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TECHNOLOGY, ISLAMABAD



# Environmental Factors that Enhance the Adoption of Sustainable Consumption Behavior

by

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degree of Master of Science

in the

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*I want to dedicate this achievement to my parents, teachers and friends who  
always encourage and support me in every crucial time*



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### Environmental Factors that Enhance the Adoption of Sustainable Consumption Behavior

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In the Name of Allah, The Most Gracious, The Most Merciful. Praise be to God, the Cherisher and Sustainer of the worlds. All thanks to Almighty Allah, The Lord of all that exist, who bestowed me with His greatest blessing i.e. knowledge and Wisdom to accomplish my task successfully.

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**Andleeb Awan**

## *Abstract*

The field of research on sustainable consumption behavior has made significant progress, but there is still a noticeable gap in understanding how consumers' environmental values and knowledge impact their sustainable consumption behavior. Furthermore, the application of the Stimulus-Organism-Response (S-O-R) model to explain this relationship has not been aggressively pursued. This study aimed to investigate the influence of environmental knowledge and environmental values on sustainable consumption behavior, specifically focusing on the mediating role of green purchase intention. This research seeks to bridge this gap by utilizing the S-O-R model as a theoretical framework to explore the link between environmental values, knowledge, and sustainable consumption behavior. The study involved 280 respondents who participated by completing an online questionnaire. Data was collected through online questionnaire method, and the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique was used to evaluate the research hypotheses' validity. The findings provided empirical evidence for a positive relationship between environmental knowledge, environmental values, and green purchase intention. Moreover, the results supported the mediation hypothesis as well. Overall, the study's outcomes have important theoretical and managerial implications. However, study also discusses limitations and suggests future research directions to advance our understanding of sustainable consumption behavior and its determinants.

**Keywords:** Environmental Knowledge, Environmental Values, Green Purchase Intention, Sustainable Consumption Behavior.

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# Abbreviations

<b>AVE</b>	Average Variance Extracted
<b>CR</b>	Composite Reliability
<b>EK</b>	Environmental Knowledge
<b>EV</b>	Environmental Values
<b>GPI</b>	Green Purchase intention
<b>PLS</b>	Partial Least Squares
<b>SCB</b>	Sustainable consumption Behavior
<b>SOR</b>	Stimulus Organism Response
<b>WEF</b>	World Economic Forum
<b>UN</b>	United Nation

# Chapter 1

## Introduction

### 1.1 Background of Study

The past few decades have transformed the way people live across the world. The world has evolved, and globalization has caused much good with industrialization, people are enjoying comfort & prosperity. However, with everything being accessible with one click the planet has reached the point where nature is being exploited. This economic growth has helped millions of people to overcome the poverty issue (Bocken, Niessen, & Tukker, 2021). The exploitation of natural resources is increasing at an alarming rate, and consumption of planetary resources is increasing to the extent that we will not be able to sustain natural resources in the long run. (O'Neill, Fanning, Lamb, & Steinberger, 2018). In the next few decades, our consumption would be equivalent to the three planets' consumption (European Union, 2020, p. 4). Plastic pollution has become a major global threat. The production of plastic is increasing rapidly, plastic usage has soared since the last decade currently 390.7 million tons of plastic production is produced globally. Satista (2023) Pakistan produces 20 million tons of solid waste annually, of which 5 to 10% is plastic waste, according to research by the United Nations Development Program (UNDP). Pakistan is one of the top 10 countries in the world for plastic pollution. Hence, reducing plastic has emerged as a significant worldwide concern. (Heidbreder, Bablok, Drews, & Menzel, 2019) one of the important applications of plastic is plastic packaging. Plastic usage has increased remarkably in all domains

of life. Plastic pollution does only have adverse effects on the environment but also on human health (Mukheed & Alisha, 2020).

In virtue of the above, it is quite important to understand the phenomena of sustainable consumption behavior. Thus, to understand sustainable consumption, sustainability can be defined as "the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987).

Environment calamities issues have become quite serious in Pakistan recently. Pakistan is grappling with the adverse consequences of plastic waste, which pose significant environmental and health hazards. Inadequate waste collection and disposal systems lead to a considerable amount of plastic waste being improperly discarded in open spaces, rivers, and oceans. This results in the contamination of soil, water bodies, and the food chain, endangering human and animal health.

Plastic production & usage are out of control, which has detrimental effects on the environment and public health. The government had to enact a ban on the use of non-biodegradable plastics due to the exponentially rising demand for plastic and the difficulty in managing its waste. Pakistan is now the 128th nation to use sanctions to reduce its use of plastic. Ali, Sara, and Rehman (2021) however, a lot of plastic waste is to be seen in the forms of bottles, cans & food packaging. Sustainability is the need of time UN has set sustainability development goals which include sustainable consumption. SCB can be defined as the adoption of particular behaviors which would promote sustainable development while reducing the negative effects on the environment. However, at the same time meeting the needs of present and future generations.

Sustainable consumption behavior is not only beneficial for the environment, but it can also help to alleviate people from poverty. Sustainable consumption behavior would help improve the quality of life and there would be more opportunities for people across the world. Against this backdrop, sustainable consumption behavior is the most important concept that needs to be revisited. (McFall-Johnsen, 2019) Sustainable consumption behavior helps in bringing change in the world. Sustainable consumption does not only mean buying green products but responsibly using the products. The efficient use of products and ensuring that one has extracted

all the utility from the available products before buying a new product. Behaviors of individuals affect business patterns or alter the structure of the ecosystem. However, Sustainable consumption behavior intends to protect the environment and to alter the choices of consumers to make sure that there are minimal environmental consequences. The shift towards sustainable products is referred to as environmental values, pro-social behavior, consumption values, etc.

Past literature has suggested that plastics are ubiquitous in water, atmospheric, and global systems (Li et al., 2021) Also it is found that there is a lack of knowledge which highlights the perception of consumers regarding biodegradable plastic. (Heidbreder et al., 2019; Orzan, Cruceru, Bălăceanu, & Chivu, 2018; Synthia & Kabir, 2015), the sustainable consumption behavior focuses on the future impact of a certain product. The consumer with high environmental knowledge looks for the future impact of their purchase. Another study suggests that there is a need for more environmental knowledge to promote sustainable consumption behavior. with the increase in knowledge pro-environmental attitudes that leads towards environmentally responsible behavior are developed. Situmorang, Liang, and Chang (2020) Additionally, on the subject of SCB, a study by (Ahmed & Sipra, 2020) provides an analysis of the current plastic waste situation in Pakistan. (Amoah & Addoah, 2021), a study suggests that the role of EK is linked with pro-environmental behavior. There is a wealth of knowledge exists regarding sustainable consumption behavior. However, minimal attention has been subjected to the environmental domain with regard to SCB. Hence, this study would look into the environmental factors which would lead to the adoption of SCB in Pakistani consumers.

## 1.2 Gap Analysis

### 1.2.1 Theoretical Gap

S-O-R model is being used in several studies around the world however, prior research indicates that the S-O-R model has been used majorly in the cosmetic industry, hospitality & fashion industry (Grădinaru, Obadă, Grădinaru, & Dabija,

2022; Mim, Jai, & Lee, 2022; Hameed, Khan, Waris, & Zainab, 2022), the role of green practices toward the green word-of-mouth using stimulus-organism-response model., 2022 however, S-O-R model has hardly ever been used in the environment domain. Hence, the current study would contribute to the S-O-R model in the environment domain by using environmental knowledge and environmental values as predictors of SCB.

The S-O-R model's incorporation of environmental knowledge and values as predictors of SCB can provide important new information about the mechanisms behind sustainable consumption behavior. An in-depth understanding of the variables influencing pro-environmental behaviors can be obtained by analyzing how consumer responses to environmental stimuli are influenced by consumer environmental knowledge and values.

### 1.2.2 Contextual Gap

Pakistan is one of the top ten countries which produces the highest plastic waste globally. There's limited work has been done on the environmental pollution that is being caused by plastics in Pakistan. [Ahmed and Sipra \(2020\)](#) there is a dire need to explore buying behavior of consumers living in the region. ([Soomro, Mirani, Sajid Ali, & Marvi, 2020](#)) the contextual gap exists related to the variables that are used in this study as these variables are well developed but they have been studied in different areas of the world in different contexts while this study will focus on filling this contextual gap as it will be in the context of Pakistan. By implementing the S-O-R model this study would show the influence of environmental knowledge & environmental values on sustainable consumption behavior with mediating role of green purchase behavior in the Pakistani consumer's context.

### 1.2.3 Managerial Gap

20 million tons of plastic is being produced in Pakistan however, segregation is not being practiced in Pakistan. By adding this gap to this thesis could lead to the creation of jobs and new industries. Adoption of the recycling industry has the potential to generate revenues of up to Rs. 530 million (US\$8.8 million)

annually hence opening doors for many jobs opportunities (Batool, Chaudhry, & Majeed, 2008), This study highlights the requirement for improved plastic waste management systems in Pakistan by drawing attention to this gap. Plastic waste's negative environmental effects can be reduced through efficient waste segregation, recycling, and appropriate disposal. Additionally, closing this managerial gap may lead to the emergence of new markets and opportunities for employment.

### 1.3 Problem Statement

A worldwide problem exists with plastic waste, and it gets worse every day. The World Economic Forum (WEF) emphasized that if plastic usage continues at the current pace globally the volume of plastic entering the ocean would be tripled. (Fadeeva & Van Berkel, 2021) Additionally, according to (WEF) Pakistan alone generated 3.9 million tons of plastic waste in 2020. 2.6 million tons or about 70% of this waste is plastic and is improperly managed. Plastic is a great concern because it accumulates in the environment as it is produced. Environmental preservation requires attention from not only the government but also the people their decision and actions in consumption activities have a significant impact on the environment (Rizkalla, 2018)(Bronfman, et.al. 2015).

In developing countries like Pakistan where hyper consumption is a big issue it's very important to highlight those factors which would lead to sustainable consumption behavior. Ishaq (2018) In past studies, Environmental knowledge & Environmental value have been identified as major predictors of translating intentions into actions regarding SCB. Liu, Teng, and Han (2020); Choi and Johnson (2019); Heo and Muralidharan (2019) it is evident that one cannot indulge in sustainable consumption behavior if one doesn't know about the problem. Nevertheless, a study infers that EK promotes the SCB when it stimulates sentiments and is internalized by individuals. Therefore, in light of the S-O-R model, this study has taken Environmental values as one of its important constructs. Along with EV, this study would focus on understanding the role of environmental knowledge on the green purchase intention of Pakistani consumers with regard to plastic pollution.

## 1.4 Research Question

With the help of the above discussion, this study formulated the following research questions.

Q1: Does environmental knowledge has a significant impact on the Green purchase intentions of consumers?

Q2: Does environmental value has a significant impact on the green purchase intention of consumers?

Q3: What is the relationship between green purchase intention and sustainable consumption behavior?

Q4: Whether green purchase intention mediates the relationship between a) environmental values and sustainable consumption behavior and b) Environmental Knowledge and sustainable consumption behavior?

## 1.5 Research Objective

With respect to research questions, this study aims to achieve the following objectives with quantitative research.

- To measure the role of Environmental knowledge on the individual's Green purchase intentions.
- To examine how the Environmental value influences the intention of sustainable consumption behavior of an individual.
- To examine the role of Green Purchase intention in sustainable consumption behavior.
- To assess the mediating role of Green Purchase intention in the relationship between Environmental knowledge and sustainable consumption behavior.
- To assess the mediating role of Green Purchase intention in the relationship between Environmental values and sustainable consumption behavior.

## 1.6 Significance of the Study

This study would contribute to the literature that would help practitioners, researchers, marketers, managers, and institutions. The significance of sustainable consumption behavior in the business and in educating the general public regarding the environment in Pakistan. There is little work done in the domain of creating environmental knowledge among youth in Pakistan.

According to the (Heidbreder et al., 2019) plastic is utterly produced and used by humans thus, human solutions to the plastic problem are both necessary and practical. In order to solve this problem, a variety of society actors (such as consumers, producers, policy makers, and industries) must be involved. Since the manufacturing and refining of plastic to waste management to the very last stage in the life cycle of plastic, plastic that ends up in the ocean. The adverse effect of plastic pollution is to be measured in climate change & on human health. (Center for international Environmental law) There is a desperate need to give awareness to the public to protect the environment so that people would self-regulate and feel concerned for the betterment of society.

Kanchanapibul, Lacka, Wang, and Chan (2014) To understand the behavior prior researches have used personal norms and beliefs as the major predictors of the SCB (Ateş, 2020; Kang, Liu, & Kim, 2013; Achchuthan & Thirunavukkarasu, 2016), However, there is a major attitude behavior gap has been found. People who show environmental concerns still show different behavior. Park and Lin (2020) The S-O-R model has mostly been used in cosmetic, hospitality, and fashion-related studies; however, this study aims to expand the model's use to the environment domain. In order to better understand consumer behavior with respect to sustainability, this research incorporates environmental knowledge and values as predictors of SCB. It emphasizes the need of looking at people's responses to environmental stimuli and their subsequent sustainable behaviors in light of their environmental knowledge and values.

Exploring the role of environmental knowledge and values in youth would help marketers and managers to understand how effectively the EK & EV would change

their thinking processes and to make them concerned about the environment. (Polonsky, 2011) Which would lead the consumers towards the green firm's products. Furthermore, the focus of this study on Pakistan's youth population has significant implications for upcoming sustainability initiatives. Young people's attitudes and behaviors can be long-lastingly shaped by involving and educating them about environmental problems and sustainable behaviors. The results of this study can help educational institutions, developers of curriculum, and youth-focused organizations by providing information on practical methods for promoting environmental knowledge, values, and sustainable practices among young people. This study holds significance for environmental organizations and policymakers. It highlights how crucial it is to include environmental values and knowledge in decision-making processes and sustainability initiatives. Policymakers can create focused interventions and rules that promote sustainably responsible choices by understanding all the factors that influence sustainable consumer behavior. By adjusting their campaigns and communication methods to effectively engage and inform the public on the requisite of sustainable consumption, environmental organizations can also profit from the study's findings.

This study will help marketers to enhance their knowledge about how to educate consumers about the benefits of sustainable consumer behavior and how it can protect our environment to make it live longer through our sustainable activities (Agyeiwaah, Pratt, Iaquinto, & Suntutikul, 2023). This will also help them to improve the consumer's knowledge about the adoption of sustainable consumer behavior in Pakistan and other developing countries in order to make our environment and consumption safer than it is now. It will also enhance the quality of our society which will help us to create better societies in the future where everybody will think about protecting the environment in an individual capacity.

In conclusion, this study's significance extends to multiple stakeholders, including practitioners, policymakers, marketers, managers, environmental organizations, and researchers. By exploring the role of environmental knowledge and values as predictors of sustainable consumer behavior in the context of the environment, this research contributes to the understanding of consumer behavior and sustainability in Pakistan.

## 1.7 Supporting Theory

There are several theories that match the factors being explored in this study. Goal-Framing theory (GFT, Value belief norm theory & Theory of Planned Behavior (TPB). (N. Kumar, Garg, & Singh, 2022; Liobikienė & Poškus, 2019; Y. Wang, Xiang, Yang, & Ma, 2019) However, there is very little work done in the light of S-O-R model in the context of sustainable product consumption (Chang, Cho, Turner, Gupta, & Watchravesringkan, 2015).

The stimulus-organism model (S-O-R) was presented by Woodworth in 1929 as a development of Pavlov's famous notion of the stimulus-response model. This was also known as classical conditioning which states that stimuli are linked together to generate a new response in persons. This S-R model promised how one could acquire new habits by systematically managing stimuli which could provide either punishment or reward. Taking a lead from this skimmers developed the concept of operant conditioning. This paradigm discusses that motivation happens after the demonstration of behavior as the orientation of that model was mechanistic the cognition based theorist Woodsworth came up with the S-O-R model, specifically highlighting the contribution of the organism in terms of motivating the individual behavior. The behavior formula thus shifted from S-R model to S-O-R model.

The S-O-R model is made up of three constructs: stimulus, organism, and response, which determine how an event will respond. The concept of stimulus and response was defined as "parts of behavior and environment" (Skinner, 1935) and rapid changes in the environment can have an impact on a person's psychological and emotional stability, which further motivates behavioral changes. According to Young (2016) and Eroglu et al. (2001), the stimulus is the external factors that have an impact on a person's psychological state. This stimulus is described as "the influence that arouses the individual." The S-O-R model entails cognitive and emotive variables which are the determinant of behavior.

According to the SOR theoretical model, each aspect of the environment plays a stimulating role which in turn triggers the people's internal state thus driving the behavioral response. The S-O-R model is appropriate for the present study since several studies on consumer behavior have employed the S-O-R model. (Kim, Lee,

& Jung, 2020; Talwar, Kaur, Nunkoo, & Dhir, 2022; Song, Liu, & Shi, 2022) Environmental cues and messages, such as sustainability labels, claims made about environmentally friendly products, and environmental information offered by businesses or organizations, are all included in the S-O-R model's definition of environmental stimuli. These cues have the potential to effect consumers' cognitive and affective reactions, as well as their perceptions, attitudes, and feelings towards sustainable practices and goods. The model demonstrates how external environmental stimuli and conditions affect an organism's emotions and cause it to make a behavioral response. It explains how the stimulation of external factors strengthens a person's internal condition (Eroglu et al., 2001). The internal states of perception, sensation, and thought are referred to as "organisms".

In the light of above discussion, the current study would utilize the SOR Model. In the virtue of the S-O-R model, this study presents Environmental knowledge and environmental values as an external stimulus that would generate the organism response in the form of green purchase intention thus leading towards the adoption of sustainable consumption behavior. This study broadens the applicability of the S-O-R model by conducting research in the environmental domain while also adding to the body of knowledge on sustainable consumer behavior. It offers an insightful viewpoint on the motivations behind people's environmentally conscious decisions and emphasizes the significance of environmental knowledge and values in developing sustainable behaviors.

## 1.8 Structure of the Study

This study consists of five chapters that explore the role of environmental factors that enhances the adoption of sustainable consumption behavior. The first chapter of the study provides an introduction to the study along with the theoretical background. Chapter thoroughly presents the problem statement & research gaps of the study followed by the research objectives & question. At the end of the chapter summary of the entire chapter is presented. The second chapter Reviews relevant literature, establishing the significance of environmental factors.

It introduces five hypotheses that examine the relationships between independent variables (Environmental knowledge, Environmental values) and the dependent variable (sustainable consumption behavior), mediated by green purchase intention. A conceptual framework is presented followed by the summary of the chapter. Chapter 3 establishes the research paradigm and examines the selected population. It determines the appropriate sample size and discusses the measurement model, including the development of scales and definitions for each variable. The chapter outlines the data collection procedure and research method and discusses the use of SMART PLS 4.0 for analysis.

Chapter 4 focuses on quantitative analysis using structural and measurement models. Various tests, such as internal consistency, convergent validity, and discriminant validity, are conducted using SMART PLS 4.0 software. The last chapter presents in-depth discussions, robust conclusions, and insightful implications derived from the research findings. It highlights contributions to existing theory and implications for supervisory practices. The chapter summarizes key findings and offers recommendations for future research opportunities. These chapters collectively provide a comprehensive exploration of environmental factors that enhances the adoption of SCB in Pakistan, addressing research questions and offering practical insights into the field.

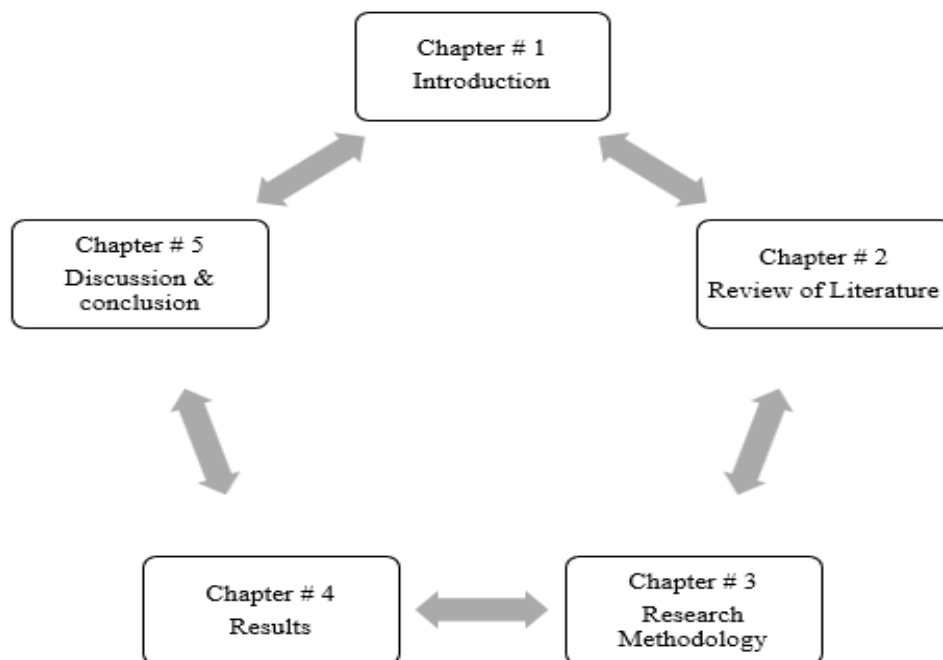


FIGURE 1.1: Research Model

## **Chapter Summary**

This chapter sheds light on the background of the study and highlights the imperative environmental crisis and a dire need for recognition of sustainable consumption behavior. It further establishes the connection to the context of plastic waste in Pakistan, emphasizing the pressing environmental issue and challenges faced by the country in managing plastic waste. The chapter then proceeds to a thorough gap analysis that includes managerial, contextual, and theoretical gaps. The problem statement, which emphasizes the necessity of addressing the environmental effects of plastic waste and the significance of promoting sustainable consumption behaviors, is developed based on the gaps that have been found. Following the problem statement, the research question is set forth with the dependent variable being sustainable consumption behavior (DV) and the independent variables being environmental knowledge (EK) and environmental values (EV). The research question focuses on understanding the environmental factors that facilitate the adoption of sustainable consumption behavior. The subsequent chapters will delve into empirical investigations and analyses to address the research objectives and contribute to the understanding of environmental factors that enhance the adoption of sustainable consumption behavior in Pakistan.

# Chapter 2

## Literature Review

### 2.1 Sustainable Consumption Behavior

Sustainable consumption behavior is a complex and multi-faceted concept that has garnered increasing attention in recent years. Sustainability is the new buzzword and focus of researchers (Barcelona, 2011) In early 1970 the focus was on ecological issues in the next era the focus shifted towards social issues and later after reassessing the social issues, environmental issues or sustainability concepts emerged. [A. Kumar, Prakash, and Kumar \(2021\)](#) Sustainable consumption behavior is the need for time. Sustainable consumption term was first used in ethical consumer studies later different disciplines used the term. Hence this term is an interdisciplinary study the ethical consumer study has used the term sustainable consumption in a purchasing behavior scenario. Hence, we can define sustainable consumption as a conscious act of choosing the products which would benefit the environment and reducing the consumption of products that would harm the natural resources to satisfy the current needs and aspire the future generations. Sustainable consumption behavior can be influenced by the lifestyle, habits, and resources of the people living in an environment. However, the environment is very much influenced because of the usage and no protection for sustainable causes ([Matharu, Jain, & Kamboj, 2020](#)). This is the generation of development while it comes with the greenhouse gases, ozone depletion, and production of other acidifying substances in the environment in which we are operating for producing or manufacturing processes and we need to focus on a sustainable way to support

these processes to protect the environment from the adverse effects. The challenge of doing so is to change the thinking of consumers to adopt more sustainable consumption behaviors and that can be done by changing the preferences, a lifestyle of consumers and reducing obsessive consumption (Spears & Singh, 2004).

The present state or the condition of living organisms is known as the environment. The understanding or awareness about the surroundings is known as knowledge. Thus, the information about the conditions around the living organism is known as environmental knowledge. However, with the massive increase in the use of technology, consumers have amplified their knowledge about their surroundings and now are more concerned about the environment. With knowledge about the surroundings, consumers are more aware of which actions he or they should take to make the environment a better place to live. With the growing expansion of businesses one of the most important phenomena in the world is to protect the environment. With the right knowledge not only, do consumers learn about the problem but also take the right action to solve the issue. Perry et al. (2021), researchers have explored a variety of factors that influence sustainable consumption behavior, including individual values, social norms, and product labeling.

The topic of sustainability is salient among young people since the youth will have to live with the declining social and ecological environment passed by the previous generations. There is a moderate level of awareness found in the youth regarding the threat of living in an imperiled society and a harmful environment. (Kadic-Maglajlic, Arslanagic-Kalajdzic, Micevski, Dlacic, & Zabkar, 2019) however, to ensure that youth plays an important role in the betterment of the environment and to help protect the society it is important to engage them efficiently in societal issues. With the engagement of youth, there is a high chance that the deteriorating condition of the environment would be better soon.

One study by (Yang, Tseng, & Lee, 2021) investigated the relationship between individual values and sustainable consumption behavior among Chinese consumers. The authors found that individuals who placed greater importance on environmentalism and social responsibility were more likely to engage in sustainable consumption behavior. Persuasion strategy was used by marketers to change the behavior of customers however there is a need for internalization of the sustainable behavior

among consumers. The thesis will help to close the gap between the theoretical, conceptual, and empirical arguments surrounding the attitude-behavior gap of consumers regarding sustainable consumption behavior with the internalization of environmental values. Health and environmental issues are affecting the way consumers purchase. over time there is a gradual change in the buying pattern of consumers. Consumers are more conscious about the environment and health in their purchases. This study explains that consumers are shifting towards organic products to galvanize the more responsible citizen personality this as a result would lead to more sustainable consumption behavior.

The discussion above shows the changes in consumption patterns and the evolution of sustainable consumption over time. Earlier studies regarding sustainable consumption focused on sustainability in general or sustainable development however, in recent studies, there is growing interest among researchers regarding the consumption behavior and the interaction between consumers and resources Since the growing interest of researchers regarding the consumption behavior recent researchers interlinks the concepts of SCB and behavior. Individuals' understanding of environmental problems, including their sources and impacts, is included in their environmental knowledge. A positive correlation between environmental knowledge and SCB has been found in several research. People with greater environmental knowledge are better able to understand how their purchasing decisions affect the environment, which encourages them to adopt more sustainable habits. Nevertheless, sustainable consumption represents the demand side of production, but this would help greatly in changing consumer behavior as well. with the SCB consumer make a compromise between environmental and social aims with one goal in mind, the welfare of present and future generations. (Higueras-Castillo, Liébana-Cabanillas, Muñoz-Leiva, & García-Maroto, 2019).

## **2.2 Environmental Knowledge & Green Purchase Intention**

Plastic production is on the rise despite widely acknowledged improper handling and excessive use of plastics. Plastic pollution contributes to environmental harm

and contamination globally. Horton (2022) In Pakistan, 55 billion plastic bags are produced every year. These plastics end up in landfills, oceans, etc. putting the environment and lives of humans in danger. (Mukheed & Alisha, 2020). Recent studies have shown that the countries with higher Gross national income (GNI) per capita are the countries with high levels of environmental knowledge. This indicates that developed countries are more concerned regarding environmental knowledge and environmental knowledge has a positive relationship with the wealth of a country. Saari, Damberg, Frömbing, and Ringle (2021) given the fact that the current patterns of Pakistan are worrisome and there is high time we pay high attention to sustainable consumption behavior to make Pakistan a viable country. In this context, it is noted that environmental knowledge is not only about the information regarding the surrounding environment but also the information about the possible corrective strategies which would mitigate the environmental negative issues.

Environmental knowledge embodies the consumer's know-how about the environment and about the relation that translates into green views and has a positive impact on sustainable behaviors. Furthermore, Environmental knowledge excludes the plausibility of the joint responsibility for sustainable development. Literature suggests that Environmental Knowledge is positively related to sustainable consumption behavior (Mostafa, 2007; Heo & Muralidharan, 2019; Liu et al., 2020) environmental knowledge can shape attitudes towards green products and increase individuals' perceived behavioral control, thereby positively influencing green purchase intentions. VBN theory suggests that environmental knowledge can influence individuals' values and beliefs, leading to the internalization of pro-environmental norms and subsequently impacting green purchase intention. while other studies suggest that there is a very small impact of objective knowledge on sustainable consumption behavior in comparison with subjective knowledge. Environmental knowledge is also related to the degree of active engagement with the environment. However, a lack of knowledge can be hindering factor in sustainable consumption behavior. According to Bang, Ellinger, Hadjimarcou, and Traichal (2000) knowledge can increase the chances of consumers' intention to purchase the high price sustainable products. Moreover (Mostafa, 2007) reported that people with a high

degree of environmental knowledge are ready to pay for the high price of sustainable products. Environmental knowledge directly influences the purchase intention of the consumer. The relationship between environmental knowledge and green purchase intention has garnered considerable attention in both academic and practical contexts. This literature review aims to examine the existing literature on this subject, shedding light on the nature of the relationship between environmental knowledge and consumers' intention to purchase environmentally friendly products. By exploring various studies and theoretical frameworks, this review will provide insights into the factors influencing this relationship and potential implications for promoting sustainable consumption.

This study argues that with a high level of environmental knowledge, there would be a positive change in the behaviors of consumers. Environmental knowledge helps in shaping the attitude and intentions of consumers. [Saari et al. \(2021\)](#) a consumer with a high degree of environmental knowledge would create more positive sustainable consumption behavior. Previous studies have shown mixed findings regarding environmental knowledge and sustainable consumption behavior. Environmental knowledge enhances awareness, influences attitudes, and acts as a motivator for consumers to make sustainable purchasing decisions. Understanding the complex relationship between environmental knowledge and green purchase intention provides valuable insights. However, some studies have shown that there is a significant positive relationship between environmental knowledge and sustainable consumption behavior ([Kanchanapibul et al., 2014](#)).

Another study shows that green product purchase intentions were influenced by environmental knowledge, and these intentions were favorably and significantly correlated with actual purchase behavior. [Khaleeli, Oswal, and Sleem \(2021\)](#) it is identified that Residents who love the environment and have better environmental knowledge are more likely to exhibit sustainable behaviors, attitudes, and habits in their daily lives. [Pothitou, Hanna, and Chalvatzis \(2016\)](#) few studies have found no relationship between environmental knowledge and sustainable consumption. There is a contradiction in the results regarding environmental knowledge. [Liobikiene and Poškus \(2019\)](#). Environmental knowledge can be enhanced through environmental action and information since environmental education does not only

provide factual information but also highlight the importance as well. Ellen et al. stated that people with a high level of knowledge have greater concerns for the environment and they have a deep level of faith to change the behavior. [Sheth, Sethia, and Srinivas \(2011\)](#) also suggested that the higher the knowledge of an individual regarding the environment higher the chances of individuals being more mindful of consumption. In the present study, we also assumed that there is going to be a positive influence of environmental knowledge on the SCB.

***H1: Environmental knowledge has a positive influence on green purchase intention.***

## 2.3 Environmental Values & Green Purchase Intentions

Plastic Pollution, environmental degradation, and climate change is the most troublesome issue being faced by the world. The constant raise in environmental degradation, and climate change has severe consequences for the lives of people living in rural areas of Pakistan. [Tadaki, Sinner, and Chan \(2017\)](#) plastic is one of the most widely used items today. With the rapid modernization and growth in the population demand for plastic has increased to a dangerous extent since it is durable and considered most cheap packaging material Plastic is being used in all forms from plastic bottles to packaging materials to straws ([Mukheed & Alisha, 2020](#)) however, values can be very influential for consumers when choosing products and brands.

[Kushwah, Dhir, and Sagar \(2019\)](#) values provide a significant foundation for understanding the behavior of consumers across cultures. [Burgess and Steenkamp \(1999\)](#) thus, values are inseparably linked with the attitude of consumers associated with the purchase consequently values will influence the purchase behavior ([Chen, 2014](#)) environmental values are people's opinions, attitudes, and concerns about the environment. These values reflect the importance placed on environmental issues and can serve as a motivational driver for sustainable consumer behaviors. Green purchase intention, on the other hand, pertains to consumers'

willingness to choose environmentally-friendly products or services over conventional alternatives. People may prioritize sustainable behaviors in their daily lives as a result of being influenced by these principles in their decision-making processes. The favorable relationship between environmental values and sustainable consumption practices has been demonstrated in numerous studies.

Strong environmental values, for instance, increase the probability that a person will recycle, conserve energy, and buy environmentally friendly products. Strong environmental values make people more likely to view environmental problems critically and feel morally obligated to take action. Their adoption of sustainable consumption behaviors is driven by this sense of duty. Furthermore, by behaving by their values, people with strong environmental values may feel intrinsic fulfillment and personal fulfillment, which enhances their sustainable consumption behavior.

[Karp et al. \(2020\)](#) such campaigns are motivated by environmental values, which influence people's attitudes and behaviors around plastic usage. The plastics firm could foster a move to sustainable consumption habits by embracing people's environmental values. Examples of such practices include the creation and promotion of biodegradable or recyclable plastic substitutes and the installation of efficient waste management systems. Environmental values are a major factor in determining people's decisions regarding the use and disposal of plastic. Environmental values also influence decision-making processes at both individual and societal levels. They shape preferences for environmental policies and impact conservation efforts. Studies have examined the role of environmental values in various contexts, including sustainable agriculture, wildlife conservation, and climate change mitigation. Understanding the underlying values of stakeholders is crucial for effective environmental governance and policymaking. Strong environmental values increase a person's awareness of how plastic manufacturing and use affect the environment, which encourages them to engage in sustainable purchase habits. Reducing plastic usage, choosing reusable options, and properly recycling or discarding plastic waste are some examples of these behaviors. ([Schlange et al., 2021](#)) Additionally, the negative impacts of plastic pollution have received extensive media attention, raising people's awareness of environmental issues. This increased

awareness, when combined with environmental ideals, may help the plastics industry adopt sustainable consumer habits throughout the industry. People could actively look for plastic-free or environmentally friendly alternatives, support companies that prioritize sustainable packaging, or take part in campaigns to reduce plastic waste (García, de Frutos, Mura, & Tortosa, 2021).

It has been demonstrated that different behavior intentions are likely to have different antecedents, that there is no single dimension that describes different pro-environmental behavior intentions, and that consumption attitudes are governed and guided by more overarching value systems. A study by (Ateş, 2020) found that environment values had influence on the pro environmental behavior. Several research have looked into the connection between environmental values and intentions to make green purchases, offering important insights into how these values affect consumer behavior. For instance, Smith and colleagues (2017) surveyed a sample of consumers and discovered an association between high environmental values and intention to purchase green products.

Similarly this study carried out several trials and discovered that those who had a higher intention to buy ecologically friendly products were more likely to have strong environmental values. The impact of environmental values on the intention to make green purchases is strongly supported by empirical data. In a meta-analysis of 30 studies, (Chen, 2014) discovered a substantial positive correlation between environmental values and intention to make green purchases. According to the findings, people with stronger environmental values were more inclined to practice green purchasing behaviors.

Given that environmental value is a major construct that directly represents an individual's environmental concern, it is reasonable to assume that it would have an impact on the intention of sustainable consumption behavior. To help people understand the importance of saving the environment and being responsible citizens Red Crescent societies are promoting environmental values and practices via advocacy. Red Crescent and its network are taking major steps in promoting pro-environmental behaviors in Pakistan. Moreover, various scholars suggests that existing studies ignored the potential impact of EV on the SCB. Thus, the following hypothesis is proposed.

*H2: Environmental values have a significant impact on the green purchase intention.*

## 2.4 Green Purchase Intentions and Sustainable Consumption Behavior

Several studies have looked at customer attitudes and actions around plastic waste and sustainable alternatives in the context of the plastic business. According to studies (Donthu & Bhargava, 2021) customer attitudes towards minimizing plastic waste have a considerable impact on their intention to make green purchases. Customers who are aware of the harm that plastic trash causes to the environment are more likely to show a higher intention to buy eco-friendly alternatives. The promotion of compostable or biodegradable alternatives is one area where the plastics industry is concentrating its attention. According to studies, customers have a favorable opinion of biodegradable or compostable products, which increases their intention to buy them (Donthu & Bhargava, 2021) businesses in the plastics industry that want to address environmental concerns and consumer needs for sustainable alternatives must fully grasp green buying intention. Businesses can improve their market positioning and entice environmentally sensitive customers by concentrating on qualities like recyclability, biodegradability, and eco-labeling. Green purchase intention acts as a catalyst for sustainable consumption behavior, as it reflects consumers' willingness to make environmentally friendly choices. Research has shown that individuals with a higher green purchase intention are more likely to engage in other sustainable behaviors, such as energy conservation, waste reduction, and recycling (Van Dam & Apeldoorn, 1996; Vermeir et al., 2020) This indicates that green purchase intention can be a driving force behind a more sustainable lifestyle. The connection between green purchase intention and sustainable consumption behavior highlights the potential for positive feedback. As consumers actively engage in sustainable consumption behavior, their green purchase intention may further strengthen, leading to a continuous cycle of environmentally conscious choices and actions

H. Wang, Ma, Bai, and Zhang (2021), conducted a study that suggests that green buying behavior is the result of green purchase intentions. Intentions play a significant role in modeling the decision of the individual to buy green products or services. (Zhuang, Luo, & Riaz, 2021) Also suggested that the behavior affects the green purchase indirectly through intentions. Previous studies in the ground of green marketing also show that the main goal of employing various forms of advertising is to stimulate consumers' green purchasing intentions so that they can move forward with turning those intentions into actual action in terms of consuming green goods and services.

***H3: Green purchase intentions have a positive relationship with the sustainable consumption behavior.***

## 2.5 The Mediating Role of Green Purchase Intention between Environmental Knowledge and Sustainable Consumption Behavior

Purchase intention refers to the tendency of customers to purchase a particular product or service. The concept of purchasing intention is highly significant in the field of marketing. It can be defined as the motivation of a person to execute the plan to exert a special effort to carry out a behavior. Spears and Singh (2004) Consumers' willingness to engage in environmentally friendly purchasing behavior, choosing goods and services that leave the smallest possible environmental imprint, is referred to as "green purchase intention." The concept was born out of growing environmental consciousness and sustainability-related concerns.

Green purchase intention discusses the likelihood of customers buying particularly environmentally friendly products also known as sustainable products. (Soomro et al., 2020) it also refers to the extent to which a customer is planning to purchase green products also to repurchase sustainable products from a firm that is known for its green products. Nguyen, Lobo, and Greenland (2017) Thus many researchers have significantly recognized the importance of intention in the purchase decision.

One of the primary factors of purchasing intention for green products is Environmental knowledge. Knowledge about the environment is an important component that has a big impact on how consumers feel about green products. According to research by (Lambert, Wildt, & Durand, 1991), there is a correlation between environmental knowledge and the desire to make green purchases, suggesting that informed customers are more likely to give eco-friendly options a priority.

*H4: Green Purchase intention plays a mediating role between the relationship of Environmental knowledge and sustainable consumption behavior.*

## 2.6 The Mediating Role of Green Purchase Intention between Environmental Values and Sustainable Consumption Behavior

Companies may satisfy the rising demand for environmentally friendly products by integrating their offerings with consumers' environmental values. According to research, green product characteristics like recyclability and energy efficiency have a beneficial impact on consumers' purchase intentions. Additionally, emphasized the significance of green marketing communication in influencing consumers' attitudes and intentions to buy environmentally friendly goods.

Past studies have found that individuals with stronger environmental values were more likely to have higher green purchase intentions. These intentions, in turn, predicted greater engagement in sustainable consumption behaviors, such as using public transportation and reducing energy consumption. H. Wang et al. (2021) Explored the mediating effect of green purchase intention in the food industry. They found that environmental values positively influenced green purchase intention, which, in turn, positively impacted sustainable food consumption behaviors, such as choosing organic and locally sourced products.

Given the obvious differences in cultural, social, economic, and technological advancements, it is especially important to research the intentions of consumers in developing nations to make green purchases. Achchuthan and Thirunavukkarasu

(2016). Understanding and promoting green purchase intention can encourage consumers to embrace sustainable choices and contribute to a more environmentally sustainable society.

Another reason why it's important to examine consumers' intentions to buy green products in developing countries is that most of them have large populations, which can allow green businesses to gain by providing consumers with useful green products (Lai & Cheng, 2016).

# Chapter 3

## Research Methodology

### 3.1 Research Paradigm

Research design is a general method that is usually deployed by researchers to effectively elucidate the research problem. Thus, choosing an appropriate research design is one of the important tasks. The research design should ensure that all the modules of underlying study problems are integrated in a way that is logical and articulate as well. In the field of management sciences, researchers employ various research designs. However, there are two predominant schools of thought in this area: interpretivist and positivism. A study paradigm known as the interpretive view places a strong emphasis on subjective understanding and interpretation of social phenomena. It posits that people create meanings and interpretations depending on their social interactions and experiences, placing a strong emphasis on context and cultural influences. The positivist viewpoint, in contrast, seeks objectivity and causality in the study and depends on empirical observation and measurement to reveal universal truths and laws. Interpretivists design advocates that the utilization of qualitative methods with a certain degree of human intervention is truly needed to examine a phenomenon. [Sobh and Perry \(2006\)](#) whereas the positivist suggests the use of quantitative methods such as survey questionnaires and several other approaches. The current study's implication is to develop a framework based on credible empirical evidence that can enhance the body of literature while also assisting in a deeper comprehension of the causes of green consumer behavior. Hence a positivist research design was considered to be more

appropriate for the current study. Under this design, the research approach of this study was the “deductive approach” to pursue this research. This means that the hypothesis development is done upfront based on the facts and past literature and then these hypotheses are tested by analyzing the data collected from the sample population to get results about the relationship under study in the theoretical framework

## 3.2 Population & Sample of the Study

The focus or area of interest of the researcher is referred to as a population or universe. A universe might contain a certain group(s), community, people, etc. The researcher must choose an appropriate population because choosing the wrong population might distort the study’s overall findings. Examining the predecessors and antecedents that contribute to the establishment of green consumption behavior is the main goal of the current study. In previous studies on green consumption in the Asian cultural setting, the users of cosmetics and personal care items were taken into account to study the antecedents of green consumption behavior. [Liobikienė and Poškus \(2019\)](#) however, this study is more focused on the plastic waste that leads to the not healthy or sustainable behaviors thus it is imperative to select the appropriate population. According to United Nations Development Program (UNDP) research from 2018, Pakistan generates about 3.3 million tons of plastic waste each year, with the province of Punjab accounting for about 55% of it. Although there are plastic manufacturing facilities all over Pakistan, the population of this study would be the youth of Pakistan who is outgoing, extroverts, and use plastic in daily life in the form of fizzy drinks, fast food packaging, etc. According to the World Bank, 225 million was the population of Pakistan in 2020. However, according to UNDP 29% of the Pakistani population is between the 15-29 therefore we have used the 29% of population proportion of the total population of Pakistan while calculating the sample hence the sample size for this this sample size is calculated through the following formula

$$n = (Z^2 * p * (1-p)) / E^2$$

Where: n refers to the required sample size

- Z refers to Z-score equivalent to the anticipated confidence level (e.g., 1.96 for a 95% confidence level)
- p is the estimated proportion of the population (expressed as a decimal)
- E is the desired margin of error (expressed as a decimal)

$Z = 1.96$  (for a 95% confidence level)

$p = 0.29$  (estimated proportion)

$E = 0.05$  (5% margin of error)

$n = (1.96^2 * 0.29 * (1-0.29)) / 0.05^2$

$n = (3.8416 * 0.29 * 0.71) / 0.0025$

$n = 0.77339264 / 0.0025$

$n = 309.356256$

This indicates that 310 or more surveys are required to have a confidence level of 95% to ensure that the real value is within  $\pm 5\%$  of the surveyed value.

TABLE 3.1: Geographic & Demographic Characteristics of Sample

Demographic	Group
Age	20-24
	25-30
Gender	Male
	Female
Education	Matric
	Inter
	Bachelors
	Masters and above

### 3.3 Sampling Technique

This research would use non-probability purposive sampling since sample fit certain criteria that are relevant to research question, and to ensure that sample is representative of the population of interest. Following filtered question were added in the questionnaire to ensure that data is calculated through the extrovert, outgoing, youth who use plastic frequently in their daily life.

- Do you frequently use plastic products such as single-use bottles, straws, bags, or food containers in your daily life?
- Do you fall within the youth who frequently utilize plastic-based products, such as fizzy drink cans etc.?
- Do you frequently use single-use plastic items, such as disposable cutlery, straws, or plastic bags, in your daily life?
- Do you purchase products that are packaged in plastic containers (e.g., food items, personal care products, household goods)?
- Do you consume plastic-packaged beverages more than twice per week ?
- Do you engage in social activities or events (such as parties, gatherings, or outings)?
- Are you mindful of reducing your usage of single-use plastic items in your daily routine?
- While buying goods do you explore sign of recycling?

### 3.4 Time Horizon

Cross-sectional are the studies of a specific construct at a particular time while longitudinal studies are those where the information is gathered over the long period of time and at discrete periods. The idea of this study agreed with the terms of cross-sectional time horizon.

### 3.5 Data Collection

Data that is used to evaluate this study is taken from the survey questionnaire technique. A five-point Likert scale questionnaire has been adopted from well-developed papers and then a survey is conducted within the sample of said population. The survey questionnaire is then distributed among the target population

in order to collect the data that is required for the analysis to check the relationship of the environmental knowledge, environmental values with the mediation of green purchase intention to buy translating into sustainable consumption behavior. It was crucial to only include responses from those who matched the criteria of potential in order to assure the reliability of the data. Particular efforts were made to screen out responders who didn't meet this requirement. Google Docs was used to distribute the questionnaires, which was a practical and time-saving technique. The data collected through the survey is numeric data that can easily be analyzed by using software like PLS SEM.

## **3.6 Data Analysis Techniques**

Data collected through the questionnaire survey is then analyzed by using the software's like PLS -SEM. The tests that are done by using PLS-SEM for the validity test, reliability test, regression analysis and correlation analysis is ordered to check the relationship between the environmental knowledge, Environmental values & green purchase intention with the sustainable consumption behavior. The values that are obtained from the results of this software are analyzed according to the standard values to check the significance of these values.

### **3.6.1 Correlation**

Correlation analysis is a valuable tool for researchers to assess the strength, direction, and extent of association between different constructs. When the Pearson coefficient exceeds 0.50, it indicates a strong correlation. In the present study, correlation analysis was particularly useful due to the presence of multiple constructs, allowing the researcher to gain insights into their relationships.

### **3.6.2 Regression**

Regression analysis plays a crucial role in examining how a predictor variable affects the outcome variable, even with a unit change. By employing regression

analysis, researchers can draw meaningful conclusions about the connections between various constructs, further enhancing their understanding of the research context

### 3.7 Research Instruments

The research instrument is defined as the item scale that is adopted to make a questionnaire. These item scales are adopted from papers that have strong background and developed variables that can provide valid results so that the research conducted for this paper can be easily validated.

TABLE 3.2: Research Instrument

Construct	Item	Source
Environmental Knowledge	4	(Leonidou & Skarmeas, 2017)
Environmental Values	5	(Haws, Winterich, & Naylor, 2014)
Green Purchase Intentions	3	(Chan & Lau, 2000)
Sustainable Consumption Behavior	4	(Wang & Yan, 2017)

#### 3.7.1 Environment Knowledge

EV is a term used to describe a person's knowledge of environmental concerns and their capacity to comprehend and assess how those issues affect both society and the environment. The study's research instrument was adopted from the research of (Leonidou & Skarmeas, 2017). We operationalized environmental knowledge with four items. Leonidou and Skarmes adopted the research instruments from the (Mostafa, 2007) that measure the consumer's knowledge of environmental issues on the 5 Likert scale. (Rizkalla, 2018; Saari et al., 2021).

#### 3.7.2 Environmental Values

Environmental value assesses how consumers feel about environmental issues including growing population, pollution, energy efficiency, resource waste, and the

impact of hazardous substances on the environment and natural habitats. The research instrument is adopted from the study of research paper of (Chen, 2014; Haws et al., 2014).

### 3.7.3 Green Purchase Intention

The consumer green purchase criterion variable Intention gauges consumers' intentions to purchase environmentally friendly goods. In this investigation, 3 items from the original scale were employed. The measurement instrument was created by (Chan & Lau, 2000; Lee & Park, 2017).

### 3.7.4 Sustainable Consumption Behavior

Sustainable consumption behavior could be defined as consumer's conscious decision to voluntarily opt for the sustainable products during consumption (Wang et al., 2019) item are measured on 5 Likert scale 4 items were adopted from the scale that was developed & used by (Wang & Yan, 2017) Promoting sustainable consumption behaviors: The impacts of environmental attitudes and governance in a cross-national context.

## 3.8 Instrument Reliability

The Cronbach alpha method, a commonly used technique, was used in this research thesis to evaluate the reliability of the research scales. A statistical approach called Cronbach's alpha evaluates the internal consistency of a group of items or scales. This evaluation's primary objective was to verify the accuracy of the information gathered for the study.

## Chapter Summary

This chapter explains the methods that were being adopted by the current research to thoroughly examine the mediating relationship of green purchase intention on

the sustainable consumption behavior and environmental knowledge and the relationship between the environmental values and sustainable consumption behavior. Research methodology was discussed above which explains the approach that has been utilized in the study by the researchers in order to ensure the validity of proposed hypothesis. The methods are clearly outlined in the chapter since it augments the credibility of the research. In the chapter it is specified that the population of the study would be outgoing party doing youth of Pakistan. Sample is deduced from the population through the formula. Non probability purposive sampling technique has been deployed in the study. The chapter also shed light on the data collection methods, data analysis methods that were utilized in order to determine the validity & reliability of proposed hypothesis.

# Chapter 4

## Results and Analysis

### 4.1 Analysis of Data

This chapter offers a complete explanation of the in-depth analysis performed on the data gathered to carefully assess the influence of environmental values and knowledge on sustainable consumption behavior. Also separately examined were the potential mediating role of green purchase intention. The section shows the results obtained after applying a variety of quantitative and statistical techniques.

To begin with, a thorough examination of the respondents' demographic data was done. The purpose of this examination was to learn more about the composition of the sample and to verify the data's representativeness. A reliability analysis was then conducted to assess the internal consistency and reliability of the constructs used in the study. This step was essential in assuring the accuracy and consistency of the measurement instruments used.

In order to investigate the direct and indirect impacts of the predictor factors on the outcomes of the variables bootstrapping technique was employed. The main part of confirmatory factor analysis consists of factor loadings of items which shows that each value is acceptable in this research analysis. This investigation gave a thorough grasp of the connections between environmental values, environmental knowledge, green purchase intention and sustainable consumption behavior. It facilitated the identification of important correlations and offered insights into

the direction and strength of these relationships. At the end of this chapter, the analysis's results are presented.

## 4.2 Response Rate

The study utilized a sample size of 310, determined through the application of formula. To gather data from an extrovert, party going youth of Pakistan who use the excessive plastic in the form of fizzy drinks, can etc., a purposive sampling approach was employed. A questionnaire was send to the selected sample for the data collection process. Out of the 350 questionnaires distributed, 325 were returned. Among the returned forms, 280 were considered valid and usable. Consequently, the overall response rate was calculated to be 92.85%, while the usable response rate stood at 80%. Usable rate & response rate is shown in the following table below.

TABLE 4.1: Response Rate

Questionnaire Returned	Questionnaire Returned	Usable Questionnaire	Response Rate	Usable Response Rate
350	325	280	92.85%	80%

## 4.3 Demographic Analysis

Filter questions at the beginning of the questionnaire ensured sure that data was gathered from the desired target sample. The only respondents who responded yes to the filter question were qualified to continue with a survey. This method made sure that responses were gathered from the specified target sample, preserving the integrity of the data. For appropriate study analysis, it is crucial to comprehend how a sample population is demographically composed. This study emphasizes the value of using a well-designed questionnaire to gather information from the right target group and focuses on analyzing the gender distribution within the sample. The study's questionnaire was thoughtfully designed to collect relevant

information from the respondents. It was divided into two parts, each of which had a specific function. In the start of the section, demographic data such as gender, age, and education were collected. The questionnaire's second section gathered responses to questions regarding the study's hypothesis.

TABLE 4.2: Gender Distribution

Gender	Frequency	Percent
Male	102	36.4
Female	178	63.6
Total	280	100

The study shows that this sample's gender distribution is more female than male, with a representation of 63.6%. In contrast, men make up 36.4% of the sample population.

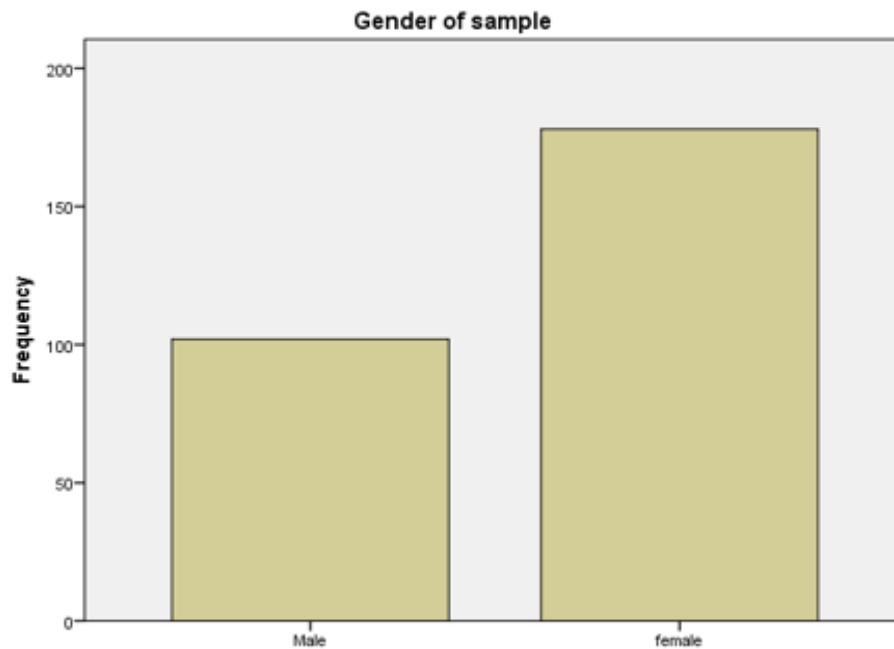


FIGURE 4.1: Gender of Sample

Histogram above depicts that there were 280 people in the sample population, 102 of whom (36.4%) were men and 178 of them (63.6%) were women. These percentages show that women make up the majority of the population under study. The analysis reveals that gender distribution within this sample is skewed towards females, with a significant 63.6% representation.

TABLE 4.3: Age Distribution

Age	Frequency	Percent	Cumulative Percent
20-24	122	43.6	43.6
25-30	158	56.4	100
Total	280	100	

The frequency and percentage of responses in each age group are shown in the table below. The valid and cumulative percentages provide insight on how each age category is represented in the sample. 280 people represented the sample population, and the respondents were divided into two age groups: 20–24 and 25–30. The study identifies distinct patterns in the sample’s age distribution.

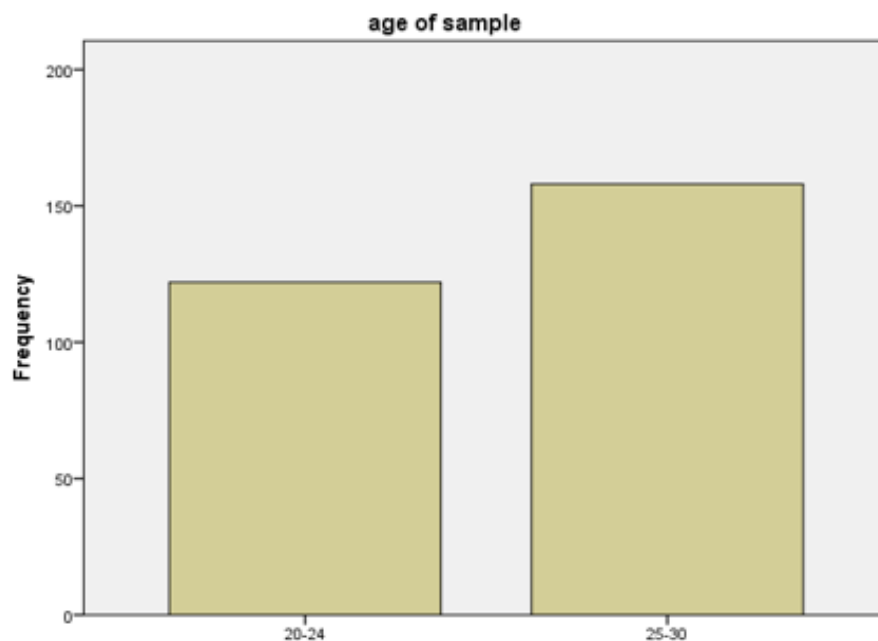


FIGURE 4.2: Age of Sample

The total responses, 158 people (56.4%) were in the 25–30 age group, while 122 people (43.6%) were in the 20–24 age range. These figures show that the majority of the sample population is made up of people in the 25–30 age range. According to the data, the sample population is primarily made up of people in their mid- to late-twenties, with a sizable majority being between the ages of 25 and 30. This age distribution is consistent with the sample’s overall trend.

TABLE 4.4: Education Distribution

Education	Frequency	Percent	Cumulative Percent
Inter	19	6.8	6.8
Bachelors	166	59.3	66.1
Masters and above	95	33.9	100
Total	280	100	100

There were 280 people in the sample population, all of different educational backgrounds. The distribution of respondents among the three education levels—intermediate, bachelors, and master’s and above is shown by the analysis

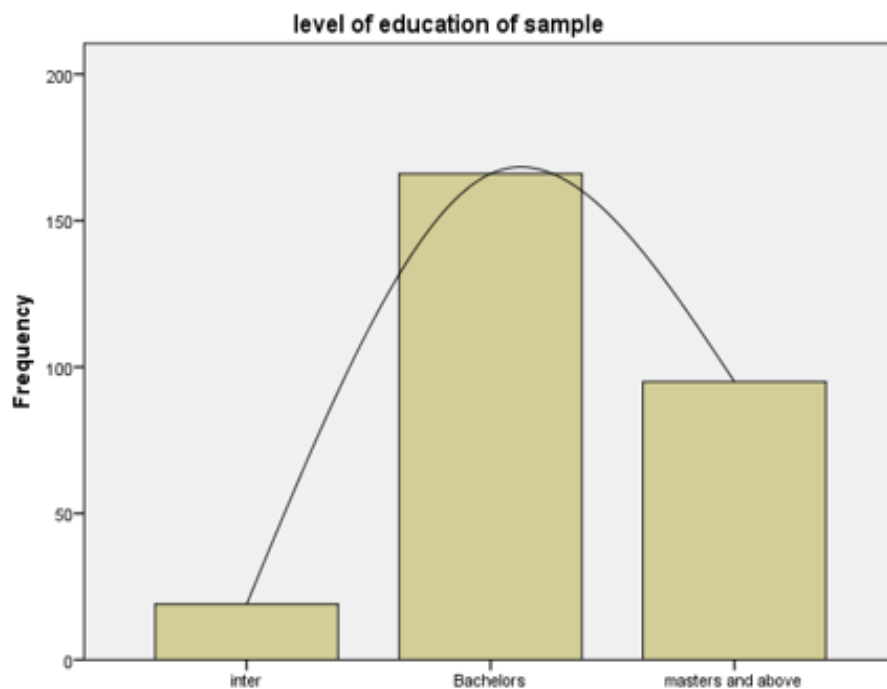


FIGURE 4.3: Level of Education of Sample

19 respondents (6.8%) indicated they had at least an Intermediate level of schooling. 166 people in the sample, or 59.3% of the total, had a bachelor’s degree. In addition, 95 people stated that they had a Master’s degree or higher (33.9%). The majority of respondents appear to have bachelor’s degrees, according to the data, indicating that the sample population has a reasonably high level of undergraduate

education. But it's important to consider that a significant proportion of people also have master's degrees or higher.

## 4.4 PLS-SEM Results

Partial Least Squares - Structural Equation Modelling (PLS-SEM) is a second-generation technique that tackles the shortcomings of first-generation methods. It is especially well suited for data analysis to predict correlations between components. Smart PLS4 was used by the researchers to assess the measurement model along with structural model. The PLS path model consists of two important components: A. The measurement model (outer model) involves examining the connections between observable variables and latent variables. It helps to demonstrate the accuracy and precision of the measurement tools used in the investigation.

B. Structural model (inner model): This part is concerned with analyzing the connections between latent constructs. It allows researchers to analyze both direct and indirect relationships between constructs, shedding light on the complex interplay of variables. After the establishment of inner and outer model, the indicators and all the variables were linked together in the Smart PLS 4.0. in the first run items EK1 0.826, EK2 0.895, EK3 0.846, EK4 0.802, EV1 0.837, EV2 0.843, EV3 0.739, EV4 0.739, EV5 0.790, GPI1 0.709, GPI2 0.852, GPI3 0.915, GPI4 0.52 SCB1 0.824, SCB 0.804, SCB3 0.792, SCB4 0.755. GPI4 had low factor outer loading and were contributing to low average variance extracted thus were removed. Subsequently, the model was re-run for model estimation. Consequently, it was identified that all factor loadings were above 5.0. It is especially well suited for data analysis to predict correlations between components. Smart PLS4 was used by the researchers to assess the measurement model along with structural model.

### 4.4.1 Measurement Model

The first stage in reviewing the model is to examine the outer model, which focuses on analyzing the components that define the nature of the anticipated relationships. Validity and reliability are two essential components of the measurement of

the outer model.

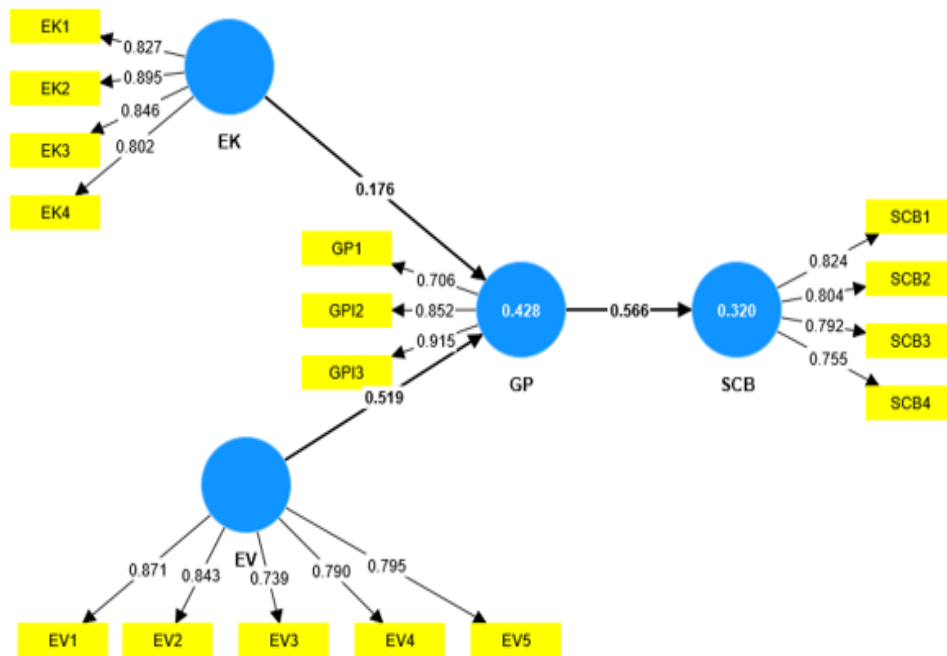


FIGURE 4.4: Measurement Model

Following a set of guidelines, the measurement model is evaluated. Composite reliability (CR) is used to measure item reliability and internal consistency, average variance extracted (AVE) is used to evaluate item convergent validity, and the Fornell-Larcker criterion is used to assess item discriminant validity.

#### 4.4.2 Cronbach Alpha

Cronbach's Alpha is a measure of internal consistency, indicating how closely related the items within a variable are.

TABLE 4.5: Cronbach Alpha

Variables	Cronbach's Alpha Values
EK	0.864
EV	0.867
GPI	0.777
SCB	0.805

The table provides the Cronbach's Alpha values for different variables: EK, EV, GPI, and SCB. The commonly accepted threshold for an acceptable Cronbach's Alpha value is 0.70 (Nunnally & Bernstein, 1994)

### 4.4.3 Composite Reliability

Composite Reliability is a measure of the internal consistency and reliability of a latent variable in a structural equation modeling (SEM) framework.

TABLE 4.6: Composite Reliability

Variables	Composite Reliability (CR)
EK	0.908
EV	0.904
GPI	0.867
SCB	0.872

Contrary to Cronbach's Alpha, the composite reliability (CR) does not permit an equal indicator loading of a construct. The desired CR values should be greater than 0.60. The values of CR range from 0 to 1. A CR value in the range of internal consistency between 0.60 and 0.70 is regarded as average, whereas a CR rating between 0.70 and 0.90 is more desirable and acceptable. According to the table's CR values, EK has a CR of 0.907, EV has a CR of 0.904, GPI has a CR of 0.824, and SCB has a CR of 0.874. In this case, CR values indicates that the measurement items within these variables have great internal consistency and dependability.

### 4.4.4 Average Variance Extracted

In structural equation modelling (SEM), the AVE is a measure that quantifies how much variance is accounted for by the latent variable in relation to the measurement error.

TABLE 4.7: Average Variance Extracted

Variables	Average Variance Extracted (AVE)
EK	0.711
EV	0.654
GPI	0.687
SCB	0.63

The degree to which constructs are theoretically related to one another is measured by convergent validity. The degree of convergence between the constructs is measured using AVE. A threshold value of 0.50 and higher is considered acceptable for AVE. According to an analysis of the AVE numbers in the table, EK has an AVE of 0.711, EV has an AVE of 0.654, GPI has an AVE of 0.547, and SCB has an AVE of 0.634.

#### 4.4.5 Factor (Outer) Loading

The factor outer loadings for a group of variables (Q1-Q17) and their corresponding factors (EK, GPI, SCB, and EV) are shown in the table. Factor loadings in a factor analysis show how strongly each variable is correlated with its corresponding factor. Observations that can be drawn from the presented table include the following: With factor EK, Q1, Q2, Q3 and Q4 has an outer factor loading of 0.827, 0.895, 0.846, 0.802 respectively.

This shows that EK factor have a very good relationship. Factor outer loadings for EV range from 0.871 to 0.739. Q10, Q11, and Q12 with factor GPI range from 0.706 to 0.915. The GPI factor and these variables appear to be positively correlated in a moderate to strong manner. Factor outer loadings for Q14, Q15, Q16, and Q17 with factor SCB range from 0.755 to 0.824.

TABLE 4.8: Factor (Outer) Loading

---

<b>Variables</b>	<b>Outer Loading</b>
EK1	0.827
EK2	0.895
EK3	0.846
EK4	0.802
EV1	0.871
EV2	0.843
EV3	0.739
EV4	0.79
EV5	0.795
GPI1	0.706
GPI2	0.852
GPI3	0.915
SCB1	0.824
SCB2	0.804
SCB3	0.792
SCB4	0.755

---

According to [Lambert et al. \(1991\)](#), factor loadings in a factor analysis reflect the contribution of individual items in measuring a variable. Threshold values for factor loadings have been categorized into three main groups, as outlined by [\(Shevlin & Miles, 1998\)](#). Loadings below 0.30 are considered low, those around

0.50 are considered satisfactory, and loadings above 0.70 are considered high and favorable. The study's factor loadings were all higher than the desired value of 0.50. Thus, based on these criteria, all the factor loadings can be considered acceptable.

#### 4.4.6 Discriminant Validity

The degree to which a construct truly differs from other constructs is measured by its discriminant validity. Different methods which are listed below are used to evaluate discriminant validity.

- Fornell-Larcker Criterion
- HTMT

##### 4.4.6.1 Fornell-Larcker Criterion

The square root of the average variance extracted (AVE) for each construct must be compared to the correlations between that construct and other constructs in order to analyze the table using the Fornell-Larcker criterion.

TABLE 4.9: Fornell-Larcker Criterion

Variables	EK	EV	GPI	SCB
EK	<b>0.843</b>			
EV	0.699	<b>0.809</b>		
GPI	0.538	0.642	<b>0.892</b>	
SCB	0.479	0.677	0.566	<b>0.794</b>

Discriminant validity was evaluated using the Fornell-Larcker approach, and the findings are shown in the table above. As it can be observed, a construct that is shown in bold has a square root of the AVE that is higher than its highest correlation with another construct. Thus, discriminant validity can be considered to have been established.

#### 4.4.6.2 Heterotrait-monotrait Ratio (HTMT)

The Heterotrait-Monotrait (HTMT) ratio is a measure used to assess the discriminant validity of latent constructs in a factor analysis. It compares the correlations between different constructs (heterotrait correlations) to the correlations between the same construct (monotrait correlations). The acceptable threshold for the HTMT ratio is typically set at 0.90. In the present study, the HTMT values for the constructs were examined, and all values were found to be below 0.9.

TABLE 4.10: Heterotrait-Monotrait Ratio (HTMT)

	<b>EK</b>	<b>EV</b>	<b>GPI</b>	<b>SCB</b>
<b>EK</b>				
<b>EV</b>	0.804			
<b>GPI</b>	0.619	0.738		
<b>SCB</b>	0.562	0.808	0.674	

## 4.5 Structural Model

The analysis of the structural model comes after the outer or measurement model has been thoroughly examined. This requires carrying out a methodical assessment of the relationships between the variables. In this context, the direct relationships between variables were primarily studied. Using the PLS-SEM (Partial Least Squares Structural Equation Modelling) bootstrapping method, the strength and significance of these relationships were evaluated. To assess the influence of the external variables (EV and EK) on the endogenous variable (SCB), which stands for Sustainable consumption behavior. Using the bootstrapping method, several statistical measurements, such as the size of the coefficients and p-values, were noted. The p-values show the statistical significance of these relationships, while the coefficients reveal the nature and degree of the relationships between the variables. In the evaluation of the sample 5000 cases were created to evaluate the model for each subset. Standard error estimates and path coefficients were computed using t-tests on the bootstrapped samples. Thus, this allowed for the analysis of the direct relationships within the structural model.

TABLE 4.11: Path Coefficients

Hypothesis Path	Original (O)	sample (M)	Sample mean	Standard (STDEV)	Deviation	T (O/STDEV)	Statistics	P val- ues	Decision
H1 EK → GPI	0.176	0.174		0.073		2.394		0.017	Accepted
H2 EV → GPI	0.519	0.522		0.075		6.897		0	Accepted
H3 GPI → SCB	0.566	0.565		0.063		8.945		0	Accepted

EK= Environmental Knowledge, EV= Environmental Values, GPI= Green Purchase Intention

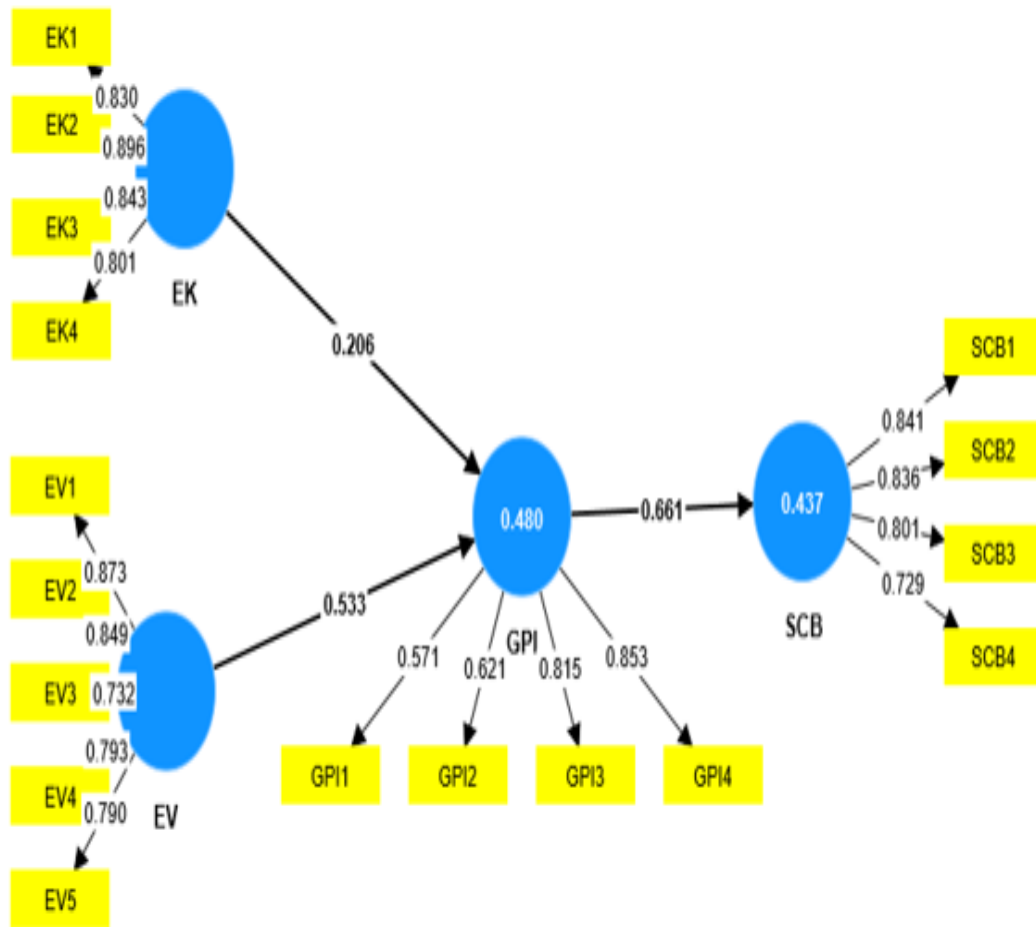


FIGURE 4.5: Structural Model

The results of the direct relationships based on the PLS-SEM bootstrapping and algorithm technique are shown in the table 4.12 above. After carefully evaluating the inner model path coefficients, the outer model can be assessed by looking at the values of the t-statistics in the outer loadings (i.e., means, standard deviations, and t-values).

The table above shows that every t-statistics result is higher than the allowable cutoff of 1.96. Thus, it may be concluded that all of the outside model loadings are fundamentally significant. We may investigate the outer model by looking at the T-statistic in the "Outer Loadings (Means, STDEV, T-Values)" window after looking at the path coefficient for the inner model.

We can examine the outer model by looking at the T-statistic in the "Outer Loadings (Means, STDEV, TValues)" window after looking at the path coefficient for the inner model. All of the T-values are greater than cut off value of 1.96, as seen

in table 4.12, and we may thus conclude that the outer loadings are exceedingly significant.

The findings show that the first hypothesis which was denoted as H1, is approved, proving a positive relationship between EK and GPI with the  $t=2.394$  &  $p=0.017$ . The second hypothesis H2 is similarly approved as well as it indicates the  $t=6.897$  &  $p=0.000$  this implies that there is positive relationship between the EV and GPI.

We may investigate the outer model by looking at the T-statistic in the "Outer Loadings (Means, STDEV, T-Values)" window after looking at the path coefficient for the inner model. Thus, this signifies that H2 has been supported. The third hypothesis also implies the positive relationship between GPI and SCB with the  $t=8.945$  and  $p=0.000$  resulting into the acceptance of the H3.

## 4.6 R Square

R-squared ( $R^2$ ) is a statistical measure that represents the proportion of the variance in the dependent variable that is explained by the independent variables. In other words, it measures how well the independent variables account for the variability in the dependent variable.

TABLE 4.12: R Square

Variables	R2 Predict
GPI	0.428
SCB	0.32

The table provides R-Square values for "GPI" and "SCB" representing the proportion of total variation explained by the independent variable(s) in regression models. "GPI" has an R-Square of 0.428, explaining about 42.8% of its variation, while "SCB" has an R-Square of 0.320, explaining around 32.0% of its variation.

## 4.7 Mediation Analysis

The mediation analysis is used to determine whether a third construct can adequately explain the link between two constructs. This study has examined the role of the mediator of green purchase intention (GPI) in the link between environmental knowledge (EK), environmental values (EV), and the sustainable consumption behavior.

The bootstrapping technique has been applied for the purposes of this investigation. Through the use of bootstrapping, this method creates an experienced representation of the sample distribution of indirect effects. Many authors support the bootstrapping method above other methods such as the causal steps approach, coefficient methods etc (Santos, 1999).

A statistically significant 0.099 (O) is observed as the EK's mediation impact on SCB via GPI. The original sample is close to the average, as shown by the sample mean (M), which is 0.099. This mediation effect has a standard deviation (STDEV) of 0.044. The estimated T statistic ( $—O/STDEV—$ ), which indicates the mediation effect's significance, is 2.240. The corresponding p-value of 0.025 and the statistical significance of the mediation effect are both further indicated. This suggests that the relationship between environmental knowledge and sustainable consumption behavior is partially mediated by green purchase intention. Through the use of bootstrapping, this method creates an experienced representation of the sample distribution of indirect effects.

Similar, according to the calculated T statistic of 4.927, there was a significant and robust mediation effect. The statistical significance is further supported by the fact that the p-value for this impact is 0.000. **Figure 4.3** & **Figure 4.4** suggests that there is significant direct relationship exist thus these findings imply that the relationship between environmental values and sustainable consumer behavior is significantly mediated by green purchase intention.

The results indicates that the green purchasing intention (GPI) plays a mediating role in the indirect impacts that environmental knowledge (EK) and environmental values (EV) have on sustainable consumption behavior (SCB).

TABLE 4.13: Mediation Analysis

	Original	Sample	Std.	T	statistics	Confidence Interval		Result	Decision
	Sample	Mean	(STDEV)	(O/STDEV)	P-Value	2.5%	97.5%		
	(O)	(M)							
<b>H4 EK → GPI → SCB</b>	0.099	0.099	0.044	2.24	0.025	0.017	0.19	Partial Media- tion	Accepted
<b>H5 EV → GPI → SCB</b>	0.294	0.296	0.06	4.927	0	0.183	0.412	Partial Media- tion	Accepted

TABLE 4.14: Summary of Mediation Analysis

Independent Variables	Direct Effect (In the presence of mediator)	Indirect Effect	Total Effect	VAF	Result	Decision
H4 EK → GPI → SCB	0.099	0.099	0.176	0.5625	Partial Mediation	Accepted
H5 EV → GPI → SCB	0.294	0.294	0.519	0.5664	Partial Mediation	Accepted

## 4.8 Predictive Relevance ( $Q^2$ )

In Partial Least Squares Structural Equation Modeling (PLS-SEM), the LV (Latent Variable) prediction summary provides an assessment of the predictive relevance of each latent variable in the model. It is a summary of how well each latent variable can predict its observed indicators.

Therefore, LV prediction test was employed and  $Q^2$  values were examined. This is the main metric in the LV prediction summary.  $Q^2$  predict is a measure of predictive relevance in PLS-SEM. It indicates how well the model can predict the observed data for each latent variable. Higher  $Q^2$  predict values suggest better predictive accuracy for the respective latent variables. After running predictive analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM), we have obtained the following  $Q^2$  predict values for each latent variable:

TABLE 4.15: Prediction Summary

Variables	Q2 Predict
GPI	0.411
SCB	0.345

All the latent variable presented in table 4.14 shows the positive values for  $Q^2$ . The GPI shows the 0.411  $Q^2$  and SCB shows the 0.345  $Q^2$ . This reflects that constructs have good predictive accuracy and are considered good.

## Chapter Summary

The data was obtained from extrovert outgoing people of Pakistan and statistical analysis conducted on the data was presented in this section. A comprehensive analysis was conducted by using the PLS-SEM 4.0. While using the PLS-SEM 4.0 analysis of measurement model and STRUCTURAL model was conducted. Results of the data indicates that there is positive relationship between the environmental knowledge has positive relationship green purchase intention which

results in sustainable consumption behavior. Environmental values also have significant positive relationship with the green purchase intentions mediation analysis was also carried out and on the basis of that it can be deduced that the green purchase mediates the relationship between EK, EV and the sustainable consumption behavior (SCB).

TABLE 4.16: Summary of Results

<b>Hypothesis</b>	<b>Path Relationship</b>	<b>T-statistics</b>	<b>Results</b>
H1	EK →GPI	2.394	Accepted
H2	EV →GPI	6.897	Accepted
H3	GPI→ SCB	8.945	Accepted
H4	EK →GPI→ SCB	2.24	Accepted
H5	EV → GPI →SCB	4.927	Accepted

# Chapter 5

## Discussion and Conclusion

### 5.1 Discussion

The fundamental objective of this study was to observe the direct influence of environmental knowledge and environmental values on the sustainable consumption behavior. Furthermore, the indirect impact of above mentioned variables were also analyzed through the mediating role of green purchase intention. This study examined the total of 5 hypothesis which were developed in the light of literature. These hypothesis were examined via the lens of the stimulus organism response model. The current section pertains to the through discussion on the proposed hypothesis under the light of existing body of literature.

**RO1: To measure the role of environmental knowledge on the individual's intentions of sustainable consumption behavior.**

Based on the data collected & analyzed for this study we find evidence to support the hypothesis (H1) that EK positively influences the intention to make green purchases. The results show a strong relationship between people's EK and tendency to show SCB. These findings are in line with earlier studies in the area. Studies have shown that knowledge about the environment and pro-environmental behaviors, such as green buying intentions, are positively correlated. This indicated that those with higher EK levels displayed pro-environmental views, which in turn motivated them to engage in green consumption behavior. These findings are in

harmony with (Chuang & Huang, 2018; Lin & Niu, 2018; Saari et al., 2021) findings in his study he posited that there is positive relationship between the EK and GPI.

**RO2: To examine how the Environmental value influence the intention of sustainable consumption behavior of an individual.**

The study's findings shed significant insight on this vital aspect of consumer behavior by examining the relationship between environmental values and green purchase intentions. The results showed a substantial relationship between EV and GPI, showing that people with higher EV are more likely to engage in sustainable consumption behavior. Hypothesis are developed under the light of SOR model. According to S-O-R model the presence of environmental stimuli acts as a trigger that influences an individual's internal state, (environmental values). When individuals with strong EV encounter these stimuli, they are more likely to perceive the products as aligned with their values and beliefs about sustainable consumption behavior. Thus we conjured the positive relationship between the EV and GPI. The study's findings lend support to hypothesis H2, showing that intentions to make green purchases are in fact significantly influenced by EV. According to the study, there is a significant relationship between the willingness of individuals to engage in green purchasing behaviors and their strength of EV. Current study's results are in complete harmony with the past researches. Previous studies have consistently shown findings that are in line with this hypothesis. (Li et al., 2021; Nekmahmud, Ramkissoon, & Fekete-Farkas, 2022; Zhuang et al., 2021), this in-depth investigation highlights the significance of environmental values as a motivating factor behind green purchase decisions thus supports the validity of the hypothesis.

**RO3: To examine the role of Green Purchase intention in sustainable consumption behavior.**

The study was aimed at understanding the relationship between the green purchase intentions and sustainable consumption behavior. the hypothesis were developed in light of SOR model due to the fact that the Stimulus-Organism-Response (SOR) model offers a relevant framework to understand the relationship between

GPI and sustainable consumption behavior in the context of the mentioned hypothesis. The research findings support hypothesis H3, confirming that there is a significant relationship between Green Purchase intention and sustainable consumption behavior. The study reveals that individuals with higher levels of Green Purchase intention are more likely to engage in sustainable consumption behaviors. The accepted hypothesis suggests that individuals who exhibit higher Green Purchase intention (O) are more likely to respond (R) by engaging in sustainable consumption behaviors when exposed to environmental stimuli (S).

The presence of stimuli promoting eco-friendly products and sustainable options influences individuals' internal states, particularly their intentions to make green purchases. As a result, individuals with a stronger GPI are more motivated to adopt sustainable consumption behaviors. Results are in complete harmony with the past studies a research by [Nekmahmud et al. \(2022\)](#), Investigated the link between GPI and sustainable consumption behavior among a diverse sample depicting that there is positive relationship between the two constructs. This indicates that the people who has GPI will more likely to show and adopt the SCB. Moreover, additionally, ([Van Dam & Apeldoorn, 1996](#)) also suggests that there is positive function of Green Purchase intention in forecasting sustainable consumption behavior.

**RO4: To assess the mediating role of Green Purchase intention in the relationship between Environmental knowledge and sustainable consumption behavior.**

**RO5: To assess the mediating role of Green Purchase intention in the relationship between Environmental values and sustainable consumption behavior.**

This study was aimed at exploring the mediating role of green purchase intentions between the environmental knowledge and sustainable consumption behavior. Fourth hypothesis suggests that there is positive relationship between the green purchase intention and sustainable consumption behavior. This was developed on the foundation of the S-O-R model. The hypothesis suggests that GPI serves as a mediator between Environmental knowledge (S) and sustainable consumption behavior (R). In other words, Green Purchase intention plays a role in

translating individual's environmental knowledge, values and positive attitudes towards sustainability (O) into actual sustainable consumption behaviors (R).

This study shows support for the mediation hypothesis. The research's findings provide compelling evidence in favor of the notion that the intention to make green purchases mediates the relationship between EK and SCB. According to the study, people's intentions to make green purchases serve as a key psychological mechanism that transforms their EK into practical sustainable consumption behavior. (Yoon et al., 2017) also posits that there's positive mediating role being played by the GPI which leads towards the SCB. H. Wang et al. (2021) study's findings also support the mediating relationship of GPI.

Fifth hypothesis states that there is positive mediating role of Green Purchase intention in the relationship between EV and SCB. The research findings strongly support the hypothesis that GPI plays a significant mediating role in the relationship between EV and SCB. The study provides empirical evidence demonstrating that individuals' environmental values influence their GPI, which in turn drives their actual sustainable consumption behaviors. Results of current study are in complete harmony with the previous studies (Kim et al., 2020); (Lee & Park, 2017); (Zhang & Zhao, 2019) findings also indicate that the people with the high environmental values are more likely to depict the sustainable consumption behavior.

## 5.2 Theoretical Contribution

The findings of this study significantly broaden our understanding of SCB. First off, this study contributes to the body of knowledge on the relationship between EV, EK, and SCB. The study makes a substantial contribution to the body of literature that examines the linkages mentioned above in the context of Pakistan. There is a lot of study on the connection between environmental values, knowledge, and green purchasing intention, but the majority of it examines this connection from the standpoint of corporate environmental responsibility (CER). There aren't many studies on consumer EV and EK, especially in light of the SOR Model in Pakistani context.

Secondly, this theoretical contribution improves knowledge of how the EK-EV relationship influences SCB, specifically in the setting of Pakistan. We clarified the psychological processes by which EK and EV interact in shaping decisions about sustainable consumption by including the SOR Model. Moreover, the research indicates that the EK and EV are imperative antecedents which help in the development of sustainable consumption behavior with the mediating role of GPI. Furthermore, this study has been in complete harmony with the past researches which shows that GPI is one of the important mediating construct in the relationship between EK, EV and SCB.

Lastly, the study presents the notable insights for the researchers. The proposed model was based on the Stimulus organism response (SOR) model. The current model shows the relationship of mediator in the study. The mediating relationship of green purchase intention between the EK, EV and SCB explains the mechanisms of these relationships. The proposed conceptual model provides the foundation for future researchers & educates policymakers and marketers who want to encourage sustainable behaviors in Pakistan and other emerging economies which is suggested later.

### **5.3 Managerial Implication**

The results of this study highlight the significance of raising consumer knowledge of environmental issues in Pakistan, particularly in regard to plastic pollution and its effects on the environment. Managers and decision-makers ought to support educational initiatives and information-dissemination plans to increase public knowledge of the harmful impacts of plastic consumption. These programs can arm consumers with the information they need to make wise choices and promote sustainable consumption behavior. Moreover, The significant association between environmental knowledge and the intention to make green purchases found in this study highlights the importance of including environmental education programs in marketing strategies and sustainability initiatives for companies looking to expand their green customer base. Businesses in the plastics sector should prioritize coordinating their marketing messages with consumers' environmental values in order

to promote sustainable purchasing habits. The study emphasizes that promoting a culture of sustainable consumption among consumers is essential to accomplishing these objectives. People can be empowered to make educated decisions regarding their use of plastic by increasing environmental knowledge and environmental values among the general population. This will result in a preference for eco-friendly alternatives and a decrease in the production of plastic waste. Furthermore, developing strong environmental values could be effective as an internal drive for people to actively participate in ethical practices for recycling and disposing of plastic waste.

This research suggests that businesses and governments in Pakistan can effectively address the plastic waste issue by aggressively promoting environmental values and knowledge. Initiatives that attempt to inform the public about the effects of plastic pollution on the environment and the value of sustainable consumption can be extremely effective at lowering the production of plastic waste. The promotion of strong environmental values among consumers can also encourage ethical and environmentally conscientious behavior, which will help Pakistan's plastic industry become more sustainable. By taking these steps, the country can take advantage of the chance to address environmental issues while generating economic advantages through the development of recycling companies, bringing in substantial sums of money, and providing new job possibilities for its residents.

## **5.4 Limitation and Direction for Future Studies**

The study has some limitations despite its theoretical and practical upsides. First off, it is impossible to generalize the findings of this study. A small sample size was used to evaluate the associations, and the study's scope was restricted. Therefore, it is required to expand the scope of this study in order to confirm generalizability. This can be accomplished by expanding the sample size and adding more participants to the study. Secondly, the study used a cross-sectional design, meaning that information was gathered from the respondents all at once. This indicates that the study actually only recorded a single response from the consumer regarding the relevant factors, ignoring any possible series of future responses. This

makes it difficult to prove causality in all its aspects. Third, the study employed a survey-based methodology as opposed to an experimental one. The best way to confirm a cause and effect link is through experimentation. Lastly, the study only used the mediator green purchase intentions.

Researchers in the future are encouraged to do such a study using a multi wave study design and data collection at various timelines. In addition, a potential experimental design for such a study should be used. Causation can be appropriately established by the use of an experimental design in a multi-wave investigation, and more reliable results can be obtained. Lastly future studies should include the other moderation mechanisms with the inclusion of other variables such as price sensitivity etc. With the addition of new constructs the significance of existing framework would be enhanced.

## **5.5 Conclusion**

Globalization and consumerism have had serious negative effects on the environment, especially in terms of plastic waste. Many environmental issues have emerged as a result of the growing competitiveness, industrialization, and proliferating goods and services, severely impacting our surroundings. According to research, consumers today have higher levels of awareness and knowledge, which increases their tendency to maintain and protect the environment. By embracing environmental values, these empowered consumers show an increasing willingness to change their purchase behaviors. They deliberately look for goods that have less carbon footprints, are renewable, and are environmentally beneficial.

Given its negative effects on the environment, it is critical to address the problem of plastic trash in this context. The impact of plastic waste on ecosystems, wildlife, and human health has been increasing. The primary objective of our research was to objectively investigate and validate the analyses indicated above. The findings of our study supported the notion that environmental knowledge and environmental values are important antecedents and precursors of the green purchase intention to engage in sustainable consumption behavior. This highlights the need for coordinated efforts from decision-makers, businesses, and people to

learn about and embrace pro-environmental values and knowledge. Our analysis emphasizes the need for stakeholders to work together quickly to address plastic waste by promoting environmental knowledge and values and encouraging sustainable consumer behavior. We can encourage sustainable consumption behavior by fostering environmental knowledge and environmental values.

## **Chapter Summary**

This chapter entails an in-depth exploration of the research findings, delving into the details of the research questions and hypotheses. Through rigorous analysis and extensive discussions, robust conclusions are formulated, underpinned by meticulous examination of the data. These conclusions not only serve to consolidate the research findings but also provide valuable insights into the broader implications and significance of the study. Through extensive discussions, substantial conclusions are drawn, accompanied by insightful implications. These discussions emphasize the significant contributions made to the existing theory and provide valuable insights into the implications for supervisory practices. By highlighting the practical applications and potential benefits of the study, this chapter bridges the gap between theory and practice. It offers valuable insights and recommendations for supervisors and practitioners, informing their decision-making processes and potentially improving their effectiveness in their respective domains. Additionally, the chapter concludes with a clear summary of the research findings and a strong suggestion for future implications.

# References

- Achchuthan, S., & Thirunavukkarasu, V. (2016). Enhancing purchase intentions towards sustainability: The influence of environmental attitude, perceived consumer effectiveness, health consciousness and social influence. *Health Consciousness and Social Influence*, 30(3), 79-105.
- Agyeiwaah, E., Pratt, S., Iaquinto, B. L., & Suntikul, W. (2023). Social identity positively impacts sustainable behaviors of backpackers. *Tourism Geographies*, 25(1), 1-22.
- Ahmed, T., & Sipra, H. F. K. (2020). Environmental and health implications of plastic pollution: A pakistan perspective. In *Handbook of research on environmental and human health impacts of plastic pollution* (pp. 38-58). IGI Global.
- Ali, Y., Sara, S., & Rehman, O. u. (2021). How to tackle plastic bags and bottles pollution crisis in pakistan? a cost-benefit analysis approach. *Environmental and Ecological Statistics*, 28(3), 697-727.
- Amoah, A., & Addoah, T. (2021). Does environmental knowledge drive pro-environmental behaviour in developing countries? evidence from households in ghana. *Environment, Development and Sustainability*, 23, 2719-2738.
- Ateş, H. (2020). Merging theory of planned behavior and value identity personal norm model to explain pro-environmental behaviors. *Sustainable Production and Consumption*, 24, 169-180.
- Bang, H.-K., Ellinger, A. E., Hadjimarcou, J., & Traichal, P. A. (2000). Consumer concern, knowledge, belief, and attitude toward renewable energy: An application of the reasoned action theory. *Psychology & Marketing*, 17(6), 449-468.

- Batool, S. A., Chaudhry, N., & Majeed, K. (2008). Economic potential of recycling business in lahore, pakistan. *Waste management*, *28*(2), 294–298.
- Bocken, N., Niessen, L., & Tukker, A. (2021). Impacts of consumption and the role of business. In *The palgrave handbook of global sustainability* (pp. 1–17). Springer.
- Burgess, S. M., & Steenkamp, J.-B. E. (1999). Value priorities and consumer behavior in a transitional economy. In *Marketing issues in transitional economies* (pp. 85–105). Springer.
- Chan, R. Y., & Lau, L. B. (2000). Antecedents of green purchases: a survey in china. *Journal of consumer marketing*, *17*(4), 338–357.
- Chang, H. J., Cho, H. J., Turner, T., Gupta, M., & Watchravesringkan, K. (2015). Effects of store attributes on retail patronage behaviors: Evidence from activewear specialty stores. *Journal of Fashion Marketing and Management*, *19*(2), 136–153.
- Chen, K. K. (2014). Assessing the effects of customer innovativeness, environmental value and ecological lifestyles on residential solar power systems install intention. *Energy Policy*, *67*, 951–961.
- Choi, D., & Johnson, K. K. (2019). Influences of environmental and hedonic motivations on intention to purchase green products: An extension of the theory of planned behavior. *Sustainable Production and Consumption*, *18*, 145–155.
- Chuang, S.-P., & Huang, S.-J. (2018). The effect of environmental corporate social responsibility on environmental performance and business competitiveness: The mediation of green information technology capital. *Journal of business ethics*, *150*, 991–1009.
- Donthu, & Bhargava. (2021). The influence of consumer environmental attitudes and perceptions of plastic waste on green purchase intention. *Journal of Retailing and Consumer Services*.
- Fadeeva, Z., & Van Berkel, R. (2021). Unlocking circular economy for prevention of marine plastic pollution: An exploration of g20 policy and initiatives. *Journal of environmental management*, *277*, 111457.
- García, de Frutos, Mura, & Tortosa. (2021). The role of environmental concern and values in sustainable purchase behavior: The case of eco-friendly packaging.

- Journal of Cleaner Production*, 20188–20195.
- Grădinaru, C., Obadă, D.-R., Grădinaru, I.-A., & Dabija, D.-C. (2022). Enhancing sustainable cosmetics brand purchase: A comprehensive approach based on the sor model and the triple bottom line. *Sustainability*, *14*(21), 14118.
- Hameed, I., Khan, K., Waris, I., & Zainab, B. (2022). Factors influencing the sustainable consumer behavior concerning the recycling of plastic waste. *Environmental Quality Management*, *32*(2), 197–207.
- Haws, K. L., Winterich, K. P., & Naylor, R. W. (2014). Seeing the world through green-tinted glasses: Green consumption values and responses to environmentally friendly products. *Journal of consumer psychology*, *24*(3), 336–354.
- Heidbreder, L. M., Bablok, I., Drews, S., & Menzel, C. (2019). Tackling the plastic problem: A review on perceptions, behaviors, and interventions. *Science of the total environment*, *668*, 1077–1093.
- Heo, J., & Muralidharan, S. (2019). What triggers young millennials to purchase eco-friendly products?: the interrelationships among knowledge, perceived consumer effectiveness, and environmental concern. *Journal of marketing communications*, *25*(4), 421–437.
- Higueras-Castillo, E., Liébana-Cabanillas, F. J., Muñoz-Leiva, F., & García-Maroto, I. (2019). Evaluating consumer attitudes toward electromobility and the moderating effect of perceived consumer effectiveness. *Journal of Retailing and Consumer Services*, *51*, 387–398.
- Horton, A. A. (2022). Plastic pollution: when do we know enough? *Journal of Hazardous Materials*, *422*, 126885.
- Ishaq, M. I. (2018). Testing sustainable consumption behavior in Italy and Pakistan. *European Journal of Business Science and Technology*, *4*(1), 93–104.
- Kadic-Magljalic, S., Arslanagic-Kalajdzic, M., Micevski, M., Dlacic, J., & Zabkar, V. (2019). Being engaged is a good thing: Understanding sustainable consumption behavior among young adults. *Journal of business research*, *104*, 644–654.
- Kanchanapibul, M., Lacka, E., Wang, X., & Chan, H. K. (2014). An empirical investigation of green purchase behaviour among the young generation. *Journal of cleaner production*, *66*, 528–536.

- Kang, J., Liu, C., & Kim, S.-H. (2013). Environmentally sustainable textile and apparel consumption: the role of consumer knowledge, perceived consumer effectiveness and perceived personal relevance. *International Journal of consumer studies*, 37(4), 442–452.
- Karp, D. G., Danh, K., Espinoza, N. F., Seftel, D., Robinson, P. V., & Tsai, C.-t. (2020). A serological assay to detect sars-cov-2 antibodies in at-home collected finger-prick dried blood spots. *Scientific reports*, 10(1), 20188–20199.
- Khaleeli, M., Oswal, N., & Sleem, H. (2021). The moderating effect of price consciousness on the relationship between green products purchase intention and customers' purchase behavior: Does environmental knowledge matters? *Management Science Letters*, 11(5), 1651–1658.
- Kim, M. J., Lee, C.-K., & Jung, T. (2020). Exploring consumer behavior in virtual reality tourism using an extended stimulus-organism-response model. *Journal of travel research*, 59(1), 69–89.
- Kumar, A., Prakash, G., & Kumar, G. (2021). Does environmentally responsible purchase intention matter for consumers? a predictive sustainable model developed through an empirical study. *Journal of Retailing and Consumer Services*, 58, 102270.
- Kumar, N., Garg, P., & Singh, S. (2022). Pro-environmental purchase intention towards eco-friendly apparel: Augmenting the theory of planned behavior with perceived consumer effectiveness and environmental concern. *Journal of Global Fashion Marketing*, 13(2), 134–150.
- Kushwah, S., Dhir, A., & Sagar, M. (2019). Ethical consumption intentions and choice behavior towards organic food. moderation role of buying and environmental concerns. *Journal of Cleaner Production*, 236, 117519.
- Lai, C. K., & Cheng, E. W. (2016). Green purchase behavior of undergraduate students in hong kong. *The Social Science Journal*, 53(1), 67–76.
- Lambert, Z. V., Wildt, A. R., & Durand, R. M. (1991). Approximating confidence intervals for factor loadings. *Multivariate behavioral research*, 26(3), 421–434.
- Lee, & Park. (2017). The mediating effect of green purchase intention on the

- relationship between environmental values and sustainable consumption behavior. *Journal of Business Ethics*, 1, 101–115.
- Leonidou, C. N., & Skarmeas, D. (2017). Gray shades of green: Causes and consequences of green skepticism. *Journal of business ethics*, 144, 401–415.
- Li, P., Wang, X., Su, M., Zou, X., Duan, L., & Zhang, H. (2021). Characteristics of plastic pollution in the environment: a review. *Bulletin of environmental contamination and toxicology*, 107, 577–584.
- Lin, S.-T., & Niu, H.-J. (2018). Green consumption: Environmental knowledge, environmental consciousness, social norms, and purchasing behavior. *Business Strategy and the Environment*, 27(8), 1679–1688.
- Liobikienė, G., & Poškus, M. S. (2019). The importance of environmental knowledge for private and public sphere pro-environmental behavior: modifying the value-belief-norm theory. *Sustainability*, 11(12), 3324.
- Liu, P., Teng, M., & Han, C. (2020). How does environmental knowledge translate into pro-environmental behaviors?: The mediating role of environmental attitudes and behavioral intentions. *Science of the total environment*, 728, 138126.
- Matharu, M., Jain, R., & Kamboj, S. (2020). Understanding the impact of lifestyle on sustainable consumption behavior: a sharing economy perspective. *Management of environmental quality: An international Journal*, 32(1), 20–40.
- McFall-Johnsen, M. (2019). The fashion industry emits more carbon than international flights and maritime shipping combined. here are the biggest ways it impacts the planet. *Business Insider*, 21.
- Mim, K. B., Jai, T., & Lee, S. H. (2022). The influence of sustainable positioning on ewom and brand loyalty: Analysis of credible sources and transparency practices based on the sor model. *Sustainability*, 14(19), 12461.
- Mostafa, M. M. (2007). Gender differences in egyptian consumers' green purchase behaviour: the effects of environmental knowledge, concern and attitude. *International journal of consumer studies*, 31(3), 220–229.
- Mukheed, M., & Alisha, K. (2020). Plastic pollution in pakistan: Environmental and health implications. *J. Pollut. Effects Contr*, 4, 251–258.
- Nekmahmud, M., Ramkissoon, H., & Fekete-Farkas, M. (2022). Green purchase and sustainable consumption: A comparative study between european and

- non-european tourists. *Tourism Management Perspectives*, 43, 100980.
- Nguyen, T. N., Lobo, A., & Greenland, S. (2017). Energy efficient household appliances in emerging markets: the influence of consumers' values and knowledge on their attitudes and purchase behaviour. *International journal of consumer studies*, 41(2), 167–177.
- O'Neill, D. W., Fanning, A. L., Lamb, W. F., & Steinberger, J. K. (2018). A good life for all within planetary boundaries. *Nature sustainability*, 1(2), 88–95.
- Orzan, G., Cruceru, A. F., Bălăceanu, C. T., & Chivu, R.-G. (2018). Consumers' behavior concerning sustainable packaging: An exploratory study on romanian consumers. *Sustainability*, 10(6), 1787.
- Park, H. J., & Lin, L. M. (2020). Exploring attitude–behavior gap in sustainable consumption: Comparison of recycled and upcycled fashion products. *Journal of business research*, 117, 623–628.
- Perry, G. L., Richardson, S. J., Harré, N., Hodges, D., Lyver, P. O., Maseyk, F. J., ... others (2021). Evaluating the role of social norms in fostering pro-environmental behaviors. *Frontiers in Environmental Science*, 9, 620125.
- Polonsky, M. J. (2011). Transformative green marketing: Impediments and opportunities. *Journal of business research*, 64(12), 1311–1319.
- Poithou, M., Hanna, R. F., & Chalvatzis, K. J. (2016). Environmental knowledge, pro-environmental behaviour and energy savings in households: An empirical study. *Applied Energy*, 184, 1217–1229.
- Rizkalla, N. (2018). Determinants of sustainable consumption behavior: An examination of consumption values, pce environmental concern and environmental knowledge. *International Journal of Social Science and Humanity*, 8(2), 48–54.
- Saari, U. A., Damberg, S., Frömbing, L., & Ringle, C. M. (2021). Sustainable consumption behavior of europeans: The influence of environmental knowledge and risk perception on environmental concern and behavioral intention. *Ecological Economics*, 189, 107–155.
- Satista. (2023). Annual production of plastics worldwide from 1950 to 2021.
- Sheth, J. N., Sethia, N. K., & Srinivas, S. (2011). Mindful consumption: A customer-centric approach to sustainability. *Journal of the academy of marketing science*, 39, 21–39.

- Shevlin, M., & Miles, J. N. (1998). Effects of sample size, model specification and factor loadings on the gfi in confirmatory factor analysis. *Personality and Individual Differences, 25*(1), 85–90.
- Situmorang, R. O. P., Liang, T.-C., & Chang, S.-C. (2020). The difference of knowledge and behavior of college students on plastic waste problems. *Sustainability, 12*(19), 7851–7869.
- Sobh, R., & Perry, C. (2006). Research design and data analysis in realism research. *European Journal of marketing, 40*(11/12), 1194–1209.
- Song, Z., Liu, C., & Shi, R. (2022). How do fresh live broadcast impact consumers' purchase intention? based on the sor theory. *Sustainability, 14*(21), 143820–143836.
- Soomro, R. B., Mirani, I. A., Sajid Ali, M., & Marvi, S. (2020). Exploring the green purchasing behavior of young generation in pakistan: Opportunities for green entrepreneurship. *Asia Pacific Journal of Innovation and Entrepreneurship, 14*(3), 289–302.
- Spears, N., & Singh, S. N. (2004). Measuring attitude toward the brand and purchase intentions. *Journal of current issues & research in advertising, 26*(2), 53–66.
- Synthia, I. J., & Kabir, S. (2015). An investigation of cosumer attitudes towards new varieties of shopping bags: exploring eco-awareness and the possibility of behavior change. *The Journal of Developing Areas, 49*(5), 183–196.
- Tadaki, M., Sinner, J., & Chan, K. M. (2017). Making sense of environmental values: a typology of concepts. *Ecology and Society, 22*(1), 122–135.
- Talwar, S., Kaur, P., Nunkoo, R., & Dhir, A. (2022). Digitalization and sustainability: Virtual reality tourism in a post pandemic world. *Journal of Sustainable Tourism, 1*–28.
- Van Dam, Y. K., & Apeldoorn, P. A. (1996). Sustainable marketing. *Journal of macromarketing, 16*(2), 45–56.
- Vermeir, I., Weijters, B., De Houwer, J., Geuens, M., Slabbinck, H., Spruyt, A., ... Verbeke, W. (2020). Environmentally sustainable food consumption: A review and research agenda from a goal-directed perspective. *Frontiers in Psychology, 11*, 1603–1609.

- Wang, & Yan. (2017). Promoting sustainable consumption behaviors: The impacts of environmental attitudes and governance in a cross-national context. *Environment and Behavior*, *49*(10), 1128–1155.
- Wang, H., Ma, B., Bai, R., & Zhang, L. (2021). The unexpected effect of frugality on green purchase intention. *Journal of Retailing and Consumer Services*, *59*, 102385–102397.
- Wang, Y., Xiang, D., Yang, Z., & Ma, S. S. (2019). Unraveling customer sustainable consumption behaviors in sharing economy: A socio-economic approach based on social exchange theory. *Journal of cleaner production*, *208*, 869–879.
- Yang, X., Tseng, Y., & Lee, B. (2021). Merging the social influence theory and the goal-framing theory to understand consumers' green purchasing behavior: does the level of sensitivity to climate change really matter? *Frontiers in Psychology*, *12*, 766754–766768.
- Yoon, S.-H., Bleiziffer, S., De Backer, O., Delgado, V., Arai, T., Ziegelmueller, J., ... others (2017). Outcomes in transcatheter aortic valve replacement for bicuspid versus tricuspid aortic valve stenosis. *Journal of the American College of Cardiology*, *69*(21), 2579–2589.
- Zhuang, W., Luo, X., & Riaz, M. U. (2021). On the factors influencing green purchase intention: A meta-analysis approach. *Frontiers in Psychology*, *12*, 644020–644029.

# Appendix-A

## Questionnaire

**Dear Respondent**

I am student of MS/M-Phil Management Sciences at Capital University of Science and Technology Islamabad. I am conducting a research on a topic titled **“Environmental Factors that Enhance the Adoption of Sustainable Consumption Behavior”**. You can help me by completing the attached questionnaire, you will find it quite interesting. I appreciate your participation in my study and I assure that your responses will be held confidential and will only be used for education purposes.

Sincerely,

**Andleeb Awan,**

**MS Research Scholar,**

**Faculty of Management and Social Sciences,**

**Capital University Science and Technology, Islamabad.**

## **Section 1: Please select Yes or No option**

1. While buying goods do you explore sign of recycling?
2. Do you frequently use plastic products such as single-use bottles, straws, bags, or food containers in your daily life?
3. Do you fall within the youth who frequently utilize plastic-based products, such as fizzy drink cans etc.?

4. Do you frequently use single-use plastic items, such as disposable cutlery, straws, or plastic bags, in your daily life?
5. Do you frequently use plastic straws when consuming beverages?
6. Are you mindful of reducing your usage of single-use plastic items in your daily routine?
7. Do you purchase products that are packaged in plastic containers (e.g., food items, personal care products, household goods)?
8. Do you consume plastic-packaged beverages more than twice per week ?
9. Do you engage in social activities or events (such as parties, gatherings, or outings)

## **Section 2: Demographics**

### **Gender**

1. Male
2. Female

### **Age**

1. 20-24
2. 25-30

### **What is your highest level of education?**

1. Inter
2. Bachelors
3. Masters and above

## **Section 3: Variable Questions**

Please select the number showing the degree to which you agree or disagree for each of the subsequent statements; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree

Sr. No	Variable and Statement of Question
	<b>Environmental Knowledge</b>
EK1	I know more about recycling than the average person
EK2	I understand the environmental phrases and symbols on product packages.
EK3	I am very knowledgeable about environmental issues
EK4	I am confident that I know how to select products and packages that reduce the amount of waste ending up in landfills
	<b>Environmental values</b>
EV1	It is important to me that the products I use do not harm the environment
EV2	I consider the potential environmental impact of my actions when making many of my decisions
EV3	I am concerned about wasting the resources of our planet
EV4	I would describe myself as environmentally responsible
EV5	I am willing to be inconvenienced in order to take actions that are more environmentally friendly
	<b>Green Purchase Intention</b>
GPI1	I would absolutely consider buying those products that are environmentally friendly.
GPI2	I would absolutely plan to buy the environmentally friendly products.
GPI3	I think if I carry out some pro-environmental behaviors in my everyday life I would contribute a lot to our environment.
	<b>Sustainable consumption behavior</b>
SCB1	When there is a choice, I always choose the product that contributes to the least amount of pollution.
SCB2	Whenever possible I buy products packaged in recyclable containers
SCB3	When I purchase products, I make a conscious effort to buy those products that are low in pollutants.

SCB4	When I have a choice between two equal products, I always purchase the one less harmful to natural environment.
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