcher the right to violate the rights or dignity of study participants. In this regard, a consent form is included to ensure that no one is coerced or threatened into participation. Participants' data and information are treated with complete confidentiality, and no data is shared or sold to anyone. This research is intended for a single, specific use. Every participant is respected and treated fairly, irrespective of their moral, religious, or educational background.

Furthermore, all studies are conducted with transparency, and survey questions are not intrusive or personal, except for the collection of necessary demographic information. The participants have the right to privacy and confidentiality, ensuring that their identities and personal information are protected throughout the research process. Adhering to research ethics remains paramount to maintain the trust and credibility of the scientific community and the broader society.

### 3.6.1 Types of Ethical Issues

Ensuring data confidentiality is crucial to protect the privacy and identities of participants in your research or any sensitive information collected. Here are some steps the researcher can take to ensure data confidentiality:

**Informed Consent:** Obtain informed consent from participants, clearly explaining how their data will be used and assuring them of confidentiality measures.

**Anonymization:** Remove or encrypt any personally identifiable information (PII) from the data to ensure that individuals cannot be identified.

**Secure Data Storage:** Store the data in a secure and restricted environment, such as password-protected databases or encrypted storage solutions.

**Limited Access:** Restrict access to the data to only authorized personnel who need it for research purposes.

**Data Encryption:** Use encryption techniques to safeguard data during transmission and storage.

**Data Transfer Security:** Ensure that any data transfers between devices or locations are conducted securely.

**Secure Data Disposal:** Properly dispose of any data that is no longer needed in a secure manner, such as through permanent deletion or secure shredding.

**Non-Disclosure Agreements:** If you collaborate with external parties, have them sign non-disclosure agreements to legally bind them to maintain data confidentiality.

**Training and Awareness:** Educate all researchers and personnel involved in the study about the importance of data confidentiality and the proper handling of sensitive information.

**Data Sharing Agreements:** If data needs to be shared with other researchers or institutions, establish data sharing agreements outlining confidentiality protocols.

**Monitor Data Access:** Keep a log of data access and activity to track any potential breaches or unauthorized access.

By implementing these measures, one can significantly enhance data confidentiality and protect the privacy of research participants or any sensitive information collected during the study.

### **3.7 METHODS OF DATA COLLECTION**

Data is gathered through a variety of online survey methods, with questionnaires increasingly in demand. They were passed out verbally, digitally, or through physical contact. Because of all the possibilities offered by the internet, web-based codecs are a desirable choice. With over 300 Internet survey software programs readily available, there are various options and factors to be taken into account when picking the optimal instrument for a study enquiry. Although the use of these computerized and electronics technology may improve survey development, effective implementation is always and inevitably a time-consuming activity because it calls for detailed question formulation and the testing that really is necessary for validation. For this research, data was collected online through different channels like LinkedIn and emails to different organizations.

#### **1. Sample Selection**

The primary purpose of sample selection is to find volunteers who represent the target research population. Different sampling methods, such as random, non-random, or a combination of both, can be employed to select the sample. Random sampling is usually applied when gathering quantitative data, and an online randomizer can be helpful in this process. On the other hand, nonrandom sampling is frequently used when gathering qualitative data from an interested group.

There are two types of Web survey sampling: probability and nonprobability methods. Nonprobability sampling, also known as convenience sampling, relies on the researcher's judgment and includes volunteers who are willing to participate in the survey. While these samples have limitations in terms of generalizability and statistical significance, they are valuable for generating hypotheses and gathering non-inferential data. Examples of non probability research include opt-in panels and mailing lists.

In contrast, probabilistic sampling aims to reduce non-response bias by randomly selecting participants to ensure a broader representation. Probability-based surveys can include mixed-mode surveys with online options and list-based sampling with pop-up questionnaires. Web-based surveys offer extensive sampling without additional costs but

require caution to avoid potential issues related to sample selection, such as sampling and coverage flaws. For example, some participants may not have access to the internet or the survey.

However, web-based surveys can also improve access to individuals who were previously hard to reach, forming online virtual cohorts with shared interests. Mitigating sampling bias can be achieved by granting desirable respondents computer access, randomly selecting pop-ups on a website, or selecting participants from an email list server.

In qualitative research, even a small carefully selected sample, even with just one unit ( $n=1$ ), is crucial. The data provided by these participants significantly impact the validity and generalizability of the study's conclusions. It is essential for researchers to disclose in detail how respondents were selected to assess results and facilitate study replication. Choosing an appropriate sampling strategy is a critical responsibility for researchers conducting qualitative research.

## **2. Data Collection**

Data collection is a crucial phase in the research process, where relevant information is systematically gathered to address research objectives and answer specific questions. It involves the careful and organized gathering of raw facts, observations, measurements, or responses from various sources, such as surveys, experiments, interviews, or existing datasets. The quality and accuracy of data collection significantly influence the validity and reliability of research findings. Researchers must use appropriate methods and tools to ensure data collection is unbiased and comprehensive. Ethical considerations play a vital role in this process, as ensuring the confidentiality and privacy of participants is paramount. Moreover, the process may involve data cleaning and validation to eliminate errors and inconsistencies. A well-executed data collection phase lays the foundation for insightful analysis and informed decision-making, ultimately contributing to the overall success of the research endeavor.

### 3.8 RESEARCH METHODOLOGY AND DESIGN

Research methodology encompasses the activities of exploring, choosing, handling, and scrutinizing information related to a subject. This methodological aspect of a research study allows readers to evaluate the study's comprehensive credibility and dependability. The Methods section deals with two main questions. How was the information collected or generated? How was it rated? What kind of questions were included in the questionnaire?

*Table 2: Data collection research methodology*

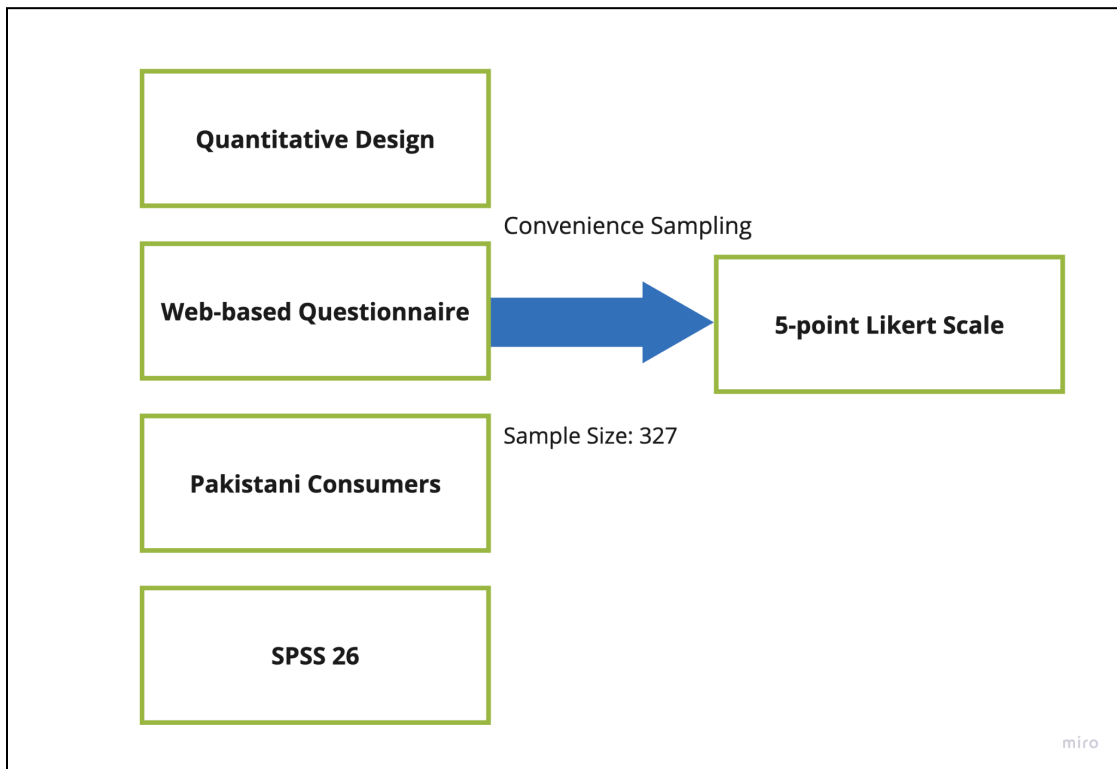
| <b>Method</b>         | <b>Purpose</b>   | <b>Advantages</b>   | <b>Disadvantages</b>  |
|-----------------------|--|---|---|
| <b>Questionnaires</b> | Accomplished with the goal of quickly gathering a vast amount of information | Members of the sample group must not be identified.<br>Relatively more affordable than most other primary data collection techniques<br>Potential to generate large amounts of data | Guaranteeing deeper depth for the investigation is hard<br>The "first choice selection" dilemma |

After developing appropriate questions following the recommended guidelines, the subsequent task involves structuring the questionnaire to ensure ease of administration and acceptance among the intended respondents. Four critical aspects that demand careful consideration are the length, complexity, layout, and wording of the questionnaire. Table 2 depicts the pros and cons of using questionnaires as data collection methods for research purposes. Bowen proposes several strategies to create the perception of a shorter questionnaire while keeping respondents engaged and interested. These techniques encompass:

- Employing various types of questions.
- Providing respondents with tasks to perform.
- Incorporating visual aids to enhance comprehension.
- Dispersing questions related to the same theme instead of grouping them together.

- Introducing intriguing questions early in the questionnaire.
- Ensuring a smooth flow in the structure of the questionnaire.

By implementing these strategies, researchers can optimize the survey's design, foster respondent participation, and improve the overall quality of data collection. This ultimately contributes to the credibility and effectiveness of the research study. Figure 3.8 depicts the research methodology employed for this research which sheds light on the type of research method used, the method of data collection used, the targeted audience, the kind of software used for data analysis and the scale used for quantifying the variables chosen for this research.



**Figure 3.8: Research Methodology**

A structured questionnaire was developed based on the existing literature on consumer behavior towards green product purchases. The questionnaire consisted of four sections. The first section collected demographic information. The second section emphasized on assessing participants' environmental awareness and concern. The third section included questions related to purchasing green products. The fourth section



measured various consumer traits relevant to the study. The participants were requested to rate their opinion about a statement using a five-likert scale ranging from 1 = "strongly disagree" to 5 = "strongly agree."

Each underlying variable in the study was measured using four-item scales that were adapted from previous research. Green purchase behavior was evaluated based on participants' inclination and frequency of engaging in environmentally friendly actions. Green purchase intention was assessed by participants' willingness to choose green alternatives. Attitude towards green products was measured by participants' positive outlook on environmentally friendly products. Subjective norms were captured by participants' consideration of others' opinions on their behavior. Perceived consumer effectiveness was gauged by participants' confidence in their ability to contribute to sustainability through pro-environmental actions. Environmental concern was evaluated based on participants' worries about the state of natural environments.

## **Research Type**

Research refers to a systematic and rigorous process of inquiry undertaken to acquire new knowledge, insights, and understanding about a specific phenomenon. It involves the exploration, investigation, and analysis of existing information, as well as the generation of novel data through observation, experimentation, surveys, or other data collection methods. Research is driven by the desire to address specific questions, test hypotheses, and solve problems, contributing to the advancement of knowledge in various fields of study. It is characterized by a structured approach, where researchers apply established methodologies and techniques to gather and analyze data, interpret results, and draw meaningful conclusions. Whether conducted in the realms of science, social sciences, humanities, or any other discipline, research plays a crucial role in expanding our understanding of the world, informing decision-making, and fostering progress and innovation in both academia and practical applications.

### **1. Fundamental or Basic Research**

Basic research, which is also referred to as theoretical research, delves into the fundamental concepts and underlying causes of specific events, processes, or phenomena.

It revolves around the study of natural phenomena and pure science, and its primary aim is not to produce immediate practical applications or solutions to pressing problems. Instead, its intrinsic value lies in comprehensively and systematically understanding questions and arriving at rational, scientific solutions. Basic research serves to expand the boundaries of knowledge and paves the way for generalizations about fundamental processes. It seeks to describe the reasons behind occurrences, striving to gather all relevant facts. Consequently, its reports are typically presented in technical language, focusing on the subject matter with precision and depth. The findings from basic research often form the basis for numerous research applications in various fields.

Unlike applied research, which aims to solve practical problems and address specific issues, basic research is driven by curiosity and the desire to unravel the mysteries of nature. It often involves theoretical and conceptual frameworks, experimentation, and observation to gather data and formulate explanations about the phenomena being studied. While basic research may not lead directly to practical applications, it plays a critical role in providing a solid foundation for future discoveries, innovations, and applied research. It fosters a deeper comprehension of the fundamental principles governing our universe and enables researchers to make connections and draw insights that may have far-reaching implications in the long run. As new knowledge emerges from basic research, it becomes the building blocks upon which further investigations and advancements are built, making it an essential pillar of scientific progress.

## **2. Applied Research**

Applied research involves the application of well-established and widely accepted theories and concepts to address specific problems and issues. It is the predominant approach used in case studies, experimental research, and multidisciplinary studies. Applied research serves as a valuable complement to basic research, as it allows for the immediate utilization of its findings. This type of research proves particularly beneficial for ongoing projects and practical endeavors.

The primary focus of applied research is on individual or specific examples without attempting to draw generalized conclusions. It aims to target any factor that can lead to the desired outcomes or improvements. Through applied research, efforts are made to explain how things can be altered or changed, especially when faced with challenging facts or situations. The results of applied research are often communicated in common language reports, making the findings accessible and applicable to various real-world contexts.

### **3. Research Design**

Research design encompasses various methodologies and approaches that guide the process of conducting scientific investigations and seeking answers to specific research questions. Three primary types of research designs exist:

- ***Descriptive research*** aims to provide a comprehensive and accurate portrayal of a phenomenon, utilizing observation, surveys, and case studies to describe characteristics and behaviors.
- ***Correlational research*** explores the relationship between two or more variables, identifying patterns and associations without establishing causation.
- ***Experimental research*** involves the manipulation of independent variables to observe their effects on dependent variables, allowing for the establishment of causal relationships. Each research design offers unique strengths and limitations, and selecting the most appropriate one depends on the research objectives and the level of control and generalizability required for the study. Understanding these different types of research design is crucial for researchers to make informed choices and conduct rigorous and meaningful investigations.

## CHAPTER 4: RESULTS AND ANALYSIS

### 4.1 DEMOGRAPHICS

The demographics of a questionnaire refer to the specific characteristics and attributes of the participants or respondents targeted in the survey. These demographic variables include age, gender, education level, occupation, income, ethnicity, geographic location, and other relevant factors that help classify and understand the survey sample's composition. Analyzing the demographics of a questionnaire provides valuable insights into the respondents' diverse perspectives and allows researchers to tailor their analyses and interpretations accordingly. Understanding the demographics of the questionnaire participants is vital in ensuring the survey's representativeness and generalizability, as it helps identify potential biases and variations in responses across different subgroups. Moreover, such demographic information aids in making informed decisions, formulating targeted policies, and developing effective strategies in various research domains and real-world applications.

*Table 3: Demographic Details of the Respondents*

|               | Number | Percentage |
|---------------|--------|------------|
| Respondents   | 327    | 100        |
| <b>Gender</b> |        |            |
| Male          | 206    | 63.4       |
| Female        | 121    | 36.6       |
| <b>Age</b>    |        |            |
| 18-25         | 111    | 34.0       |
| 25-30         | 183    | 56.1       |
| 30-35         | 25     | 7.5        |
| 35-40         | -      | -          |
| >40           | 8      | 2.4        |

| <b>Academic Level</b> |     |      |
|-----------------------|-----|------|
| SSC/HSSC              | 8   | 2.4  |
| O/A Levels            | 8   | 2.4  |
| Bachelors             | 215 | 65.9 |
| Masters               | 96  | 29.3 |

The above table 3 represents the demographic information of the participants who took part in filling out the questionnaire and provided their invaluable input. SPSS 26 was utilized for conducting the analyses and assessing the measurement model's quality. To evaluate the convergent validity and discriminant validity of the model, confirmatory factor analysis (CFA) was employed. Internal consistency of the measurement model was initially examined using Cronbach's alpha ( $\alpha$ ) and composite reliability (CR). Internal consistency is indicated by Cronbach's alpha exceeding 0.7 and a CR value above 0.7 is considered acceptable. In Table 4, it can be observed that Cronbach's alpha and Composite reliability values for all constructs exceeded the threshold values. Convergent validity was then assessed by observing the average variance extracted (AVE) values, which should be greater than 0.5. Table demonstrates that all AVE values exceeded 0.5, confirming that the items adequately reflect the underlying constructs. Subsequently, discriminant validity was evaluated using the Fornell-Larcker criterion. Discriminant validity is supported when a latent variable exhibits a higher degree of variation within its linked indicator variables compared to the variance it shares with other latent constructs within the same model. In accordance with this criterion, the square root of the Average Variance Extracted (AVE) for each construct should surpass the correlations with other latent constructs.

Reliability in testing a scale refers to the degree of consistency and stability in the measurements obtained from that scale. In other words, it assesses whether the scale consistently produces similar results when applied repeatedly to the same individuals or subjects under similar conditions. A reliable scale ensures that the measurements are

dependable and can be trusted to accurately represent the underlying concept or trait being measured.

Assessing reliability is of utmost importance as it relates to the stability of the various components of a measuring instrument (Huck, 2007). When the items within a scale are interconnected and measure the same underlying concept, this signifies a strong level of internal consistency reliability (Huck, 2007) (Robinson, 2009). The Cronbach Alpha coefficient stands out as the most widely utilized metric to assess internal consistency. Particularly when working with Likert scales, it is regarded as the most widely accepted tool of reliability. While there isn't a universally fixed threshold for internal consistency, most experts concur on a minimum internal consistency coefficient of 0.70.

In an exploratory or preliminary study, it is recommended that the reliability score should be at least 0.60. Hinton et al. (2004) have suggested four threshold values for reliability: Excellent reliability (0.90 and above), high reliability (0.70-0.90), moderate reliability (0.50-0.70), and low reliability (0.50 and below) (Hinton, 2004). While reliability is crucial for research, it should be noted that it alone is insufficient; validity is equally important.

## **4.2 HYPOTHESIS TESTING AND JUSTIFICATIONS**

Hypothesis testing holds paramount importance as a crucial aspect of the scientific inquiry process. Hypotheses serve as tentative propositions, guiding the investigation and providing a framework for drawing conclusions based on empirical evidence. Justifying the formulation of hypotheses involves an in-depth analysis of existing literature, identifying gaps in knowledge, and aligning the research objectives with the chosen methodology. I will carefully design hypotheses that are clear, testable, and well-defined to ensure the validity and reliability of the study's outcomes. Throughout the hypothesis testing process, I will employ appropriate statistical techniques, considering the nature of the data and research design, to determine the significance of the findings. The results derived from hypothesis testing will contribute to enhancing the understanding of the research topic and, in turn, substantiate the theoretical

and practical implications of my thesis. By rigorously testing and justifying the formulated hypotheses, I aim to make a valuable and meaningful contribution to the academic discourse in my field of study.

#### **4.2.1 Measurement Model**

Evaluation of the Constructs is dependent on the quality that includes validating the required measurement model analysis in two ways. A scale's validity is determined by evaluating if it captures the notion that it is meant to evaluate. Convergent and discriminant validity are constructed in order to evaluate construct validity.

#### **4.2.2 Convergent Validity**

In the empirical evaluation of constructive measurement models in PLS-SEM, it is essential to conduct an assessment of convergent validity. Convergent validity refers to the degree to which a measurement aligns closely with other measurements of the same phenomenon. It is established when the items used in measurement indicate a convergence towards the construct they are intended to represent. Prior to confirming convergent validity, several factors must be considered, including average variance extracted, composite reliability, and factor loadings.

Convergent validity describes how closely the results of one construct that is formatively evaluated match with the results of another construct that measures the same notion. For its evaluation, a redundancy evaluation is necessary, in which the formatively measurable construct acts as an external latency variable connected to an internal latency variable (i.e., a criteria construct) that evaluates the identical idea constructions. The dependability of the measurements' internal consistency is further supported by the fact that all of the composite reliability ratings are higher than 0.7. The extent to which the collection of formative indicators reflects the ideal construct is shown by the structural path between the two constructs. state that the path coefficient should be higher than 0.7, indicating that the formative construct IJCHM 30,11 3194 must contribute for at least 50% of the variation of the qualifying construct. According to the literature, a much more cautious forecast in general, one would expect a path of 0.80 or higher to indicate the achievement of an appropriate set of formative measures, assuming convergent validity.

An exceptionally strong outcome would be indicated by a path of 0.90 or higher (Chin et al., 2018).

If the item loadings are equal to or more than the threshold value of 0.7, the items are considered legitimate (Piyanooth, 2022). Only items with factor loadings between 0.4-0.7 can be removed if they increase the composite reliability or average variance extracted, and items with item loadings of less than 0.4 should be removed.

The internal consistency reliability, which includes Cronbach's alpha coefficients and composite reliability, was used to determine the adequacy of the measurement model. Cronbach alpha values were higher than the 0.7 criteria, indicating strong internal consistency. Furthermore, composite reliability scores above the 0.7 criteria and varied from (0.7-0.9), indicating strong reliability. As reported in (Long., 2011), the extracted average variance values should be more than 0.5, which was consistent with the reported value in the literature.

**Table 4: Convergent Reliability Testing**

| <b>Constructs</b>                        | <b>Items</b> | <b>Factor Loadings</b> | <b>AVE</b> | <b>CR</b> | <b>Cronbach's a</b> |
|--|--------------|------------------------|------------|-----------|---------------------|
| <b>Ecolabel Involvement</b>              | ELI1         | 0.834                  | 0.594      | 0.813     | 0.81                |
|  | ELI2         | 0.639                  |            |           |                     |
|  | ELI3         | 0.825                  |            |           |                     |
| <b>Consumers Environmental Awareness</b> | CEA1         | 0.832                  | 0.594      | 0.815     | 0.81                |
|  | CEA2         | 0.727                  |            |           |                     |
|  | CEA3         | 0.751                  |            |           |                     |
| <b>Green Advertisement Credibility</b>   | GAC1         | 0.707                  | 0.517      | 0.798     | 0.79                |
|  | GAC2         | 0.820                  |            |           |                     |
|  | GAC3         | 0.647                  |            |           |                     |
|  | GAC4         | 0.814                  |            |           |                     |



|   |       |       |       |       |      |
|---|-------|-------|-------|-------|------|
|   | GAC5  | 0.580 |       |       |      |
| <b>Consumer's Green Trust</b>                   | CGT1  | 0.645 | 0.524 | 0.799 | 0.79 |
|   | CGT2  | 0.804 |       |       |      |
|   | CGT3  | 0.724 |       |       |      |
|   | CGT4  | 0.778 |       |       |      |
|   | CGT5  | 0.743 |       |       |      |
|   | CGT6  | 0.636 |       |       |      |
| <b>Consumer's Perceived Effectiveness</b>       | CPE1  | 0.730 | 0.557 | 0.789 | 0.81 |
|   | CPE2  | 0.837 |       |       |      |
|   | CPE3  | 0.662 |       |       |      |
| <b>Consumer's Perceived Information Quality</b> | CPIQ1 | 0.860 | 0.572 | 0.842 | 0.85 |
|   | CPIQ2 | 0.713 |       |       |      |
|   | CPIQ3 | 0.727 |       |       |      |
|   | CPIQ4 | 0.716 |       |       |      |
| <b>Consumer's Perceived Price</b>               | CPP1  | 0.787 | 0.571 | 0.727 | 0.74 |
|   | CPP2  | 0.724 |       |       |      |
| <b>Consumer's Green Purchase Intention</b>      | CGPI1 | 0.586 | 0.510 | 0.837 | 0.85 |
|   | CGPI2 | 0.730 |       |       |      |
|   | CGPI3 | 0.734 |       |       |      |
|   | CGPI4 | 0.662 |       |       |      |
|   | CGPI5 | 0.837 |       |       |      |

The study assessed the internal consistency of the constructs by calculating reliability using both Cronbach's coefficient alpha and t composite reliability. No issues were found with the reliability of the constructs, as all of them exceeded the threshold value of 0.700 for Cronbach's alpha. Cronbach's alpha is a widely used measure in the social sciences and

business fields, known for providing conservative results. Some researchers have suggested composite reliability as an alternative measure. The results, presented in Table 5, show that all constructs had Cronbach alpha values above 0.700, indicating good and reliable data.

**Table 5: Convergent Reliability Test Results Analysis**

| <b>Items/Variables</b> | <b>Cronbach's Alpha Values</b> | <b>Conclusion</b> |
|------------------------|--------------------------------|-------------------|
| EI                     | 0.81                           | Reliable          |
| CEA                    | 0.81                           | Reliable          |
| GAC                    | 0.79                           | Reliable          |
| CGT                    | 0.79                           | Reliable          |
| CPE                    | 0.81                           | Reliable          |
| CPIQ                   | 0.85                           | Reliable          |
| CPP                    | 0.74                           | Reliable          |
| CGPI                   | 0.85                           | Reliable          |

#### **4.2.3 Discriminant/Divergent Validity**

Campbell and Fiske introduced the concept of discriminant validity, which pertains to the extent of differentiation between latent variables. The achievement of discriminant validity is indicated when the square root of the average variance extracted (AVE) for each construct surpasses the correlations with all other constructs (Ja-Shen 2022). Table 6 demonstrates that discriminant validity has been successfully established, as evidenced by higher on-diagonal values (AVE) compared to off-diagonal values (correlations with other constructs).

In quantitative research, discriminant validity is typically assessed through confirmatory factor analysis (CFA) or structural equation modeling (SEM). It examines the degree to which the items or indicators representing different constructs within a model exhibit low correlations with each other, while demonstrating high correlations within their respective constructs.

This validity can be achieved through the Fornell-Larcker Criterion.

### **Fornell-Larcker Criterion**

In the context of research methodology and quantitative analysis, discriminant validity test is a crucial assessment employed to evaluate the distinctiveness or dissimilarity between constructs or variables in a measurement model. The main objective of this test is to determine whether the measures used to represent different constructs are truly distinct and can be differentiated from one another, ensuring that they do not overlap or converge inappropriately.

Researchers look at the squared correlations between the constructs in the model. If the squared correlation between two constructs is smaller than the average variance extracted (AVE) for each of those constructs, it suggests that the constructs are distinct from each other. In simpler terms, this means that the shared variance between the two constructs is lower than the variance captured by their respective indicators, supporting discriminant validity.

Another popular approach to assess discriminant validity is through the Fornell-Larcker criterion, where the AVE of each construct should be greater than the variance shared between that construct and other constructs in the model. Meeting this criterion ensures that the majority of the variance in each construct is explained by its own indicators rather than being influenced by other constructs.

***Table 6: Discriminant Validity Test***

| <b>Variables</b> | EI      | CEA     | GAC   | CGT | CPE | CPIQ | CPP | CGPI |
|------------------|---------|---------|-------|-----|-----|------|-----|------|
| EI               | 0.771   |         |       |     |     |      |     |      |
| CEA              | 0.661** | 0.771   |       |     |     |      |     |      |
| GAC              | 0.635** | 0.626** | 0.719 |     |     |      |     |      |

|      |         |         |         |         |         |         |         |       |
|------|---------|---------|---------|---------|---------|---------|---------|-------|
| CGT  | 0.588** | 0.589** | 0.613** | 0.723   |         |         |         |       |
| CPE  | 0.691** | 0.770** | 0.593** | 0.640** | 0.746   |         |         |       |
| CPIQ | 0.656** | 0.726** | 0.721** | 0.639** | 0.646** | 0.756   |         |       |
| CPP  | 0.721** | 0.707** | 0.737** | 0.641** | 0.637** | 0.739** | 0.755   |       |
| CGPI | 0.722** | 0.715** | 0.692** | 0.653** | 0.682** | 0.704** | 0.693** | 0.714 |

### 4.3 STRUCTURAL EQUATION MODEL

We employed structural equation modeling (SEM) to assess the proposed model. Structural Equation Modeling (SEM) is a powerful statistical technique used in various research fields to analyze and validate complex relationships among variables. SEM is distinctive due to its ability to account for all covariances within the data, enabling simultaneous analysis of correlations, shared variance, path coefficients, and their statistical significance when examining main effects. It allows the researchers to assess whether the collected data supports the hypothesized relationships within the model. Since the research involves multidimensional constructs or latent variables that cannot be directly observed, SEM proved to be beneficial in modeling and analyzing these constructs.

*Table 7: Results of Structural Equation Modeling*

| <b>Paths/Hypotheses</b>      | <b>Path Coefficient <math>\beta</math></b> | <b>T Value</b> | <b>Results</b> |
|------------------------------|--|----------------|----------------|
| EI $\rightarrow$ CGT (H1)    | 0.442                                      | 9.60**         | Supported      |
| GA $\rightarrow$ CGT (H2)    | 0.320                                      | 9.56**         | Supported      |
| CEA $\rightarrow$ CGT (H3)   | 0.21                                       | 7.74**         | Supported      |
| CEA $\rightarrow$ CPIQ (H3a) | 0.511                                      | 6.31**         | Supported      |

|                 |       |         |           |
|-----------------|-------|---------|-----------|
| CEA → CPE (H3b) | 0.140 | 6.16**  | Supported |
| CPIQ → CGT (H4) | 0.257 | 4.589** | Supported |
| CGT → CPE (H5)  | 0.328 | 3.84**  | Supported |
| CPE → CGPI (H6) | 0.097 | 1.991** | Supported |
| CPP → CGPI (H7) | 0.178 | 4.252** | Supported |

The results of the hypothesized model's direct effects, presented in Table 7, display path coefficients in standardized form. As indicated in Table 7, ecolabel involvement (EI) demonstrated a notably positive impact on consumer's green trust ( $\beta = 0.442$ ,  $t = 9.60$ ,  $p < 0.001$ ), affirming the validity of hypothesis 1. Green advertisement (GA) significantly influenced consumer's green trust (CGT) in a positive manner ( $\beta = 0.320$ ,  $t = 9.56$ ,  $p < 0.001$ ), providing empirical support for hypothesis 2.

The environmental awareness of consumers had a favorable impact on their green trust, their perception of information quality, and their perceived effectiveness, thus confirming hypotheses 3, 3a, and 3b. Additionally, hypothesis 4, which postulated that consumers' perceived information quality, positively influenced their green trust, was supported by our observations. Furthermore, our findings revealed a positive connection between consumer green trust (hypothesis 5) and their perceived effectiveness, as well as a positive relationship between consumers' perceived effectiveness (hypothesis 6) and their intentions to make green purchases. However, it's important to note that consumers' perceived price (hypothesis 7) was significantly associated with green purchase intention, but the direction of this association was negative.

#### 4.4 RESULTS OF HYPOTHESES TESTING

The research model analysis delved into various factors influencing green purchase intentions, particularly in response to ecolabeling and green advertising efforts. This comprehensive approach significantly contributed to achieving Sustainable Development Goal 12. The conceptual model underwent thorough analysis, and we empirically tested the proposed hypotheses, revealing meaningful relationships among different variables.

The results indicate that both eco labeling and green advertisement contribute to consumers making sustainable choices which in turn influences the responsible consumption and production patterns. Perceived effectiveness, environmental awareness, green trust, and perceived information quality emerged as significant parameters that directly and positively influence the consumer's green purchase intention (Correia, et al., 2023). Results specify that consumers in Pakistan are price sensitive and are less likely to purchase products perceived as high priced, leading to a negative influence on consumer's green purchase intention.

The research model considered different drivers of green purchase intention triggered by ecolabeling and green advertisement collectively which substantially contributed to SDG 12. The conceptual model was analyzed and the proposed hypotheses were tested which indicated the relevant relationship among different variables. Ecolabel involvement (H1) positively influenced the consumer's green trust. Green Advertisement (H2) positively influenced the consumer's green trust. Consumer's environmental awareness positively influenced the consumer's green trust, consumer's perceived information quality, and consumer's perceived effectiveness, confirming the (hypothesis 3, 3a, and 3b). Furthermore, consumer's perceived information quality (H4) also demonstrated a positive influence on the consumer's green trust. We also observed that the consumer's green trust (H5) positively influenced the consumer's perceived effectiveness and the consumer's perceived effectiveness (H6) positively influenced the green purchase intention (Nguyen-Viet, B. 2022). However, it is noteworthy that consumer's perceived price (H7) was significantly linked to green purchase intention but in a negative direction.

However, it is crucial to highlight that consumers' perceived price (H7) was significantly associated with green purchase intentions but in a negative direction. This means that as perceived prices increased, green purchase intentions tended to decrease, underscoring an important facet of consumer behavior in the context of sustainable purchasing.

## 4.5 DISCUSSION

The discussion section delves into the key findings of this study concerning the contribution of eco labeling and green advertising to the advancement of responsible consumption and production in alignment with Sustainable Development Goal 12 (SDG 12) (United Nations, *Goal 12*). In this section, we examine the insights drawn from the literature review and the empirical research conducted in this study, shedding light on the nuances, implications, and broader significance of our findings.

The literature review has consistently highlighted the role of eco labels as powerful tools in increasing consumer awareness about sustainable products. Many different research studies (such as Dangelico & Vocalelli 2017 and Thøgersen & Nielsen 2016) have highlighted how eco labels can affect how consumers think and what they prefer. These labels give details about a product's impact on the environment helping consumers make decisions. Our own findings support these claims as the responses from our survey show a link between seeing eco labels and peoples openness to choosing friendly products. Our empirical findings corroborate this by demonstrating a positive correlation between eco labeling and consumers' awareness of environmentally friendly products. As noted by (Wojnarowska, 2021), eco labels act as a credible source of information, providing consumers with transparency about the environmental impact of products. This, in turn, fosters trust, as consumers are more likely to trust products that bear recognized eco labels. The study also aligns with the literature's assertion that green advertisement influences consumer purchase behavior (Narges, 2013). The results indicate that consumers are more inclined to choose products when presented with environmentally conscious alternatives. This implies that green advertisement can serve as a significant driver for responsible consumption, which has been highlighted by (Narges, 2013) in his research as consumers actively seek out products with reduced environmental footprints.

Green advertising not only raises awareness but also contributes to shaping consumer attitudes towards responsible consumption (Obayelu, 2019). The literature has shown that persuasive messaging and emotional appeals in green advertising campaigns can create a sense of personal responsibility for sustainable choices (Correia, et al. 2023).

Our study echoes this by demonstrating a positive shift in consumer attitudes towards responsible consumption after exposure to green advertising. Participants consistently highlighted the role of green advertising in shaping their awareness of sustainable products (Obayelu, 2019). The persuasive and informative nature of green advertisements seemed to resonate with consumers, aligning with the findings from previous research. However, it's important to note that the effectiveness of green advertising may vary based on factors such as consumer skepticism, the authenticity of claims, and the credibility of the brands involved (Hartmann, 2019).

Despite the positive contributions of eco labeling, our findings acknowledge the challenges and limitations. The literature (Sharma, et al. 2019) has noted issues with label credibility, the potential for greenwashing, and the complexity of interpreting various eco labels. These challenges necessitate further efforts in standardization and consumer education (Indriani, 2019). This multifaceted research provides an understanding of consumer behavior and preferences giving valuable insights for businesses and policymakers aiming to promote sustainable consumption practices in the context of a price-sensitive market.

The research highlights the potential of ecolabeling and green marketing to encourage consumers to make more sustainable choices. This aligns with the broader goal of promoting consumption practices that have a reduced impact on the environment and contribute to long-term ecological preservation (Nguyen-Viet, 2022). An intriguing aspect emerging from our study is the synergy between eco-labeling and green advertising in influencing responsible consumption and production. While these two strategies are often studied in isolation, our findings suggest that they can complement each other effectively. Further research and collaborative efforts across industries are warranted to refine these insights and facilitate a more sustainable and harmonious relationship between consumer choices and ecological well-being.



## **CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS**

This section presents the outcomes drawn from the research findings discussed in Chapter 4. It begins by revisiting the research findings and their interconnections as explored in the study, serving as the foundation for the discussions in this chapter. Our contributions to the field of knowledge are also emphasized. Moreover, the chapter offers recommendations based on the study's results and their practical applications. Finally, it addresses the study's limitations and proposes potential avenues for future research, inviting those interested in furthering this field to explore these ideas.

### **5.1 THEORETICAL CONTRIBUTIONS**

The study makes several noteworthy theoretical contributions to the field of sustainable consumer behavior and its relationship to the achievement of Sustainable Development Goal 12. Our study provides a comprehensive examination of the various factors that drive green purchase intentions. By considering ecolabeling and green advertising collectively, it contributes to a deeper understanding of how these drivers interact and influence consumers' eco-conscious buying decisions. Through rigorous empirical testing of the proposed hypotheses, the research confirms the existence of meaningful relationships among different variables. This validation adds to the body of knowledge by providing empirical evidence of the factors that impact consumers' green trust and purchase intentions.

By demonstrating the positive influence of consumer environmental awareness on green trust, information quality, and perceived effectiveness, the study underscores the importance of raising consumer awareness about environmental issues. This insight can guide efforts to educate and engage consumers in sustainable practices. Moreover, the research reveals a bidirectional relationship between green trust and perceived effectiveness. This insight suggests that trust enhances consumers' perception of the effectiveness of green products and vice versa, contributing to a deeper understanding of the psychology behind sustainable purchasing decisions.

Moreover, the research highlights an interesting finding regarding perceived price's negative association with green purchase intentions. This counterintuitive result opens avenues for further investigation into the complex interplay between price perceptions and sustainable purchasing behavior.

The study's overarching theoretical contribution lies in its explicit connection to Sustainable Development Goal 12, which aims to ensure responsible consumption and production patterns. By elucidating how ecolabeling, green advertisement, and consumer behavior intersect to advance this goal, the research provides a theoretical foundation for developing strategies that align with international sustainability agendas.

## **5.2 PRACTICAL CONTRIBUTIONS**

The study provides practical insights for businesses and marketers on how ecolabeling and green advertising can positively influence consumers' green trust. Understanding the positive impact of environmental awareness on green trust and related variables can inform educational and awareness campaigns. Organizations and institutions promoting sustainability can tailor their efforts to increase consumer knowledge and consciousness about environmental issues, thereby fostering a more receptive audience for green products.

Additionally, Businesses can improve their ecolabeling practices based on the study's findings. Clearer and more informative ecolabels can help consumers make informed decisions, boosting their trust in green products. This, in turn, can drive sales of eco-friendly items. Ensuring that consumers have access to trustworthy and transparent information about the environmental attributes of products can positively influence their green trust and purchase intentions, which will ultimately lead to achieving Sustainable Development Goal 12.

The study also underscores the significant role of trust in sustainable consumption. Organizations can develop trust-building strategies, such as transparent sustainability reporting, ethical practices, and third-party certifications, to bolster consumer trust in their green products and brands (Nguyen-Viet, B. 2022). Furthermore, Businesses can consider pricing strategies that mitigate the negative influence of

perceived price on green purchase intentions. For instance, offering discounts, incentives, or highlighting long-term cost savings associated with eco-friendly products can help counteract price concerns.

Policymakers can draw from the study's findings to inform regulations and incentives that promote eco-labeling and green advertising, as well as sustainable consumption patterns. This can include policies that encourage businesses to adopt environmentally friendly practices and provide consumers with better information. The study's alignment with Sustainable Development Goal 12 provides a practical pathway for organizations to contribute to global sustainability initiatives. By emphasizing how their products and practices support responsible consumption and production, companies can actively engage in achieving this goal.

### **5.3 LIMITATIONS AND IMPLICATIONS OF THE RESEARCH**

The study might have limitations regarding the demographics of the sample. If the participants are not representative of the broader population, the generalizability of the findings could be compromised. The research is conducted within the context of a price-sensitive market in Pakistan. The findings may not directly apply to other markets with different economic and cultural factors. Extrapolating the results to vastly different contexts requires caution. Consumer attitudes and preferences can change over time. The research captures a snapshot of consumer behavior within a specific timeframe. Longitudinal studies or follow-up research might be needed to understand how these behaviors evolve. Participants' responses might be influenced by social desirability bias, where they provide answers they believe are expected rather than their true opinions. Efforts to minimize this bias might have been implemented, but it's important to acknowledge its potential impact.

Consumer behavior is influenced by a multitude of factors beyond those considered in your research. Psychological, social, and cultural elements can also play significant roles in shaping consumer choices. Business and market dynamics are subject to rapid changes. Strategies that work today might need to be adjusted in response to evolving consumer preferences, competitive pressures, and economic shifts.

## **5.4 FUTURE RESEARCH**

Future research should explore strategies to enhance eco label credibility and address greenwashing concerns. Additionally, examining the effectiveness of various forms of green advertising (e.g., social media campaigns, influencer marketing) and their impact on different consumer segments could provide valuable insights. Other factors can be included into the research to study their impact on the consumer's green purchase intention and analyze the consumer's purchasing attitude. The research can be applied to a larger group of people from different cultures and backgrounds to understand diverse consumer's behavior.

## **5.5 CONCLUSION**

In conclusion, this research sheds light on the pivotal role of eco labeling and green advertisement in shaping consumers' sustainable choices, thereby fostering responsible consumption and production patterns. The findings underscore the significance of perceived effectiveness, environmental awareness, green trust, and perceived information quality as influential factors directly contributing to consumers' intentions to engage in green purchases. However, the study also reveals the prevalence of price sensitivity among consumers in Pakistan, highlighting the potential deterrent effect of perceived high prices on their green purchase intentions. This multifaceted understanding of consumer behavior and preferences provides valuable insights for businesses and policymakers aiming to promote sustainable consumption practices in the context of a price-sensitive market. As the pursuit of environmental sustainability becomes increasingly paramount, these findings serve as a foundation for developing targeted strategies that encourage pro-environmental choices while considering local economic factors. Further research and collaborative efforts across industries are warranted to refine these insights and facilitate a more sustainable and harmonious relationship between consumer choices and ecological well-being.

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## APPENDIX A

### Contribution of eco labeling and green advertising towards responsible consumption and production SGD12

Hello! I am a postgraduate student at EME College, NUST. I am conducting a study on the contribution of eco labeling and green advertisement towards SGD12 which promotes sustainable consumption and production. Through this short questionnaire, I intend to analyze the consumer's perception about 'GREEN' products and develop an understanding of their purchasing behavior. Please take a few minutes out of your time to fill in this survey as doing so will greatly assist me in completing my research.

*Your data will be collected anonymously and solely be used for this research. Thank You for your participation.*

#### Personal Information:

Gender:  Male  Female

Age (years):  Younger than 18  18-25  25-30  30-35  35-40  Above 40

Designation:  Trainee  Middle Manager  Sr. Manager  Executive

Educational Qualification (completed):  Bachelors (BA, BS, BBA)  Master (MA, MS, MBA)

Organization's Name (optional but recommended):

#### Informed Consent:

Do you allow to share this feedback publicly for publication purposes?  Yes  No

**Please select your response against each statement and tick ( ✓ ) where appropriate.**

| Ecolabelling |  |                     |            |           |         |                  |
|--------------|--|---------------------|------------|-----------|---------|------------------|
| Item no.     | Consumer's Knowledge and Awareness about Ecolabels | 1 Strongly Disagree | 2 Disagree | 3 Neutral | 4 Agree | 5 Strongly Agree |
| 1.           | I consider myself environmentally concerned.       |                     |            |           |         |                  |
| 2.           | I have heard the term 'eco-label'.                 |                     |            |           |         |                  |
| 3.           | I consider myself informed about eco-labels.       |                     |            |           |         |                  |



|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
| 4.   | To evaluate a product, I look for any logo or label on it or on its packaging.   |  |  |  |  |  |
| <b>Design and Aesthetic Appeal</b>               |  |  |  |  |  |  |
| 5.   | Most ecolabels do not look appealing to me.  |  |  |  |  |  |
| 6.   | I only pay attention to aesthetically pleasing ecolabels.  |  |  |  |  |  |
| 7.   | I am attracted to simple eco-labels because they provide for clear decision making.  |  |  |  |  |  |
| <b>Private Benefits/ Perceived effectiveness</b> |  |  |  |  |  |  |
| 8.   | I consider eco-labelled products to possess better quality/performance than conventional products.                           |  |  |  |  |  |
| 9.   | Eco-labels should report benefits such as tasting good and being healthier that directly satisfy my personal needs.          |  |  |  |  |  |
| 10.  | I believe that the green products with eco-labels deteriorate the effectiveness of the conventional features of the product. |  |  |  |  |  |
| <b>Credibility</b>                               |  |  |  |  |  |  |
| 11.  | Products endorsed by eco-labels are credible.  |  |  |  |  |  |
| 12.  | I prefer buying the products with green labels.  |  |  |  |  |  |
| 13.  | Products endorsed by eco-labels comply with quality environmental standards.   |  |  |  |  |  |
| 14.  | The presence of certified eco-labels increases the credibility of a product.   |  |  |  |  |  |
| 15.  | I pay much attention to whether a product is certified by third parties.   |  |  |  |  |  |

|   |  |  |  |  |  |  |
|---|--|--|--|--|--|--|
| 16.   | Most companies provide vague or seemingly un-provable environmental claims for their products.       |  |  |  |  |  |
| <b>Persuasiveness to purchase eco-labelled products</b> |  |  |  |  |  |  |
| 17.   | Eco labels influence my purchasing behavior.   |  |  |  |  |  |
| 18.   | My attitude towards products is more positive when those products feature an eco-label.              |  |  |  |  |  |
| 19.   | I am willing to pay more money to purchase the products with green labels.                           |  |  |  |  |  |
| 20.   | I believe that the price of the green products outweigh the other benefits exhibited by the product. |  |  |  |  |  |

| <b>Green Advertisement</b> |   |                                |                       |                      |                    |                             |
|----------------------------|---|--------------------------------|-----------------------|----------------------|--------------------|-----------------------------|
| <b>Item No.</b>            | <b>Consumer's Awareness about Green Advertisement and its role in environmental protection</b>  | <b>1<br/>Strongly Disagree</b> | <b>2<br/>Disagree</b> | <b>3<br/>Neutral</b> | <b>4<br/>Agree</b> | <b>5<br/>Strongly Agree</b> |
| 21.                        | I pay attention to Green Marketing Practices and its promotions.  |                                |                       |                      |                    |                             |
| 22.                        | Green advertisement makes me more aware of the increasing environmental issues.   |                                |                       |                      |                    |                             |
| 23.                        | Green marketing campaigns are designed to convince consumers that their purchases play a role in mitigating the ongoing degradation of the environment. |                                |                       |                      |                    |                             |
| 24.                        | Green Marketing is helping to promote sustainable consumption.  |                                |                       |                      |                    |                             |
| 25.                        | I believe that a company promoting green products through their advertisements value the interests of the Earth's environment more                      |                                |                       |                      |                    |                             |

|   |   |  |  |  |  |  |
|---|---|--|--|--|--|--|
|   | than its own short-term interests compared to other brands.   |  |  |  |  |  |
| <b>Information Quality Perception and Attractiveness of Green Ads</b> |   |  |  |  |  |  |
| 26.   | I think the green advertisement provides me with more valuable information as compared to the traditional ads.                      |  |  |  |  |  |
| 27.   | I think the content in green ads is more visually appealing compared to traditional ads.  |  |  |  |  |  |
| 28.   | I believe the information described in green advertisements is accurate and reliable as compared to traditional ads.                |  |  |  |  |  |
| 29.   | Green advertisement of products adds innovation to the product.   |  |  |  |  |  |
| <b>Consumer's Green Trust</b>   |   |  |  |  |  |  |
| 30.   | "Green" features increase the market value of the product.  |  |  |  |  |  |
| 31.   | Promoting eco-friendly products is just a method to increase sales.   |  |  |  |  |  |
| 32.   | Green Advertisement is a method adopted by companies and brands to attract more customers.  |  |  |  |  |  |
| 33.   | Customer loyalty can be achieved through Green Advertisement.   |  |  |  |  |  |
| 34.   | Companies should put more effort into green marketing to gain customer's trust.   |  |  |  |  |  |
| <b>Persuasiveness to purchase products promoted through Green Ads</b> |   |  |  |  |  |  |
| 35.   | I purchase or I am willing to purchase green products as I consider it my social responsibility.                                    |  |  |  |  |  |
| 36.   | I am not willing to sacrifice my personal interests for a product that claims environmental compliance through green advertisement. |  |  |  |  |  |

|     |  |  |  |  |  |  |
|-----|--|--|--|--|--|--|
| 37. | I am willing to pay a premium price for products or services following green marketing practices.            |  |  |  |  |  |
| 38. | I prefer to buy a product that demonstrates customer as well as environmental concern through its promotion. |  |  |  |  |  |
| 39. | I recommend others to buy products promoted through green ads.   |  |  |  |  |  |

Thank you for taking the time to complete this survey.