

CAPITAL UNIVERSITY OF SCIENCE AND  
TECHNOLOGY, ISLAMABAD



**Factors Leading to Sustainable  
Product Consumption with the  
Mediating Role of Environmental  
Attachment**

by

**Rabya Tauheed**

A thesis submitted in partial fulfillment for the  
degree of Master of Science

in the

**Faculty of Management & Social Sciences  
Department of Management Sciences**

2021

Copyright © 2021 by Rabya Tauheed

All rights reserved. No part of this thesis may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, by any information storage and retrieval system without the prior written permission of the author.

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



## CERTIFICATE OF APPROVAL

### **Factors Leading to Sustainable Product Consumption with the Mediating Role of Environmental Attachment**

by

Rabya Tauheed

(MMS193017)

### THESIS EXAMINING COMMITTEE

S. No.	Examiner	Name	Organization
(a)	External Examiner	Dr. Mubashar Hassan Zia	AIOU, Islamabad
(b)	Internal Examiner	Dr. Lakhi Muhammad	CUST, Islamabad
(c)	Supervisor	Dr. Ahsan Mahmood Ahmed	CUST, Islamabad

---

Dr. Ahsan Mahmood Ahmed

Thesis Supervisor

December, 2021

---

Dr. Lakhi Muhammad

Head

Dept. of Management Sciences

December, 2021

---

Dr. Arshad Hassan

Dean

Faculty of Management & Social Sci.

December, 2021

## *Author's Declaration*

I, **Rabya Tauheed** hereby state that my MS thesis titled “**Factors Leading to Sustainable Product Consumption with the Mediating Role of Environmental Attachment**” is my own work and has not been submitted previously by me for taking any degree from Capital University of Science and Technology, Islamabad or anywhere else in the country/abroad.

At any time if my statement is found to be incorrect even after my graduation, the University has the right to withdraw my MS Degree.

**(Rabya Tauheed)**

Registration No: MMS193017

## *Plagiarism Undertaking*

I solemnly declare that research work presented in this thesis titled “**Factors Leading to Sustainable Product Consumption with the Mediating Role of Environmental Attachment**” is solely my research work with no significant contribution from any other person. Small contribution/help wherever taken has been duly acknowledged and that complete thesis has been written by me.

I understand the zero tolerance policy of the HEC and Capital University of Science and Technology towards plagiarism. Therefore, I as an author of the above titled thesis declare that no portion of my thesis has been plagiarized and any material used as reference is properly referred/cited.

I undertake that if I am found guilty of any formal plagiarism in the above titled thesis even after award of MS Degree, the University reserves the right to withdraw/revoke my MS degree and that HEC and the University have the right to publish my name on the HEC/University website on which names of students are placed who submitted plagiarized work.

**(Rabya Tauheed)**

Registration No: MMS193017

## *Acknowledgement*

I am thankful to Allah Almighty who guided me and make each step easy for me during this whole research. I would like to express my sincere gratitude to my thesis supervisor **Dr. Ahsan Mahmood Ahmed** for the continuous support, motivation, enthusiasm, and immense knowledge. His guidance helped me a lot in research and writing.

There have been many people who helped me, backed me up whenever I lost hope and faith. I would like to thank to them and wish them best of luck. I would specially like to thank to my friend **Nida Hassan** who supported me in finding the exact target audience by whom I can easily get my research questionnaire filled. Her detailed review and comprehensive approach on getting questionnaire filled online helped me a lot to get the streamlined results for my thesis project. My most sincere appreciation goes to my parents and siblings for always being there to help me, listening my problems and motivating me time by time to complete my research work.

**(Rabya Tauheed)**

## *Abstract*

The objective of this thesis was to study the influence of green environment awareness (GEA) and sense of responsibility (SR) on sustainable product consumption (SPC) with the mediation role of environment attachment (EA). A google doc survey-based questionnaire was distributed online in Pakistan related to the consumption of sustainable products. Smart PLS 3.2.0 was used to test the hypothetical model used in this research. GEA and SOR had a significant impact on SPC. Similarly, EA appeared to have a significant relationship with SPC. EA fully mediated between GEA and SPC. Whereas, EA also fully mediated between SR and SPC. Purposive sampling was used in this thesis for collection of the data. This thesis extended previous research with a focus on sustainable product consumption in the emerging market. Findings revealed that, the factors of sustainability discussed in this thesis would help marketers and policy makers to target the customers in order to move towards sustainable products.

**Keywords: Factors of Sustainability, Sustainable Consumption, Green Environmental Awareness, Sense of Responsibility, Environment Attachment, Predict Sustainable Product Consumption.**



# Contents

<b>Author's Declaration</b>	<b>iv</b>
<b>Plagiarism Undertaking</b>	<b>v</b>
<b>Acknowledgement</b>	<b>vi</b>
<b>Abstract</b>	<b>vii</b>
<b>List of Figures</b>	<b>xi</b>
<b>List of Tables</b>	<b>xii</b>
<b>Abbreviations</b>	<b>xiii</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Research Background . . . . .	1
1.2 Problem Statement . . . . .	3
1.3 Research Questions . . . . .	5
1.4 Research Objectives . . . . .	6
1.5 Theoretical Underpinning . . . . .	6
1.6 Significance of Thesis . . . . .	7
1.6.1 Contextual Gap . . . . .	7
1.6.2 Theoretical Gap . . . . .	7
1.6.3 Managerial Gap . . . . .	8
1.7 Thesis Scope . . . . .	8
1.8 Structure of this Thesis . . . . .	9
1.9 Summary . . . . .	11
<b>2 Literature Review</b>	<b>12</b>
2.1 Introduction . . . . .	12
2.2 Global view on Sustainable Product Consumption . . . . .	12
2.3 Motivation Behind Sustainable Consumption . . . . .	14
2.4 Factors of Sustainable Consumption . . . . .	16

2.5	Hypothesis	18
2.5.1	Green Environmental Awareness Relationship with Environmental Attachment	18
2.5.2	Sense of Responsibility Relationship with Environmental Attachment	20
2.5.3	Environmental Attachment Relationship with Predict Sustainable Product Consumption	21
2.5.4	Mediating role of Environmental Attachment between Green Environmental Awareness and Predict Sustainable Product Consumption	23
2.5.5	Mediating Relationship of Environmental Attachment Between Sense of Responsibility and Predict Sustainable Product Consumption	24
2.6	Norm Activation Model Theory	25
2.7	Research Gaps	26
2.7.1	Contextual Gaps	26
2.7.2	Theoretical Gap	27
2.7.3	Managerial Gap	28
2.8	Conceptual Framework	28
<b>3</b>	<b>Research Methodology</b>	<b>30</b>
3.1	Introduction	30
3.2	Research Philosophy	30
3.3	Population	31
3.4	Sample Size	31
3.5	Measurement Variable	32
3.5.1	Scale Adoption	32
3.5.1.1	Independent Variables	33
3.5.1.1.1	Green Environmental Awareness	33
3.5.1.1.2	Sense of Responsibility	33
3.5.1.2	Mediator	33
3.5.1.2.1	Environmental Attachment	33
3.5.1.3	Dependent Variable	34
3.5.1.3.1	Predict Sustainable Product Consumption	34
3.6	Data Collection Method and Procedure	34
3.7	Data Analysis	35
3.7.1	Smart PLS 3.0	35
3.8	Summary	36
<b>4</b>	<b>Results and Discussion</b>	<b>37</b>
4.1	Respondents	37
4.2	Model Evaluation (SMART PLS 3.0)	37
4.3	Running the Path Model Estimation	38
4.4	Assessment of the Measurement Model	38

4.4.1	Internal Consistency . . . . .	38
4.4.1.1	Cronbach's Alpha . . . . .	38
4.4.1.2	Composite Reliability (CR) . . . . .	39
4.4.2	Convergent Validity . . . . .	39
4.4.2.1	Average Variance Extracted (AVE) . . . . .	39
4.4.3	Discriminant Validity . . . . .	40
4.4.3.1	Cross loadings . . . . .	40
4.4.3.2	Herotrait-Monotrait Ratio (HTMT) . . . . .	41
4.4.4	Path Analysis using Boot Strapping . . . . .	42
4.4.5	Assessment of Structural Model . . . . .	42
4.4.6	Significant of path coefficient . . . . .	43
4.4.7	Coefficients of determination ( $R^2$ ) . . . . .	43
4.5	Mediation Analysis . . . . .	43
4.6	Chapter Summary . . . . .	45
<b>5</b>	<b>Conclusion and Recommendation</b> . . . . .	<b>46</b>
5.1	Introduction . . . . .	46
5.2	Summary of the Study . . . . .	46
5.3	Results for Hypothesis H1, H2 and H3 . . . . .	47
5.3.1	Green Environmental Awareness with Environmental At- tachment . . . . .	47
5.3.2	Sense of Responsibility Relationship with Environmental Attachment . . . . .	48
5.3.3	Environmental Attachment Relationship with to Predict Sustainable Consumption . . . . .	49
5.4	Results for Mediating Hypothesis H4 and H5 . . . . .	49
5.4.1	Mediating Role of Environmental Attachment Between Green Environmental Awareness and Predict Sustainable Product Consumption . . . . .	50
5.4.2	Mediating Role of Environmental Attachment Between Sense of Responsibility and Predict Sustainable Product Consump- tion . . . . .	51
5.5	Theoretical Contribution . . . . .	52
5.6	Conclusion . . . . .	52
5.7	Managerial Implications . . . . .	54
5.8	Limitations and Future Research . . . . .	55
	<b>Bibliography</b> . . . . .	<b>56</b>
	<b>Appendix A</b> . . . . .	<b>64</b>

# List of Figures

1.1	Research Outline . . . . .	9
2.1	(Scannel R. Gifford, 2010, Baumgartner Hans Steenkamp, 2001; Grewal Frank R. Kardes, 2004; Gild Bar Ford, 2005) . . . . .	29
4.1	Illustration of outer loadings after removing the items with lower loadings . . . . .	40
4.2	Illustration of structural model . . . . .	43
4.3	Mediation Analysis with path coefficients . . . . .	44

# List of Tables

3.1	A Summary of Constructs Established in the Thesis . . . . .	34
3.2	Format for Survey Questionnaire . . . . .	35
4.1	Geographic and Demographic Characteristics of Respondents . . . . .	38
4.2	Reliability Analysis . . . . .	39
4.3	Cross Loadings . . . . .	41
4.4	Heterotrait-Monotrait Ratio (HTMT) . . . . .	41
4.5	Significance and VF value of Formative items . . . . .	42
4.6	Significance Analysis of Mediation . . . . .	44

# Abbreviations

<b>AVE</b>	Average Variance Extracted
<b>EA</b>	Environmental Attachment
<b>GEA</b>	Green Environmental Awareness
<b>NAM</b>	Norm Activation Model Theory
<b>PSPC</b>	Predict Sustainable Product Consumption
<b>RO</b>	Research Objectives
<b>RQ</b>	Research Questions
<b>SR</b>	Sense of Responsibility
<b>SDG'S</b>	Sustainable Development Goals

# Chapter 1

## Introduction

### 1.1 Research Background

Sustainable Consumption has been the theme of discussion globally. With the advent of 21st century it is the emerging subject of the society (Eckert et al., 2018). Moreover, United Nations had laid down its 17 Sustainable Development goals (SDGs) in 2015 (UN, 2020). Consequently, the need to promote the sustainable consumption behavior can be easily observed by these goals where it describes that how consumers can be encouraged to rediscover their practice of consumption towards more sustainable ones (Fischer, 2017). For instance, the increase of human consumption globally has severely damaged the environment and earth. Promptly the urbanization within the South Asian countries has observed the depletion of natural resources and overspill of the waste material (David, 2019).

Similarly, the global issues like global warming and air pollution have made the customers more environmentally conscious of their purchase and its impact on the environment (Mohammad et al., 2020). Additionally, the factors like social influence, habit formation, Individual self and feelings are shifting the consumer behavior in order to save the resources by developing sense of responsibility in them (White et al, 2019). Hence the resources can be protected by reusing the waste materials through recycling them to the optimum level (Gupta, 2017).

Established literature narrated that to the large extent advancement towards

sustainable development creates employment at the global level (Shimova, 2020). The employment within sustainable industry in Europe has increased from 3.1 million to 4.2 million in 2017. The changes in sustainable consumption pattern can create around 18 million jobs throughout the world economy. (Yue et al., 2020). Equally important, global companies are moving towards sustainable products to attract consumers towards sustainability (Shimova, 2020). Certainly, the consumption of sustainable products has increased the market share which leads it towards the economic growth (Nitika et al., 2018). However, in Europe 75% of the millennials were reported to be interested in sustainable products. Revenue in 2018 was 16.6% higher than in 2013 which resulted in \$114 billion in sales revenue. The trend for sustainable products grew 5.6% more than other conventional products. In 2017 revenue was €34.3 billion in Europe in which Germany accounts for €10 billion and France makes €7.9 billion respectively ( Kennedy et al., 2019).

On the other hand, global economy has grown 1.5% in 2020 (Gelski, 2019). In many developing regions such as East Africa and East Asia are expected to continue rapid income growth. Not to mention, environmental sciences on sustainable consumption primarily focus on how environmental concerns is a key factor in purchasing decisions and how society can address growing consumption level for the sustainable development. In Pakistan sustainable product consumption is needed to be study. There is only 0.8% contribution of Pakistan in sustainable development at the global level (Sahibzada et al., 2017).

A study was conducted in USA in which researcher was of the view that there is the relation of environmental factors with various sustainable behaviors which increases the motivation in consumers to change their consumption patterns into the sustainable ones (Guckian et al., 2017). Another study was conducted in Germany in which it was found out that within the German consumers there is the social influence of adopting sustainable practices in people which will lead consumers to the sustainable consumption (Pristl et al.,2020).

In another research conducted India, it was found that the intension of Indian consumer towards sustainable products consumption was positive but the factors like subjective norm, consumer attitude and perceived behavioral control have a significant role in influencing the intensions of consumers (Matharu et al., 2020). In



the study conducted in Brazil it was also revealed that the value has been created with the influence of social factors in sustainable consumption within consumers (Meira et al., 2019). Several studies have been established in the past about the sustainable consumption patterns of the consumers. However, majority of these studies were directed towards America, Europe, India, Germany and Brazil.

There is a lack of literature and theoretical findings on the understanding to predict sustainable product consumption in the consumers with the factors affecting them such as it is essential to adopt the factors which explains the true meaning of the environmental awareness by developing the consciousness of the environment in the consumers (Yang et al., 2020). Different established researches are focused on consumer attitude, green purchase behavior and environmental concern which leads it towards sustainable product consumption. At second, Sustainable products consumption is different depending on antecedents which the study explores such as the link of green environmental awareness, sense of responsibility and place attachment. Due to these changing patterns in the purchase behavior of customers' sustainable product consumption is the new consumer research study. Therefore, this thesis develops a study on factors leading to predict sustainable product consumption with the mediating role of place attachment.

## 1.2 Problem Statement

The issue of sustainability has become substantial worldwide. With the improving awareness towards environment globally, it is vital to understand the impact of environmental friendly lifestyle on the consumers (Matharu, 2020). Certainly, it has transformed the practice of consuming the sustainable products in mostly the developed countries of the world (Sukar, 2017). More clearly sustainable consumption has turned out to be a concern globally (Mensah, 2019). The idea of sustainability had its base in the developed countries like America, Belgium, England, Germany, France, Japan, Sweden and Netherlands (Meschede, 2020). In relation to this concept, different industries such as agriculture, electricity, food, clothing and other consumer goods have been flourished in the stream of sustainable consumption within those developed countries (Benyamin et al., 2018). Whether

comparing the growth of sustainable consumption with the developing countries, it has been observed that very less attention has been paid to the sustainable growth in the countries like Pakistan, Afghanistan and Bangladesh (Jan et al., 2019). In contrast, the countries like China, India and Malaysia are embracing to thrive in the industry of sustainable consumption (Kautish et al., 2019).

Relatively a very few scholars have advocated on the negative effects of consumption affecting the environment (Biswas<sup>1</sup>, 2017). The understanding about the issues that are associated with consumption of goods is low among general population in Pakistan (Sahibzada et al., 2017). Hence due to low environmental awareness the evolvement of adopting the sustainable consumption behavior is very slow in the consumers (Lin, 2018). Undoubtedly, studies on the sustainable consumption are increasing the interest in consumers in terms of social, environmental and economic benefits that will result in creating the green environmental awareness which are well documented (Eckert, 2018). Yet these findings are mostly conducted in the developed countries such as US, Europe, Germany, Australia, China and Brazil (Meschede, 2020).

Likewise, the research conducted in these countries do not provide adequate indicators about the findings conducted in the framework of South Asian countries (Niaz et al., 2020). As affective, cognitive and behavioral factors differ from one country to another country (Anh et al., 2019). Unfortunately, based on the documented data a majority of the past studies conducted in Pakistan did not provide the evidence in understanding the factors leading to predict sustainable product consumption by keeping in view the interest of the consumers (Younis, 2017).

So far there is an absence of discussion and theoretical findings on the understanding to predict sustainable product consumption in the consumers with the factors affecting them such as there is a need to adopt the factors which translates the true meaning of the environmental awareness by developing the consciousness of the environment in the consumers (Yang et al., 2020). Subsequently the changing consumption pattern required motivation to embrace the new habit of consuming sustainable products which seems to be difficult for people in Pakistan (Sahibzada, 2017). Similarly, previous documented studies also provide evidence that most of the consumers are not aware of the negative consequences of not practicing the

sustainable consumption (Aiste et al., 2021). However, studies have shown that the certain level of cost is associated with sustainable consumption (Yue et al., 2020). This is basically due to the fact that environmental friendly products are sometimes costly than the traditional goods. For itself, low-income group of people may not find it attractive (Singh, 2017).

Certainly, a lot of studies have been conducted on sustainability. Though the major chunk of these studies were focused towards barriers, problems and prospects lies in Sustainable Consumption and production (Sartal et al., 2020). Additionally, the most of the studies were conducted in U.S, UK, Germany, Spain, China, Malaysia and India. However, a majority of these studies were directed towards industries such as electricity, apparel, agriculture and food industry (Benyamin et al., 2018). Moreover, it was established that numerous of the previous studies were conducted from the production perspective of sustainability with the nominal evidence from business side (Fang, 2019).

There exists a gap in these studies as the relationship between factors such as green environmental awareness and sense of responsibility with the mediating role of environmental attachment in order to predict sustainable product consumption from the consumer's perspective. The discussion has raised the several questions on the factors which have not been discussed in Norm Activation Model theory in Pakistani studies. Therefore, this thesis made an effort towards building the factors leading to predict Sustainable Product Consumption with the mediating role of the Environmental Attachment in the light of Norm Activation Theory (NAM). The next section is comprised of Research questions followed by Research objectives for the thesis.

### 1.3 Research Questions

Based on the stated problem, this study will answer the following questions:

**RQ 1:** Does green environmental awareness have a relationship with environmental attachment?

**RQ 2:** Does sense of responsibility have a relationship with environmental attachment?

**RQ 3:** Does environmental attachment have a relationship with sustainable product consumption?

**RQ 4:** Does environmental attachment mediate the relationship between green environmental awareness and to predict sustainable product consumption?

**RQ 5:** Does environmental attachment mediate the relationship between Sense of Responsibility and to predict sustainable product consumption?

## 1.4 Research Objectives

**RO 1:** To determine the relationship between green environmental awareness and environmental attachment.

**RO 2:** To examine the significant linkage between Sense of Responsibility and Place Attachment?

**RO 3:** To examine the relationship of environmental attachment with predict sustainable product consumption.

**RO 4:** To examine the mediating relationship of environmental attachment between green environmental awareness and predict sustainable product consumption.

**RO 5:** To examine the mediating relationship of environmental attachment between sense of responsibility and predict sustainable product consumption.

## 1.5 Theoretical Underpinning

This research was founded on the norm activation Model theory (NAM) introduced by Shawrtz in 1977 (Yuwei Liu, 2017). This theory proposed the utilization of anticipated guilt and pride in pro-environmental behavior which describes environmental friendly behavior. It has three types of precursors including ascription of responsibility, awareness of consequences and personal norm. In the light of this theory the antecedents which are green environmental awareness and sense of responsibility; act as the factors in order to predict sustainability in consumers.

Similarly, while observing the sustainable consumption it was recognized that environmental attachment was considered as the mediator between green environmental awareness and sense of responsibility. Furthermore, the studies in the past suggested that those factors had a significant impact on the sustainability of consumers. The significance of this thesis is discussed in the next section.

## **1.6 Significance of Thesis**

The following gaps were recognized as a result of the research.

### **1.6.1 Contextual Gap**

Many studies with the Norm Activation Theory(NAM) on Sustainability were studied. It was observed that the available literature lacked the evidence to use the study of Norm Activation Model Theory (NAM) from the view point of consumers while studying the impact of Green Environmental Awareness and sense of responsibility to predict Sustainable Product Consumption (Scarpi, 2020). It was established that minor evidence is available that the previous studies were conducted in Sustainability industry from the point of view of producers so this study will be conducted in Sustainable Product Consumption from the view point of consumers in the light of Norm Activation Model Theory (NAM).

This inhibits the generalization of the findings towards sustainability industry in Pakistan. Also it has been observed that minimum of the studies have been conducted in Pakistan in light of Norm Activation Model Theory (NAM). Thus this study would have significant contribution in the context of Pakistan.

### **1.6.2 Theoretical Gap**

According to the established literature it was observed that in this theory, Norm Activation NAM begins with the awareness of an individual about harmful environment and the feeling of responsibility from adverse environmental effects towards green behavior. A major chunk of the studies was directed towards the industries such as transportation, Electricity, Environment, Apparel and food industry

(Benyamin et al., 2018). Consequently, from the studies in the past it was observed that among the present gaps, the factors which leads to predict the sustainable product consumption are absent (Biswas1, 2017). However, it can be argued that most of the present literature focuses on the performance of traditional products which is not enough to measure the performance of sustainable products (Sesini et al., 2020). Furthermore, majority of the studies were conducted in the countries like America, Europe, Germany, Brazil, China, Malaysia and India (Meschede, 2020). The vacuum line is present in these studies as the link between factors of sustainability leading to predict Sustainable Product Consumption with the mediating effect of environmental attachment in light of Norm Activation Model Theory (NAM). It was observed from the literature about the minimum evidence is available that the unit of analysis is potential or current sustainable consumers in the Sustainable Products Industry of Pakistan.

### **1.6.3 Managerial Gap**

The significance of this study is that it will provide assistance to the managers to understand the importance of using environmental friendly products in consumers (Mera et al., 2020). Furthermore, they will have better understanding of how to save energy, use recycled products, and also make consumers understand the efficient use of resources (Lin, 2018). Moreover, this research will help managers in environmental sustainability to understand why sustainable products are significant. This understanding will support managers in enabling the consumers to adopt sustainable products that are necessary for environment. Besides, it was observed that minimal research has been directed towards Norm Activation Theory by keeping in view to predict sustainable consumption. Therefore, this thesis is assured to be significant for testing the factors such as green environmental awareness, sense of responsibility and environmental attachment in order to anticipate the consumption of sustainable products in consumers in order to achieve sustainable consumption in Pakistan.

## **1.7 Thesis Scope**

The province Punjab in Pakistan has been taken as a population of the study for the purpose of the research, the population is consisted of 110 million according to the census held in 2017 (Pakistan bureau of statistics, 2017). The province introduced a unit to provide support to achieve 17 sustainable development goals (SDGs) formed by UN in 2015 in order to achieve the objectives of sustainability (Sahibzada, 2017). There are various firms working on environmental friendly solutions and products in the sector of sustainable consumption such as reuse of plastic material and use of cloth instead of polythene bags in the vicinity of Punjab which is selected as a unit of analysis in this research.

This research covers the two factors of sustainability which are necessary to predict the sustainable product consumption in potential or current consumers of sustainable products. This will set the spotlight on the data generated from this thesis in order to help the companies who want to target potential and current consumers of sustainable products.

## 1.8 Structure of this Thesis

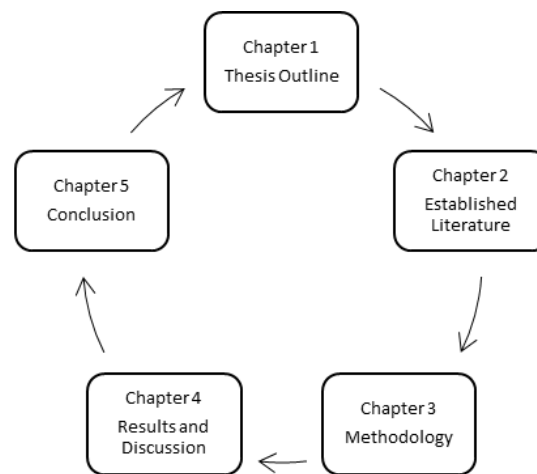


FIGURE 1.1: Research Outline

This thesis consists of five chapters.

### Chapter 1

This chapter provides the reader with the insight on the antecedents leading to

predict sustainable product consumption. Firstly, this chapter includes introduction for the thesis, problem statement examined by research question and research objectives for the study. After that the chapter was summed up by the significance of the thesis and the scope of the thesis.

## **Chapter 2**

This chapter focuses on the review of the relevant literature in a sequence. At first the significance of sustainable consumption was explored. Then studies on sustainable product consumption were studied. Thirdly the literature on hypothesis was discussed including the factors leading to the sustainable product consumption. Fourthly the theory has been discussed followed by research gap and the conceptual framework.

## **Chapter 3**

This chapter began with the research design of the study. Secondly the population was studied by following the sample size for the study. Thirdly the measurement model was discussed in order to develop the scales and the definition of every variable. Fourthly the procedure and the method for data collection were described. Finally, the tools such as smart PLS 3.00 was used for data analysis of measurement and structural model.

## **Chapter 4**

In this chapter the quantitative analysis has been discussed on the basis of structural and measurement model. It consists of certain tests such as convergent validity, internal consistency and discriminant validity. All the tests are performed by using the software SMART PLS 3.0

## **Chapter 5**

This chapter consists of discussions, conclusions and implications of findings related to research question and hypothesis. These includes the discussions on



theory, contributions and the supervisory practices. The final part of this chapter presented the conclusion for the research along with the recommendations for further research opportunities.

## **1.9 Summary**

The background of the research is highlighted in this chapter by identifying the current research problem. In context to the research problem, this chapter also entails the research questions, followed by research objectives to be examined. The perspective of the thesis is also discussed followed by the structural details to end this chapter.

# Chapter 2

## Literature Review

### 2.1 Introduction

Chapter 2 gave an overview of the published literature on the Sustainable Product Consumption in the world, as well as in Pakistani context. Besides, it described the significance of this study for Pakistan and neighboring countries. Likewise, this chapter started with global view of sustainable products consumption. Followed by a discussion on the significance of sustainable product consumption. Consequently, this led to the discussion on factors leading towards sustainable products consumption in the global scenario. Furthermore, Norm Activation Model Theory (NAM) was thoroughly described to develop the theoretical framework for understanding the antecedents which leads to the sustainable consumption of the products. To conclude, five hypotheses based on the research objectives of this study were discussed which also led to the conceptual framework for this thesis. The developed model and derived hypotheses were empirically tested in Chapter.

### 2.2 Global view on Sustainable Product Consumption

Sustainable product market share very less percentage when compared with the other traditional products globally (Stancu et al., 2020). United nations developed the 2030 agenda by presenting 17 Sustainable Development Goals (SDG'S) in 2015

whose main focus is to preserve and protect the environment including developed as well as developing countries around the globe (United Nations, 2021).

Studies on sustainable Consumption of Products have been carried out in different countries in different contexts. Few such studies are discussed in following paragraphs. A Portugese study on the gen Y consumer found that sustainable consumption has its significant impact on the attitude behavioral gap within the consumers (Bernades 2018) On the other hand, in another country and different context it was found that consumers in the newly industrialized countries such as Middle east are conspicuous consumers. But due to the adoption of westernized lifestyle in that region consumers are more attracted towards the sustainable consumption as a status symbol (Hadeer, 2019).

The studies related to Sustainable Consumption have also been carried out in the context of lifestyle industry. For example, the intension of Indian consumer towards sustainable products consumption was positive but the factors like Consumer attitude, subjective norm and perceived behavioral control plays an important role in shaping the intensions of consumers (Matharu, 2020).

On the other hand, the consumers in China have positive influence towards the relationship between environmental concern and green consumption intention whereas price sensitivity plays a negative role towards these both variables. German retail market has also been explored in the domain of supermarkets, discounters and their key factors on sustainability however the supermarkets perform considerably better in translating sustainability than retailers. In this context it has been found that in-store communication plays a positive role towards sustainability in retail companies (Weber, 2019).

Conversely social, environmental and economic benefits of sustainability on Brazilian producers and consumers were studied. The consumers give importance to education towards sustainability. Sustainability indicates the business strategy with practice in the different levels of business activity (Meira, 2019). Yet the Environmental Consciousness within the USA old female consumers has the positive impact on the purchase intension towards the environmentally sustainable apparel. In this way the positive or negative advertisement with environmental message were found to encourage the higher purchase intentions of old female

consumers more effectively than advertisements with no environmental messages. Thus, in view apparel retailers in USA will consider time perspective when encouraging the sustainable consumption (Gwia et al., 2019).

The horizon of factors related to sustainable consumption of products and green consciousness related studies are not restricted to the one country. Several multicultural comparative studies in different context have also been carried out. For example, a study on Polish consumers it was find out that they would not purchase sustainable products if it does not provide aesthetic, functional and financial values. It was also found out that sustainable fashion products are not only linked to environmental benefits but extrinsic and intrinsic cues play an important role in the decision making process of polish consumers (Osmud, 2020).

Moreover, in another study it was found out that German consumers consumes sustainable products due to social normative Influences. Within the German consumers the influence of social norm is due to personal norm and these are the factors which will lead consumers to the sustainable consumption (Ann et al., 2020). The purpose of reviewing the different studies on factors leading to sustainable product consumption and the effect of place attachment was to build an appropriate background for the readers.

## **2.3 Motivation Behind Sustainable Consumption**

Past researches reported that within the concept of sustainability the motivation drives the core of the behavior which refers to how individual behave to the idea of sustainable consumption (Kennedy, 2018). Likewise, the study was conducted in Denmark by Stancu et al., (2020) in food and clothing industry. It was explored that there are motivational factors behind sustainable product consumption which includes values and different levels of consumption within the Norm Activation model which emphasizes on the better understanding of intensions towards sustainable consumption.

Within the contextual studies of the different theories different scholars have

presented their view points in reference to the motivation behind the consumption of the sustainable products. One of the study was conducted in USA by Meaghan Guckian et al., (2017) in reference to Self Determination theory in which researcher was of the view that there is the link of extrinsic and intrinsic motivation with numerous sustainable behaviors which increases the motivation in consumers to alter their consumption patterns into the sustainable consumption.

Another study was conducted in Sweden within sustainable electric vehicular industry in which it was found that normative and hedonic motivations are high for consumers who perceive high social norms regarding adoption of sustainable products in the consumption pattern. Moreover, these motivations affect the environmental behavior (Zeinab et al., 2018). According to various researches it is said that for any nation, sustainability is important for a very simple reason as the quality of life cannot be maintained until sustainable consumption is assured, it interconnects the diverse aspects of the environment such as different resources on which humans are dependent (Rachel et al., 2018).

Not surprisingly, the world where natural resources are depleting, there are adverse effects of not protecting the environment globally. Therefore, the reason of sustainable consumption is to meet current needs without diminishing future generations and the planet in the long run (Giulia et al., 2020).

Yet, most of the articles associate the idea of sustainability with green environmental concept (Kennedy, 2018). Moreover, another approach towards motivation behind sustainable consumption includes green brand equity, green branding and green purchase behavior which comes under the umbrella of sustainable product consumption (Utkal et al., 2019). Furthermore, the concept of sustainable consumption concept is apparently comprehensive.

Numerous studies have examined that sustainable products are those that hold the potential to improve customer environmental responsibility, comprehend benefits in long term and reduce consumer stress while maintaining its positive qualities (Nayak, 2019). It is significant to note that the intention to buy the sustainable products will project the environmental friendly image on consumers that will enable them to reflect their commitment towards the environment and distinguish themselves from others (Shamraiz et al., 2018).

## 2.4 Factors of Sustainable Consumption

Different factors of sustainable consumption have been continuously in discussion among the numerous researchers over the last few decades and these are considered to be a necessary element in measuring the sustainability (Tyagi, 2020). Moving towards global perspective the United Nations adopted 17 Sustainable Development Goals (SDGs) In 2015, within the Agenda 2030. Each of the goal is consisted of the factors aiming at promoting sustainable development including the dimensions of economic environmental and social for all countries (Meschede, 2020). Many researchers have discussed the distinctive kinds of factors which effects the sustainable behavior in consumers. Some scholars are of the view that factors of sustainability can be measured as an extensive approach towards obtaining long-term benefits for entire human race (Johannsdottir et al., 2019).

A study was conducted in Lithuania in the sustainable consumption industry by Aiste et al., (2021), it was said that social norms strongly influence individual behavior in relation to their actions. Therefore, individuals are often influenced by other's behavior, presence and expectations which impact them through social norms that include beliefs of the people related to the behavior. Likewise, social norms are the significant factors of sustainable product consumption that are having a substantial influence on environmental behavior due to which consumers become engaged in sustainable consumption.

Another study was conducted in USA by Tyagi et al., (2020) in the sustainable consumption industry sector. It was concluded that economic factors also influence the sustainable consumption in the consumers. Moreover, it was also identified that in view of the contribution of sustainable products to the environment, the factor like socio-economic growth has received significant research attention in recent years. Similarly, various aspects such as behavioral change, cognitive factors, self-identity, personal norms and environmental factors have influenced the behavior of consumers which leads them towards the sustainable product consumption (Padilla, 2018). The environmental factors were more researched within measure of concern, perceived customer control, effectiveness, personal norms and the related ideologies such as environmental awareness (Zabkar, 2020). Some studies

have observed social norms in predicting pro-environmental beliefs and attitudes (Tezer et al., 2019). Tentatively, the numerous forms of environmental friendly behavior are associated with different social, cognitive actions and other motivational factors (Yan, 2020).

Studies on the factors of sustainable consumption have been carried out in different countries and contexts. Findings of few researches have been explored here in. A study was conducted in India by Shimova et al., (2020) in green consumption. It was found that several studies have adopted the theoretical model to explain the influence of social factors, behavioral factors on sustainable product consumption. Likewise, on the other hand in another country France in the same industry green consumption by Lazaric et al., (2019) It was founded that key factors like social influence and environmental values triggers sustainable consumption in consumers. In a similar manner a study was conducted in Nigeria by Nwaizugbo et al., (2020). It was found that many studies in the field of sustainable food consumption includes the factors like attitudinal, subjective norms, economic factors, cultural and environmental factors affect the intention to consume which leads to the consumption of sustainable products.

Additionally, the above mentioned major factors of sustainable consumption discuss the challenges that are associated with sustainable consumption practices from developing country perspective. Consequently, the purpose of these factors is to address the primary reason of preferring Sustainable Consumption rather than just trying to improve its unforeseen indicators (Shabbir, 2020). It is significant to emphasize that, the research related to the factors of sustainable consumption is performed by developed countries scholars and experts. Within this context, the readers will now be able to have more clarity in understanding the literature on the factors and motivations leading to sustainable product consumption, which is discussed in the subsequent section. Several studies have adopted the theoretical model to explain the influence of social factors, behavioral factors on sustainable product consumption (Shimova, 2020).

However, to see environmental behavior norm activation Model Theory is widely used by using these factors such as personal norms, awareness and responsibility of the consumers in different contexts such as energy, transportations and food

industry (Wei et al., 2019). Moreover, these factors were not chosen as independent variables in measuring the sustainable product consumption in the consumers in Pakistan especially in the vicinity of Punjab. These variables were also not discussed with the intervening effect of the environmental attachment. The study discusses these factors including green environmental awareness and sense of responsibility with the mediating role of environmental attachment to predict the sustainable product consumption in the consumers. Those factors are discussed in detail in the following paragraphs.

## **2.5 Hypothesis**

### **2.5.1 Green Environmental Awareness Relationship with Environmental Attachment**

The first hypothesis is established to satisfy particular research objective of this study, objective number (1). There are numerous definitions of environmental awareness defined by different authors. International environmental education program Hungary (1983) defined environmental awareness as the consciousness and understanding towards environment and its problems which includes human interactions and effects. Another researcher has documented environmental awareness as the level by which people are associated with or care about the environmental issues. Likewise, in another literature it was said that green environmental awareness is the compulsion of an individual when one is willing to make an effort to resolve environmental issues which results in the green consumption behavior of consumers (Ulla et al., 2017). An article in Malaysia describes that environmental issues have raised the basic awareness in public that it is vital to protect the environment (MOHAMAD, 2020). A paper described well the green awareness, Mahmoud et al., (2020) said in their journal that environmental awareness develops the sense of association with the natural environment which promotes conservation of natural resources along with the sustainable development.

Han et al., (2019) discuss in their article that environmental awareness influences the attachment with the local environment and its resources. The awareness



prevails with the behavior and emotions between the environment and the people. It happens due to the environmental attachment that people tend to behave in environmental friendly manner which is the reason behind their environmental awareness. (Jansen, 2019) describes in his research that people show their attachment to the same place due to different social factors including the awareness of the environment that entails consciousness about green environment and cognition of behavior which further exhibit the feelings, knowledge and the understanding of environment through senses that drives the positive attitude in people towards the environmental friendly living which will increase the chances in creating the green environmental awareness in consumers.

Another study was conducted in Thailand by butarapong (2018) in which it was discussed that the environmental awareness is the primary concern for the future of the generations as the emotional bond to the natural resources is created which is influenced by resources and time that triggers the attachment of the person to the environment which will result in forming the environmental attachment in the context of social and human interactions. On the other hand, environmental behavior is the behavior that is favorable for the environment which helps to protect it and it is achieved by fostering the people's behavior in certain direction by stimulating the efforts for the environment. The socio demographic factors such as age and gender along with beliefs and values influences the awareness about the environment which increases their familiarity with the nature that results in the individual's attachment with the specific environment (Mohd et al., 2020).

Reyes (2020) discuss in his article that green environmental awareness is an important factor which is responsible for developing positive association with the certain environment.

The above mentioned literature on the environmental awareness has been studied on the areas such as green marketing, corporate social responsibility and sustainable development etc. Though their evidences describe that it differs from one country to another country. Likewise, it is also widely held that in the context of Pakistan there may be different dimensions of green environmental awareness has a substantial influence on environmental attachment. Hence, the following hypothesis propose that:

**H1:** Green Environmental awareness will have relationship with the environmental attachment.

### **2.5.2 Sense of Responsibility Relationship with Environmental Attachment**

The second hypothesis is developed to satisfy specific research objective of this study, objective number (2). There are several definitions of sense of responsibility defined by different authors. The previous research describes that the sense of responsibility is one of the main factor which explains the environmental friendly behavior of the consumer (Daniel et al., 2017). In one of the study the researcher was of the view that sense of responsibility is associated with the consumer's self-image and the self-identity (Vaˆısto et al., 2016).

Another research was conducted in which the researcher said that the concept of responsibility is so important in order to shape up the beliefs and values of the people in the society which impacts on the actions which leads to environmental friendly behavior (Vanessa et al., 2019). Correspondingly Yi Du et al., (2018) said that sense of responsibility develops the drive for defensive actions towards the nature which labels their reflection about place that people value and strive to preserve the environment. Moreover, sense of responsibility encompasses the characteristics such as doing no harm to the environment by generally promoting the association of the person to the natural environment (Abbas, 2020).

A research was conducted in Poland by Anna et al., (2020) in which researcher was of view that sense of responsibility in the consumers helps to identify the features like social motivation towards place and help us to develop the pathways in the direction of the sustainability. Likewise, another research was conducted in sustainability field in Bahrain by Mubarak, (2019) in which researcher was of the view that the practice of protecting environment is not an easy task which requires the factors such as social, economic and ecological aiming at creating a sustainable environment in a way that it endures to create a drive of sustainability in the consumers.

Fatemeh et al., (2021) conducted the research in Spain in which it is revealed

that sense of responsibility is essential in relation to the environmental attachment in which it is measured that creating belonging to the certain environment helps in developing the responsible behavior in terms of the environmental perspective in turn the healthy behavior and positive outcomes are examined which connotes the satisfaction in consumers about minimizing the impact of individual actions on the natural resources. A research was conducted in Slovenia in which the author reveals that sense of responsibility is more probable of influencing one's self-image within environmental friendly behavior which implies that taking environmental actions is actually dependent on the past or initial decisions made by the consumer (Zabkar, 2020).

The above mentioned literature on the sense of responsibility has been studied on the areas like Sustainable Development, Green Marketing and Social Responsibility etc which identifies the issues related to sustainability. However, their evidences describe that it differs from one country to another country. Equally important, it is also widely held that in the context of Pakistan there are different dimensions of Sense of Responsibility has a substantial influence on environmental attachment. Hence, supported by the theory and preliminary quantitative study of the objective (2), following hypothesis propose that;

**H2:** Sense of responsibility will have significant positive relationship with the environmental attachment.

### **2.5.3 Environmental Attachment Relationship with Predict Sustainable Product Consumption**

The third hypothesis is established to satisfy specific research objective of the study, objective number (3). There are numerous definitions of environmental attachment defined by different scholars. Environmental attachment is the association between individuals and their environment. It is comprised of Person, Process and place which is multidimensional concept that helps to understand the environmental friendly behavior in consumers (Razem, 2020). The people having stronger environmental attachment tend to have more environmental concern in order to protect the place from environmental damage. In general, environmental

attachment influences the attitudes of people and social norms which results in the creation of sustainable attitude in consumers (Piera et al., 2017).

Christina et al., (2016) conducted his research in which they explain in their research that individuals who are strongly bonded to a certain environment having environmental friendly attitude are more likely to consume sustainably with the carefulness to protect the environment. The sense of self with a environment describes the individual's strong attachment with the place which minimizes the environmental effects that results in the responsible consumption. B.Colea et al., (2021) discuss in his article in USA that cultural and personal factors plays an important role in order to develop potential for environmental attachment which in-turns leads to sustainable consumption.

A study was conducted in which it reveals that the sustainable consumption attitude can be anticipated by the individual attitude towards the environment as it leads to the commitment to that environment which results in positive attitude towards sustainable consumption behavior (Georgina et al., 2017). Yenny et al., (2018) explains in his research in Indonesia that attachment is created when individuals see their surroundings as a part of their self for satisfying their goals and those past experiences plays an important role in creating sustainability in the consumers. The aim of consuming sustainable products is to reduce waste, minimize the use of resources and transform the habit of purchasing products to result in sustainable product consumption (Tholang et al., 2021).

Another research was conducted by María et al., (2018) in Germany in which they explored that the environmental friendly attitude influences the behavior which denotes more attachment to the environment and concern for the surroundings which influences the environmental attachment. A research was conducted in Sweden in which the researcher explains that environment is the consumption item including other entities for maintaining and developing a part of self, such as people with strong identity can show their concern for environment and the quality of the environment (Raymond et al., 2017).

The above stated literature on the environmental attachment has been studied on the areas like social responsibility, green marketing and sustainable development etc. which identifies the issues related to sustainability. However, their evidences

describe that it differs from one country to another country. Equally important, it is also widely held that in the context of Pakistan there are different dimensions of environmental attachment has a substantial effect on to predict sustainable product consumption. The above mentioned literature on the environmental attachment hence, supported by the theory and preliminary quantitative study of the objective (3), following hypothesis propose that;

**H3:** Environmental Attachment will have relation with to predict sustainable product consumption.

#### **2.5.4 Mediating role of Environmental Attachment between Green Environmental Awareness and Predict Sustainable Product Consumption**

The fourth hypothesis is developed to satisfy specific research objective of the study, objective number (4). It demonstrates that environmental attachment plays a mediating or intervening role between relationship of green environmental awareness and to predict sustainable product consumption. Environmental attachment can positively or negatively mediates this relationship. Environmental attachment has been previously studied as a mediator in multiple studies; for example, a study was conducted in Malaysia by Muhamad et al., (2020) in the tourism industry of sustainable consumption.

It was established that environmental attachment plays a prime role as a mediator in different areas of sustainability such as there are levels of attachment in the factors like perceptual and social as the people with strong place attachment are having more trend towards sustainable consumption. It was being said that without environmental attachment there is a lack of environmental friendliness in individuals. In another research it states that environmental attachment act as a mediator in between nature based intensions and different components of environmental friendliness (Namyun et al., 2017). In another research it is said that environmental attachment mediated between factors of green consumption and green development (Aiste et al., 2021). Likewise, a research was conducted in China by Bing et al., (2019) and it describes that environmental attachment

intervenes between social responsibility and consumer behavior in green products. Numerous studies have been conducted in Sweden, U.K, Switzerland, Slovenia, Belgium, Austria, Netherlands, Germany, Australia, Hong Kong, Brazil, Norway, Finland, Czech Republic, Denmark, Canada, Ireland, Malaysia, Singapore and Japan mostly (Meschede, 2020), in Pakistan there is a little evidence that environmental attachment act as the mediator between green environmental awareness and to predict sustainable product consumption. Yet their results exhibited that it differs by nation.

Correspondingly it is also widely held that in context of Pakistan there may be different aspects of green environmental awareness to predict sustainable product consumption. All of these studies have shown that environmental attachment could promote environmental awareness which will lead to the consumption of sustainable products. Therefore, supported by the theory and the quantitative study of the objective (4), following hypothesis propose that;

**H4:** Environmental attachment will act as a mediator between green environmental awareness and to predict sustainable products consumption.

### **2.5.5 Mediating Relationship of Environmental Attachment Between Sense of Responsibility and Predict Sustainable Product Consumption**

The fifth hypothesis is established to satisfy specific research objective of the study, objective number (5). It reveals that environmental attachment plays a mediating or intervening role between relationship of sense of responsibility and to predict sustainable product consumption. Environmental attachment can positively or negatively mediates this relationship. Environmental attachment has been studied as a mediator in the various researches in the past. For example, according to Hosanay et al., (2017) in the tourism sector of Taiwan, environmental responsible behavior is seen in the individuals which predicts that environmental attachment plays an intervening role between responsibility and the environment. At the same time environmental attachment is more associated with values and function of attitude that will promote the sense of responsibility in the consumers

(Jian Xu, 2019).

A study was conducted in China in which Environmental attachment was studied as the bond to which people can relate in terms of developing different factors of environmental behavior in them (LIU, 2017). Some researchers are of the view that environmental attachment fosters the responsibility to act responsibly (Hosany et al., 2017). In another research it was observed that due to attachment of the environment individuals adopt social norms into the personal norms which activates the sense of responsibility in them (Yue et al., 2020). A study was conducted in Indonesia, it was observed that environmental attachment will drive individuals to concentrate more on the environmental issues and take initiative to act responsibly for the protection of the environment in Indonesia (Isaa et al., 2019).

Several studies have been conducted in Sweden, Netherlands, Germany, Australia, Hong Kong, Brazil, U.K, Switzerland, Slovenia, Belgium, Austria, Norway, Finland, Denmark, Canada, Ireland, Czech Republic, Malaysia, Singapore and Japan (Meschede, 2020), in Pakistan there is a little evidence that place attachment act as the mediator between Sense of Responsibility and to predict sustainable product consumption. However, their results exhibited that it varies from one country to another country. Likewise, it is also widely held that in context of Pakistan there may be different aspects of sense of responsibility to predict sustainable product consumption.

The above mentioned studies have shown that Environmental attachment could promote responsible behavior in consumers which will lead towards the consumption of sustainable products. Hence, supported by the theory and the initial quantitative study objective (5), following hypothesis propose that;

**H5:** Environmental Attachment will mediate the relationship between sense of responsibility and to predict sustainable products consumption.

## 2.6 Norm Activation Model Theory

Norm Activation Model theory (NAM) has been selected as the underpinning theory for this thesis. This theory was formerly used to explore the functions of

self-importance and responsibility in pro-environmental behavior (shawrtz,1977). For example, in a study conducted in China in year 2017 studied the behavioral aspects of consumers within sustainable transport industry in light of norm activation model (Yuwei, 2017). Likewise, in another study conducted in USA in which consumer behavior regarding organic food menus was studied which indicated that the antecedents of NAM i.e. personal norms, attitude, subjective norm and perceived behavioral control are the determining factor to choose organic items which leads consumers to visit the restaurant (Shina, 2018). Moreover, in Taiwan the pro-environmental behavior of the public servants at the central and local government has been studied, it was observed that understanding of environmental value-action gap between public servants at the central and local governments is essential for the effective implementation of environmental policies hence the study was conducted using norm activation model as the underpinning theory (Fang, 2019). In Pakistan norm activation theory has been studied with the theory of planned behavior to understand the energy conservation in Karachi Pakistan (Rasool et al., 2019). Though regardless of rich literature available on norm activation model theory it has been recognized that this theory has not been studied to predict the sustainable product consumption with the mediating role of environmental attachment. In the light of this theory the antecedents such as green environmental awareness and sense of responsibility act as the factors in order to predict sustainability in consumers. Similarly, while observing the sustainable consumption it was recognized that environmental attachment was considered as the mediator between green environmental awareness and sense of responsibility. The next section would discuss the gaps in the existing literature.

## **2.7 Research Gaps**

The contextual, theoretical and managerial contribution of this thesis was established chronologically in the following section.

### **2.7.1 Contextual Gaps**

Numerous literatures with the Norm Activation Theory(NAM) on sustainability



were explored. It was observed that the present studies have very little evidence to use the study of norm activation model theory (NAM) from the view point of consumers while studying the impact of green environmental awareness and sense of responsibility to predict sustainable product consumption (Scarpi, 2020). This constrains the generalization of the findings towards sustainability industry in Pakistan. Similarly, it has been established that minimum of the studies have been conducted in Pakistan in light of norm activation model theory (NAM). Thus this study would have significant contribution in the context of Pakistan. There exists a line of vacuum in these studies as the relationship between factors of sustainability, leading to predict sustainable product consumption with the mediating effect of environmental attachment in light of norm activation model theory (NAM). It was recognized that minimal evidence is available about the previous studies were conducted in sustainability industry from the point of view of producers so this study will be conducted in sustainable product consumption from the view point of consumers in the light of norm activation model theory (NAM).

### **2.7.2 Theoretical Gap**

It was observed from the literature about the minimum evidence is available that the unit of analysis is the potential or current sustainable consumers in the sustainable products industry of Pakistan. A major chunk of the study was directed towards the industries such as automobile, power, apparel, environmental and food industry (Benyamin et al., 2018). Therefore, from the previous studies it was observed that among the present gaps, the factors which leads to predict the sustainable product consumption are absent (Biswas1, 2017). However, it can be said that most of the present literature focuses on the performance of traditional products which is not enough to measure the performance of sustainable products (Sesini et al., 2020).

Moreover, majority of the studies were conducted in the countries like Sweden, Netherlands, Germany, Slovenia, Belgium, Austria, Norway, Australia, Hong Kong, Brazil, U.K, Switzerland, Finland, Denmark, Canada, Ireland, Czech Republic, Malaysia, Singapore and Japan (Meschede, 2020). Another research reveals that place attachment mediated between factors of sustainable consumption and

sustainable development (Aiste et al., 2021). In another research it is said that environmental attachment mediated between the linkage to which people can relate and developing diverse factors of environmental behavior in them (LIU, 2017). Similarly, a research was conducted in China by Bing et al., (2019) and it entails that environmental attachment intervenes between social responsibility and consumer behavior in green products.

### **2.7.3 Managerial Gap**

Furthermore, this study would provide support to the managers and consumers to understand the importance of using environmental friendly products (Mera et al., 2020). Furthermore, they will have better understanding of how to save energy, use recycled products, and also make consumers understand the effective use of the resources (Lin, 2018).

In this context, the objective of this research was to identify the factors leading towards sustainable product consumption. Merely, this study needs to address the gap by discussing the sustainable consumption issue from developing country perspective. However, little has been discussed about sustainable consumption in its true sense within the developing countries. The concept of sustainable consumption is in its initial stage. Put together, it can be said that sustainable consumption is a subject that needs more efforts to understand it. It unquestionably calls for more research initiatives.

Therefore, the purpose of this thesis is to understand what kind of influencing factors have an effect on the consumers regarding sustainable product consumption, to examine what is the role of behavior and values such as environmental attachment with the factors which are green environmental awareness and sense of responsibility in order to predict the sustainable product consumption in the consumers in light of norm activation model theory (NAM).

## **2.8 Conceptual Framework**

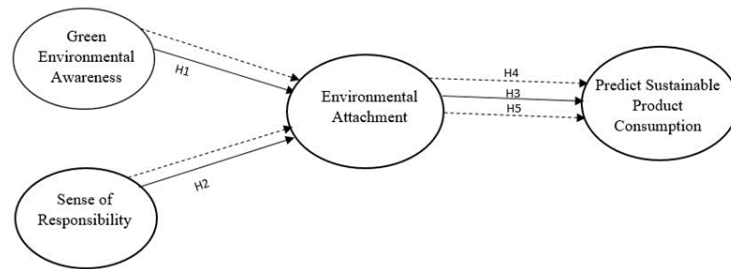


FIGURE 2.1: (Scannel R. Gifford, 2010, Baumgartner Hans Steenkamp, 2001; Grewal Frank R. Kardes, 2004; Gild Bar Ford, 2005)

## Summary

Chapter number two gives a detailed interpretation of literature positioning a base of this study, literature available on sustainable product consumption and the factors leading to sustainable product consumption has been discussed in contextual, conceptual and theoretical manner, the underpinning theory norm activation model theory has been discussed and available literature and dimensions it has been viewed previously has been identified moreover a comprehensive account of literature has been discussed on factors such as green environmental awareness, sense of responsibility and environmental attachment as factors leading to predict sustainable product consumption. Consequently, on the basis of research gap identified hypothesis and conceptual framework has been developed in chapter 2.

# Chapter 3

## Research Methodology

### 3.1 Introduction

The previously documented chapters reviewed arguments of the sustainable product consumption. Evidence indicated that a majority of the studies on these factors were conducted in countries like America, China, Europe, Germany, Brazil and India with limited studies conducted in Pakistan. Hence this thesis dealt with the factors including green environmental awareness and sense of responsibility leading to predict sustainable product consumption with the mediating role of place attachment in the light of norm activation theory. This objective would be further investigated by setting the research paradigm at the outset.

### 3.2 Research Philosophy

At the early phase setting the research strategy, helped in interpreting the philosophical point of view for this research thesis. Generally, the research strategy facilitated in the collection of the data and the setup of research goals, beliefs and practices (Kamal, 2019). In account of the research setting for this thesis a positivist paradigm was formed which further aided in answering the objectives for the research. Additionally, this research strategy be dependent on the deductive reasoning. Likewise, the hypothesis for this thesis was established on the basis of literature deduced from the published research articles and proven statistical

data (Kuyini, 2017). The Population of the study has been discussed in the next section.

### **3.3 Population**

A population denotes to the set of events, people or objects with the comparable features, which the researcher needs to study for the research purpose (U N, 2019). For the purpose of research Punjab, Pakistan has been taken as the population of this study, 110 million populations have been noted as per the census held in 2017 (Pakistan Bureau of statistics, 2017). Moreover, the planning and development department and the government of Punjab along with the United Nations Development Program (UNDP) has conjointly formed the unit to provide support for sustainable development goals (SDGs) in order to mainstream, acceleration and policy support (MAPS). Collectively it represents the national commitment to the global environment (Khan, 2016). The markets of sustainable products in Punjab Pakistan(online) were selected as the population for exploring this research thesis. Furthermore, the list of consumers in the other chosen province was not available, hence keeping in view the population of Punjab (online) was chosen to purposively choose the consumers of sustainable products.

### **3.4 Sample Size**

The population is usually considered a collection of large amount of data. The perfect sample has all the features of the total population in this way the sample is the broad representation of the entire data. It is not an easy task to gather the data from the entire population due to constraint of resources and time. In social sciences, it is suggested to use the sampling technique other than the whole population as it is less time consuming and less expensive in comparison to the collection of data from the whole population. Sampling has two types one is probability sampling and the other is non-probability sampling technique. As the exact population of current and potential consumers of sustainable products in Pakistan is unidentified. In this way it is recommended to use the non-probability

sampling technique in order to gather the data. Therefore, this research uses the purposive sampling which is the part of non-probability sampling technique for the collection of data from the consumers of sustainable products in Pakistan.

The proven sample size guidance was targeted at 100 as poor, 200 as ordinary, 300 as good, 500 as nice and 1000 or further as exceptional (Myers et al., 2017). Within PLS-SEM thesis the focus of sample size should be in between 100 and 200 (Kwong, 2017). The minimum illustration for the people residing in twin cities was assessed by using a formula:  $e = N(1-N) Y_2 / Y_1$  (Israel 1992) along the margin of error which is 5% and the 95% of confidence interval.

As there were very less or no statistics on the consumers of sustainable products residing in Punjab Pakistan. The consumers based on the usage of sustainable products were chosen as the unit of analysis in this thesis. Therefore, purposive sampling method which is the part of non-probability sampling method, was used in this research thesis accordingly, a combined sample size of 304 for the chosen area was determined from the recognized population.

## **3.5 Measurement Variable**

The collection of data is not an easy task. The included questionnaire was used to collect data which had been developed by the several authors. The factors leading to predict the sustainable product consumption includes green environmental awareness, sense of responsibility and place attachment specified along with the number of items as discussed in table 3.3. The seven point Likert scale has been used to collect the views of the respondents. The objective was that the respondents have more options to reveal their opinion and feel more comfortable to answer the questions in the seven point Likert scale. (Sullivan, 2013).

### **3.5.1 Scale Adoption**

The scales are presented in a sequence starting with dependent variables, followed by mediating and independent variable.

### **3.5.1.1 Independent Variables**

This research incorporated two Independent variables discussed as follows;

#### **3.5.1.1.1 Green Environmental Awareness**

Zelezny and Schultz (2000) defined green environmental awareness as an element of belief system refers to specific psychological factors related to individuals' willingness to engage in pro-environmental behaviors. It is a complex system of values and attitudes, and is also a part of the social consciousness. Furthermore, a seven point Likert scale is used for the operationalization of the survey questionnaire. In this way first in the scale displayed high level of agreement while seventh in the scale showed high level of disagreement. The overall impact of green environmental awareness was worked out by taking the average of 4 items. The summary of scales is shown table 3.3.

#### **3.5.1.1.2 Sense of Responsibility**

According to Grewal, Rajdeep, Raj Mehta, and Frank R. Kardes (2004) the extent to which consumer's self-image, self-identity, and knowledge is reflected. Furthermore, a seven point Likert scale is used for the operationalization of the survey questionnaire. In this way first in the scale displayed high level of agreement while seventh in the scale showed high level of disagreement. The general impact of green environmental awareness was worked out by taking the average of 6 items. The summary of scales is shown table 3.3

### **3.5.1.2 Mediator**

#### **3.5.1.2.1 Environmental Attachment**

According to Gifford (2010) environmental attachment is the emotional bond between person and environment and is a main concept in environmental psychology. It is highly influenced by an individual and his or her personal experiences. Correspondingly, a seven-point Likert scale is used for the operationalization of the survey questionnaire. Besides, first in the scale exhibited a high level of agreement,

while seventh in the scale indicated a high level of disagreement. The general impact of Environmental Attachment was worked out by taking the average of 6 items.

### 3.5.1.3 Dependent Variable

#### 3.5.1.3.1 Predict Sustainable Product Consumption

Gild Barr, and Ford (2005) described Sustainable consumption as meeting the needs without giving harm to the environment by reducing resource use, degradation, and pollution, while increasing the quality of life. Furthermore, a seven point likert scale is used for the operationalization of the survey questionnaire. In this way first in the scale displayed high level of agreement while seventh in the scale showed high level of disagreement. The overall impact of green environmental awareness was worked out by taking the average of 5 items. The summary of scales is shown table 3.3.

TABLE 3.1: A Summary of Constructs Established in the Thesis

Constructs	Source	Items	Reliabilities
Green Environmental Awareness	Zelezny and Schultz (2000)	4	0.82
Sense of Responsibility	Grewal, Rajdeep, Raj Mehta, and Frank R. Kardes (2004)	6	0.9
Environmental Attachment	Scannell, R. Gifford (2010)	6	0.85
Predict Sustainable Product Consumption	Gild Barr, and Ford (2005)	5	0.86

## 3.6 Data Collection Method and Procedure

The collection of data is difficult task for the researcher, in this way without any reference it is difficult to collect data from the consumers who use sustainable products in Pakistan. Keeping in opinion that obstacle, every reference was used to collect data from the consumers who use sustainable products. Purposive sampling was used to gather the data. For the reliability of data, it was necessary



that questionnaire was filled by the people who have experience in the usage of sustainable products in Pakistan. For this purpose, it was made sure that the data was only filled by the consumers of sustainable products in Pakistan.

There are different methods used by the researchers for the collection of the data. Keeping in vision that the data collection is time taking process, Google docs has been used for this purpose. The link of google docs was sent to the consumers who are using sustainable or green products in Pakistan. With the help of purposive sampling total 304 responses were received from the respondents in Punjab Pakistan.

TABLE 3.2: Format for Survey Questionnaire

<b>Introduction</b>	<b>A description on the thesis objectives</b>
Section 1	Main study questions.
Section 2	Personal data questions. Appreciation statement.

## 3.7 Data Analysis

### 3.7.1 Smart PLS 3.0

SMART PLS 3.0 algorithm was used for the estimation of the research thesis with two models: the structural model and the measurement model. The structural model examined the validity and reliability of the data whereas measurement model provided the assessment of effect to test the hypothesis. (Kwong & Wong, 2013). Besides, it worked with wide range of sample sizes and due to bootstrapping procedures it did not required any assumption of data normality (Kwong & Wong, 2013). Additionally, it guaranteed more theoretical meanness and provided better forecasts to the models with complex contacts (Kwong & Wong, 2013). Moreover, PLS-SEM was gradually being adopted in research disciplines in recent years which includes marketing and business (Kwong & Wong, 2013).

## **3.8 Summary**

At start, this chapter establishes the research paradigm. Secondly, the selected population for this thesis was discussed followed by the sample size. Then a discussion was documented on the data collection method and procedure which is followed by scale development established for each variable. Lastly, a discussion was setup on the SMART PLS 3.0 for the data analysis of structural and measurement model.

# Chapter 4

## Results and Discussion

### 4.1 Respondents

The total number of 304 (three hundred and four) survey questionnaires were received through google docs from the potential and current consumers of sustainable and green products. The people of Punjab Pakistan were the respondents through which the questionnaires were mostly got filled (Appendix A, Survey Questionnaire). In contrast to SPSS & AMOS; the SMART-PLS 3.0 did not require a huge sample size (Afthanorhan, 2013). Numerous questions were asked in the questionnaire and it was assured that all of the responses were kept confidential and utilized only for the purpose of analysis. The potential and current consumers of sustainable products who are participating as a respondent to this quantitative research were presented according to gender, monthly income and sustainable product usage experience. A detailed description of demographics and geographic is displayed in the Table 4.1.

### 4.2 Model Evaluation (SMART PLS 3.0)

Once the measurement and structural model is created the items and the factors are linked together successfully in Smart PLS 3.0. Likewise, for running the model in SMART PLS 3.0. the parameters relied on; reliability analysis, cross loadings, HTMT ratio and path analysis by using boot strapping were measured.

TABLE 4.1: Geographic and Demographic Characteristics of Respondents

Major Variables	Segmentation	Category	Frequency	Percentage
Geographic Region		Punjab Pakistan	304	100%
	Gender	Male	147	49%
		Female	155	51%
Monthly Income		5k-30k	81	27%
		30k-55k	57	19%
		55k-80k	98	32%
		Above 80k	68	22%
		1-5 years	210	69%
		5-10 years	57	19%
Sustainable Product Usage Experience		10-15 years	16	5%
		More than15 years	21	7%

### 4.3 Running the Path Model Estimation

Once the measurement and structural model is created the items and the factors are linked together successfully in Smart PLS 3.0. Likewise, for running the model in SMART PLS 3.0. the parameters relied on; reliability analysis, Fornell larker's criterion, cross loadings, HTMT ratio and assessment of second order construct were measured.

### 4.4 Assessment of the Measurement Model

As the measurement model is comprised of internal consistency, convergent and discriminant validity. To assess the measurement model internal consistency, convergent and discriminant validity were checked.

#### 4.4.1 Internal Consistency

The internal consistency within the measurement model included the Cronbach's alpha and composite reliability.

##### 4.4.1.1 Cronbach's Alpha

The reliability of each of the construct can easily be evaluated with the help of Cronbach's alpha. The range of Cronbach's alpha lies between 0 to 1. If the value

of Cronbach's alpha is higher that will indicate the higher reliability. It can be observed from table 4.2 that the values of the variables are 0.71 for GEA, 0.86 for EA, 0.81 for SR and 0.778 for PSPC that means they are close to 1 which depicts the reliability of the constructs will also be significant. The values are shown in Table 4.2.

#### 4.4.1.2 Composite Reliability (CR)

The composite reliability is a suitable method of measuring the reliability like Cronbach's Alpha and the value of the constructs above 0.7 is considered to be significant (Hair et al., 2016). The composite reliabilities of all the constructs are above 0.7. Therefore, the reliabilities are considered to be significant. The values of composite reliabilities are shown in Table 4.2

TABLE 4.2: Reliability Analysis

	<b>Cronbach's Alpha</b>	<b>rho_A</b>	<b>Composite Reliability</b>	<b>Average Variance Extracted (AVE)</b>
GEA	0.717	0.732	0.823	0.538
EA	0.868	0.87	0.901	0.602
PSPC	0.778	0.78	0.851	0.535
SR	0.814	0.823	0.865	0.518

#### 4.4.2 Convergent Validity

Referring to (Hair et al.,) in 2016, when two or more items of the same construct and other constructs are correlated to each other, is known as convergent validity. It can simply be measured by factor loadings and average variance extracted (AVE).

##### 4.4.2.1 Average Variance Extracted (AVE)

The Average Variance extracted can be described as the variation within the percentage within the item and the construct. The value which is 0.50 and above is considered to be significant in AVE (Fornell & Larker, 1981). Therefore, the

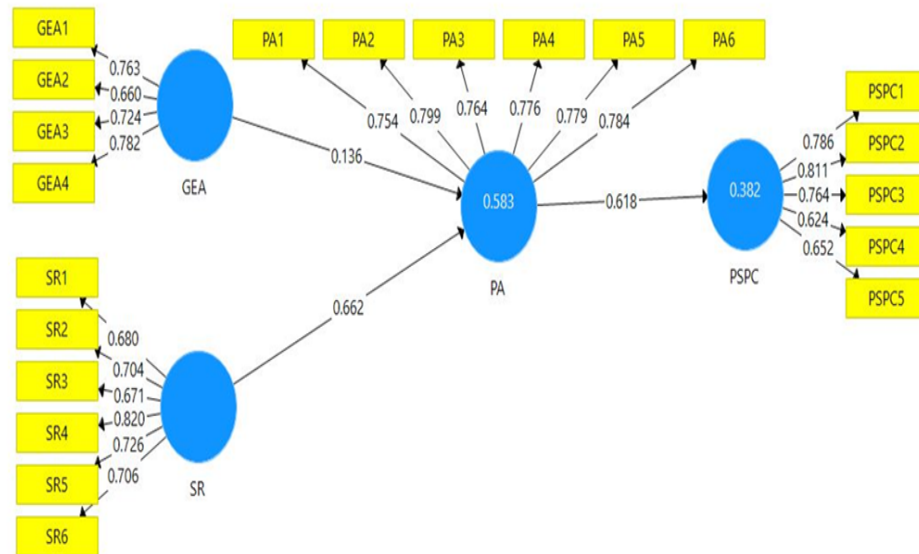


FIGURE 4.1: Illustration of outer loadings after removing the items with lower loadings

value of AVE of all the variables are greater than 0.50 which is considered to be significant for the reliability of variables. The AVE values are shown in Table 4.2.

### 4.4.3 Discriminant Validity

When two constructs are different from one another, it can be said that there is a discriminant validity between these constructs (Hair et al., 2019). It is assessed through Fornell-Larker criterion, cross loadings and Heterotrait Mono-trait ratio (HTMT).

#### 4.4.3.1 Cross loadings

The another way to measure the discriminant validity is by using cross loading method. The discriminant validity is established when the outer loadings of the correlated constructs are higher in relation to the other constructs (Hair et al.,). Table 4.3 represents the values of the cross loadings for each of the construct. It can be seen from the table that the factor loading for each of the construct is greater in comparison the other constructs. Hence the discriminant validity has been demonstrated with the help of cross loadings.

TABLE 4.3: Cross Loadings

	GEA	PA	PSPC	SR
GEA1	0.76	0	0	0
GEA2	0.66	0	0	0
GEA3	0.72	0	0	0
GEA4	0.78	0	0	0
EA1	0	0.75	0	0
EA2	0	0.79	0	0
EA3	0	0.76	0	0
EA4	0	0.77	0	0
EA5	0	0.77	0	0
EA6	0	0.78	0	0
PSPC1	0	0	0.78	0
PSPC2	0	0	0.81	0
PSPC3	0	0	0.76	0
PSPC4	0	0	0.62	0
PSPC5	0	0	0.65	0
SR1	0	0	0	0.78
SR2	0	0	0	0.7
SR3	0	0	0	0.77
SR4	0	0	0	0.82
SR5	0	0	0	0.72
SR6	0	0	0	0.7

#### 4.4.3.2 Heterotrait-Monotrait Ratio (HTMT)

Heterotrait-Monotrait ratio (HTMT) is the average correlation of the indicators between the different constructs to the average correlation of the other similar constructs. Threshold level of the related constructs not below than 0.90, contrary to it the threshold level of the dissimilar constructs is 0.85 or below (Henseler et al., 2015). The values of discriminant validity are shown in Table 4.4.

TABLE 4.4: Heterotrait-Monotrait Ratio (HTMT)

Constructs	GEA	EA	PSPC
<b>GEA</b>	0	0	0
<b>EA</b>	0.737	0	0
<b>PSPC</b>	0.587	0.734	0
<b>SR</b>	0.9	0.88	0.682

#### 4.4.4 Path Analysis using Boot Strapping

Once the validity of measurement model is assessed the next step is to assess the structural model with the help of multi-collinearity of items and measure the significance of the outer weight (Wong,2013), in order to measure the structural model (Hair et al., 2019) it is followed by two steps. Initially the latent variable scores of lower order component were acquired by using SMART PLS 3.0 and used to illustrate a new model for assessment of the second order construct. After establishing a new model, multi-collinearity of formative construct was assessed through variance inflation factor (VIF). The threshold of multi-collinearity is 5 or below.

Furthermore, formative indicators are calculated by the outer weights and its significance was tested through bootstrapping. It can be observed from table 4.3 that outer weight of constructs GEA, SR and EA. Hair et al., (2019) said that if the weight is insignificant but the outer loading is above 0.5 then item should be retained otherwise it should be discarded.

TABLE 4.5: Significance and VF value of Formative items

Relationships	$\beta$ value	Sample Mean	Standard Deviation	T Statistics	P Values	$F^2$	$Q^2$	$q^2$	Decision
H1:GEA→ EA	0.136	0.139	0.063	2.159**	0.031	0.0879	0.1368	0.0334	Supported
H3: EA→ PSPC	0.618	0.624	0.054	11.38**	0	0.5786	0.3156	0.2065	Supported
H2:SR →EA	0.662	0.666	0.056	11.812**	0	0.0574	0.3156	0.2043	Supported

Note: \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

#### 4.4.5 Assessment of Structural Model

The structural model depicts that how the constructs are interrelated to each other in the research framework (Hair et al., 2019). It is measured on the basis of significant of path coefficient and coefficient of determination (R<sup>2</sup>). Therefore, it is important to check the multi-collinearity of the structural model. Hence it was measured by VIF values of constructs in Table 4.5.



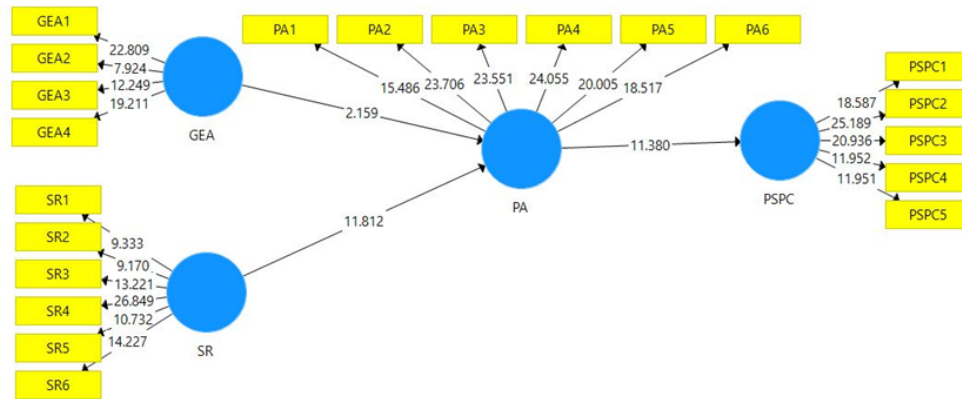


FIGURE 4.2: Illustration of structural model

#### 4.4.6 Significant of path coefficient

Path coefficient link the construct with each other. The values which are close to +1 depicts strong positive relationship whereas the value close to -1 denotes the strong negative relationship. Path coefficient hypothesize the relationship and its significance was found through bootstrapping. The values of path coefficient along with significant values are given in table 4.6.

#### 4.4.7 Coefficients of determination ( $R^2$ )

Coefficients of determination ( $R^2$ ) measures the linear relationship of the variables. The greater value represents the more explanatory power. ( $R^2$ ) values of 0.75, 0.5 and 0.25 are recognized as significant, moderate and weak (Hair et al., 2019).

### 4.5 Mediation Analysis

The purpose of mediation analysis was to test the hypothesis that Environmental Attachment (EA) mediates the relationship between the factors of sustainable consumption (GEA) (SR) and predict sustainable product consumption (PSPC). SMART PLS 3.00 was used to perform the mediation analysis through bootstrapping with 304 samples. The full mediation was established as described below in detail and the mediation model is shown in Figure: 4.3.

TABLE 4.6: Significance Analysis of Mediation

Relationship	Total effect ( GEA → PSPC ) & (SR → PSPC)		Direct Effect ( GEA → PSPC ) & (SR → PSPC)			
	Coefficient	P.Value	Coefficient	P-Value	Decision	
(GEA → PSPC)	0.084	0.035	0.124	0.135	Not supported	
(SR → PSPC)	0.409	0	0.464	0.036	Supported	
Indirect Effect of GEA on PSPC and SR on PSPC						
	Coefficient	SD	P.Value	t value	CI	Decision
GEA → EA → PSPC	0.084	0.04	0.035	2.109**	(0.011, .161)	Supported
SR → EA → PSPC	0.409	0.059	0	6.914**	(0.293, 0.530)	Supported

Note: \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

From the table 4.6 the results revealed that the total effect of GEA on PSPC and SR on PSPC was significant (H4: = 0.084,  $t = 2.109^{**}$ ,  $p = 0.035$ ) and (H5: = 0.409,  $t = 6.914^{**}$ ,  $p = 0$ ). The direct effect of GEA on PSPC became insignificant (H4: = 0.124,  $t = 1.118^{**}$ ,  $p = 0.135$ ) and the direct effect of SR on PSPC is significant (H5: = 0.468,  $t = 3.977^{**}$ ,  $p = 0$ ). The indirect effect of GEA on PSPC with the inclusion of mediating variable EA was found significant (H4: = 0.084,  $t = 2.109^{**}$ ,  $p = 0.035$ ) and the indirect effect of SR on PSPC with the inclusion of mediating variable EA was also significant (H5: = 0.409,  $t = 6.914^{**}$ ,  $p = 0$ ).

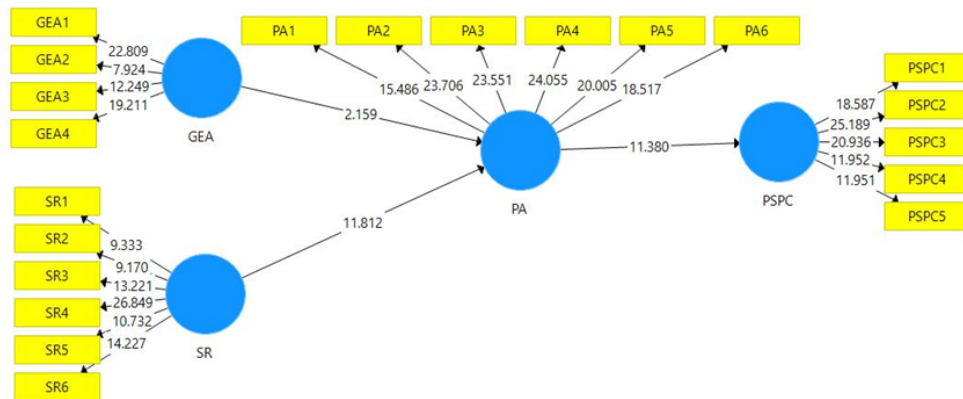


FIGURE 4.3: Mediation Analysis with path coefficients

---

This shows that the relationship between the factors of sustainability GEA, SR on PSPC is fully mediated by EA.

## **4.6 Chapter Summary**

This chapter initiated with the path model estimation for the measurement model. Similarly, the internal consistency, convergent validity, discriminant validity and path analysis by using boot strapping were measured. Moreover, structural model was tested which includes the significance of path coefficient and coefficient of determination R<sup>2</sup>. Lastly mediation analysis was tested to test the hypothesis 4 and 5. Conclusion and implications of this research are explored in chapter 5.

# Chapter 5

## Conclusion and Recommendation

### 5.1 Introduction

The last chapter discusses the results of the model. This chapter of the thesis reviewed the findings and implications for the thesis. Likewise, the conclusion for this quantitative study were found according to the results and discussion of the study. At first the results were concluded for the measurement model. Thus this led to the conclusion of confirmatory factor analysis for the structural model on the basis of five hypothesis documented in the light of research objectives. The first three hypotheses (H1, H2 &H3) were focused towards testing the relationship of green environmental awareness with environmental attachment, sense of responsibility with environmental attachment and environmental attachment with predict sustainable product consumption. The last two hypotheses (H4 & H5) were focused towards testing the mediating effect of environmental attachment between the factors of sustainability green environmental awareness and sense of responsibility with the predict sustainable product consumption. Lastly the chapter was concluded by theoretical contribution, managerial implications, conclusion, limitation and future research direction.

### 5.2 Summary of the Study

The main purpose of this study was to explore the relationship between the factors

of sustainability which are green environmental awareness and sense of responsibility with environmental attachment in order to predict sustainable product consumption in the potential and current consumers of sustainable products focused towards testing the mediating effect of environmental attachment between the factors of sustainability in order to predict sustainable product consumption. The data was collected from the current and potential consumers of green or sustainable products in Punjab.

This study also endeavors to answer the following specific research objectives of the study. (i) To determine the relationship between green environmental awareness and environmental attachment? (ii) To examine the relationship between sense of responsibility and environmental attachment? (iii) To examine the relationship of environmental attachment with predict sustainable product consumption? (iv) To examine the mediating relationship of environmental attachment between green environmental awareness and predict sustainable product consumption? (v) To examine the mediating relationship of environmental attachment between sense of responsibility and predict sustainable product consumption?

## **5.3 Results for Hypothesis H1, H2 and H3**

### **5.3.1 Green Environmental Awareness with Environmental Attachment**

The results of the hypothesis (H1) shows that the green environmental awareness has a significant impact on environmental attachment in the sustainable products industry of Pakistan. The hypothesis one was connected with the research question 1 (RQ1): Does green environmental awareness will have a relationship with environmental attachment?

The path analysis via boot strapping in SMART PLS 3.0 for hypothesis (H1) was supported ( $H1 : \beta = 0.136, t = 2.159, p = 0.031$ ). Refer to table 4.6 for the comprehensive results. Additionally, the acceptance of hypothesis (H1) was also in favor with the studies established in the past. According to Mahmoud et al., (2020) green environmental awareness improves the association of an individual

with the natural environment which results in the sustainable development.

Han et al., (2019) discusses in his article that the environmental awareness initiates with the emotions and behavior between the environment and the people. It is due to the environmental attachment that people tend to behave in environmental friendly manner which is the reason behind their environmental awareness. In the light of the existing literature, green environmental awareness is considered to be an important factor influencing the environmental attachment. Hence, hypothesis one is accepted.

### **5.3.2 Sense of Responsibility Relationship with Environmental Attachment**

The results of the hypothesis (H2) shows that the sense of responsibility has a significant impact on environmental attachment in the sustainable products industry of Pakistan. The hypothesis two was connected with the research question 2 (RQ2): Does sense of responsibility will have a relationship with environmental attachment?

The path analysis via boot strapping in SMART PLS 3.0 for hypothesis (H2) was supported ( $H2 : \beta = 0.662, t = 11.812, p = 0$ ). Refer to table 4.6 for the comprehensive results. Additionally, the acceptance of hypothesis (H2) was also in support with the literature established in the past. For instance, a research was conducted by Yi Du et al., (2018) in which he said that sense of responsibility creates the motivation for defensive actions in individuals towards the nature which creates their image about place that people value and strive to preserve the environment.

Moreover, a study in Poland by Anna et al., (2020) indicated that sense of responsibility in the consumers helps to identify the features like social motivation towards environment and help us to develop the pathways in the direction of the sustainability. In the context of the present literature sense of responsibility plays an important role in creating the environmental attachment. Hence, hypothesis two is accepted.

### 5.3.3 Environmental Attachment Relationship with to Predict Sustainable Consumption

The results of the hypothesis (H3) shows that the environmental attachment has a significant impact on to predict sustainable product consumption in the sustainable products industry of Pakistan. The hypothesis three was connected with the research question 3 (RQ3): Does environmental attachment will have relationship in order to predict sustainable product consumption?

The path analysis via boot strapping in SMART PLS 3.0 for hypothesis (H3) was supported ( $H3 : \beta = 0.618, t = 11.38, p = 0$ ). Refer to table 4.5 for the comprehensive results. A study was conducted in which it reveals that the sustainable consumption attitude can be predicted by the individual attitude towards the environment as it leads to the commitment to that environment which results in positive attitude towards sustainable consumption behavior (Georgina et al., 2017). However, Christina et al., (2016) conducted his research in which he described that individuals who are more attached to a certain environment having environmental friendly attitude are those in which there is a strong possibility to consume sustainably with the care to protect the environment. Additionally, the acceptance of hypothesis three was also in support with the literature established in the past. Hence hypothesis three is accepted.

A study was conducted in which it reveals that the sustainable consumption attitude can be predicted by the individual attitude towards the place as it leads to the commitment to that place which results in positive attitude towards sustainable consumption behavior (Georgina et al., 2017).

## 5.4 Results for Mediating Hypothesis H4 and H5

Following is the result for hypothesis H4 and H5 which shows the mediating relationship of environmental attachment between factors green environmental awareness and sense of responsibility with sustainable product consumption.

### 5.4.1 Mediating Role of Environmental Attachment Between Green Environmental Awareness and Predict Sustainable Product Consumption

The results of the hypothesis (H4) shows that environmental attachment plays a full mediating or intervening role between relationship of green environmental awareness and to predict sustainable product consumption. It is in support with the study that environmental attachment plays a significant role between green environmental awareness and sustainable product consumption. The hypothesis four was related to the research question 4 (RQ4): Does environmental attachment mediates the relationship between green environmental awareness and to predict sustainable product consumption?

The path analysis via boot strapping in SMART PLS 3.0 for hypothesis (H4) was supported for total effect, (H4:  $\beta = 0.084, t = 2.109, p = 0.035$ ), for direct effect (H4:  $\beta = 0.124, t = 1.118, p = 0.135$ ) it was insignificant and for the indirect effect (H4 :  $\beta = 0.084, t = 2.109, p = 0.035$ ) it was significant. Refer to table 4.6 for the comprehensive results.

Several studies have been conducted on the mediating role of environmental attachment in Sweden, U.K, Switzerland, Slovenia, Belgium, Austria, Netherlands, Germany, Australia, Hong Kong, Brazil, Norway, Finland, Czech Republic, Denmark, Canada, Ireland, Malaysia, Singapore and Japan mostly (Meschede, 2020). Similarly, a research was conducted in China by Bing et al., (2019) and it describes that environmental attachment mediates between social responsibility and consumer behavior in green products. Moreover, in a research it states that environmental attachment act as a mediator in between nature based intensions and different components of environmental friendliness (Namyun et al., 2017). Consequently, research in different countries show the mediating relationship of environmental attachment in the different contexts. It is noteworthy that green environmental attachment showed significant and positive relationship between green environmental awareness and sustainable product consumption. Likewise, environmental attachment fully mediates the relationship between green environmental awareness and sustainable product consumption. Therefore, the



acceptance of hypothesis (H4) was also in support with the literature established in the past. Hence, hypothesis four is accepted.

#### **5.4.2 Mediating Role of Environmental Attachment Between Sense of Responsibility and Predict Sustainable Product Consumption**

The results of the hypothesis (H5) reveals that environmental attachment plays a full mediating role between relationship of sense of responsibility and to predict sustainable product consumption. The hypothesis five was related to the research question 5 (RQ5): Does environmental attachment mediates the relationship between sense of responsibility and to predict sustainable product consumption? The path analysis via boot strapping in SMART PLS 3.0 for hypothesis (H5) was supported for total effect, (H5 :  $\beta = 0.409, t = 6.914, p = 0$ ), for direct effect (H5 :  $\beta = 0.464, t = 3.977, p = 0$ ) it was also significant and for the indirect effect (H5 :  $\beta = 0.409, t = 6.914, p = 0$ ). it was significant. Refer to table 4.6 for the comprehensive results.

A study in Malaysia by Hosany et al., (2017). documented that that place attachment nurtures the responsibility in an individual to act responsibly. In another research it was established that due to attachment of the environment individuals adopt social norms into the personal norms which activates the sense of responsibility in them (Yue et al., 2020). Consequently, a study was conducted in Indonesia, it was established that environmental attachment will determine individuals to focus more on the environmental issues and take initiative to act responsibly for the protection of the environment (Isaa et al., 2019). Accordingly, research in different countries show the mediating relationship of environmental attachment in the different contexts. It is noteworthy that green environmental attachment showed significant and positive relationship between sense of responsibility and sustainable product consumption. Moreover, the acceptance of hypothesis (H5) was also in support with the literature established in the past. Subsequently, environmental attachment fully mediates the relationship between sense of responsibility and sustainable product consumption. Hence, hypothesis five is accepted.

## **5.5 Theoretical Contribution**

At the outset, the significance of norm activation theory as prevalent psychology theory has been discussed in detail by several researchers. Though these researchers applied this theory to understand the environmental friendly behavioral outcomes such as personal norms, awareness of consequences and ascriptions of responsibility. This thesis extended the norm activation model theory to understand the factors of sustainable consumption in order to predict the sustainable product consumption in the consumers towards reaching the sustainable goals in Pakistan.

Secondly, a critical review of established literature revealed that the studies on the different factors of sustainable consumption in the light of norm activation model theory were mostly established in countries such as Sweden, USA, U.K, Germany, Australia, Japan, Brazil, Norway, Switzerland, Slovenia, Belgium, Austria, Netherlands, Finland, Denmark, Canada, Ireland, Malaysia and Singapore. This limits the generalizability of the findings toward the South Asian countries, specifically Pakistan. As discussed in the past studies, there exists a distinction between west and culture in South Asia (Naeem et al.,2018). Though it was recognized that minimal studies have been conducted in Pakistan on sustainability by keeping in view the norm activation theory. Therefore, this thesis promised to be significant for testing the factors of sustainability such as green environmental awareness, sense of responsibility and environmental attachment in the sustainable products industry in Pakistan.

## **5.6 Conclusion**

Green environmental awareness as an independent variable relied on environmental attachment in order to predict sustainable product consumption in the consumers of sustainable products in Pakistan. This variable was based on 4-items structure, GEA1, GEA2, GEA3 and GEA4. The current and potential consumers of sustainable products confirmed that, GEA partially mediates the consumer's attitude towards the sustainable product consumption in Punjab Pakistan.

Keeping in view the past studies, this study did not confirm the factor loadings of all the four items of green environmental awareness. This indicated that the current and potential consumers of sustainable products gave significant weightage towards green environmental awareness. Hence, the scale on green environmental awareness was validated with four items for the current and potential consumers of sustainable products to achieve sustainable goals in sustainability industry in the vicinity of Punjab Pakistan.

Sense of responsibility an independent variable relied on environmental attachment in order to predict sustainable product consumption in consumers of sustainable products in Pakistan. This variable was based on 6-items structure, SR1, SR2, SR3, SR4, SR5 and SR6. Keeping in view the past studies, this study did not confirm the factor loadings of all the six items of sense of responsibility. This showed that the current and potential consumers of sustainable products gave significant weightage towards sense of responsibility. Hence, the scale on sense of responsibility was validated with six items for the current and potential consumers of sustainable products to achieve sustainable goals in sustainability industry in the vicinity of Punjab Pakistan.

Moreover, Environmental Attachment acts as a mediating variable relied on to predict sustainable product consumption in potential and current consumers of sustainable products in Pakistan. This variable was based on 6-items structure EA1, EA2, EA3, EA4, EA5 and EA6. Keeping in view the past studies, this study did not confirm the factor loadings of all the six items of Environmental Attachment. This implied that the current and potential consumers of sustainable products gave significant weightage towards environmental attachment. Hence, the scale on environmental attachment was validated with six items for the current and potential consumers of sustainable products to achieve sustainable goals in sustainability industry in the vicinity of Punjab Pakistan.

Furthermore, PSPC as a dependent and outcome variable was based on 5-items structure PSPC1, PSPC2, PSPC3, PSPC4 and PSPC5. Keeping in view the past studies, this study did not confirm the factor loadings of all the five items of to predict sustainable product consumption. This signified that the current and potential consumers of sustainable products gave significant weightage towards

to predict sustainable product consumption. Therefore, the scale on to predict sustainable product consumption was validated with five items for the current and potential consumers of sustainable products to achieve sustainable goals in sustainability industry in the vicinity Punjab Pakistan.

## **5.7 Managerial Implications**

Based on the results established in this thesis, it is signified that factors of sustainable consumption in the presence of place attachment leads to predict sustainable product consumption in the current and potential consumers of sustainable products. The policy makers in the sustainability industry should direct their future efforts towards increasing the awareness of sustainable products in consumers and achieving the goals of sustainability in order to gain sustainability in the environment.

Also, by increasing the green awareness in consumers can give the sense of recognition they expect while adopting the choices for sustainable products as green environmental awareness was considered as an important factor leading to sustainable product consumption. Also, this research found that people want to consume sustainable products for numerous reasons such as to consume 100% natural products, they do not use plastic bags any more due to ban on it or due to other personal benefits and because these actions are aligned towards their values to protect the environment such as social norms (i.e. environmental attachment) as extensively discussed subject in this thesis.

In a similar way statistically proven via path analysis that the mediating role of environmental attachment intervenes between the factors of sustainability and to predict sustainable product consumption in Pakistan. Meanwhile green environmental awareness and sense of responsibility fully mediated by environmental attachment predicts the sustainable product consumption in the consumers. As a result, the policy makers in sustainability industry should use these factors and implications in marketing the sustainable products and promote the sustainability behaviors in their campaigns. Therefore, motivating the potential sustainable consumers to adopt the practices of sustainable consumption in the near future.

## **5.8 Limitations and Future Research**

This research thesis has several limitations and opportunities for the future research. To begin with, this thesis has primarily emphasized on the current and potential consumers of sustainable product consumption online in Punjab

Pakistan. Future studies could discover other vicinities of Pakistan as well. Meanwhile it was also found that different factors of sustainable consumption were diverse from one country to the other country. Accordingly, a comparative analysis of two or more countries would bring more insight in understanding the factors of sustainable consumption in order to predict sustainable product consumption in current and potential consumers of sustainable products. The thesis has measured the sustainable product consumption in the potential and current consumers of sustainability. Future research could inculcate the more than one category of other consumers who prefer different categories in sustainable products such as clothing, food and automobile etc. The findings of the thesis were based on the data collected from the potential and current consumers of sustainable products. This thesis did not reflect the disparity in the perspective of demographic factors such as age, education status. Pakistan is an ethnically diverse country, therefore the emotions, behavior and attitudes might differentiate by ethnicity. Future research could be a comparative study by ethnicity on attitudes towards sustainable consumption in Pakistan.

# Bibliography

- Abbas, N. M. (2020). The Role of Technology in Enhancing Place Attachment in Public Place. *Journal of Materials Science and Engineering*, 23(1), 1-16.
- Ab Hamid, M. R., Sami, W., & Sidek, M. M. (2017, September). Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. In *Journal of Physics: Conference Series*, 890(1), 012163-012171.
- Afthanorhan, W. M. A. B. W. (2013). A comparison of partial least square structural equation modeling (PLS-SEM) and covariance based structural equation modeling (CB-SEM) for confirmatory factor analysis. *International Journal of Engineering Science and Innovative Technology*, 2(5), 198-205.
- Aditya Benyamin, R. D. (2018). Norm activation theory in the plastic age: Explaining children's pro-environmental behaviour. *Creative Commons*, 34(2), 1-7.
- Aiste' Capien ˇ e', A. R. (2021). Pro-Environmental and Pro-Social Engagement in Sustainable. *MDPI Journal of Sustainability*, 21(1), 1-20.
- Anna Zelazna ´ 1, \*. M. (2020). Corporate Social Responsibility towards the Environment in Lublin Region, Poland: A Comparative Study of 2009 and 2019. *MDPI Journal of the Sustainability*, 20(2), 1-13.
- Apichatibutarapong, S. (2018). Factor Affecting on Public Awareness Concerning. *Creative Commons Attribution* 34(1), 1-4.
- David, A., Thangavel, Y. D., & Sankriti, R. (2019). Recover, recycle and reuse: An efficient way to reduce the waste. *International Journal of Mechanical and Production Engineering Research and Development (IJMPERD)*, ISSN (P), 2249-6890.

- Austin Kennedy, A. B. (2019). Sustainable Consumption Facts and Trends. B.ColeaSylviaColemanbLeilaScannellc, L. (2021). Place attachment in green buildings: Making the connections. *Journal of Environmental Psychology*,40(1), 1-23.
- Beba Rakic, M. R. (2018). Collaborative partnership paradigm in the sustainability-oriented supply chain as the way to sustainability. *Applied Ecology and Environmental Research*,16(3), 2639-2650.
- Beibei Yue, G. S. (2020). Impact of Consumer Environmental Responsibility on Green Consumption Behavior in China: The Role of Environmental Concern and Price Sensitivity. *Sustainability*, 1-16.
- Bing Hu, Y. T. (2019). How Does Destination Social Responsibility Impact Residents' Pro-Tourism Behaviors? The Mediating Role of Place Attachment. *Journal of Sustainability*,12(5), 1-14.
- Catalin M. Stancu \*, A. G. (2020). Meanings and Motives for Consumers' Sustainable Actions in the Food and Clothing Domains. *Journal of Sustainability*,12(24), 1-25.
- Chamorro-Mera, M. M.-G. (2020). Analysis of Socially Responsible Consumption: A Segmentation of Spanish Consumers. *Journal of Sustainability*, 1-15.
- Christina Kwai Choi Leea, C. S. (2016). Place identity and sustainable consumption: implications for social marketing. *Journal of Strategic Marketing*, 1-16.
- Christopher M. Raymond, M. K. (2017). Sense of Place, Fast and Slow: The Potential Contributions of Affordance Theory to Sense of Place. *Journal of Environmental Psychology*, 1-14.
- Chun Yang, J.-C. T. (2020). The Influential Factors of Consumers' Sustainable Consumption: A Case on Electric Vehicles in China . *Journal of Sustainability*, 1-16.
- Daniel Fischer, T. B. (2017). Measuring young consumers' sustainable consumption behavior: development and validation of the YCSCB scale. *Emerland Insight*, 1-26.

- Escalera-Reyes, J. (2020). Place Attachment, Feeling of Belonging and Collective Identity in Socio-Ecological Systems: Study Case of Pegalajar (Andalusia-Spain). *Sustainability*, 1-22.
- Faiz Rasool\*, N. A. (2019). Using the Theory of Plan Behavior and Norm Activation Model to Understand Individual Energy Conservation Behavior in Karachi, Pakistan. *Int. J. Econ. Environ*,10(1)93-99.
- Farzana Quoquab, J. M. (2018). A multiple-item scale for measuring “sustainable consumption behaviour” construct Development and psychometric evaluation. *Asia Pacific Journal of Marketing and Logistics*, 1-27.
- Fatemeh Hosseini, H. S. (2021). The Impact of Local Green Spaces of Historically and Culturally Valuable Residential Areas on Place Attachment. *MDPI*, 1-17.
- Georgina G. Gurney, J. B. (2017). Redefining community based on place attachment in a connected world. *PNAS Sustainability Science*, 1-6.
- Gelski, J. 2019, Sustainable product market could hit \$150 billion in U.S. by 2021. Retrieve from Food Business News: <https://www.foodbusinessnews.net/articles/13133-sustainable-product-market-could-hit-150-billion-in-us-by>
- Gupta, I. M. (2017). Natural Resources Depletion and Economic Growth in Present Era. *SOCH* 10, 24-28.
- Hadeer Hammad, V. M. (2019). Status and sustainability Can conspicuous motives foster sustainable consumption in newly industrialized countries? Status and Sustainability, *Emerland Insight*, 537-550.
- Han, J. X. (2019). The Influence of Place Attachment on. *International Journal of Environmental Research and Public Health*, 1-16.
- Ihsan Ullah Jan, S. J. (2019). Values and Green Product Purchase Behavior: The Moderating Effects of the Role of Government and Media Exposure. *Sustainability*, 1-16.
- Jansen, S. J. (2019). Place attachment, distress, risk perception and coping. *Journal of Housing and the Built Environment*, 407-427.



- Jian Xu, R. H. (2019). The Influence of Place Attachment on Pro-Environmental Behaviors: The Moderating Effect of Social Media. *International Journal of Environmental Research and Public Health*, 16-24.
- Johannsdottir, T. S. (2019). Sustainability within Fashion Business Models: A Systematic Literature Review. *MDPI Journal of Sustainability*, 1-26.
- Kennedy, E. H. (2018). The Practice of Green Consumption. In E. H. Hauslik, *Environment and society*, 187-206.
- Khan, M. J. (2016, August). SDGS in Punjab. Retrieved from Punjab SDGS Support Unit: <https://sdgs.punjab.gov.pk/about.html>
- Liu, Y. S. (2017). Place Attachment Assessment System in Contemporary Urbanism. *Procedia Engeneering*, 152-168.
- M. Niaz Asadullah, A. S. (2020). Will South Asia Achieve the Sustainable Development Goals by 2030? Learning from the MDGs Experience. *Social Indicators Research*, 165-189.
- M.M. Mohammad, B. I. (2020). Reflection on Environmental Awareness for School Management. *Journal of Critical Reviews*, 265-268.
- Mahmoud Allana, N. N. (2020). Environmental Awareness and the Role of Marketing Strategies in Shifting Consumers' Interest Towards Organic Products. *International Journal of Strategic Change Management*, 1-13.
- Manita Matharu, R. J. (2020). Understanding the impact of lifestyle on sustainable consumption behavior: a sharing economy perspectiv. *Management of Environmental Quality: An International Journal*, 1-21.
- María García-Martín, T. P. (2018). Dimensions of Landscape Stewardship across Europe: Landscape Values, Place Attachment, Awareness, and Personal Responsibility. *Journal of Sustainability*, 1-27.
- Meaghan Guckian, R. D. (2017). Beyond Green Consumerism: Uncovering the Motivations of Green Citizenship. *Michigan Journal of Sustainability*, 73-94.
- Meira, D. E. (2019). Sustainability as business strategy in community supported agriculture. *British Food Journal*, *Emerland Insight*, 616-632.

- Mensah, J. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. *Cogent Social Sciences*, 1-21.
- Meschede, C. (2020). The Sustainable Development Goals in Scientific Literature: A Bibliometric Overview at the Meta-Level. *Journal of Sustainability*, 1-14.
- Mohd et al. (2020). An Investigation of Pro-Environmental Behaviour. *MDPI Sustainability*, 1-21.
- Mubarak, M. M. (2019). Five Senses for Effective and Sustainable Corporate Social Responsibility Strategy. *International Journal of Economics and Financial*, 67-72.
- Muhamad Nasyat Muhamad Nasira, M. M. (2020). Testing mediation roles of place attachment and tourist satisfaction on destination attractiveness. *Management Science Letters*, 1-12.
- Muhammad Salman Shabbir, M. A.-K. (2020). Green Marketing Approaches and Their Impact on Consumer Behavior towards the Environment—A Study from the UAE. *Journal of Sustainability*, 1-13.
- Namyun Kila, S. M. (2017). Place attachment as a mediator of the relationship between nature-based recreation benefits and future visit intentions. *Journal of Sustainable Tourism*, 603-626.
- Nations, U. (2015). Department of Economic and Social Affairs. Sustainable Development. Retrieved from United Nations: <https://sdgs.un.org/goals>
- Nations, U. (2015). United Nations. Retrieved from Department of Economic and Social Affairs. *Sustainable Development.*: <https://sdgs.un.org/goals>
- Nations, U. (2021). United Nations Department of Economic and social affairs. Retrieved from SDGs UN.org: <https://sustainabledevelopment.un.org/milestones/wced>
- Nitika Sharma, R. S. (2018). “I don’t buy LED bulbs but I switch off the lights” Green consumption versus sustainable consumption. *Journal of Indian Business Research Emerland Insight*, 1-25.

- Paola Mancini, A. M. (2017). Which are the sustainable attributes affecting real consumption behaviour? Consumer understanding and choices. *British Food Journal*, 1-13.
- Pham Tuan Anh, D. V. (2019). Factors Affecting Sustainable Consumption Choice in the Field of Food and Drink: The Case of University Students in Hanoi. *International Journal of Entrepreneurship*.
- Piera Buonincontri, A. M. (2017). Visitors' Experience, Place Attachment and Sustainable Behaviour at Cultural Heritage Sites: A Conceptual Framework. *Journal of Sustainability*, 1-19.
- Pradeep Kautish, J. P. (2019). The moderating influence of environmental consciousness and recycling intentions on green purchase behavior. *Journal of Cleaner Production*, 1425-1436.
- Rachel Bick, E. H. (2018). The global environmental injustice of fast. *Environmental Health*, 1-4.
- Razem, M. (2020). Place Attachment and Sustainable Communities. *UCL Press*, 1-23.
- Razem, M. (2020). Place Attachment and Sustainable Communities. *Architecture\_MPS*, 1-23.
- Salmi Mohd Isaa, H. H. (2019). The effect of place attachment on visitors' revisit intentions: evidence from Batam. *Journal of Tourism Geographics*, 1-33.
- Sameer Hosany, G. P. (2017). Mediating Effects of Place Attachment and Satisfaction on the Relationship between Tourists' Emotions and Intention to Recommend. *Journal of Travel Research*, 1-15.
- Scarpi, I. C. (2020). Achieving Environmentally Responsible Behavior for Tourists and Residents: A Norm Activation Theory Perspective. *Journal of Travel Research*, 1-17.
- Shampy Kamboj, Z. R. (2017). Market orientation, marketing capabilities and sustainable innovation: the mediating role of sustainable consumption and competitive advantage. *Management Research Review, Emerland Insight*, 1-43.

- Shimova, O. (2020). Belarus on the Way to Sustainable Development: Circular Economy and Green Technologies. Modeling Economic Growth in Contemporary Belarus, *Emerland Insight*, 90-106.
- Singh, A. T. (2017). Determinants of sustainable/green consumption: a review . *Int. J. Environmental Technology and Management*, 316-358.
- Sukar, F. Q. (2017). Why Sustainable Consumption Is Not in Practice? A Developing Country Perspective. *Green consumption by young consumers*, 103-113.
- The sustainable manufacturing concept, evolution and opportunities within Industry 4.0: A literature review. (2020). *Journal of Advancing in Mechanical Engineering*, 1-19.
- TholangMokhele, S. S. (2021). Socio-demographic determinants of environmental attitudes, perceptions, place attachment, and environmentally responsible behaviour in Gauteng province, South Africa. *Scientific African*, 1-9.
- Tyagi, A. T. (2020). Sustainability: Fundamentals and Applications. USA: 2020 John Wiley & Sons, Ltd.
- UN. (2020). The Sustainable Development Goals Report. New York: United Nations. Retrieved from UN.Org: <https://sdgs.un.org/goals>
- United Nations, D. o. (2019). World Population Prospects 2019 . New York: United Nations.
- Utkal Khandelwal, K. K. (2019). Importance of Consumer-based Green Brand Equity: Empirical Evidence. *Journal of Sage pub*, 83-97.
- Vaˆısto, D. M. (2016). Reducing The Attitudebehavior Gap in Sustainable Consumption: A Theoretical Proposition and the American Electric Vehicle Market. *Marketing in and for a Sustainable Society*, 194-212.
- Vanessa A. Masterson, J. P. (2019). Sense of place in social–ecological systems: from theory to empirics. *Sustainability Sciences*, 555-564.
- Wei-Ta Fang, Y.-T. C.-C. (2019). Using the Norm Activation Model to Predict the Pro-Environmental Behaviors of Public Servants at the Central and Local Governments in Taiwan. *MDPI Journal of Sustainability*, 1-20.

- Yenny Novianti, N. G. (2018). Place attachment of the public space in Krueng Cunda. *Journal of Earth and Environmental Sciences*, 1-15.
- Yeon Ho Shina, J. I. (2018). The theory of planned behavior and the norm activation model approach to consumer behavior regarding organic menus. *International Journal of Hospitality Management*, 21-29.
- Yi Du, X. W. (2018). Changes in Environmental Awareness and Its Connection to Local Environmental Management in Water Conservation Zones: The Case of Beijing, China. *MDPI Journal of Sustainability*, 1-24.
- Younis, F. a. (2017). Pattern of Development and Sustainable Economic Growth In Pakistan: A Descriptive Analysis. *Munich Personal RePEc Archive*, 1-29.
- Yuwei Liu, H. S. (2017). Integrating Norm Activation Model and Theory of Planned Behavior to Understand Sustainable Transport Behavior: Evidence from China. *International Journal of Environmental Research and Public Health*, 1-16.
- Zabkar, M. H. (2020). Antecedents of Environmentally and Socially Responsible Sustainable Consumer Behavior. *Journal of Business Ethics* , 273-293.
- Zeinab Rezvani1, (2018). Consumer motivations for sustainable consumption: The interaction of gain, normative and hedonic motivations on electric vehicle adoption. *Journal of Business strategy and the environment*, 1-12.

# Appendix A

## SECTION-ONE; PREAMBLE

Dear Participant,

We are carrying out a survey on the factors leading to predict sustainable product consumption. We would appreciate your participation by answering all questions related to this research. This survey shall not take more than 10 minutes of your time. Your participation in this survey is completely voluntary, and you may discontinue the survey at any time. All the information provided by you shall be kept confidential and it will be used for academic purposes only.

**Rabya Tauheed; Dr. Ahsan Mahmood Ahmed**

## Section TWO: General Information

Please tick the appropriate box that indicates your level of agreement.

Do you belong to Punjab, Pakistan: Yes  No

Monthly Income: 5k-30k  30k-55k  55k-80k  Above 80k

Sustainable Product Usage Experience : 1-5 years  5-10 years  10-15 years

More than 15 years

## SECTION THREE: STUDY QUESTIONS

Please tick one column per statement, to indicate your response towards the statements below. The response scale is based on seven options including; strongly agree (1), agree (2), mildly agree (3), neutral (4), disagree (5), mildly disagree (6), and strongly disagree (7).

S.N	STATEMENT	1	2	3	4	5	6	7
<b>Green Environmental Awareness</b>								
1	Buying eco-friendly products would show my concern for the environment.							
2	Environmental issues are a matter of concern for me.							
3	Using sustainable products makes difference in my life.							
4	Sustainable products make me aware about environment.							
<b>Sense of Responsibility</b>								
1	I feel concerned about environment by using sustainable products.							
2	Environmental awareness influences me to use Sustainable Products.							
3	I feel my actions are responsible towards environmental destruction.							
4	I feel related to sustainable products because they are environmentally friendly.							
5	I prefer to be environmentally friendly due to the concern and responsibility of my future.							
6	I have knowledge and time to use sustainable products.							
<b>Environmental Attachment</b>								
1	I feel attached to the sustainable environment around me.							
2	Sustainable environment determined my self-identity.							
3	The concern of upcoming generations made me environmentally friendly.							
4	The issue of sustainability made me think about the environment.							
5	I feel sense of belonging with sustainable environment.							
6	I would intend to buy products which have a reduced impact on the environment.							
<b>Sustainable Product Consumption</b>								
1	I will purchase recycled products.							
2	I have intentions to buy environmentally friendly products.							
3	I will look for products that have less packaging.							
4	I have changed my lifestyle in order to reduce waste.							
5	I think that it is important to take measures against problems which have to do with environment.							

**THANKYOU VERY MUCH FOR GIVING YOUR PRECIOUS  
TIME MUCH APPRECIATED!!**