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## Impact of green marketing on consumer buying behavior:

The mediating role of environmental knowledge

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A quantitative study in the context of Pakistan

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## Abstract

Green marketing is aimed at directing a company's efforts to undertake the processes of designing a product, its promotion, pricing, and distribution in a way that can help to protect the environment. The current study is aimed at investigating the influence of green marketing practices including eco-labeling, green branding and green advertising on consumer buying behavior in Pakistan which is a developing country. The study has also analyzed the mediating effect of environmental knowledge in the relationship between green marketing practices and consumer buying behavior. The research used a quantitative approach and a structured survey questionnaire to collect data from 300 respondents. The study results revealed that green advertising and green branding has a significant positive relationship with consumer buying behavior while eco-labeling is not a significant predictor for this purpose. Moreover, environmental knowledge partially mediates the relationship between green marketing and consumer buying behavior. In this way, the current study has contributed to literature by analyzing the green marketing practices with and without the presence of environmental knowledge in Pakistan. The results of the research are helpful for marketers to emphasize more on green advertising being the strong predictor of consumer buying behavior. It also urges them to make their environmental friendly activities closer to reality in order to gain greater acceptability from consumers. However, the study has not taken into account all dimensions of green marketing and the sample responses belong to the population in only urban areas of Pakistan.

**Keywords:** Green marketing, consumer buying behavior, environmental knowledge, eco-labeling, green advertising, green branding

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## Contents

## List of Tables

# CHAPTER ONE: INTRODUCTION

## 1.1 Green marketing defined

The concept of green marketing is on the rise and it has attracted a lot of research. However, there is no single unanimously accepted definition of green marketing. For instance, Tsen et al. (2006), and Wahid et al. (2011) have argued that green marketing is a concept which integrates ecological concerns in all the processes of marketing. Juwaheer et al. (2012) view green marketing as a business strategy which has been adopted to differentiate business practices and products for consumers by going green. The definition used in this thesis is that of Chan (2004), who argued that green marketing identifies the needs of environmentally concerned consumers and influences their buying behavior through the provision of green products. The rationale behind using this definition is that it addresses environmental knowledge as well as the impact of green marketing on consumer buying behavior, which is the main target of this study. The environmental knowledge of consumers is considered to be the primary factor for determining the success of green marketing in influencing the consumer buying behavior (Chowdhury, 2013). Unfortunately, the level of environmental knowledge is lower in developing countries than in developed ones, which becomes a hurdle in the way of influencing consumer buying behavior through green marketing (Sinnappan & Rahman, 2011).

The green marketing is operationalized by current study through three dimensions: eco-labeling, green branding and green advertising. Eco-labels are voluntary initiatives taken by organizations to preserve the environment. Green branding shows the trend of ‘going green’ by highlighting the environmental friendliness as additional benefits of the brand and incorporating the green initiatives into brand positioning (Grimmer & Bingham, 2013). Finally, green advertising uses persuasion strategies that aim at convincing people to prefer eco-friendly products (Kotler & Armstrong, 2008).

## 1.2 Overview of green marketing and its impact on consumer buying behavior

Over the years, there has been a shift in environmental activities from being voluntary practices to compulsion imposed by legislation all around the world, especially in developed countries (Polonsky & Rosenberger, 2001).

The movement of consumerism, which started in order to protect consumers from unethical marketing, has significantly upgraded after the advent of the concept of green marketing. Now it is expected to protect the environment of consumers as well, through healthy environmental marketing practices resulting in 'green consumerism' (Dono et al., 2010). A green consumer is someone who avoids the use of any product that has been manufactured using a large amount of non-renewable energy and is likely to cause damage to the environment or the living organism during manufacturing processing or involves testing on other living beings including animals and plants (Eriksson, 2004).

There are many factors which urge consumers to buy green products. An extensive body of research has revealed that factors such as a high degree of awareness and concerns among consumers about environmental issues, substantial advertising by organizations on green products, and environmental consciousness all have pushed businesses to go green to promote the idea of corporate environmentalism (Asgharian et al., 2012; Menck & Filho, 2014; Dahl, 2010). Thus, developments in this area have become an opportunity for businesses to work on their marketing niche (Wahid et al., 2011).

The practices of green marketing have increased a lot in recent years. Statistics released by Global Industry Inc. in 2011 highlighted that the total global market of green marketing was expected to reach $3.5 trillion until the end of 2017. This is mainly attributed to increased environmental awareness, not only among consumers but also among government institutions and the corporate world. Thus, it is considered as the need of current times to switch towards green products even if they are expensive (Sustainability Edge Solutions, n.d). The core idea of green marketing is to create such

awareness among people about environmental issues and convince them as to why they should switch towards green products. In this way, it does not only serve as a marketing tool but also contributes towards society through creating awareness for environmental issues of products other than green offerings. There is a wide range of literature available which focuses on different aspects of green marketing and how it influences consumer buying behavior. In this regard, Moser and Uzzell (2003), in their handbook on environmental psychology have claimed that consumers shape their opinion on environmental issues based on how social and print media portraits it. Moreover, they also argue that females have more serious concerns about environmental issues than males. These arguments were further supported by D Souza et al. (2006), who conducted research on 155 respondents in Australia to understand the impact of green marketing information on consumer buying behavior. The results of this study indicated that marketers who use eco-labeling on their green products strongly influence consumer buying behavior. The research of Rashid (2009), conducted in the Malaysian context to understand the consumer perception of different green marketing efforts during infancy stage of green marketing initiatives in the country, confirmed the results of previous researches and further argued that consumers who possess environmental knowledge tend to react more positively towards green marketing and ultimately green products. However, Leire and Thidell (2005) provided a different view of the Nordic consumers after investigating the impact of environmental knowledge on consumer choices of green products. The results of their study revealed that consumer knowledge of the environment does not necessarily lead towards consumers making green purchase decisions. They have further argued that consumer buying behavior changes in diverse buying conditions; therefore, merely possessing environmental knowledge is not helpful to influence the buying decision. In contrast, Singh and Kaur (2016), who conducted their research in the Indian context to understand the importance of environmental knowledge for increasing or decreasing the impact of green marketing on consumer buying behavior, found that that environmental knowledge is very important in shaping consumer buying behavior for purchasing green products. Narkevitsj (2017) investigated the impact of green marketing in terms of eco-

labeling of two coffee houses which claim to use sustainable business practices but failed to comply with all certification requirements and thus confused the consumers. The study concluded that eco-labeling is often found as a way to deceive consumers which may result in negative business performance. Organizations, in order to promote their products, may use advertisement showing their environmental friendly processes of manufacturing even if they are not fully meeting their environmental claims for eco-friendly manufacturing. This discussion on the impact of environmental knowledge on consumer buying behavior for green products led to the introduction of this variable as a mediator in the relationship between green marketing and consumer buying behavior in the current study. This inclusion will increase our understanding of what differences it creates in the relationship between green marketing and consumer buying behavior.

## 1.3 Research gap

Green marketing forms an important base to influence consumer buying behavior. However, studies have normally discussed it in terms of a Corporate Social Responsibility and not in the marketing context. Therefore, there is still a need to understand the factors that influence the decision making process of the consumer. Such an understanding is important to multiply the results of influencing consumer buying behavior (Khare et al., 2013). Thus, the concept of green marketing, which is at infancy stage, needs more studies to fully understand the potential of this important field. Moreover, the studies which have been conducted on this topic have been carried out in developed countries, especially the US market (Leonidou et al., 2013). However, the situation is likely different in developing countries where purchase patterns and socioeconomic conditions are different. Juwaheer et al. (2012) pointed out that there is a lot of literature available on green marketing and how it influences consumer buying behavior in developed countries, but there is a lack of research on why green marketing strategies are needed to influence consumer buying behavior in developing countries.

One of the important factors that influence consumers to make green purchase decisions is environmental knowledge. Consumers with increased environmental knowledge may be more influenced by green marketing practices of corporations. Thus,

Mahmoud et al. (2017) have emphasized that in a developing country like Pakistan, where there is a lack of environmental knowledge, this study will be helpful to understand how effective the green marketing activities are to influence consumer buying behavior.

## 1.4 Aim of research

In the light of the research gaps highlighted in the previous section, the aim of the current study is:

*To investigate the relationship of green marketing through eco-labeling, green branding and green advertising on consumer buying behavior, considering the mediating role of consumer environmental knowledge in Pakistan.*

## 1.5 Research objectives

The objectives of this research:

- To further our understanding of the concept of green marketing in terms of eco-labeling, green branding and green advertising in developing countries such as Pakistan
- To investigate the level of environmental knowledge of consumers in Pakistan
- To evaluate the impact of green marketing on consumer buying behavior in developing countries such as Pakistan
- To analyze the mediating role of environmental knowledge on the relationship between green marketing and consumer buying behavior in developing countries such as Pakistan

## 1.6 Research questions

In order to effectively approach the objectives of this research, the following research questions have been formulated:

1. What is the level of environmental awareness among consumers in a developing country?
2. What is the impact of green marketing in the form of eco-labeling, green branding and green advertising on consumer buying behavior in a developing country?
3. Does environmental knowledge mediate the relationship between green marketing and consumer buying behavior?

## 1.7 Structure of thesis

The thesis structure for the next chapters has been split into the following:

**Chapter 2:** This chapter contains a comprehensive frame of reference. Previous research on the variables and interrelatedness of green marketing, consumer buying behavior and environmental knowledge of consumers is presented. On this basis, three main and three sub-hypotheses are formed. These hypotheses are derived from literature and tested with the help of data collection from consumers.

**Chapter 3:** This chapter provides information on the methodology used to carry out this research, including research type, data collection, and analysis techniques.

**Chapter 4:** Chapter 4 presents the analysis of the data collected. At the end of this chapter, a discussion on overall findings is presented.

**Chapter 5:** This last chapter provides overall conclusions of the study and practical implications based upon the results. It also explains the limitations of the current study and suggests future research.

*The previous chapter has provided a foundation of this research by discussing an overall background, its aims and objectives as well as the significance of conducting this research. The next chapter provides a theoretical foundation for this research in line with the objective of this study. With the help of literature, hypotheses to be tested are developed.*

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# CHAPTER TWO: FRAME OF REFERENCE

## 2.1 Definitions of key variables

In this section, the definitions of key terms are presented starting from higher level concepts (green marketing) to more specific concepts.

### 2.1.1 Green marketing

Green marketing is aimed at directing a company's efforts to undertake the processes of designing a product, its promotion, pricing, and distribution in a way that can help to protect the environment (Polonsky, 2011). It can encompass all production and distribution systems.

Green marketing is a creative opportunity to innovate in ways that make a difference and at the same time achieve business success (Maheshwari, 2014). Thus, green marketing is a production mechanism which strives to produce products that are safer to use and protect the environment. Like previous studies (Rahbar & Wahid 2011; Zandhessami et al., 2016; Sarkar, 2012), the current study has measured green marketing using three key variables: eco-labeling, green branding and green advertising.

#### 2.1.1.1 Eco-labels

Eco-labels are initiatives taken by organizations in order to preserve the environment and for which they receive third-party certification. Such certifications in the form of eco-labels are then used as a competitive advantage by companies to attract more customers by showing them that they are offering more environmental friendly and healthy products (Ng & Wong, 2015). The practice of eco-labeling is used on the one hand, as a marketing strategy, and on the other hand, it is aimed at dealing with the problems of climate change and global warming (Bernard et al., 2015).

#### 2.1.1.2 Green branding

Branding is considered as the heart of any marketing strategy. The companies try to position their brands at a compatible position to be successful in the long run. Affected by the increased environmental concerns, companies are now increasingly concerned with positioning their brands in relations to going green, i.e. to make their brand perceived as eco-friendly in order to make consumers believe that the brand is offering additional benefits of being environmental friendly and healthy for consumers (Grimmer & Bingham, 2013; Wahid et al., 2011).

#### 2.1.1.3 Green advertising

Green advertising is intended to persuade people to use environmental friendly products. In other words, to adopt advertising strategies aiming to make people take decisions to purchase products that are manufactured using harmless environmental processes and causing less waste (Kotler & Armstrong, 2008). In recent years, green advertising is on the rise and consumers who are more environmentally concerned pay increased attention to green advertising (Peter & Olson, 2010).

### 2.1.2 Consumer buying behavior

Consumer buying behavior describes how consumers behave when making certain buying decisions. In the context of green marketing, consumer buying behavior is characterized by purchasing products which are environmental friendly and are produced using harmless production processes (Herring & Sorrel, 2009). Consumers usually take pride in making green buying decisions. The techniques of eco-labeling, green branding and green advertising are all used to influence consumers to make green buying decisions (Akenji, 2014).

### 2.1.3 Environmental knowledge

With the passage of time, people are faced with increased environmental issues which directly affect their lives. In order to effectively deal with environmental issues, people must possess the relevant knowledge to cope with such concerns (Wole, 2009).

## 2.2 Importance of green marketing

The primary aim of green marketing efforts is to reduce the environmental losses and to earn a good reputation for the company as an environmentally concerned company, with a responsible attitude towards the environment (Sarkar, 2012). It is a novel concept which helps organizations to achieve their long-term objectives of attracting more consumers to increase their consumer base. Organizations are paying increased attention to eco-innovation in order to use it as their marketing strategy. It is also helpful for organizations to not only achieve sustainable production processes but to gain a marketing advantage in the form of influencing the behavior of consumers to buy green products (Singh & Pandey, 2012). On the other hand, the organizations, by virtue of increased legal and regulatory pressures, are also bound to follow green practices for the protection of the environment and to provide consumers with healthy and green products and services (Sarkar, 2012). The ultimate goal of all such activities is to influence consumers to contribute towards a healthy environment and a healthy lifestyle by purchasing green products.

Modern organizations are increasingly recognizing the importance of eco-labeling to improve the brand image. Eco-labeled products reduce the possible information asymmetry between manufacturers and end users (Okada & Mais, 2010). The detailed description of environmental credentials allows consumers to develop informed opinions about the brands (Mishra & Sharma, 2010). The importance of eco-labeling has been highlighted by some recent studies. For example, Esteves et al. (2017) discussed the importance of eco-labeled products by comparing the consumer buying behavior of eco-labeled and non-eco-labeled products available in the New Zealand market. The comparative results highlighted the importance of eco-labeled products and authors proposed that a detailed description of products' environmental credentials enhance the competitiveness in the market (Esteves et al., 2017).

The importance of green branding is also being recognized by modern organizations operating in competitive markets and dealing with consumers with high environmental

consciousness (Suki, 2016). Successful green branding is benefiting organizations in many different ways- like increasing the brand equity, enhancing competitive positioning and getting a favorable evaluation from consumers against competitors (Suki, 2016; Raska & Shaw, 2012). Other than green branding, the trend of green advertising has become prominent in different industries as organizations are using it as a tool to get the desired consumer behavior. Effective green advertising is also reported to have a positive influence on consumer buying behavior in different industries (Chan, 2004; Tariq, 2014; Habib et al., 2010). This research intends to evaluate the influence of eco-labeling, green branding and green advertising on consumer buying behavior in the Pakistani market.

The next sections provide greater detail on the behavioral mechanism of consumers and the role of green marketing in influencing their behavior.

## 2.3 Understanding consumer buying behavior

Consumer buying behavior can be studied under Theory of Planned Behavior proposed by Ajzen (1991) which seeks to address the motivational factors behind the certain behavior of consumers as influenced by intentions, subjective norms and perceived behavioral controls. This theory says that intentions exhibit a significant influence on a consumer to behave in a certain way. Attitudes are formed by individual judgments of a certain behavior or the beliefs about the outcome of certain actions. As for instance, if a consumer feels that purchasing a green product is helpful for him/her and society's well-being, they will form the attitude to buy it and finally, they will perform the action. Normative beliefs, on the other hand, are societal or familial or spousal pressure on someone to act in a certain way. For example, societal or familial pressure on someone to buy and encourage consumption of green products for environmental protection influences a consumer's behavior to buy green products. Finally, perceived behavioral controls are the factors which influence consumer buying behavior in the form of whether he/she can afford to buy a product or the perceived ease or difficulty attached in its buying. As for example, the consumer's perception of whether he/she can afford to

buy green products which are normally more expensive than others. In this way, all three factors, i.e. personal intentions, subjective norms, and perceived behavioral controls, all have significant influence in shaping consumer buying behavior (Ajzen, 2011). Thus, green marketers try to influence consumer buying behavior for the purchase of green products by using all tactics mentioned under the theory of planned behavior.

## 2.4 Consumer buying behavior in relation to green marketing

Affordability is one of the main reasons which direct consumers to go for green products. In a survey study in India, Manaktola and Jauhari (2007) found that 67% of the consumers belonging to high-income classes responded that they prefer green products, while 65% of upper middle-income, 59% of middle-income, and 48% of low-income responded the same. The lower number of consumers showing their preferences for green products implies that green products usually are not within reach of the low-income class (Purohit, 2012). Even if they incur lower costs, businesses generally charge premium prices in order to take advantage of their green concept (Boztepe, 2012).

Researchers have also used behavioral theories to establish a behavior – attitude relationship for consumers, i.e. the consumers make buying decisions based on their favorable attitude towards certain products. Ottman (2011) has however argued that the relationship between green behavior and the attitude of consumers is low. Albayrak et al. (2011) conducted their study in the Turkish context to understand the role of environmental knowledge on shaping consumer buying behavior. They found that green consumers are like ‘confused consumers’. This is because they are unable to specify what exactly is meant by green, so forming an attitude for green products is also difficult.

Spanos (2008) discussed that due to increased regulatory requirements and to match consumers’ requirements for green products, the companies are engaged in green manufacturing and green marketing. Similar arguments were made by a later research

conducted by Purohit (2012) who argued that consumers, under the influence of social norms, are required to move towards green products and ultimately their intentions are converted into actual buying behavior.

In addition to organizations, consumers now also bear equal responsibility for the protection of the environment through green purchases. In this regard, Boztepe (2012) found that in Turkey, the perceived pressure of social norms urges consumers to buy green products. However, this social pressure is different and varies with the change in demographic factors. In support of this, Lee et al. (2012) found that gender, age, qualification, and level of income all result in changing consumer buying behavior for the purchase of green products in the Korean context.

Many companies are trying to preserve the environment by delivering environment friendly products (Renfro, 2010). Previous researches argued that there are several factors which influence the behavior of the consumer in terms of the green products purchase. Like previous research findings from different countries, in India consumer's income class and social norms (Purohit, 2012), in Turkey environment protection behavior and social norms pressure (Boztepe, 2012), in Korea gender, age, education, and income status (Lee et al., 2012) respectively plays an important role in the purchase of green products. Psychological and social factors are persuasively more influential on the consumer's behavior as compared to the demographic factors for the consistency of the green product purchase (Pickett et al., 1995). Laroche et al. (2001) argued that green consumers are more educated and wealthier, yet there is democratization in the purchase behavior in Europe and North America. Other motivators for the purchase of green marketing products are animal welfare, health, and quality of organic products (Raska & Shaw, 2012). The attitude of parents is also a strong predictor of the green marketing purchase behavior. Parents have concerns about green product consumptions and they tend to privilege that organic products more to increase health and safety. Organic consumption is a strong driver that affects the behavior of the consumer for purchase (Renfro, 2010). Other factors that influence consumer buying behavior are the consumer's values, awareness of environmental

issues, knowledge of alternate products, and the consumer's perception of the protection of the environment (Rashid, 2009).

All of this indicates that patterns of buying these green products and services are not similarly shared by all consumers. However, the scope of current research is restricted to the study of the direct impact of green marketing on consumer buying behavior and it has not taken into account the role of demographics to study their role for enhancing or decreasing the impact of green marketing activities on consumer buying behavior.

Overall, many previous studies (such as Purohit, 2012; Spanos, 2008; Boztepe, 2012; Lee et al., 2012) propose that organizations' green marketing practices directly or indirectly have a positive influence on the consumer buying behavior in different consumer goods industries.

A broad range of studies indicating positive results in both developed countries like European and United States and developing countries like India and Turkey, have ultimately led to the following hypothesis:

*H1 (a): green marketing has a significant positive relationship with consumer buying behavior for green products in Pakistan.*

Green marketing is undertaken by using its three key variables. This study has focused on dimensions like eco-labeling, green branding and green advertising.

### 2.4.1 Green marketing through eco-labeling

Marketers may use eco-labeling in order to show that they have used environmentally safe and profound ways of production and distribution of goods. Such products hold a license from independent third parties for being environmental friendly products (Okada & Mais, 2010; Mishra & Sharma, 2010). Ng and Wong (2015) found that in the construction sector of Hong Kong, the technique of eco-labeling has been largely used by marketers and it has been reported to bring positive results for marketers, influencing consumer buying behavior for the purchase of green products. It urges consumers to

buy a premium quality product at a premium price. Likewise, Rashid (2009) found that in Malaysia the use of eco-labeling for green products is helpful to influence consumer buying behavior. Several other researchers have supported the findings of Rashid (2009) and showed that ecological methods of manufacturing are very helpful to promote eco-friendly products and to shape consumer intentions to buy such products (Kwok et al., 2014; Chkanikova & Lehner, 2015). Similarly, Jarvi (2010) also found that in Finland, eco-labeling seems to have a significant impact on consumer buying behavior. Contrarily, Leire and Thidell (2005) have reported contradictory results, highlighting that consumers acknowledge eco-labeling but that it does not necessarily result in shaping their behavior to buy those products. Moreover, Cherian and Jacob (2012), with the help of meta-analysis, also reported that consumers do not always trust and rely on eco-labeling. However, reasons for such distrust are not fully known. Another study has found that eco-labeling enhances the transparency and trust of the environmental claims related to the product that looks appealing for the consumer (Iraldo et al., 2005). Eco-labeling also enhances the susceptibility of the consumption patterns of the product (Sitarz, 1994). Eco-labeling of the product gives the freedom to the consumer to make the choice in terms of costs (Grunert & Wills, 2007). Eco-labeled environment products are more preferable compared to the other products (Loureiro et al., 2001; Gallastegui, 2002). Eco-labeled products affect the decision making of consumers to buy the product (Daugbjerg et al., 2014). The literature showed that eco-labeled products from China are more preferable than those products which have no eco-labels because of several reasons which include health concerns, food safety issues, and better quality products that increase the purchase of eco-labeled products by consumers (Yin & Ma, 2009). Previous researches showed that eco-labeling increases the consumers' concerns related to food production issues like safety (Wessells & Anderson, 1995), quality (Salladarré et al., 2010), environmental effects (e.g. Jaffry et al., 2004), sustainability (e.g. Sogn-Grundvåg et al., 2013), and animal welfare (Verbeke et al., 2007). The success of the eco-label product is depending upon the compliance of the consumers on them. The success of the product is measured by the consumers' willingness to purchase the eco-labeled product (Thøgersen, 2000). All

these results have largely been drawn from studies conducted in developed countries because the concept of eco-labeling is more prevalent in developed countries while it has been very less studied in developing countries. Thus, in the light of the above results, the following hypothesis has been formed to understand whether results obtained in developed countries are equally applicable for developing countries or not.

*H1 (b): Eco-labeling has a significant positive relationship with consumer buying behavior for green products in Pakistan*

### 2.4.2 Green marketing through green branding

Another important determinant of green marketing is 'green branding'. Green marketing contributes value to a brand image (Suki, 2016). The main strategy used for green branding is green positioning (Raska & Shaw, 2012). The positioning can be either emotional or functional, where functional strategy appeals to rational minds through the provision of detailed knowledge on the environmental benefits of products, while the emotional strategy focuses on emotional needs of consumers. For instance, functional brand strategies include the relevant environmental benefits of the products in the form of more environmental friendly production processes and sound product attributes, while emotional strategy stresses the well-being of society due to environmental friendly production processes. Of the two strategies, emotional branding is found more effective than functional branding (Michaud & Llerena, 2011). Sarkar (2012) investigated the use of different emotional appeals including selflessness, emotional well-being, and other nature-related appeals under positioning brand strategy which proved the effectiveness of emotional branding and supported the results of Michaud and Llerena (2011). Hartmann et al. (2005) showed that in Spain, firms can get greater value for their products by applying a green branding strategy. This can be one of the best marketing strategies for brands. By using insights from the study of Hartmann et al. (2005), Suki (2016) investigated the impact of green brand positioning on consumer intentions in Malaysia and found that green brand positioning strategies have a significant positive influence on consumer buying behavior. Likewise, Huang et al. (2014) found that in Taiwan, green branding has a significant impact on green purchase intentions.

Raska and Shaw (2012) have however criticized the effectiveness of a green brand positioning strategy. In a study on US consumers, they found that consumers may doubt the green activities of firms which have a negative influence on their buying decision process. Finally, Cherian and Jacob (2012), through a meta-analysis on brand positioning and consumer buying behavior, found that green brand positioning has an impact on consumer's perception, but that there is no evidence as to whether this perception has an impact on consumer buying behavior. To further investigate this issue, and on the basis of those studies arguing that there is a positive relationship between green branding and consumer buying behavior in developed countries, the following hypothesis has been set to test the results in a developing country.

*H1 (c): Green branding has a significant positive relationship with consumer buying behavior for branded green products in Pakistan*

**2.4.3 Green marketing through green advertising**

The third important determinant of green marketing is green advertising. It includes advertising eco-friendly content and sustainability of the environment. The concept was first used in the late 1960s but gained momentum in the 2000s after development in international legislation for green products (Yin & Ma, 2009; Frank-Martin & Peattie, 2009). Advertising is an important factor to convert consumer purchase decisions. It helps to translate consumers' perceptions of green products into making their purchases (Maheshwari & Malhotra, 2011; Leonidou et al., 2013).

Tariq (2014) found a direct impact of green advertising on consumer buying behavior and their level of satisfaction in the Pakistani context. However, not all consumers were influenced by green marketing. Likewise, Kordshouli et al. (2015), who studied the environmental friendly practices of corporations and consumers' green response towards it in Mashhad, Iran, found that only 70% of the consumers were influenced by eco-labeling and green messages in advertising. Moreover, 50% of the respondents normally did not pay attention to green messages presented in advertising, considering them less credible. Chan (2004) found that in the Chinese market, reasons associated

with lower credibility placed on green advertising include factors such that the manufacturer may seem less eco-friendly or they are unable to meet consumers' requirements. He found that in the Chinese market, making advertisements of environmentally concerned practices by organizations lead to changed behavior of 70% of consumers. Rahbar and Wahid (2011) confirmed that in Malaysia, the provision of ecological concepts in advertisements may not attract consumer's attention to buy the product.

The cognitive orientation of the green advertising shows the strong influence on the knowledge and consciousness of the consumer related to the environmental attitude (Stone et al., 1995). Ling-yee (1997) revealed that people who have little knowledge of environmental issues showed a strong attachment towards environmental well-being. Green advertising and consumer buying behavior researchers showed that new items related to the energy resources, climate and environmental changes and eco-labeling taps the new domains of green advertising (Rowlands et al., 2002). Researches related to Pakistan have also revealed that green advertising influenced the purchasing intentions of the consumers due to the exposure through print and electronic media (Habib et al., 2010). Due to awareness related to the eco-label and green advertising in Malaysia, people started considering the concerns related to the environment friendly products and prefer green products (Rashid, 2009). In order to test the suggested relationship, the following hypothesis has been formulated:

*H1 (d): Green advertising has a significant positive relationship with consumer buying behavior for green products in Pakistan*

## 2.5 Green marketing, consumer buying behavior and environmental knowledge

In recent times, people have become more curious to investigate the environment around them. The influence of issues like global warming and greenhouse effects has motivated the people to contribute to save the environment and hence to support a diversion in behavioral development for the green movement (Khare, 2015).

Green marketing in Pakistan is still in a process of development. It is getting attention because of its deep and direct concern with the economic and environmental conditions of Pakistan. Companies are trying to provide sufficient awareness related to green marketing and the purchase of green products. Due to lack of awareness, further efforts should be considered (Awan & Shahid, 2015). Grunert (1993) argued that in the process of the preservation of the environment, the underdeveloped and developed countries are actively contributing in the green movement. Knowledge about the environmental damage links with consumer buying behavior. Thus in this era, more and more people are inclined towards green marketing (Chan, 2004). Awan and Wamiq (2016) conducted a study in Pakistan to understand the relationship between green marketing and environmental awareness. A sample size of 276 respondents revealed that people with higher levels of incomes have a high level of awareness of the environment and green products, which also meant that in order to increase the scope of green marketing, the environmental awareness of consumers' needs to be enhanced.

Research has found that a greater level of environmental knowledge may result in pro-environmental behavior. Matthes and Wonneberger (2014) in a study conducted on US and Austrian consumers found that consumers who possess more environmental knowledge tend to behave in a more pro-environmental way. The relationship between consumer buying behavior and environmental knowledge has been further examined by Kianpour et al. (2014) in the Indian context. They concluded that environmental knowledge contributes positively in shaping consumer buying behavior to buy green products.

Pickett-Baker and Ozaki (2008) have, however, argued that unlike Western consumers, Asian and Arab consumers have just reached the awakening stage of environmental issues so they usually do not yet behave in an environmental friendly way. Thus, in developing countries usually a low level of environmental awareness has been found, but it was observed that even the low level of environmental concerns has a direct impact on consumers' buying behavior. In order to further validate the results presented in Pickett-Baker and Ozaki (2008), Singh and Pandey (2012) conducted research in the

Indian market and found low levels of environmental knowledge among Indian consumers; however, they prefer buying green products. The results of a study by Han et al. (2010) have also suggested that the positive attitude of consumers towards green marketing of hotels is further influenced by increased knowledge on environmental issues and green products.

Comparatively, in developed countries, the situation seems to be different. For developed countries, it has been observed that people have higher environmental knowledge but their purchase decisions have even further variation (Dahlstorm, 2011). For instance, Alevizou et al. (2015) studied consumer buying behavior in the UK and Greece. The results of their study revealed that consumers in the UK mostly base their buying decisions on societal norms and acceptance from the overall society, i.e. social pressures influences buying decisions, even for green products. Contrarily, in Greece, it was observed that the buying decisions of consumers were directly influenced by their beliefs and behavioral controls, i.e. rather than making their decisions under the influence of social pressures, they make their buying decisions based upon their own beliefs (Cronin et al., 2011).

A number of practices have been included in going green, including reduction of electricity use and working on finding renewable energy sources, recycling, saving papers, increased use of biodegradable products, organic food, aerosols, and so on. Pickett-Baker and Ozaki (2008) found that green marketing can help to shape environmental beliefs but it may not necessarily result in shaping consumer buying behavior to purchase green products. However, Olofsson and Öhman (2015) provided conflicting results, based on the results of a study conducted in four countries: Sweden, Canada, United States, and Norway. Their results showed that environmental beliefs significantly enhance environmental concerns. Thus, the consumers make green purchases once they are convinced that the buying will help to curb environmental issues. Likewise, Conraud and Rivas (2009) found that the degree of environmental knowledge directly influences the relationship between green marketing and how it impacts the consumer buying behavior in the Mexican context. Based on this, Khare et

al. (2013) conducted a more in-depth research in the Malaysian context and found that environmental knowledge and environmental consciousness act as strong mediators between green trust, green availability, green pricing, and consumer buying behavior. However, Chowdhury (2013), and Lee et al. (2012) provided a limitation to this, arguing that the level of environmental knowledge also has to do with the socially responsible behavior of consumers. It is because even higher degrees of environmental knowledge may not produce the required consumer buying behavior due to selfish behavior. However, the number of researches supporting the positive impact of green marketing on consumer buying behavior and the role played by environmental knowledge to further influence such behavior is greater than those with conflicting results. Thus, the findings of previous studies mostly seem to agree on a positive relationship between consumer buying behavior and environmental knowledge and the role played by environmental knowledge in the relationship between consumer buying behavior and green marketing. However, such results largely hold for developed countries while developing countries, which are less studied, present mixed results. The current research study derives the motivation from mixed results in the context of developing countries. Previous studies (such as Conraud & Rivas 2009; Khare et al., 2013) have shown a positive relationship between environmental knowledge and consumer buying behavior. Considering the lack of adequate empirical evidence for developing countries, this research intends to test the relationship between environmental knowledge and consumer buying behavior in the context of Pakistan. The insights from literature have led this study to develop following hypotheses statements:

*H2: Environmental knowledge has a significant positive relationship with consumer buying behavior.*

*H3: Environmental knowledge mediates the relationship between green marketing and consumer buying behavior.*

## 2.6 Theoretical framework

With the help of the literature discussed in the previous sections, the theoretical framework presented in figure 1 has been formulated:

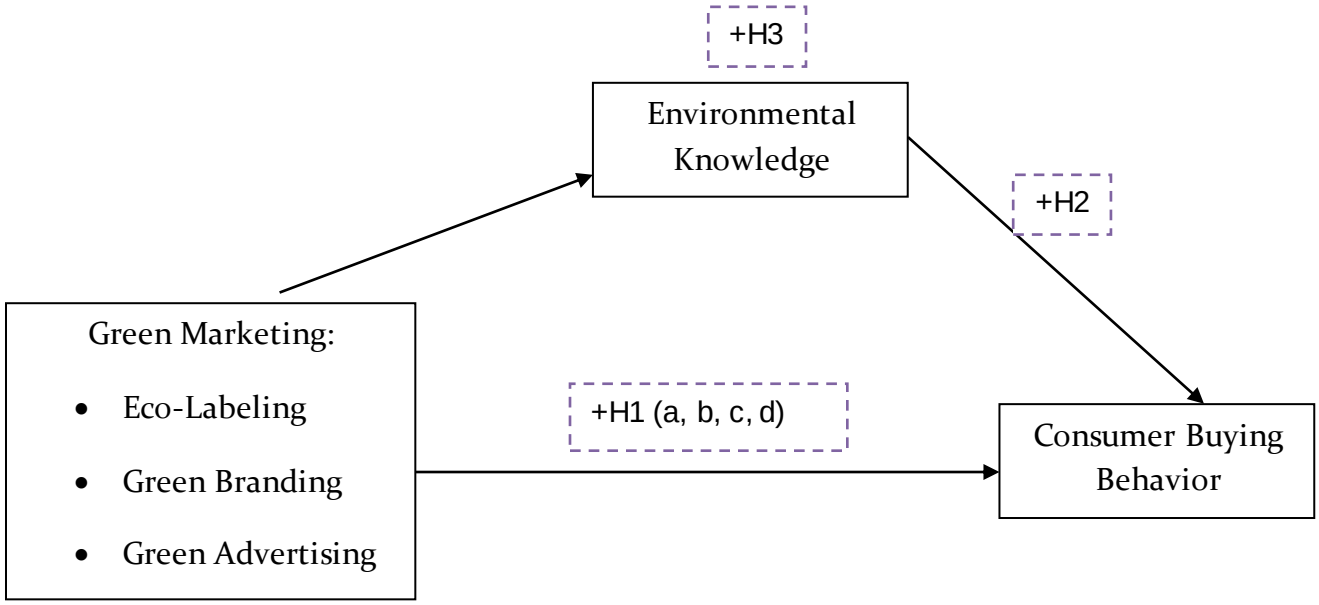


Figure 1: Theoretical Framework of the Study

The framework illustrates that green marketing is the main variable which has been measured through eco-labeling, green branding and green advertising. Its direct as well as mediated impact on consumer buying behavior has been tested using the methodology described in the next chapter.

## 2.7 Summary

This chapter has provided a detailed frame of references as a basis for the hypotheses and the theoretical framework to be tested in this study. The next chapter presents the methodology used to carry out this research.

# CHAPTER THREE: METHODOLOGY

## 3.1 Introduction

This chapter discusses the methodology used to carry out this research. In this regard, a description of the available methodologies is provided and then the information on the selected methodology best suited within the current scenario is given.

## 3.2 Research approach

Smith (2015) asserted that there are two research approaches: deductive and inductive reasoning. Deductive moves from general to specific while inductive works in the opposite way, i.e. it moves from specific to general. Moreover, the application of inductive reasoning is more in areas of informal logic and critical thinking, while the deductive approach is used in formal logic (Cruke & Decramer, 2016). Under the deductive research approach, the research starts from deriving hypotheses based upon a review of the literature and it continues to verify whether the established hypotheses and theories hold in other situations. However, the drawback of the deductive approach is that it is considered narrow and cannot go out of the established concrete limits. Comparatively, an inductive research approach starts from highlighting certain trends in data and ends up in formulating a new theory. Grounded theory can be cited as an important example of inductive approach (Garcia & Gluesing, 2013). The current research applies deductive reasoning because it is based upon testing of hypotheses already generated from previous research. Thus, it moves from general to specific.

## 3.3 Research design

The way different components of a research study are integrated with each other is called research design. Matthews and Ross (2014) defined it by stating that research design provides an overall structure of research by serving as a bridge between research questions and the strategies on how these research questions are to be answered.

Creswell (2013) has described two main research designs for social sciences: explanatory and exploratory research designs. An explanatory research design has clearly defined sources of data collection with research questions providing the base for the study orientation. Such designs are helpful to provide solutions to problems. They follow a defined structure, have little flexibility for changes, and are mainly used when an explanation is required as to whether the relationship between two or more variables exists (Creswell, 2013). Contrary to it, exploratory research designs use small samples in order to study a population, i.e. they move from specific to general. They are helpful to generate insights about a topic. These researches mainly address the research questions of 'what', 'why', and 'how' (Creswell & Poth, 2017). They are mainly based on the central theme of making insights into research to explore something new. Thus, they are flexible and cover all aspects of the given problem (Smith, 2015).

The current study is explanatory in nature since it is based on the deductive approach. It uses well-structured sources of data collection and aims to find solutions to the problem under discussion. This research design is also the best suitable in the current scenario since the research is not aimed at exploring some new idea. Rather it is based upon an existing phenomenon that is studied in more detail and in another context.

## 3.4 Research methods

Research methods help to identify the sources of data collection and analysis. Broadly, there are two main methods of research: the quantitative research method and the qualitative research method (Bryman & Bell, 2015). Quantitative methods mainly emphasize statistical and objective measurement of data. Under this method, the data is collected using surveys and questionnaire that are analyzed with computational techniques. Moreover, the analysis of data is done using statistical, mathematical, and other numerical techniques. This type of research is most useful when a relationship between variables requires testing (Schwab, 2013). On the other hand, qualitative research method is based upon semi-structured or unstructured techniques. This type of research makes use of non-numeric techniques to collect data which include

observations, focus groups, and interviews. The sample size is usually very small as against quantitative research. Exploratory studies normally use this research design and explore a new research phenomenon (Creswell, 2013).

The current research has been aimed at testing the hypotheses extracted from previous researches to accept or reject after testing for the possible relationship between variables. Thus, it follows the pattern of quantitative researches.

### 3.5 Data collection

Researchers collect data mainly from two sources: primary and secondary. Primary sources imply the first-hand collection of data. They mainly include data collected through questionnaires, surveys, and observations for the first time to be used in research. Comparatively, secondary data collection sources are those where databases store a large amount of data on some topic and researchers make use of already collected data. Examples of such resources normally include annual reports of companies, government reports on different indicators of the economy, and other online sources of information (Bryman & Bell, 2015).

The current research has used primary sources of data collection. Primary research lacks authenticity but this limitation has been removed by taking self-administered responses from the target population. In this regard, the data was collected through a survey by floating and getting back filled questionnaires under self-administered procedures.

### 3.6 The data collection instrument

There are many sources of data collection including questionnaires, interviews, observations, focus groups, and others. Since the current research is quantitative in nature and is aimed at collecting data from primary sources of data, a structured questionnaire was used. All items of the questionnaire have been taken from previous researches which increased the reliability and validity of the current study.

The overall questionnaire was divided into two parts: part one contains 28 questions measured on a five-point Likert scale, while part B contains 5 questions asking for the demographics of respondents. The variable of green marketing as depicted in the theoretical framework has been computed by taking the sum of the average of all three base variables, i.e. eco-labeling, green branding and green advertising. Out of all the 33 questions, 15 have been used for green marketing which has been further measured through 3 variables including eco-labeling, green branding, and green advertising while 8 have been used for consumer buying behavior and 5 for environmental knowledge. In this regard, 5 questions related to green advertising, 8 related to consumer buying behavior for green products and 5 questions for demographics of respondents have all been extracted from Tariq (2014). Furthermore, 5 questions on eco-labeling have been extracted from Jarvi (2010), 5 questions on green branding from Huang et al. (2014), and finally 5 questions for environmental knowledge of consumers from Joshi (2016). The 5 questions measuring environmental knowledge of consumers have been extracted from previous research (including Matthes & Wonneberger, 2014; Kianpour et al. 2014; Pickett-Baker & Ozaki, 2008; Singh & Pandey, 2012; Cronin et al., 2011; Olofsson & Öhman, 2015; Conraud & Rivas, 2009; Khare et al. 2013; Chowdhury, 2013; Lee et al., 2012), so, the computed variable helped this study to understand that in presence of environmental knowledge how the consumer buying behavior is influenced by green marketing practices. Consumers with greater environmental knowledge are expected to be influenced more through green marketing efforts. The complete questionnaire used for this study is provided in Appendix A.

While collecting data for this research, certain limitations were likely to be observed. As for instance, common method biases as explained by Podsakoff, under this limitation, the variation in responses are caused because it is interpreted differently by respondents. In order to remove this limitation, efforts have been made to include items which have been used previously by different researchers (MacKenzie & Podsakoff, 2012).

## 3.7 Population and sample

Population is the totality of all the observations from which the data is to be collected. However, most of the time, the collection of data from the whole population is not possible due to time, cost, and other constraints. Thus, a representative part is collected from the population to undertake research (Bryman & Bell, 2015). However, the selection of sample size requires careful consideration. The current study is based on a sample size of 300 respondents. This sample size has been determined on the basis of sample size in similar studies conducted on this topic (Rahbar & Wahid, 2011; Chan, 2004).

The selection of Pakistan as a case study to collect data is because Pakistan is a developing country which has been facing many environmental and health issues. It needs more environmental friendly manufacturing processes as well as increased environmental knowledge among consumers. The concept of green marketing is at an introductory stage and it is a new phenomenon for consumers and marketers. Thus, there is very little research conducted on this topic and literature concerning this region is lacking (Ali & Ahmed, 2012). To my knowledge, this is the first study conducted in Pakistan for analyzing consumer buying behavior in relation to green marketing concepts while also taking into account the impact of environmental knowledge in this regard. In this way, the current study will help to fill the gap presented by other researches (Ali et al., 2011). The previous researches conducted in Pakistan have focused green marketing using other variables and the presence of environmental knowledge has not been previously studied as a mediator in the relationship between green marketing and consumer buying behavior. In this way, the current study targets an untapped area of research.

## 3.8 Sampling technique

There are many different ways of collecting a representative sample out of the whole population and the selection of each technique is dependent on different conditions. The sampling techniques are mainly of two types: probability sampling and non-probability

sampling techniques. Probability sampling, also called random sampling, is based upon the technique of selecting a representative sample with each unit of a population having equal chances of selection. In this way, it provides the best representative sample; however, it may not be doable in all situations. For instance, when a complete list of a population is not available, this technique cannot be used (Schwab, 2013).

In contrast, a non-random sampling technique does not contain an equal opportunity of selection for all the units of population. Rather the selection of the sample is based upon some other factors, like ease, convenience, and availability of various units of the population. There are different subtypes of non-probability sampling, including convenient sampling, quota sampling, snowball sampling and others (Schwab, 2013). Since the current study is based upon consumer buying behavior in Pakistan, it was not feasible to identify all units of the population and to then draw samples using random sampling techniques; the study thus used non-random sampling with a selection based on convenience sampling as per the availability and willingness of consumers to respond. The data was collected through self-administered surveys provided by the researcher with the help of friends and family members. The survey questionnaires were distributed in different universities and offices. These universities and offices were selected from urban areas of the country, including Faisalabad, Lahore, and Islamabad which are amongst the largest cities of Pakistan. The selected respondents were either students or people working in offices. Thus, the educational level was expected to be similar, causing them to perceive questions in a similar way. In the next step, problems of non-response bias were likely to be faced. In order to overcome this problem, respondents who were voluntarily willing to participate in research, were selected. For the purpose of survey questionnaire distribution, services of friends and family members were also obtained. In this regard, 350 questionnaires were floated and 296 questionnaires were received back completed in all aspects and were found valid for analysis purpose. Thus, the overall response rate was 85%.

## 3.9 Data analysis

The collected data was analyzed in SPSS (Statistical Package for Social Sciences) using different techniques. The reliability of the scales was first determined using the Cronbach's Alpha test in order to confirm the internal consistency of the factors used. In the next step, the techniques of correlation and regression were used to check the strength and nature of the relationships between all variables of the study. The technique of linear regression helped to analyze the impact of green marketing practices on consumer buying behavior. In addition, Baron and Kenny's (1986) procedures for mediation analysis were used in order to investigate the mediating role of environmental knowledge between green marketing and consumer buying behavior.

The overall regression model has taken the following form:

*Consumer buying behavior = constant + b (green marketing through green advertising + green branding + eco-labeling) + b (environmental knowledge) + c*

## 3.10 Reliability and validity

The reliability and validity of any research study is the most important topic debated in both qualitative and quantitative researches. The higher level of reliability and validity requires the results to be consistent within the whole data collection (Robinson, 2016). For this purpose, the collection of data was made through self-administered questionnaires so that only one person could fill out each questionnaire. Furthermore, a Cronbach's Alpha test was used to check the reliability of scale while factor analysis was run to check the validity.

**Table 1 Reliability statistics**

| | N of Items | Cronbach's Alpha |
|---|---|---|
| Green advertising | 5 | 0.738 |
| Green branding | 5 | 0.737 |
| Eco-labeling | 5 | 0.702 |
| Consumer buying behavior | 8 | 0.800 |
| Environmental knowledge | 5 | 0.651 |
| Overall Scale | 28 | 0.920 |

The results presented in Table 1 show that all the individual dimensions of scale as well as the overall scale are reliable to use in this research since the Cronbach's Alpha value is higher than 0.7 for the overall scale and for individual dimensions it is higher than 0.6 which are the minimum standards set by Bryman and Bell (2015) in order to confirm the reliability of scale.

**Table 2 Validity analysis using Pearson correlation**

| | Consumer buying behavior | Green advertising | Green branding | Eco-labeling | Green marketing |
|---|---|---|---|---|---|
| Green advertising | .725** | | | | |
| Green branding | .598** | .633** | | | |
| Eco-labeling | .553** | .664** | .675** | | |
| Green marketing | .712** | .871** | .886** | .635** | |
| Environmental knowledge | .611** | .620** | .455** | .600** | 0.635** |

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation matrix is increasingly used to calculate the validity of scale used. Table 2 provides results for the correlation between all constructs of the study which have been used to check the validity of scale used. In this regard, all variables used have medium to strong correlation with each other and none of them have correlation value greater than 0.9. All this indicates that the scale has both discriminant and divergent validity (Bryman & Bell, 2015).

### 3.11 Demographic analysis

There are five different types of demographics used in this research including gender, age, marital status, education, and work situation. These demographics were used merely to get an idea about the total sample composition. However, they have not been discussed to analyze their role in determining the relationship between dependent, independent and mediator variables since this is beyond the scope of this research and has also not been included in the research questions of this study. Table 3 contains an analysis of these demographics:

**Table 3 Demographic statistics**

| | | N | % |
|---|---|---|---|
| Gender | | | |
| | Male | 175 | 59% |
| | Female | 121 | 41% |
| Age | | | |
| | 18-25 | 57 | 19% |
| | 25-35 | 157 | 59% |
| | 36-45 | 57 | 19% |
| | 45-55 | 7 | 2.% |
| Marital status | | | |
| | Single | 168 | 57% |
| | Married | 128 | 43% |
| Education | | | |
| | Matriculation | 36 | 12% |
| | Intermediate | 73 | 25% |
| | Graduation | 112 | 38% |
| | Post | 75 | 25% |
| Work situation | | | |
| | Employed | 140 | 47% |
| | Unemployed | 126 | 43% |
| | Retired | 30 | 10% |

Table 3 provides results for different demographic variables under each category. In this regard, it can be observed that there are 59% males and 41% females in the collected sample. When divided among different categories of ages, people belonging to the age bracket of 25-35 years are most common in sample, i.e. 59%, while 19% belong to each group of 18-25 and 36-45 years, finally only 2% were part of the 45-55 age brackets.

On the basis of marital status, the majority is single, i.e. 57%, while 43% are married. Based on education, graduate people make up of 38% of the sample while 25% belong to intermediate and post-graduate respectively and only 12% are of metric qualification. The sample respondents are thus mostly educated. The last category (work situation), shows that 47% of the respondents are employed (either by a third party or self-employed), 10% are retired, and 43% are unemployed. There is thus an almost equal percentage of people employed and unemployed.

## 3.12 Research ethics

Ethical aspects in any research study play the most important role in determining the research quality (Creswell, 2013). The current study involved the collection of data from a large number of the general public, which has necessitated in meeting the needs of ethical milestones. In this regard, the data collection was primarily mentioned to be made for academic purposes and presented to the respondents in the form as provided in Appendix A. The collected data has been stored in a SPSS data file and the secrecy of the respondents has been maintained by non-disclosure of their identities. Moreover, the questionnaires were only filled out by respondents who were voluntarily willing to participate.

## 3.13 Limitations

An important limitation is the use of a convenience sampling technique because of time and cost constraints for the collection of data. This means that the data set is unlikely to be representative for the whole population of Pakistan. Another limitation is that although the study has taken into account the impact of environmental knowledge in the relationship between green marketing and consumer buying behavior, other factors like environmental concerns, environmental consciousness have not been considered but they may be equally important to understand consumer buying behavior for green products.

*Chapter three provided a description of the methodology used for carrying out this research along with justifications of the selected methodology. The next chapter contains the results of the data analysis. Moreover, an interpretation of and discussion on results is also provided in this chapter.*

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# CHAPTER FOUR: RESULTS AND ANALYSIS

## 4.1 Descriptive analysis

Descriptive statistics have been performed in order to analyze the overall trend of responses against different dimensions in the questionnaire, including consumer buying behavior, green advertising, green branding, eco-labeling, environmental knowledge, and finally green marketing computed using its three sub-dimensions, i.e. eco-labeling, green branding and green advertising.

**Table 4 Descriptive statistics**

| | N | Mean | Std. Deviation |
|---|---|---|---|
| Consumer buying behavior | 296 | 3.5344 | .68912 |
| Green advertising | 296 | 3.5128 | .76595 |
| Green branding | 296 | 3.5368 | .78492 |
| Eco-labeling | 296 | 3.4507 | .75769 |
| Environmental knowledge | 296 | 3.4233 | .70745 |
| Green marketing | 296 | 3.5001 | .67587 |

Table 4 contains descriptive statistics for all the dimensions used in this study in the form of their means and standard deviations. The mean values for all variables in the study are higher than 3.0, which indicates that on an average, responses of the sample respondents are closer to ‘agreed’ on all the questions used in the questionnaire. The values of standard deviation for all variables are less than 1 which confirms consistent responses, i.e. limited variation in responses, which also proves the normality of data used (Bryman & Bell, 2015).

## 4.2 Correlation analysis

A correlation analysis has been carried out between all dimensions of the study in order to check the assumptions of multicollinearity before running a regression analysis on variables. Table 2 in Chapter 3 contains the results of the correlation analysis. It indicates that the relationships between all variables are statistically significant at the 0.01 level. Moreover, the values of correlation are greater than 0.4 but lesser than 0.85 which indicates that moderate to strong relationships exist between the variables while there is no problem of multicollinearity (Bryman & Bell, 2015). Thus, the study could proceed to regression analysis.

## 4.3 Regression analysis

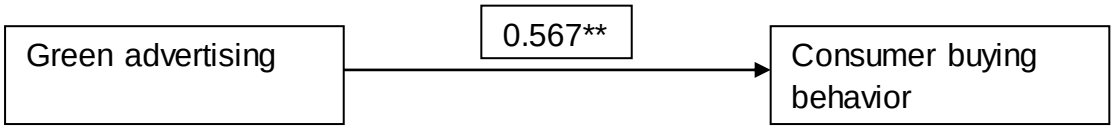
After fulfilling the assumptions of reliability, normality, and multicollinearity, this section presents the results of the regression analysis.

**Table 5 Regression statistics between three dimensions of green marketing and consumer buying behavior**

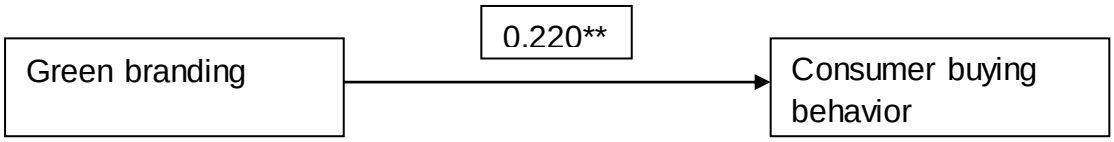
| | **Beta** | **T** | **Sig.** | **VIF** |
|---|---|---|---|---|
| Green advertising | 0.567 | 10.271 | 0.000 | 2.014 |
| Green branding | 0.220 | 3.928 | 0.000 | 2.216 |
| Eco-labeling | 0.028 | 0.481 | 0.631 | 2.069 |

Dependent variable: Consumer buying behavior, $p<0.01$

Table 5 contains the results of the regression analysis between three dimensions of green marketing, i.e. eco-labeling, green branding and green advertising, by taking consumer buying behavior as the dependent variable. The results show that $B = 0.567$, $p<0.01$ for green advertising, which indicates a significant positive relationship between green advertising and consumer buying behavior. It also points to the acceptance of hypothesis H1 (d). Accordingly, the following regression model can be framed:

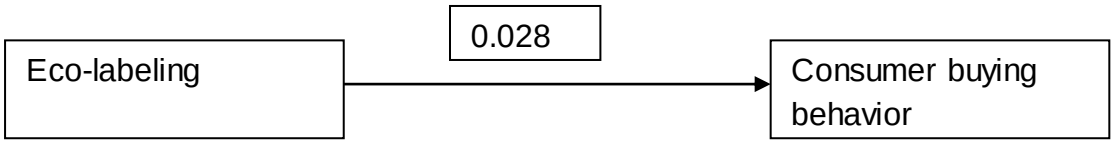



The regression result for green branding is B = 0.220, p<0.01. Thus, green branding is also a statistically significant predictor of consumer buying behavior. This leads to the acceptance of H1 (c). However, the degree of influence is low. It suggests formulating the following regression model:




For eco-labeling, B = 0.028 but p>0.01, that is a statistically insignificant relationship of eco-labeling with consumer buying behavior. Thus, eco-labeling is not a predictor of consumer buying behavior which leads to the rejection of H1 (b).

It leads to establish the following regression model:




## 4.4 Mediation analysis

This section deals with analyzing the impact of the mediator in the relationship between independent and dependent variable. In this regard, Baron and Kenny's (1986) model of mediation has been used. For this purpose, both the direct and indirect impact of green marketing on consumer buying behavior has been analyzed.

**Table 6 Linear regression analysis of green marketing on consumer buying behavior**

| | Beta | Significance |
|---|---|---|
| Green marketing | 0.712 | 0.000 |
| $R^2$ | 0.507 | |
| F | 301.779 | |

Dependent variable = Consumer buying behavior, $p<0.01$

Table 6 contains the results of the linear regression between green marketing and consumer buying behavior. The results show that B = 0.712, $p<0.01$ which indicates that green marketing has a statistically significant relationship with consumer buying behavior. Moreover, the degree of influence on consumer buying behavior is strong. It leads to the acceptance of H1 (a).

Accordingly, the following regression model can be drawn:

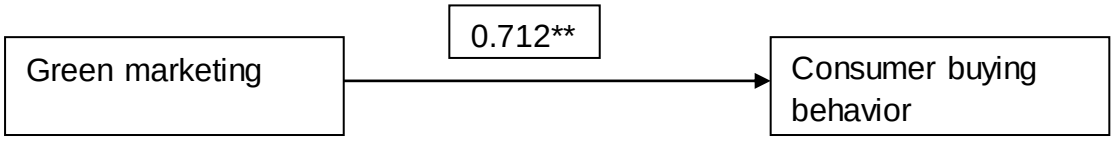


**Table 7 Regression analysis of environmental knowledge on consumer buying behavior**

| | Beta | Significance |
|---|---|---|
| Environmental knowledge | 0.611 | 0.000 |
| $R^2$ | 0.373 | |
| F | 175.021 | |

Dependent variable = Consumer buying behavior, p<0.01

Table 7 contains the results of the linear regression between environmental knowledge and consumer buying behavior. As B = 0.611, p<0.01, environmental knowledge is considered as a statistically significant predictor of consumer buying behavior. It leads to the acceptance of H2.

Thus, the following regression model can be formed:

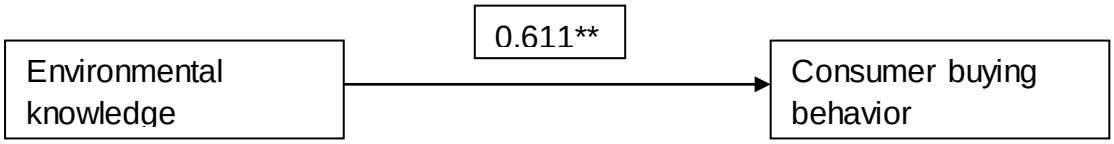



**Table 8 Mediation analysis**

| Predictor | Step 1 | Step 2 | Sig. |
|---|---|---|---|
| Green marketing | 0.712 | 0.543 | 0.000 |
| Environmental knowledge | | 0.266 | 0.000 |
| $R^2$ | 0.507 | | |
| F | 301.779** | | |
| $R^2$ | | 0.549 | |
| F | | 178.288** | |

Dependent variable: Consumer buying behavior, p<0.01

Following Baron and Kenny (1986), a mediation analysis was performed to analyze whether environmental knowledge acts as a mediator in the relationship between green marketing and consumer buying behavior. Previous results indicated that the direct relationship of green marketing with consumer buying behavior is B = 0.712, p<0.01, but in presence of environmental knowledge, the relationship between green marketing and environmental knowledge is B = 0.543, p<0.01. This indicates that environmental knowledge is a partial mediator between green marketing and consumer buying behavior. However, H3 can be accepted.

A summary related to the results of hypotheses is presented in the following table, table 9.

**Table 9 Status of hypotheses**

| ***Hypotheses*** | **Status** |
|---|---|
| *H1 (a): Green marketing has a significant positive relationship with consumer buying behavior for green products in Pakistan* | Accepted |
| *H1 (b): Eco-labeling has a significant positive relationship with consumer buying behavior for green products in Pakistan* | Rejected |
| *H1 (c): Green branding has a significant positive relationship with consumer buying behavior for branded green products in Pakistan* | Accepted |
| *H1 (d): Green advertising has a significant positive relationship with consumer buying behavior for green products in Pakistan* | Accepted |
| *H2: Environmental knowledge has a significant positive relationship with consumer buying behavior* | Accepted |
| *H3: Environmental knowledge mediates the relationship between green marketing and consumer buying behavior.* | Partially Accepted |

## 4.5 Discussion

The overall results from examining the relationship of green marketing (using its dimensions of green advertising, green branding, and eco-labeling) with consumer buying behavior under the mediating role of environmental knowledge showed that green advertising and green branding both have a significant positive relationship with consumer buying behavior while the relationship of eco-labeling is not significant. Moreover, green advertising is a strong predictor of consumer buying behavior since it has a greater impact on dependent variable. Thus, in the context of Pakistan, it can be claimed that green advertising can be increasingly used to influence consumer buying behavior while people are less concerned with green branding or eco-labeling. Moreover, the impact of green marketing on consumer buying behavior in the presence of the environmental knowledge is positive. However, it reduced the strength of the relationship between consumer buying behavior and green marketing. It can also be established that when people possess the environmental knowledge, their behavior is less likely to be influenced by green marketing efforts. Here, the concept used by Albayrak et al. (2011) for green consumers as confused consumers can be applied. When they possess environmental knowledge, they may question the green marketing activities and be further confused as to which activities should actually form part of being green. Accordingly, their behavior is less likely to be influenced by green marketing efforts. These results are consistent with some of previous researches' (Leonidou et al., 2013; Jarvi, 2010; Suki, 2016) which have pointed to the fact that green marketing efforts through green advertising, green branding and eco-labeling are helpful to influence the behavior of consumers, while possession of environmental knowledge adds to their decision making regarding green products. However, these results are not in line with conclusions drawn by some other researches, like Ottman (2011), Chowdhury (2013), and Lee et al. (2012), who argued that due to a lesser degree of environmental knowledge by consumers in developing countries, they are less likely to be influenced by green marketing initiatives. In this way, the current study has more consistency with the research conducted in developing countries.

# CHAPTER FIVE: CONCLUSION, RECOMMENDATIONS, AND FUTURE RESEARCH

## 5.1 Conclusion

The current research was undertaken to bridge the gap in literature as to how different green marketing activities influence consumer buying behavior with and without the presence of environmental knowledge. In this regard, the important research questions addressed include: What is the level of environmental awareness among consumers in a developing country? What is the impact of green marketing in the form of eco-labeling, green branding and green advertising on consumer buying behavior in a developing country? Does environmental knowledge mediate the relationship between green marketing and consumer buying behavior?

The results of this study indicated that on an average, consumers in Pakistan have a high level of environmental knowledge, given the fact that the sample largely consisted of educated respondents i.e. students and office workers. For the second question of the study, the findings indicate that consumer buying behavior is significantly positively influenced by green marketing activities of green branding and green advertising. Moreover, environmental knowledge has also a significant positive impact on consumer buying behavior. The environmental knowledge partially mediates the relationship between consumer buying behavior and green marketing. These results are in harmonization with previous studies conducted in different developing countries (Chan, 2004; Rashid, 2009). It thus implies that consumer buying behavior has similar influences in Pakistan as in other developing countries. Thus, the study has provided an important contribution to a deeper understanding of consumer buying behavior with and without the presence of environmental knowledge. These results are helpful to understand consumer buying behavior in Pakistan and policies can be set accordingly to influence them.

## 5.2 Practical implication

This study has strong practical implications for marketers. Green advertising has been found to be an effective way to influences consumer buying behavior. Therefore, marketers should pay attention to this dimension. In contrast, consumers in developing countries are less likely to be affected by green marketing efforts when they possess the environmental knowledge, which may also be the result of inconsistency of green marketing efforts with actual protection of the environment. Thus, marketers are provided with important recommendations to draft their marketing policies accordingly. In this regard, they are required to make their products more environmental friendly. Secondly, they should pay more attention towards green advertising, being the most authentic source to influence consumer buying behavior. Additionally, they need to make their products more environmental friendly. Due to an increase in environmental knowledge, the consumers become skeptical of the green marketing efforts, considering them fake. Therefore, deploying the real efforts to produce environmental friendly products will be beneficial in influencing consumer buying behavior, not only in the current period but also in the long run.

## 5.3 Study limitations and future research

The current study has comprehensively studied the impact of green marketing efforts on consumer buying behavior with or without environmental knowledge. However, the study has focused a non-random sample set belonging to few urban areas of Pakistan due to time and cost constraints. Secondly, it has focused on limited dimensions of green marketing. These factors serve as limitations to the current study. Future researches can be conducted to include more respondents, with equal participation from urban and rural areas, in order to more fully understand the response of people living in the country. It can take into account more variables measuring green marketing efforts to analyze the reaction of consumers to all dimensions of green marketing.

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# Appendices

## Appendix A

## Questionnaire

For each item of the statements below, please indicate the extent of your agreement and disagreement by ticking **(√)** the appropriate number concerning the following questions with 1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree

| S. No | 1. Green Marketing | 1 | 2 | 3 | 4 | 5 | References |
|---|---|---|---|---|---|---|---|
| | **1.1 Green Advertising** | | | | | | Tariq (2014) |
| 1 | I am often exposed to Green advertisement | | | | | | |
| 2 | Green advertisements are helpful to enhance environmental awareness | | | | | | |
| 3 | Green advertisements accurately reflect a brand's environmental effort | | | | | | |
| 4 | Green advertisements are necessary for environmental awareness | | | | | | |
| 5 | I am skeptical to green advertising | | | | | | |
| | **1.2 Eco-labeling** | | | | | | Jarvi (2010) |
| 1 | I always buy eco-labeled products | | | | | | |
| 2 | I always notice whether the product carries eco-labels or not | | | | | | |
| 3 | If an eco-label product is not available I postpone my purchase | | | | | | |
| 4 | I am willing to pay an extra amount for eco-labeled products | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5 | I spend time searching for eco-labeled products before making purchases | | | | | | |
| | **1.3 Green Branding** | | | | | | Huang et al. (2014) |
| 1 | I can quickly recall the green image of green brands | | | | | | |
| 2 | Green brands are safe for the environment | | | | | | |
| 3 | Green Brands provide better quality than other brands | | | | | | |
| 4 | Green brands use renewable sources of energy | | | | | | |
| 5 | Green brands help us saving the environment | | | | | | |
| | **2. Consumer Buying Behavior** | | | | | | Tariq (2014) |
| 1 | When I learn about the negative and harmful impact a product has in the environment, I stop buying it | | | | | | |
| 2 | In case there is an alternative, I prefer products which cause less pollution. | | | | | | |
| 3 | Choosing between two products, I always buy the one which has the minimum impact on people and the environment | | | | | | |
| 4 | I change products when they do not comply with the ecological conditions/rules | | | | | | |
| 5 | I think green marketing practices positively affect my perception of the brand | | | | | | |
| 6 | Knowing a product can be recycled, reused or repaired after use is a reason for me to buy these particular products | | | | | | |
| 7 | I like buying products which can be recycled | | | | | | |
| 8 | I always buy energy efficient products | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **3. Environmental aspects** | | | | | | |
| 1 | I think that green products provide higher quality than regular ones with the exact same characteristics | | | | | | Joshi (2017) |
| 2 | I have more knowledge about recycling then an average person | | | | | | |
| 3 | I know where I can find products that create less wastage | | | | | | |
| 4 | I have knowledge about the sustainability symbols used on product packages | | | | | | |
| 5 | I am very knowledgeable about environmental and social issues | | | | | | |

I would like to buy eco-labeled products but I find them too expensive:

□Yes □No

**Demographics (Tariq, 2014)**

Q1. Gender

□ Male □ Female

Q2. Marital Status

□ Single □ Married □ Divorced

Q3. Please indicate your level of education

□ Matriculation □ Intermediate □ Graduation □ Post

Q4. Please indicate your work situation

□ Employed □ Unemployed □ Retired

□ Student (with or without a job)

Q5. Please indicate your age-group

□ 18-25 □ 26-35 □ 36-45

□ 46-55 □ 56-65 □ Above 65

## Appendix B

SPSS Output

**Descriptive Statistics**

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| CB | 296 | 1.75 | 4.88 | 3.5344 | .68912 |
| GA | 296 | 1.60 | 4.60 | 3.5128 | .76595 |
| GB | 296 | 1.60 | 5.00 | 3.5368 | .78492 |
| EL | 296 | 1.20 | 4.80 | 3.4507 | .75769 |
| EK | 296 | 1.60 | 4.80 | 3.4233 | .70745 |
| GM | 296 | 2.13 | 4.60 | 3.5001 | .67587 |
| Valid N (listwise) | 296 | | | | |

**Correlations**

| | | CB | GA | GB | EL | EK |
|---|---|---|---|---|---|---|
| CB | Pearson Correlation | 1 | .725** | .598** | .553** | .611** |
| | Sig. (2-tailed) | | .000 | .000 | .000 | .000 |
| | N | 296 | 296 | 296 | 296 | 296 |
| GA | Pearson Correlation | .725** | 1 | .633** | .664** | .620** |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .000 |
| | N | 296 | 296 | 296 | 296 | 296 |
| GB | Pearson Correlation | .598** | .633** | 1 | .675** | .455** |
| | Sig. (2-tailed) | .000 | .000 | | .000 | .000 |
| | N | 296 | 296 | 296 | 296 | 296 |
| EL | Pearson Correlation | .553** | .664** | .675** | 1 | .600** |
| | Sig. (2-tailed) | .000 | .000 | .000 | | .000 |
| | N | 296 | 296 | 296 | 296 | 296 |
| EK | Pearson Correlation | .611** | .620** | .455** | .600** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | |
| | N | 296 | 296 | 296 | 296 | 296 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Regression results of GA, GB and EL and CB

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .747[a] | .558 | .553 | .46056 |

a. Predictors: (Constant), GB, GA, EL

**ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 78.156 | 3 | 26.052 | 122.822 | .000[b] |
| | Residual | 61.937 | 292 | .212 | | |
| | Total | 140.093 | 295 | | | |

a. Dependent Variable: CB

b. Predictors: (Constant), GB, GA, EL

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | .972 | .141 | | 6.868 | .000 | | |
| | GA | .510 | .050 | .567 | 10.271 | .000 | .497 | 2.014 |
| | GB | .193 | .049 | .220 | 3.928 | .000 | .483 | 2.069 |
| | EL | .025 | .053 | .028 | .481 | .631 | .451 | 2.216 |

a. Dependent Variable: CB

## Regression results between GM and CB

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .712[a] | .507 | .505 | .48491 |

a. Predictors: (Constant), GM

**ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 70.961 | 1 | 70.961 | 301.779 | .000[b] |
| | Residual | 69.132 | 294 | .235 | | |
| | Total | 140.093 | 295 | | | |

a. Dependent Variable: CB

b. Predictors: (Constant), GM

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .994 | .149 | | 6.679 | .000 |
| | GM | .726 | .042 | .712 | 17.372 | .000 |

a. Dependent Variable: CB

## Regression Results between EK and CB

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .611[a] | .373 | .371 | .54653 |

a. Predictors: (Constant), EK

**ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 52.277 | 1 | 52.277 | 175.021 | .000[b] |
| | Residual | 87.815 | 294 | .299 | | |
| | Total | 140.093 | 295 | | | |

a. Dependent Variable: CB

b. Predictors: (Constant), EK

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.497 | .157 | | 9.524 | .000 |
| | EK | .595 | .045 | .611 | 13.230 | .000 |

a. Dependent Variable: CB

## Regression Results between GM, EK and CB

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .741[a] | .549 | .546 | .46440 |

a. Predictors: (Constant), GM, EK

**ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 76.902 | 2 | 38.451 | 178.288 | .000[b] |
| | Residual | 63.191 | 293 | .216 | | |
| | Total | 140.093 | 295 | | | |

a. Dependent Variable: CB

b. Predictors: (Constant), GM, EK

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .709 | .153 | | 4.649 | .000 |
| | EK | .260 | .049 | .266 | 5.249 | .000 |
| | GM | .553 | .052 | .543 | 10.685 | .000 |

a. Dependent Variable: CB