Green Consumer Behavior among Social Media Users: Examining Consumer Green Perceptions in an Extended Model of Theory of Planned Behavior

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List of Acronyms

IEA	Inward Environment Attitude
OEA	Inward Environment Attitude
PCE	Perceived Consumer Effectiveness
CGP	Consumer Green Perceptions
GPPI	Green Product Purchase Intention
PP	Product Perception

Abstract

Purpose: Exploring the 'green gap', the purpose of the research is to draw on the theory of planned behavior to investigate the impact of inward and outward environment attitude facilitated by perceived consumer effectiveness on online green product purchase intention during COVID-19. Eco-literacy and consumer green product perceptions (product perception, hardness, stigma, readiness and responsibility) act as boundary conditions on the mediated model.

Methodology: Green customers were selected with respect to their knowledge of green behavior and their buying behavior on Facebook. Two hundred seventy-eight usable samples were received through the social media site Facebook. Moderated mediation was tested on SmartPLS.

Result: The role of perceived consumer effectiveness was significant when acting as a mediator between inward and outward environment attitude and green product purchase intention. For inward environment attitude eco-literacy and green hardness was found to significantly moderate the mediation of perceived consumer effectiveness with green product purchase intention. For outward environment attitude eco-literacy and the dimensions of consumer green perceptions (product perception, hardness, stigma, readiness and responsibility) significantly moderated the mediation of perceived consumer effectiveness with green product purchase intention.

Originality: Due to growing interest in and intense consideration for the environment in the last few years, it is essential to have a deeper understanding of consumers' green perceptions and intention of green product buying. The current research adds to the body of green literature by a)

developing a green product purchase framework and b) exploring the role of social media in the purchase of environment-friendly products during the time of a global pandemic in the form of COVID-19; c) exploring the green perceptions. The green product buying behavior is affected by consumer knowledge and attitude (inward and outward). To bridge green gap, the multiple facets of consumer green perceptions highlight the green product hardness that plays an important role in green purchase in the transitional economy.

Practical implication: The findings of the study offer implications for both marketers and policymakers. Customer buying behavior on social media highlights that marketer to explore and solve customer concerns regarding consumer green perceptions along with environment attitude and eco-literacy. Value based branding, green identity development and consumer involvement in eco-friendly awareness may be important. Policymakers can develop plans, policies and environment in which making a green purchase seems feasible and appropriate to consumers

Keywords: Environment attitude; Social media; Green buying behavior; Green product perception; COVID-19; Green product effectiveness; Stigma; Green hardness; Transitional economy.

Chapter 1: Introduction

The current global pandemic known as COVID-19, first identified in Wuhan in late 2019, has caused monetary, social and psychological turmoil on economies worldwide, with the death of 758,316 people and counting (Kavanagh & Singh, 2020). A salient feature of COVID-19 was the high uncertainty that brought the world economies to a standstill (Nicola et al., 2020). A complete lockdown was ensured, business activity declined to the point of dilution, oil prices dropped to negative. With all these unimaginable consequences, the novel coronavirus's more extensive ramifications were the lack of cure that further aggravated fear in the situation (Vindegaard & Benros, 2020). These ramifications had a taxing effect on mental health issues, anxiety and depression, and in many cases, death due to uncertainty and social isolation (Sandesh et al., 2020). In such situations, social media appeared as a saving grace where people turned for solace, support, and research to explore and identify the cure for coronavirus using natural, organic and herbal products (Sahni & Sharma, 2020).

High-growth societies are impacted by change through cultural practices that involve economic policies, and the attention media puts on it allowing people to become more aware (Thyroff & Kilbourne, 2017). According to Ali and Khan (2011), emerging markets like Pakistan are still relatively new to the concept of green product purchases. However, due to the COVID-19 pandemic, people are increasingly becoming aware of the environmental changes happening around them as they watch the positive effect of changing consumption patterns on the environment (Ali & Khan, 2011).Mukhtar (2020) stated that a general awareness towards

making healthier choices in consumer buying behavior emerged during the current crisis (Mukhtar, 2020). As online buying increased by 18.7% in Pakistan, this brought green marketing into the limelight when customers searched for food, beauty, and other products offering safe and environment-friendly raw material and production capable organizations (Zahid, 2020). Excessive research has been conducted on consumer green buying behavior in the past during crisis situations but nevertheless, the current pandemic of COVID-19, has highlighted changes in green product buying behavior that calls for research in the area (He & Harris, 2020; Khan & Yu, 2020; Jaffar & Bano, 2019). Public knowledge about the qualities, attributes, and characteristics of green products has increased on social media (Rizwan & Husain, 2013). Hence there is a need to look into green product purchase behavior in Pakistan (Jaffar & Bano, 2019).

Theory of planned behavior

Grounded in the theory of planned behavior, green product buying behavior can be explained as a consumer's action that he/she decides on while considering how that particular act will affect his/her footprint in the society and the environment (Lakra, Bedi & Gupta, 2014). Ajzen (1991) has suggested that the theory of planned behavior can be extended to a deeper understanding of the context. The theory involved attitudes and perceived consumer effectiveness, reflecting on the belief a consumer has about his/her role and importance when making a choice that might have a rippling effect. Consumers of the present decade have also become more responsible and aware of their responsibility to save and protect their natural environment; this has caused businesses and industries to join the green movement (Demetriou, 2010). Consumers are learning about climate changes and environmental issues through social media, enabling them to assess better businesses investing in green business environments (Ansar, 2013).

Consumer green perceptions

Consumption patterns of human beings have contributed to increasing global warming levels as irresponsible consumption that has caused deterioration worldwide on an environmental level (Han & Hsu, 2011). To better understand consumer green buying behavior, it is essential to understand the part consumer green perceptions (CGP) play in this relationship. CGPP allows marketers to identify factors that are considered as favorable and unfavorable with green product buying (Tan, Johnstone & Yang, 2016). Perceptions play a significant role in final decision-making processes regarding green product buying because whether consumers consider a product eco-friendly or not it will contribute to the decision they make (Rizwan & Husain, 2013). Positive perceptions about one's ability to affect environment-related consequences have been found to increase intentions towards green buying (Polnsky & Vocino, 2014). With the growing trend of local brands in Pakistan and increasing awareness among consumers, it has become essential to study the changes taking place in the environment (Khan, 2019). These changes are a consequence of consumption patterns for brands that have been reported to cause negative environmental impact. Organizations are being greatly criticized as consumers look towards brands using recycled content in their production (Niinimaki et al., 2020).

1.1 Statement of Problem

Consumers' intention to protect the environment does not always lead to environment friendly actions. This creates green gap. Green marketing literature has been trying to understand

the dynamics of green gap. Previous research has examined that green behavior is influenced by messages regarding environmental awareness. Drawing on the theory of planned behavior, the purpose of the research is to investigate the impact of environment attitude with focus on inward and outward environment attitude and perceived consumer effectiveness on online green product purchase intention during COVID-19 in a developing country, Pakistan. The relationship of these variables is moderated by eco-literacy and consumer green perceptions (product perception, hardness, stigma, readiness, responsibility) to assess the role these variables play in leading to purchase decision.

1.2 Significance of Study

The study's significance is three-fold: First, the study discusses the role social media has played in the COVID-19 pandemic and builds on the increasing awareness towards green product purchase. Studies showed that even households free from the virus, the lockdowns and social distancing had caused extreme anxiety as economic resources were being depleted and the business world came to a halt following the standard operating procedures (Bavel et al., 2020; He & Harris, 2020; Mazzoleni, Tuchetti & Ambrosino, 2020). In such situations, online organizations performed exceptionally well since consumers move towards online buying when they cannot physically reach brand outlets (Sundstrom et al., 2018). Scholars identified that online interactions could also foster a sense of connection with the world (Shu & Gu, 2018; Zhu et al., 2019). To better understand this connection with the world, social media's role in allowing people to interact with each other and in online green product purchases will also be studied taking into consideration the COVID-19 pandemic in Pakistan (Jaffar & Bano, 2019; Ansar, 2013; Ali & Khan, 2011). In-person interactions were already facing a decline due to increasing online exchange, the COVID-19 pandemic has caused this online buying trend to increase

exponentially (He & Harris, 2020; Mazzoleni, Tuchetti & Ambrosino, 2020). Past studies have investigated media's role in influencing consumer behavior, stating that media can significantly influence consumer's ecological trepidations (Taufique & Vaithianathan, 2018; Paco & Raposo, 2009). It plays a significant role in delivering information and strengthening consumer's ecological concerns (Keles, 2020).

Second, the relationship between eco-literacy and consumer's environment attitude (inward and outward) plays a vital role in adjusting to changes happening in the world (Trivedi et al., 2018). Information regarding current conditions of the global environment are necessary to make consumers more aware of technological advancements, attitudes, and social values that should be in line with environmental needs (Blichrska, 2017). Many authors argue that green product purchase can only be made definitive if the consumer has some knowledge of his/her environment (Nelson, Taylor & Strick, 2009; Schlegelmilch et al., 1996; Hines, Hungerford & Tomera, 1986). Environmental consciousness plays a significant role in influencing purchase-related decisions (Rustam et al., 2020). Hence, eco-literacy is an essential determinant of the attitudes being formed around green environment activities as it allows consumers to evaluate their options when making buying decisions (Laroche et al., 1996). Past studies have examined links present between green purchase intention of consumers and environment-friendly attitude (McCarty & Shrum, 2001; Laroche et al., 2001). According to Polonsky et al. (2014), regarding environmental protection, consumers place an enormous amount of responsibility on external sources such as businesses and government sectors. However, Steg and Vlek (2009) proposed a different viewpoint stating that participation on an individual level is necessary if we want to slow down this rapidly increasing global environment problem (Polonsky et al., 2014; Steg & Vlek, 2009). Exploring the link between environment-friendly consumer attitude and green

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product purchase intention grounded in the theory of planned behavior has become one of the emerging streams of research under the broader field of green marketing (Trivedi, Patel & Acharya, 2018). There is a need to explore this relationship as it has not been investigated in the context of social media during COVID-19 (Nicola, 2020).

Last, the multiple facets of consumer green perceptions explored in this study add to the current literature as the growing interest and intense consideration for the environment in the last few years has instigated the need to investigate a deeper understanding of consumers green perception and intention of green product buying (Choshaly & Tih, 2017). Consumer green perceptions include product perception, green hardness, green stigma, green readiness, and green responsibility, which play a significant role in shaping consumer's perceived effectiveness and consequently their green product buying behavior (Tan et al., 2016). Attitude to behavior theory posits that consumers are more attentive and aware of products when they perceive them positively (Fazio, 1986). It is suggested that consumers' evaluation and intention to buy green products is strongly dependent on their perception of the marketed green products (Marakanon & Panjakajornsak, 2017; Pitic et al., 2014). Consumers' perception of the value of green products holds a decisive power in framing their intention to invest in that green product (Lassoued & Hobbs, 2015; Chen & Chang, 2013).

1.3 Scope of the Study

The questions proposed for the current research are as follows:

1. What is the relationship of inward and outward environment attitude with green product purchase intention?

2. What is the moderating effect of eco-literacy on relationship of inward and outward environment attitude with perceived consumer effectiveness?

3. What is the relationship of perceived consumer effectiveness with green product purchase intention?

4. What is moderating effect of consumers' green perception (product perception, hardness, stigma, readiness, and responsibility) on the relationship between perceived consumer effectiveness and green product purchase intention?

5. Does perceived consumer effectiveness mediate the relationship between inward and outward environment attitude with green product purchase intention?

1.4 Study Objective

The main objectives of this study are:

1. To investigate the role of social media in influencing a consumer's ecological concern during COVID-19 and the surge in the emerging market of online green product purchase in Pakistan.

2. To develop a theoretical model that explains the moderation effects of eco-literacy and consumer green perceptions on the mediation of perceived consumer effectiveness on environment attitude and purchase intention.

1.5 Delimitations of Study

Several delimitations were identified for the study:

1. Respondents were given the questionnaire through online channel and by self-administration keeping in consideration that in developing countries like Pakistan the importance of research work has not been fully realized.

2. Data for the study was collected at one point in time in June-July 2020 when novel coronavirus was at its peak, to gather consumer responses during the time of pandemic.

1.6 Assumptions

Following are the assumptions of this study:

It was assumed that respondents were familiar with the study's concepts and provided honest, objective, and unbiased responses. It was also assumed that respondents filled the questionnaire to the best of their knowledge after thoroughly reading the statements.

1.7 Conceptual Definitions of Constructs

Inward Environment Attitude

It has been defined as the type of attitude that involves treatment of the environment by individual consumers' hands where these consumers are considered a dominant force (Leonidou et al., 2010).

Outward Environment Attitude

Outward environment attitude is stated as the kind of attitude that places perceived need for social, political and legal changes required to protect the environment as a dominant force (Leonidou et al., 2010).

Perceived Consumer Effectiveness

It is described as a consumer's perception about the degree to which his/her actions can make an impact in solving problems society is facing on an environmental level (Ellen et al., 1991).

Green Product Purchase Intention

Green product purchase intention is defined as consumers' willingness to prioritize green products over traditional products to make a purchase (Rashid, 2009; Ramayah et al., 2010).

Eco-literacy

Eco-literacy can be explained as an individual's knowledge about climate change and willingness to overcome environmental issues (Mei et al., 2012).

Consumer Green Perceptions

Consumer green perceptions encompass consumers' perceptions of green products, green consumers, green consumption practices, and green marketing communications. It entails green product perception, which explains how consumers feel about products being promoted as eco-friendly. Green hardness explores how hard it is for consumers to be green, measuring the effort, time, and monetary sacrifice to make green product buying decisions. Green stigma concentrates on respondents' perceptions towards green consumers who purchase products that are being

promoted as eco-friendly. Green readiness focuses on how ready consumers are to become environmentally friendly and buying green products. Green responsibility examines whether consumers think environmental issues require immediate attention if they can help slow down environmental deterioration and feel responsible for environmental deterioration (Tan et al., 2016).

1.8 Organization of the study

Chapter 1 provides the introduction of the study along with the statement of the problem and significance. Further along in this chapter scope of the study, delimitations, assumptions, and conceptual definitions were discussed.

Chapter 2 involves a detailed review of all the relationships with the theory of planned behavior and green product purchase intention. The conceptual and theoretical literature on green product purchase behavior and the hypotheses development has been explained.

Chapter 3 comprises the methods being applied to ensure valid and reliable results through detailed research design, methods, sampling techniques, instrument development, sample size, pilot testing, and hypotheses testing data analysis.

Chapter 4 analyses the statistical analysis and hypothesis results, including data checks such as common method variance, analyzing validity and reliability of the results, and checking the significance of hypothesized results.

Chapter 5 discusses findings for this research, theoretical and practical implications, and concludes with the limitations and future research recommendations for this study.

Chapter 2: Literature Review

2.1 Theoretical development

2.1.1 Theory of planned behavior and green consumer behavior

The theory of planned behavior involves understanding the different ways an individual's thinking process might be influencing his/her intention to act in a specific manner (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). This theory is designed to enable the researcher to predict and understand specific behavioral outcomes by considering the combination of antecedents of attitude and perceived behavioral control that influences intentions leading to behavior (Ajzen, 1987). In the past, researchers have applied this social-cognitive theory to the study of behavioral sciences (Savari & Gharechaee, 2020; Yadav & Pathak, 2017; Paul, Modi & Patel, 2016). Ajzen's (1991) theory of planned behavior has been widely studied in the context of consumer purchase intentions (Ajzen, 1991). Previous literature has applied the theory of planned behavior to the study of attitudes and intentions towards green products and found high predictability in measuring green purchase intention (Liobikiene et al., 2016; Yadav & Pathak 2016; Barreda et al., 2015). In the theory of planned behavior, the first important variable to affect an individual's green behavior intention is attitude (Gao et al., 2017). The theory of planned behavior aids in explaining that the positive attitude that causes users to purchase an eco-friendly product does not always transform into pro-environment behavior. This absence of direct relation results in an attitude-behavior gap or green gap (Bamberg, 2003; Rashid, 2009; Kanchanapibul et al., 2014; Johnstone & Tan, 2015; Maichum et al., 2016).

2.1.2 Green consumer behavior and social media

Media has a significant impact on consumer's concern for the environment (Rios et al., 2006; Paco & Raposo, 2009). Before a behavioral change occurs, a consumer goes through multiple cognitive responses to an advertisement (Hovland, 1957). Media plays a significant role by delivering relevant information, thereby strengthening individual and collective ecological concern and shaping long-term environmental attitude (Paco & Raposo, 2009). In the context of social media, exposure to persuasive messages plays a significant role because it develops a path in a consumer's memory when faced with making a decision or developing an attitude (Alhabash et al., 2016). The need to understand green product purchasing intention is especially timely due to environmental, scientific, and communication advances, such as the Internet and social media, and increases consumer awareness of and concern with environmental issues (Cohen, 2014). Many governments also have increased the number and scope of environmental regulations. The convergence of these factors has raised the level of environmental concern such that consumers have increased their consideration of the environment when they shop (Zhang et al., 2018).

Organizations have been reformulating their service and product offerings to be more environmentally friendly (Pérez-Foguet & Lazzarini, 2019). The Pakistani government has also been working towards introducing a greener Pakistan. The government has taken to social media platforms to spread information about the campaign running for clean green Pakistan, in which case all segments of society play their part in raising awareness among the masses. Attitudes and consumers' beliefs about affecting the environment can be reformed by well-built communication strategies (Vermeir & Verbeke, 2008). Social media plays a crucial role in delivering information to consumers that influence their concern regarding environmental issues (Yu et al., 2019; Rios et al., 2006). The main aim of green advertisements on social media is to

make the consumers aware that the company is eco-centric (Schmuck et al., 2018). At the same time green advertisement makes an effort to influence consumers' purchase intention by presenting them with choices of availability of environmentally friendly products and directing their attention to positive consequences of green product purchase intention (Cherian & Jacob, 2012).

2.1.3 Consumer green perceptions and social media

Researchers found perception about green behavior and green products shapes favorable and less favorable views of consumers, affecting whether or not consumers turn towards green consumption behavior (Russo et al., 2019; Wanga et al., 2018). Therefore, it is important to frame consumer green perceptions accordingly with the support of social media marketing. Consumer green perceptions are a significant predictor for consumers' purchase intention of environment-friendly products (Tan et al., 2016). Green consumer perception includes green product perceptions, hardiness, stigma, readiness and responsibility that are reviewed below.

Green product perceptions and purchase intentions

The first category involves perceptions about green products and how consumers observe the product is being promoted as environmentally friendly. A study by Bhaskaran et al. (2006) showed that consumers' perception about the benefits of products under environmentally friendly standards has a significant impact on their intention to purchase. Fundamentally consumers require the assurance that products they are purchasing are, in fact, environment friendly (Patton, 2002). Eco-labels play an important part in this regard as they allow consumers to distinguish between green products and conventional products (Hameed & Waris, 2018). They assess

product quality, enabling them to understand how these products are made 'green' and aiding them in making a buying decision in favor of environment-friendly products (Rahbar, 2011). Nik Abdul Rashid (2009) showed that consumers analyzed their influence and impact on the environment through eco-labels.

Additionally, media reports allow consumers to observe the impact on the environment taking place through various consumption activities, worsening air pollution, and clean water shortages are threatening human and environmental health (Moraes et al., 2012). Greenhouse gas emissions are increasingly polluting, and carbon-intensive lifestyle increases diseases (Gillingham & Stock, 2018). Eco-labeling makes it easier for customers to understand the benefits of using environment-friendly products (Borin et al., 2013). They develop a positive link with green products because they believe it will benefit their health and society to make this world a better place (Ariffin & Yusof, 2016).

Green hardness and purchase intentions

The second category, hardness, refers to the effort consumers believe takes place in making an environmentally friendly decision (Tan et al., 2016). According to Shutters and Lobo (2014), a consumer might face many hindrances that might affect his/her transition towards becoming green. These hindrances may be in the form of the effort required to make a green purchase, the time it takes to find a legitimate green product, and the sacrifice of money that such products require (Gleim et al., 2013). In a study by Bray et al. (2011), the participants stated that in addition to the sacrifice of time and money, one needs to sacrifice comfort as well because the perception is that green products are not always of the best quality and one needs to be very

knowledgeable to assess their quality. Shukla (2010) noted that aside from one's reservations in becoming green, other individuals' role in making the transition difficult holds great importance.

Green stigma and purchase intentions

Green stigma analyzes the presence of negative images attached to being environment-friendly (Tan et al., 2016). Individuals struggle to maintain a positive self-image and avoid green products as they portray a self-concept that is not acceptable for some consumers (Banister & Hogg, 2014). Past research showed that green consumers are not always perceived favorably (Link & Phelan, 2001; Druss et al., 2000; Tajfel and Turner, 1986). As individuals purposely strive to maintain a positive social identity, it is important to acknowledge how this unfavorable perception affects their attitude and intentions (Tajfel and Turner, 1986). According to Hamilton and Thompson (2007), in addition to concrete information, consumers also need to experience directly how environment-friendly consumers act when interacting with other consumers and brands.

Green consumers were portrayed to be serious individuals who are very rigid in their beliefs and make others feel guilty about not acting in a pro-environment manner (Silvia, 2005). The difference between the portrayal of green consumers and their actual behavior can be explained through construal level theory. It states that the more psychologically distant an event is from an individual, the greater the level of abstraction with which it is perceived (Trope et al., 2007). A rigid and serious image of green consumers parallels policing and clashes with personal social identity and generates heightened resistance towards green buying that links consumers to such an offsetting stereotype (Rahbar & Wahid, 2011).

Green readiness and purchase intentions

Perceived readiness defines a consumer's willingness to be ready to accept and become environment-friendly (Tan et al., 2016). Consumers who are purchasing a green product for the first time would perceive it as a risk that might be lessened by the presence of green advertisement and social media being a potential platform (Polonsky, 2011). Due to its increasing trend, social media provides information to a wide array of consumers enabling them to become more aware of environmental situations and which companies are helping slow down the process of environmental deterioration (Trivedi, 2018). Even with a vast array of information-providing channels, consumers still face obstacles in the form of income, environmental and product knowledge, time and self-image act that make it challenging to become green (Johnstone & Tan, 2015).

Becoming green can be very difficult for consumers as not all companies are honest about their achievements in protecting the environment (Gatti et al., 2019). The term greenwashing was first introduced by Jay Westerveld in 1986, described as a situation in which a company spends more resources on portraying themselves as green rather than minimizing their negative impact on the environment (Orange & Cohen, 2010). Greenwashing has created reservations for consumers as it has made it difficult to identify if the product is, in fact, legitimate or not (Chen & Chang, 2013). A sense of loss of freedom may also hinder the transition as consumers might believe that they are being forced to follow someone else's orders in a way to protect the environment, effectively taking away their right to make their own choices (Huttel & Peyer, 2017). Whereas a consumer may be concerned about the environment, he/she might not respond favorably to green messages as he/she believes their liberties as an individual are at risk (Skill & Gyberg, 2010). Due to these beliefs among consumers, being green

was affiliated with individuals who were not price-sensitive, had more time to search for legitimate green products, and would work hard to buy these products (Peattie 2010; Young et al., 2010).

Green responsibility and purchase intentions

Perceived sense of responsibility deals with consumers' perception about whether responsibility towards environmental issues must be dealt with certain immediacy (Tan et al., 2016; Hamilton & Thompson, 2007). Social media has played a great role in creating a sense of immediacy among consumers by keeping us updated on how human beings are damaging the environment and what repercussions shall have to be faced in the future if production and consumption patterns are not changed (Rahbar & Wahid, 2011). It may be regarding the worsening environmental conditions, deteriorating sea-level, an increase in the use of plastic and hazardous material. Promoting environmentally responsible consumption appears as one of the methods to control the pace of environmental deterioration (Paavola, 2011). Through environmental awareness, people feel a great sense of personal responsibility (Pinto et al., 2011).

In the social and biospheric orientation, green customers tend to act more in an environment-friendly manner (Kollmus & Agyeman, 2002). These are the people who believe that they can influence the situation and reduce environmental damage by taking responsibility for their actions and becoming intelligent consumers (Suki, 2016). Attaran and Celik (2019) suggested that responsible consumers are more likely to exhibit green purchase behavior. Consumers gain knowledge about a product both directly and indirectly (Johnstone & Tan, 2015). Directly is when they test the product themselves and experience its capability directly,

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whereas indirect experience is achieved through following media reviews and word of mouth (Hamilton & Thompson, 2007). Through direct and indirect experiences, the perception of becoming green involves changing previous consumption patterns as a feeling of responsibility towards the environment takes place in the minds of consumers (Lyon & Montgomery, 2013). This change indicates that customers who feel more responsible towards the environment will strengthen green buying behavior.

In much of the evidence in the literature, consumer perception towards green advertising has been highlighted (Deliana & Rum, 2019; Lin, Leckie & Lobo, 2017). Researchers have conducted studies where consumer responses to green advertising, skepticism towards green claims, and their credibility have been measured (Attia, 2014; Haytko & Matulich, 2008). Consumer green perception is a multidimensional concept that researchers found to shape favorable and less favorable views of consumers, affecting whether consumers turn towards green consumption behavior (Tan et al., 2016). A study in Thailand about environment-friendly electronic products showed that consumer's trust in the products was projected by their perception of the quality of green products (Marakanon & Panjakajornsak, 2017). Among other mediums, marketers use social media platforms to raise perceptions about green products to build a lasting relationship with customers and affect their choices (Gunasti & Ross, 2010). Through social media, brands can influence individual's perceptions and shape their judgment about their products by providing a certain positive image (Chu & Luckanavanich, 2018).

Consumers have increasingly been using social media platforms to search for information to interact with businesses and other consumers (Li & Bernoff, 2011). Social media is used to access the product and brand information to make informed buying decisions (Christodoulides, Michaelidou & Siamagka, 2013). Green marketing strategies like green business branding and

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green advertising help companies gain a competitive advantage by enhancing consumers' perception (Ariffin et al., 2016). The marketing tools that brands apply to convey their messages to consumers are important in shaping unique perceptions about green brands (Chu & Luckanavanich, 2017; Zufara & Fitriya, 2019). It also helps brands show easy availability of green products, lowering the barriers to changes in consumption patterns promoting green behavior among consumers (Mendon et al., 2019).

2.2 Hypotheses development

2.2.1 Environment attitude and green purchase intention

Many individuals are starting to engage in environmentally friendly behaviors in their everyday lives, becoming concerned with the seriousness of ecological problems around them (Dubois et al., 2019). Environment's perceived importance is a primary indicator for attitude towards eco-friendly behavior (Le-Anh & Nguyen, 2020). Laroche et al. (2001) determined the levels of these attitudes by indicating whether individuals considered eco-friendly behaviors essential to themselves or society. These levels were later on termed as inward and outward environmental attitudes.

Inward environment attitude refers to an individual's effort, beliefs, and ideas towards environmental preservation (Leonidou et al., 2010). This individual attitude towards the environment serves as a dominant force towards buying behavior (Fielding & Hornsey, 2016). Many studies have shown that consumers with inward environmental attitude are more likely to buy products from environment-friendly brands and may also work as strong brand advocates for such products in their social circles (Homer & Kahle, 1988; Balderjahn, 1988; Hume, 1991; Alwitt & Pitts, 1996; Roberts & Bacon, 1997; Kilbourne & Pickett, 2008; Paladino & Ng, 2013;

Varela-Candamio et al., 2018). A strong belief in environmental issues drives individuals towards pro-environment behaviors, compelling businesses to become more socially responsible and modify their production to support the environment (D'Souz & Mehdi, 2007). According to Anupama (2010), society and environmental values have more importance than just bringing profit in this era. Meeting consumer needs and fulfilling their desires while inflicting the lowest possible damaging effect on the natural environment can only be achieved through green marketing (Polonsky, 1994). Environmental problems have worsened because of individuals' irresponsible attitudes towards their environment (Hanley, Deringer & Norton, 2020). Individual-level efforts can have a great impact on environmental preservation. Individuals believe that they can set an example by advocating environmental care in his/her household and close community circles by refraining from harmful consumption and promoting products that are beneficial for the environment (Kim et al., 2020). According to Donaton and Fitzerald (1992), individuals with a positive environment attitude make a special effort to buy a product or service from companies that follow environmental practices.

H_{1a}: Inward environment attitude has a positive relationship with green product purchase intention.

On the other hand, an outward environmental attitude refers to a consumer's attitude about the apparent need for social, political, and legal changes required for the protection of the environment (Leonidou et al., 2010). Government policies are often a major source of environmental deterioration in developing countries (Islam, 2019). However, NGOs and private sectors have had a vital role in maintaining healthy environmental standards; their effectiveness requires supporting the public framework to reach its full potential (Kulin & Seva, 2019). Most

environmental issues arise due to the government's failure to ensure a healthy environment for its citizens, expand freshwater supplies, and control industrial pollution (Carter, 2014). To overcome environmental problems, governments are establishing policies that relate to addressing improvements in the infrastructural facilities, raising environmental awareness among people, and creating a culture of cleaner production practices for both SMEs and other corporations (Masbridge, 2014). The efforts of government and other national institutions towards environment protection lead to sustainable economic development. Incentives provided by governments motivate the consumers and firms to reduce activities that harm their environment (Olubunmi, Xia & Skitmore, 2016). For instance, consumers may be more interested in purchasing products that are good for the environment due to tax rebates and loan incentives to promote innovators to design greener production processes, regulatory relief, and fast permits for businesses (Goodstein & Polasky, 2020). Consumers' attitude towards green products is positively affected when they believe their government is trying to protect the environment (Zhang, Cheng & Wei, 2019). The study, therefore, proposes the following hypotheses:

H$_{1b}$: Outward environment attitude has a positive relationship with green product purchase
intention.

2.2.2 Environment attitude, perceived consumer effectiveness and eco-literacy

Ecological literacy is crucial for communities struggling to become green (Knackmuhs, Farmer, & Reynolds, 2017). According to Devine-Wright (2004), an increase in awareness and education among consumers encourages more pro-environmental behavior. Consumers' attitudes can be connected to his/her knowledge regarding environmental issues (Amendah & Park, 2008).

These consumers are more likely to show pro-environment behavior patterns than other consumers (Lee and Moscardo, 2005). As when knowledge increases, awareness increases about what the future holds, people become more concerned about the future; therefore, they feel the drive to protect the environment (Johnstone & Tan, 2015). All phases from problem identification, data gathering, and alternative evaluation in the decision-making process are heightened when his/her knowledge about the environment increases (Collins & Donahue, 2019). Consumer's understanding of their eco-system affects their ability to act or decide on a course of action (Zhao and Zhong, 2015; Tseng and Hung, 2013). By maintaining their ecological knowledge, consumers are motivated to continue preserving their environment and conserving resources (Pilgrim, Smith & Pretty, 2007).

H$_{2a}$: Eco-literacy moderates the relationship between inward environment attitude and perceived consumer effectiveness such that higher (lower) eco-literacy will strengthen (weaken) the relationship between inward environment attitude and perceived consumer effectiveness.

Outward environment attitude also impacts environmental knowledge that directly influences behavior in both public and private spheres of an individuals' life (Capetta & Magni, 2015; Kitzmuller, 2013; Hansla et al., 2008). National concern about the environment increases the probability of volunteering for pro-environment activities (Blinder & Blankenber, 2016), such as The Prime Minister of Pakistan, Mr. Imran Khan, launched the Clean Green Pakistan Movement[1] (CGPM) on 13th October 2018. This campaign focuses on behavioral change and institutional strengthening.

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[1] The Prime Minister of Pakistan, Mr. Imran Khan, launched the Clean Green Pakistan Movement (CGPM) on 13th October 2018. This campaign focuses on behavioral change and institutional strengthening.

A major volunteer program has been introduced to work in area hygiene, waste management, educating people on water treatment, and plantation to improve the climate. Through knowledge of environmental policies that governments are putting in action, consumers can understand how collectively small actions can play a greater role in protecting the environment's tendency to act in a pro-environmental manner (Wray-Lake et al., 2010). Government interventions that aim at increasing pro-environment behavior may induce consumers to be attentive to environmental protection at the community level (Islam, 2017). The impact of leaders' perceptions of the environment allows individuals to become more confident in their conviction towards protecting the environment (Graves et al., 2013; Bang et al., 2000). According to Kim (2005), people's attitude about the environment leads them to search for or gain environmental knowledge and affects their decisions. Therefore, the study hypothesizes:

H_{2b}: Eco-literacy moderates the relationship between outward environment attitude and perceived consumer effectiveness such that higher (lower) eco-literacy will strengthen (weaken) the relationship between outward environment attitude and perceived consumer effectiveness.

2.2.3 Perceived consumer effectiveness and green product purchase intention

To better determine environmentally conscious behavior, perceived consumer effectiveness has been suggested as a strong predictor of green purchase intention (Roberts, 1996). Society's struggle to build an ideal livable environment motivates individuals to think and behave in ways that does not cause any interference in this effort (Webster, 1975). Being an important part of society consumers assess the way they themselves and the brands they associate themselves with are acting (Solomon, 2018). Environment issues make people think

about the ethical choices they are making daily when making purchase decisions (Dang et al., 2020).

Singularly individuals' concern for the environment does not necessarily lead to positive action because they might feel they are not capable to bring a change in their surroundings (Lorenzoni et al., 2007). Even when consumers believe environment should be placed under consideration, when they make a buying decision they are not likely to act on this belief (Kang et al., 2013). It is suggested by Gilg et al (2005) that when consumers think they have a significant impact on their environment they influence the spread of environment-friendly products. Consumers with high level of perceived consumer effectiveness are more willing to purchase product that have positive impact on the environment (Liang et al., 2020). It is therefore hypothesized:

H3a: For inward environmental attitude, perceived consumer effectiveness will lead to green product purchase intention.

H3b: For outward environmental attitude, perceived consumer effectiveness will lead to green product purchase intention.

2.2.4 Moderation of consumer green perceptions: Green product perceptions

Consumers with an inward environment attitude tend to buy products from environment-friendly brands, believing that their pro-environment behavior will significantly impact the environment (Paladino, 2013; Varela-Candamio et al., 2018. Consumers' perception of environment-friendly standards maintained by the brand positively impacts their intention to purchase (Bhaskaran et al., 2006). The perception that green products maintain their quality standards strengthens the inclination towards green buying (Conelly et al., 2012). Consumer

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perception can be affected through direct experience with the product or indirect contact like word of mouth and media reports providing a strong mental representation (Spassova & Lee, 2013).

According to Watkins (2016), health of humankind and environmental health are interdependent. The easy availability and access to products have caused consumption to increase exponentially (Bick, Halsey & Ekenga, 2018). The conditions of the environment are an abstract concept to many consumers (Hobson, 2013). For such purposes, consumers rely on their government and data regulation centers to provide them with information to realize the severity of the problem (Hargreaves, 2011).

Many green consumers believe that government institutions also play an important role in protecting the environment by setting sanctions, regulations, and environmentally sustainable public methods (Johnstone & Tan, 2015). Environment protection agencies educate people on how they can minimize the negative impact by buying products from companies that have not caused any harm to the environment (Bick, Halsey & Ekenga, 2018). When consumers believe that their government is making an effort to preserve the environment and is aiding companies to create sustainable products that reduce environmental damage, they are more inclined towards buying such products (Eze & Ndubisi, 2013). The positive product perception and increased environment knowledge will strengthen green buying intentions. Hence it is hypothesized,

H$_{4a}$: For inward environment attitude, green product perception moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green product perception strengthens (weaken) relationship.

H$_{4b}$: For outward environment attitude, green product perception moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green product perception strengthens (weaken) relationship.

2.2.5 Moderation of consumer green perceptions: Green hardness

The exhausting effect that might take place on both time and money when purchasing green products affects a consumer's decision while making a green purchase (Kollmuss & Agyeman, 2002).The effort required to shift to green products often stops consumers from making green purchases (Shutters & Lobo, 2014). These efforts result in tension and mental frustration that makes the consumer uncomfortable (Miller, Spivey & Florance, 2008). According to Johnson (2019), it is not difficult to change shopping habits to become more sustainable. However, human beings face trouble changing their habits when that requires extensive research (Lantos, 2014). As the scale of problems is large, it is believed that individual efforts would not play a significant role in the struggle of sustainability, making it difficult for the consumer to shift their behavior toward becoming green (Baatz, 2014). Even though increased awareness will strengthen the inclination towards green product purchase, the difficulties faced by consumers in becoming green consumers weakens their buying intention.

Green consumers' views regarding their government and managerial level working allow them to identify companies promoting green activities (Micheletti & Stolle, 2007). There is an increasing desire among consumers for new content (Vaughan, 2017). The past decade has shown that on a global level, governments are focusing on reducing environmental damage and are encouraging companies to adopt environment-friendly methods (Behl et al., 2019).

Beak et al. (2020) stated that the environment-friendly factor is not a completely influential factor for making a purchase. Even with the role governments play in promoting environment-friendly activities and positive product perception, high compliance costs make it difficult for consumers to shift towards green purchasing (Borner et al., 2017). The difficulty may arise because following environmental law may not yield as many positive results as one had expected for the society (Adams & Raisborough, 2010). If consumers do not have a positive attitude towards paying extra for a product, they are less likely to make a green purchase (Laroche et al., 2001). Besides that, the time and effort required to make an informed decision when making a green purchase do not appeal to many consumers (Kautsar et al., 2016). Hence it is hypothesized,

H_{5a}: For inward environment attitude, green hardness moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green hardness weakens (strengthens) relationship.

H_{5b}: For outward environment attitude, green hardness moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green hardness weakens (strengthens) relationship.

2.2.6 Moderation of consumer green perceptions: Green stigma

Consumers often avoid green products because the image associated with carrying these products does not match their self-image (Banister & Hogg, 2014). The stigma surrounding green consumers is that they are often perceived as having a reduced quality of life (Link & Phelan, 2001). Consumers do not desire to be associated with people or brands they believe have traded their lifestyle with affordability and time-consuming habits (Rahbar & Wahid, 2011). The

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negative social identity created by the unfavorable perception of green consumers results in individuals not making green purchases (Wang et al., 2018). This inconvenience personally compels individuals to act in a manner deemed ecologically unfavorable hence weakening their green buying intention (Han et al., 2009).

Being environmentally friendly is often considered as an additional role by many consumers (Gram-Hanssen, 2007). Green consumers often portrayed a negative and strict image as those who take this additional role very seriously and make others feel guilty for not acting similarly (Silvia, 2005). These consumers are often criticized for being hypocrites as they are hoisting the banner of change and are also using oil and gas-powered transportation like cars and aircraft (Becker & Sparks, 2018). Such negative emotions like fear of rejection and criticism linked to becoming green might not be in accordance with an individual's ideal self (Banister & Hogg, 2014). The stigma surrounding the concept of remanufacturing and covering treatment costs is that companies lower their quality standards while making a profit (Barbarossa & Pelsmacker, 2014). This stigma makes buying green products very unattractive. Hence,

H_{6a}: For inward environment attitude, green stigma moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green stigma weakens (strengthens) relationship.

H_{6b}: For outward environment attitude, green stigma moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green stigma weakens (strengthens) relationship.

2.2.7 Moderation of consumer green perceptions: Green readiness

Consumers' readiness in buying green products is characterized by the time it takes them to turn towards green buying (Tan et al., 2016). Even though there is a growing trend in eco-friendly businesses, consumers are still not confident about purchasing green products because it involves breaking the dominant culture of buying from non-green brands and developing new thinking patterns (Azis & Sapri, 2013). Not all companies are honest about their green activities; therefore, consumers are unsure whether they are applying environment-friendly protocols. (Gatti et al., 2019). Price-sensitive consumers often find green products expensive and are hesitant to make a purchase (Peattie 2010). The confusion surrounding a brand's credibility about green activities purchasing a green product for the first time might be considered a risk (Chen & Chang, 2013). The difficulty in actively taking part in green activities and buying green products will weaken the relationship between inward environment attitude and green buying intention.

Even though human beings can analyze threats that pose in the distant future, it does not ensure that they are willing to forgo present-day luxuries (Skill & Gyberg, 2010). The complex environment issues forms a paradox for consumers as they do not realize how their daily choices and lifestyle affect their surrounding environment (Prothero et al., 2011). Personal inconvenience also causes hindrance in the path to become green as consumers find it risky to try new products (Polonsky, 2011). Like other relationships, the relationship between individuals and their environment is based on reciprocity (Palmatier et al., 2009). Therefore, if they believe they are giving more to protect the environment and are receiving less benefit from it, the inclination towards buying green products will decrease (Gifford, 2011). The role of regulatory authorities also influences how readily individuals become green consumers as green schemes and initiatives increase influence consumers to make environmentally friendly choices (Jahanzeb et

al., 2019). With the increase in government-enabled environmental regulations and awareness about environmental problems, consumers are readily looking towards eco-friendly brands that perform activities to protect the natural environment (Han, Hsu & Lee, 2011). Therefore,

H_{7a}: For inward environment attitude, green readiness moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green readiness weakens (strengthens) relationship.

H_{7b}: For outward environment attitude, green readiness moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green readiness weakens (strengthens) relationship.

2.2.8 Moderation of consumer green perceptions: Green responsibility

It is important to determine whether the consumer group feels responsible for the environment (Verma, Chandra & Kumar, 2019). Responsibility is not an isolated concept; rather, it is interconnected by multiple acting bodies from private companies to individual consumers (Barnett et al., 2011). As human beings are major stakeholders of the ecological system, they can play an important role on a local and global level in protecting the environment (Hassan et al., 2005). To realize the full impact of their activities on the environment, individual consumers and private companies should be properly educated (Perez, 2018). Green consumers are more knowledgeable about environmental problems and feel it is their responsibility to slow down environmental deterioration (Celik, 2019). This feeling of responsibility makes consumers more mindful of their consumption patterns (Paavola, 2011). The more individuals avoid their responsibility towards the environment, the less inclined they are to buying green products.

The sense of immediacy that a consumer feels regarding solving environmental issues determines his/her sense of responsibility towards environmental protection (Tan, 2016). Consumers who feel they have a responsibility towards the environment believe they can influence the negative effects taking place on the environment through intelligent consumption (Suki, 2016). These consumers express their concern through their purchasing power (Barbarossa & Pelsmacker, 2014). Government schemes educate consumers about their responsibility towards the environment, enhancing their knowledge and, in some cases, instilling fear about the damage they are doing to the environment and leaving it unsteady for future generations (Kent, 2009). Therefore, governments introduce new forms of regulations with an increased focus on consumer responsibility and the value of environmental protection (Soneryd & Uggla, 2015). A government's effort to protect the environment makes consumers more mindful of their daily actions (Ozcaglar-Toulouse, 2009). An increase in the feeling of responsibility makes consumers more inclined towards buying green products (Attaran & Celik, 2019). Therefore,

H_{8a}: For inward environment attitude, green responsibility moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green responsibility strengthens (weaken) relationship.

H_{8b}: For outward environment attitude, green responsibility moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green responsibility strengthens (weaken) relationship.

2.2.9 Mediating role of perceived consumer effectiveness

Research in green consumer behavior suggests that inward and outward environment attitude impacts perceived consumer effectiveness, and perceived consumer effectiveness impacts green purchase intention (Trivedi et al., 2018). The attitude that as individuals we can work towards saving the environment from further deterioration leads consumers to think they have a greater ability to control the consequences taking place through their decisions (Iglesias et al., 2018). Through perceived consumer effectiveness, individual's efficacy makes them believe they have more authority and influence in their consumption patterns (Dagher & Itani, 2014). Additionally, when higher involvement takes place in environment related matters in the form of government and other organizations, consumers feel more enabled and believe they are more capable of bringing change (Zhu et al., 2005). This belief results in shaping their personal lives and the environment they live in (Curras-Perez, 2018). It relates to consumers' assessment of environmental issues and their perception of the importance of their role (Kinnear et al., 1974).

By drawing from the literature on green consumer behavior, this study offers a theoretical framework that posits the need to consider perceived consumer effectiveness as a mediator between inward and outward environment attitude and green product purchase intention. Consumers with high efficacy have a greater tendency to show socially responsible behavior (Tucker & Lewis, 1978). Perceived consumer effectiveness has been shown as an important determinant of environment-friendly behavior (Roberts, 1996). It includes judgment and self-evaluation regarding the environment (Sharma, 2016). Therefore, perceived consumer effectiveness is present while making green purchase decisions as an internal element that brings change and motivation. Thus this study hypothesizes:

H$_{9a}$: Perceived consumer effectiveness mediates the relationship between inward environment
attitudes with green product purchase intention

H$_{9b}$: Perceived consumer effectiveness mediates the relationship between outward environment
attitudes with green product purchase intention

2.3 Theoretical Model

Figure 2.1 shows the theoretical model for the study. Inward and outward environment attitudes have a direct and indirect effect on green product purchase intention. The effect of inward and outward environment attitude will be tested separately to understand the different effect results of these two variables in the model. The direct relationship is being moderated by eco-literacy. Perceived consumer effectiveness plays a mediating role between inward and outward environment attitude and green product purchase intention. Perceived consumer effectiveness also directly relates to green product purchase intention that is being moderated by consumer green perceptions. The moderating impact of sub-variables of consumer green perceptions are product perceptions, green hardness, green stigma, green readiness and green responsibility. Age, gender and information were used as control variables.
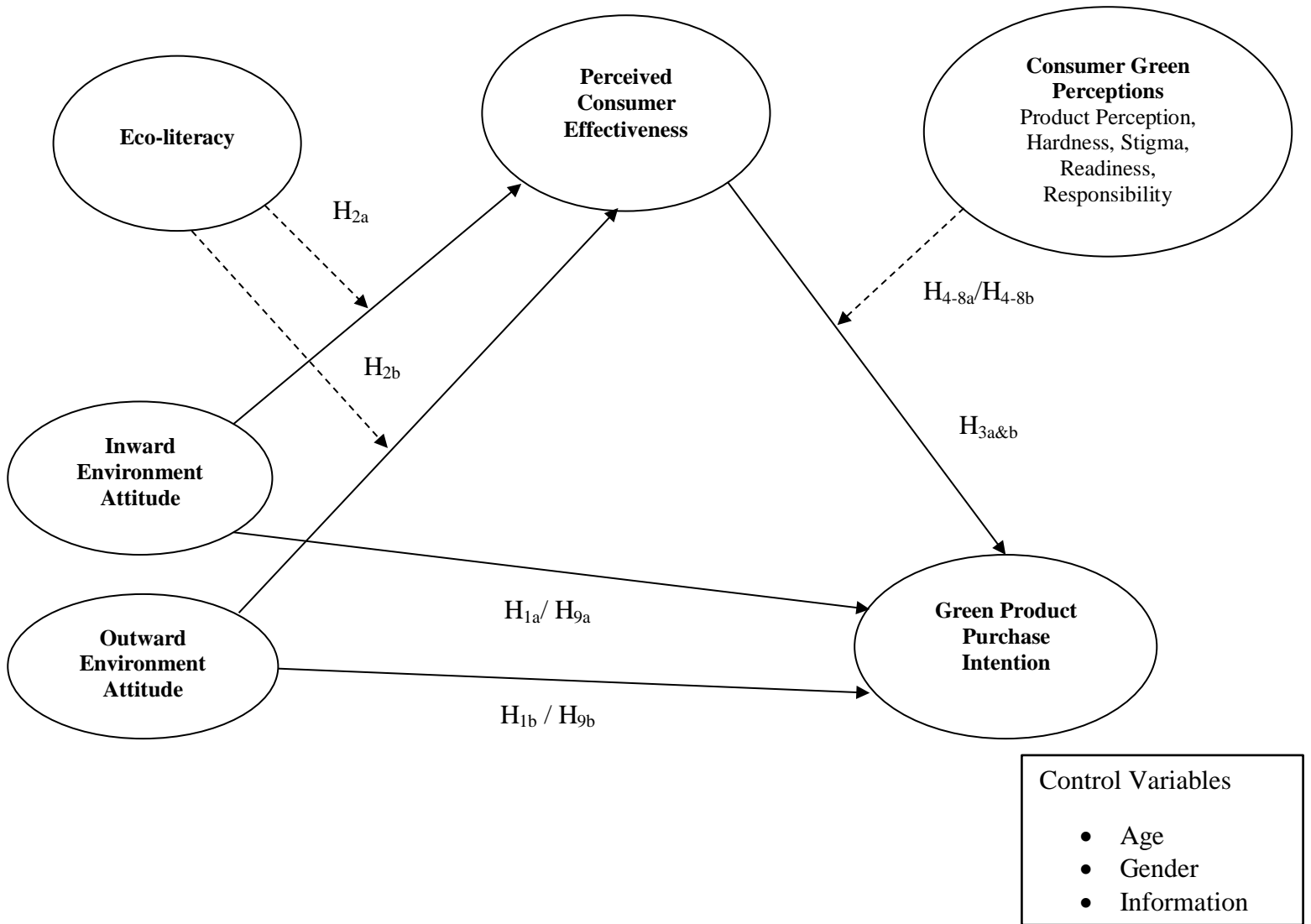
Figure 2.1: Theoretical Framework

Chapter 3: Methodology

In this study, the mediating role of perceived consumer effectiveness was examined with the relationship of attitude inward and outward with green product purchase intention. The moderating effect of eco-literacy and the sub-variables of consumer green product perceptions were also explored. The moderating effect of consumer green perceptions was tested on the relationship between perceived consumer effectiveness and green product purchase intention. The dimensions included product perceptions, green product hardness, green product stigma, green product readiness, and green product responsibility. This chapter explains the sample size, respondents, operationalization of variables, data collection and data analysis strategy.

3.1 Sample size and respondents

This research aims to explore green buying behavior on social media. The need to obtain an appropriate sample size to make results more efficient has risen with the increasing demand for research work (Morgan & Krejcie, 1970). Earlier research on green consumer behavior acquired sample size ranging from 200 to 500 (Khan et al., 2020; Issock, Mpinganjira & Roberts-Lombard, 2018; Ho, 2014). For SEM, appropriate sample size must be selected to achieve reliable estimates (Hair et al., 2011). Even though the importance of proper sample size has been stated on multiple occasions, the literature regarding sample size does not conform to anyone's method (Kline, 2005; Tabachnick & Fidell, 2001; Hoyle & Kenny, 1999; Tinsley & Tinsley, 1987). Purposive sampling technique was used in this study. It involves identifying and selecting individuals that are well-informed about a particular phenomenon of interest (Creswell et al., 2011). Green context is easily understood by educated and culturally aware citizens (Paul

et al., 2016; Hedlund, 2011). The target population was specified according to age, social media use, and environmental awareness. The ideal sample for this study was of people aging above 18 years and reasonably educated. Respondents were also asked whether they are users of social media platforms so that role of marketing in the social media context could be studied. Five hundred questionnaires were distributed among prospective respondents.

3.2 Control Variables

The present research controls for age, gender and information regarding environment activities to ensure they do not affect the relationships hypothesized in this study (Becker, 2005).

3.3 Operationalization of variables

The constructs for variables used in this study were employed from the literature. All items were adapted to online buying. The survey questionnaire administered to respondents included instruments that captured the concept of the constructs, green product purchase intention, inward environment attitude, outward environment attitude, perceived consumer effectiveness, eco-literacy, and consumer green perceptions. All items were measured on a 7-point Likert scale from 1 (strongly agree) to 7 (strongly disagree). The operationalization of variables is shown in Tables 1 and 3. The description of the constructs is provided below:

Inward environment attitude

Inward environment attitude was measured using the 4 items scale developed by Leonidou et al. (2010). It included statements like 'I would give part of my own money to help

protect the environment' and 'the presence of environment-related information on social media has made me very concerned about my environment.'

Outward environment attitude

Outward environment attitude was measured using the 3 items scale developed by Leonidou et al. (2010). It included statements like 'Information on social media shows that major political change is necessary to protect the natural environment' and 'social media tells us that humans are severely abusing the environment through their consumption patterns.'

Perceived consumer effectiveness

Perceived consumer effectiveness was measured through the 3 items scale developed by Roberts (1996). Sample statements include 'In my opinion, each person's behavior can have a positive effect on the environment if that person promotes environmental awareness on social media' and 'I feel I can contribute in saving our natural resources by promoting brands that are involved in environment-friendly activities.'

Eco-literacy

To measure eco-literacy, this study used a 4-item instrument developed by Mende et al. (2017). This instrument included statements like 'I have good knowledge due to social media of brands working to protect our environment' and 'I am very confident in discussing environmental issues with others on social media.'

Consumer green perceptions

Consumer green perceptions were measured on five dimensions (green product perception, green hardness, green stigma, green readiness, and green responsibility). Tan, Johnstone, and Yang developed the scale in 2016. Green product perceptions were measured on a 4-item scale, including questions like 'Due to information on social media I believe environmentally-friendly brands perform better' and 'Due to information on social media I believe environmentally-friendly brands are better for the environment.' Green hardness had 3 items comprising of statements like 'Due to information on social media I think purchasing from environment-friendly brands requires amount of effort (a little-a lot)' and Due to information on social media I think purchasing from environment-friendly brands requires amount of time (a little time-a lot of time). The 3 items of green stigma included some negatively worded statements like 'Consumers of green brands think they are better than others because they make an effort to be environmentally friendly and 'I think consumers of green brands make others feel guilty for not being as environmentally-friendly as them.' Green readiness had 4 items consisting of statements as in 'I have insufficient time for environmental issues' and 'I have insufficient income to buy eco-friendly brands.' Green responsibility had 3 items, and statements were presented as 'I do not feel responsible for the environment' and 'I think I cannot help to slow n damage being done to our environment.' All items were measured on a 7-point Likert scale from 1 (strongly agree) to 7 (strongly disagree) except for green hardness. A 7-point Likert scale ranging from 1 (a lot) to 7 (very little) was used to measure green hardness. Table 3.2 shows the sub-dimensions of consumer green perceptions.

Green product purchase intention

Purchase intention was adapted to green product scale developed by Taylor and Todd in 1995 containing 3 items that had statements like 'I will recommend others to buy and use green products' and 'In the future, for the purpose of personal use, my intention to buy green products is strong.'

Table 3.1: Instrument Description

Instrument	Creators	Year	Items
Inward environment attitude	Leonidou et al.	2010	4
Outward environment attitude	Leonidou et al.	2010	3
Perceived consumer effectiveness	Roberts	1996	3
Eco-literacy	Mende et al.	2017	4
Consumer green perceptions	Tan, Johnstone and Yang	2016	17
Green product purchase intention	Taylor and Todd	1995	3

Table 3.2: Dimensions of consumer green perceptions

Consumer green perceptions	17 items
Green product perception	4
Green product hardness	3
Green product stigma	3
Green product readiness	4
Green product responsibility	3

Table 3.3: Operational measurement of constructs

Instrument	Operational measurement	Scale
Inward environment attitude	1. The presence of environment related information on social media has made me very concerned about my environment. 2. Based on environment related info on social media I would be willing reduce my consumption of products to help protect the environment 3. I would give part of my own money to help protect environment. 4. I have asked my family to recycle some of the products we use.	7-point Likert scale from 1 (strongly agree) to 7 (strongly disagree).
Outward environment attitude	1. Info on social media shows that major political change is necessary to protect the natural environment. 2. Through social media I have come to believe that major social changes are necessary to protect the natural environment. 3. Social media tells us that humans are severely abusing the environment through their consumption patterns.	7-point Likert scale from 1 (strongly agree) to 7 (strongly disagree).
Perceived consumer effectiveness	1. In my opinion each person's behavior can have an effect on the environment if that person promotes environmental awareness on social media. 2. I feel I can contribute in saving our natural resources by promoting brands that are involved in environment friendly activities. 3. Where consumer brands are concerned not much can be done about protecting environment.	7-point Likert scale from 1 (strongly agree) to 7 (strongly disagree).
Eco-literacy	1. With the help of social media I have good knowledge about brands working to protect our environment. 2. Through social media I know a lot of about environmentally friendly products sold in the marketplace. 3. Due to information on social media I am comfortable reading environmental safety information on brand labels without any assistance. 4. I am very confident in discussing environmental issues with others on social media	7-point Likert scale from 1 (strongly agree) to 7 (strongly disagree).
Green	1. Due to information on social media I believe environmentally-friendly brands perform better. 2. Due to information on social media I believe environmentally-	7-point Likert scale from 1

product perceptions	friendly brands are better for the environment 3. Due to information on social media I believe environmentally-friendly brands use packaging materials which are less harmful to the environment. 4. Due to information on social media I believe environmentally-friendly brands are more trustworthy	(strongly agree) to 7 (strongly disagree).
Green hardness	1. Due to information on social media I think purchasing from environment friendly brands requires amount of effort. 2. Due to information on social media I think purchasing from environment friendly brands requires amount of time. 3. Due to information on social media I think purchasing from environment friendly brands requires sacrifice of money.	7-point Likert scale from 1 (a lot) to 7 (very little)
Green stigma	1. Green brand consumers tend to be people who want to do something different from the general trend. 2. Consumers of green brands think they are better than others because they make an effort to be environmentally-friendly. 3. I think consumers of green brands make others feel guilty for not being as environmentally-friendly as them.	7-point Likert scale from 1 (strongly agree) to 7 (strongly disagree).
Green readiness	1. Even with green coverage on social media I have insufficient knowledge about environmental issues 2. I have insufficient time for environmental issues 3. I have too many other responsibilities to worry about environment 4. I have insufficient income to buy eco-friendly brands	7-point Likert scale from 1 (strongly agree) to 7 (strongly disagree).
Green responsibility	1. Through social media information it seems environmental issues need immediate attention 2. I think I cannot help to slow down damage being done to our environment 3. I do not need to do anything because the environment is not a major concern in Pakistan 4. I do not feel responsible for the environment	7-point Likert scale from 1 (strongly agree) to 7 (strongly disagree).
Green product purchase intention	1. In the future, for the purpose of personal use, I intend to buy green products. 2. In the future, for the purpose of personal use, my intention to buy green products is strong 3. I will recommend others to buy and use green products.	7-point Likert scale from 1 (strongly agree) to 7 (strongly disagree).

3.4 Data collection

3.4.1 Pilot study

A pilot study was conducted to test the relevance and adaptability of the questionnaire. The sample for this purpose included 30 individuals. The respondents for the pilot study were representative of the sample population. The purpose of conducting a pilot study was to assess the relevance and ease of comprehension of the questionnaire items. Pilot study showed that respondents were familiar with environmentally friendly practices and organization's efforts to improve the environment. The respondents were asked to provide their views on the terms, words, and confusing or vague items. Except for one item from the 'Stigma' construct, all others were clearly understood by the pilot sample. The item was rephrased as suggested by the pilot study respondents.

3.4.2 Main study

The final study included a sample of 278 respondents. Since the study explored green product purchases online, this research was conducted on an online social media platform, Facebook. Facebook is a computer-mediated social networking system that became the most popular means of communication just a few years after its launch (Ross et al., 2009). Facebook allows for targeting specific groups through their profiles and the groups they follow. In addition to that, researchers found that results from Facebook surveys compared to other communities showed Facebook respondents were more concerned about climate change (Zhang et al., 2018; Kosinski & Popov, 2015; Kapp, Peters & Oliver, 2013). This social media service launched its instant messaging app in 2010 that reported 1.3 billion users worldwide as of October 2019 (Diwan et al., 2020). Researchers can easily contact their target audience through this application

as there is a low entry barrier (Smutny & Schreiberova, 2020). Thus, Facebook and Messenger app was used to research respondents.

The target audience was selected from pages like 'Khalis Market'. Khalis Market is Pakistan's first natural food market that offers home-grown, fresh, and locally created items. The users who had 'liked' and 'followed' the pages of these green/organic markets in Pakistan were contacted through the Messenger app. Users were sent an invitation to participate in the study. At the beginning of June 2020, five hundred questionnaire links were circulated among Facebook users who agreed to participate in the study. By mid of June 215 responses were received. A reminder message was sent in late June to those who had not responded. By the end of the month of July, a total of 363 responses were gathered. From 363 responses, 278 responses were usable. Filter questions asked whether the respondents knew of environment-related issues or initiatives and whether they had seen any pro-environment activity by brands on social media. The final sample included 67% female and 33% male respondents. Females are more likely to engage in online activity characterized by communication about brands than men (Jackson et al., 2001). The sample comprised of individuals who were 18 years old or above.

3.5 Data analysis

The data was analyzed using SmartPLS for confirmatory factor analysis and testing of the hypotheses. The adoption of the PLS-SEM approach is due to many reasons. First, it places minimum demand on measurement scales and sample size (Hair et al., 2012). Second, this approach does not require data to be normally distributed (Hair et al., 2016). Third, it focuses on predictive analysis and is beneficial in exploratory research (Fornell & Bookstein, 1982).

3.5.1 Confirmatory factor analysis

The PLS-SEM method can handle complex models and can deal with multiple indicator variables. SmartPLS is nonparametric, and non-normal data distribution does not affect the viability of results (Astrachan, Patel & Wanzenried 2014). Common method bias and collinearity among constructs were evaluated for each construct through variance inflation factor (VIF) and Harman's single factor test. VIF collinearity in PLS-SEM modeling is an efficient measure to diagnose the problem of common method variance, and values below 3.3 are considered acceptable (Kock, 2015). Harman's single factor test has also been recommended as an efficient method of detecting common method variance with value less than 50% showing absence of common method variance (Kock, 2020). Factor loadings for each latent construct were obtained through the PLS algorithm that involves a regression sequence in weight vectors. Bootstrapping with 5,000 subsamples was done to compute t-statistics of each factor loading (Henseler et al., 2009).

The confirmatory factor analysis evaluated the reliability and validity of the measurement model. Confirming the validity and reliability of a test is vital as validity concerns itself with the degree to which a set of indicators can measure the concept and relevance of the construct they intend to measure. Fornell and Larcker's (1981) criteria and Heterotrait–Monotrai (HTMT) ratios of correlations were measured to assess discriminant validity. According to Fornell–Larcker criteria, the square root of AVE of each latent construct should be greater than its inter factor correlations with all other latent constructs, and Heterotrait–Monotrait (HTMT) ratio should be less than one as (Hair et al., 2012).

To establish convergent reliability, average variance extracted (AVE) was tested. AVE with a value greater than 0.50 and composite reliability (CR) greater than 0.70 suggests that the

trait's variance is more than that by error terms (Hair et al., 2011). Indicator reliability is evaluated through factor loadings greater than 0.5. The overall model fit was tested using the standardized root mean square (SRMR). It allows measuring the average magnitude of the inconsistencies between observed and expected correlations as a complete measure of the model fit criterion. Henseler et al. (2014) presented the SRMR as a goodness of fit measure for PLS-SEM that may be used to stay clear of model misspecifications. A value less than 0.10 or 0.08 (Hu and Bentler, 1999) is considered a good fit in SmartPLS.

3.5.2 Structural equation modelling

Structural equation modeling (SEM) was conducted to examine the hypothesized relations presented in the model. Since the model tested both mediation and moderation, the significance of the parameter estimates was analyzed through percentile bootstrapping, one of the important features of SmartPLS, predicting relationships among factors that affect the dependent variable green product purchase intentions (Preacher & Hayes, 2008). The bootstrapping technique takes subsamples from the primary sample of observation and estimates the model parameters of each subsample, and then reports the significance of the estimated coefficients, in so doing presenting strong results (Hair et al., 2012). Moderation of eco-literacy was tested by interaction moderation through the product indicator approach as it shows high predictive values, especially when the sample size is greater than 200 samples (Henseler & Chin, 2010). The product indicator approach uses all possible pair combinations of the indicators of the latent predictor and the latent moderator variable. The moderated-mediation paths were analyzed through bootstrapping. Through t-values and confidence intervals the significance and effect of

moderators on the mediated models were obtained. The paths tested in this study are presented below:

Total effect paths

Inward environment attitude→Green product purchase intention   (Path 1a)

Outward environment attitude→Green product purchase intention   (Path 1b)

Moderation of eco-literacy

Inward environment attitude→Perceived consumer effectiveness (Path 2a)

Outward environment attitude→Perceived consumer effectiveness (Path 2b)

Direct effect path of perceived consumer effectiveness

For IEA, perceived consumer effectiveness→Green product purchase intention (Path 3a)

For OEA, perceived consumer effectiveness→Green product purchase intention (Path 3b)

Moderation of consumer green perceptions (green product perception, green hardness, green stigma, green readiness and green responsibility)

For IEA, perceived consumer effectiveness→Green product purchase intention (Path 4a - 8a)

For OEA, perceived consumer effectiveness→Green product purchase intention (Path 4b - 8b)

Mediation of perceived consumer effectiveness

Inward environment attitude→Perceived consumer effectiveness→Green product purchase intention (Path 9a)

Outward environment attitude→Perceived consumer effectiveness→Green product purchase intention (Path 9b)

Chapter 4: Results

The study aims to investigate online green consumer behavior during COVID-19. In doing so, perceived environmental effectiveness was mediated on inward and outward environment attitude and green product purchase intention. Using the analysis of multiple moderated-mediation, eco-literacy and consumer green perception sub-constructs, namely perception, hardness, stigma, readiness, and responsibility were moderated. A total of 278 questionnaires were collected online through the social media platform Facebook. The present chapter employees advanced statistical software such as SmartPLS to test for the hypothesized relationship.

4.1 Sample participants

Five hundred questionnaires were circulated, resulting in 363 responses. Out of 363 responses, 278 were found useable. This sample contained 67% female and 33% male respondents with education above a bachelor's degree. The sample included respondents who had bought green products online at least once. The major categories included organic food, recycled paper, not animal tested, and environmentally friendly products.

4.2 Multicollinearity, common method variance and correlations

Common method bias and collinearity among constructs was explored for each construct through variance inflation factor (VIF) test at factor level. Additionally Harman's single factor test was performed that produced a value of 25.26% falling in the acceptability range i.e. single factor value below 50% (Kock, 2020). Gustafsson and Johnson (2004) found PLS to be resistant

in the face of multicollinearity. The model was not affected by the issue of multicollinearity. No common method bias was found in the test as the VIF value of all the constructs was less than 3.3 (Kock, 2015) as shown in Table 4.1.

Table 4.1: VIF values of constructs

Constructs	VIF <3.3	Multicollinearity	Common method bias
Inward Environment Attitude	1.642	No	No
Outward Environment Attitude	1.471	No	No
Perceived Consumer Effectiveness	1.862	No	No
Eco-literacy	1.615	No	No
Product perception	1.355	No	No
Hardness	1.133	No	No
Stigma	1.229	No	No
Readiness	1.568	No	No
Responsibility	1.647	No	No

The correlation of the constructs and their significance is shown in Table 4.2. The results showed associations among variables.

Table 4.2: Correlation results

	EL	Hard	IEA	OEA	PCE	PP	GPPI	Read	Resp
Hard	-0.1	1							
1EA	0.534***	-0.062	1						
OEA	0.517***	-0.221***	0.452***	1					
PCE	0.527***	-0.035***	0.608***	0.542***	1				
PP	0.413***	-0.206***	0.348***	0.385***	0.318***	1			
GPPI	0.478***	0.095***	0.698***	0.394***	0.585***	0.34***	1		
Read	-0.283***	-0.132***	-0.31***	-0.15***	-0.241***	0.043***	-0.4***	1	
Resp	-0.312***	-0.031***	-0.37***	-0.34***	-0.465***	-0.27***	-0.45***	0.46***	1
Stigma	-0.199***	0.004***	-0.11***	0.21***	0.01***	0.013***	-0.14***	0.256***	-0.019***

*IEA: Inward environment attitude; Resp: Responsibility; OEA: Outward environment attitude; PCE: Perceived Consumer Effectiveness; GPPI: Green product purchase intention; EL: Eco-literacy; PP: Product perception; Hard: Hardness; Read: Readiness

4.3 Confirmatory factor analysis (measurement model)

Factor loadings for all constructs were found to be higher than 0.40. The resulting values of the measurement model are shown in Table 4.3. These values were found acceptable, as suggested by Ertz, Karakas, and Sarigollu (2016). Composite reliability of all measured constructs was above 0.70, and average variance extracted (AVE) was above the critical value of 0.5. These results provide evidence of suitable measurement constructs used in this study.

Table 4.3: Measurement model results

Construct	Items	Factor Loadings	*t*-values	CR	AVE
	IEA1	0.783	24.579		
Inward environment attitude	IEA2	0.829	36.548	0.872	0.632
	IEA3	0.868	35.274		
	IEA4	0.690	12.214		
	OEA1	0.633	8.683		
Outward environment attitude	OEA2	0.843	19.253	0.832	0.627
	OEA3	0.878	43.705		
Perceived consumer effectiveness	PCE1	0.893	36.896	0.793	0.536
	PCE2	0.844	23.712		
	PI1	0.909	73.379		
Green product purchase intention	PI2	0.758	10.445	0.888	0.728
	PI3	0.883	46.469		
	EL1	0.876	47.277		
Eco-literacy	EL2	0.806	18.025		
	EL3	0.864	30.731	0.906	0.706
	EL4	0.814	35.995		
	ProductP1	0.580	6.146		
Green product perception	ProductP2	0.712	10.305	0.828	0.551
	ProductP3	0.831	25.048		
	ProductP4	0.818	18.579		
Green hardness	Hard1	0.426	2.978	0.860	0.543
	Hard2	0.720	1.932		
Green stigma	Stigma1	0.984	3.479	0.763	0.637
	Stigma2	0.493	2.939		
	Readi1	0.652	11.58		
Green readiness	Readi2	0.795	20.464	0.838	0.567
	Readi3	0.856	31.953		
	Readi4	0.692	16.842		
	Respons1	0.701	12.791		
Green responsibility	Respons2	0.900	42.153	0.869	0.691
	Respons3	0.878	43.548		

Discriminant validity criterion was suggested by Fornell and Larcker (1981). Heterotrait-Monotrait (HTMT) ratios show the correlation of latent constructs. Discriminant validity will hold if ratio is less than 1 (Lowry & Gaskin, 2014). Table 4.4 reports the HTMT ratios, which were acceptable for this study.

Table 4.4: Heterotrait-Monotrait (HTMT) ratio of correlation

Constructs	IEA	Resp	OEA	PCE	GPPI	Eco-lit	PP	Hard	Stigma
Resp	0.457								
OEA	0.586	0.463							
PCE	0.847	0.743	0.733						
GPPI	0.857	0.53	0.511	0.843					
EL	0.603	0.342	0.619	0.693	0.577				
PP	0.46	0.374	0.501	0.535	0.391	0.546			
Hard	0.167	0.289	0.203	0.154	0.212	0.136	0.228		
Stigma	0.119	0.37	0.281	0.448	0.163	0.281	0.425	0.365	
Read	0.398	0.587	0.239	0.446	0.491	0.367	0.19	0.362	0.364

*IEA: Inward environment attitude; Resp: Responsibility; OEA: Outward environment attitude; PCE: Perceived Consumer Effectiveness; GPPI: Green product purchase intention; EL: Eco-literacy; PP: Product perception; Hard: Hardness; Read: Readiness

4.3 Structural model results

The hypothesized relationships explore both types of inward and outward environment attitude and green product purchase intention with the mediation of perceived consumer effectiveness and moderation of eco-literacy and consumer green perceptions.

4.3.1 Relationship results for inward environment attitude

Direct effect of inward environment attitude on green product purchase intention

The direct effect of inward environment attitude on green product purchase intentions was tested. Path coefficients along with their significance were tested using bootstrapping technique with 5,000 sub-samples. Path coefficient for inward environment attitude was significant with a coefficient of 0.493 (t-value 7.398). Hypothesis 1a was accepted. According to Henseler et al. (2009), the f^2 values should be above the cut-off value of zero to be considered acceptable. Cohen (1988) recommended that an effect size (f2) above 0.3 is considered large. The effect size of inward environment attitude was large at 0.318. Stone-Geisser's (Q^2) shows predictive relevance of the model was acceptable at 0.18 (acceptance above 0).

Moderation of eco-literacy

Moderation effect of eco-literacy was tested through interaction moderation method with product indicator approach which uses all possible pairs of indicators of predictor variable and moderator variable. The moderation effect of eco-literacy on the relationship of inward environment attitude and perceived consumer effectiveness was significant with path coefficient 0.145 and *t*-value 3.095. Confidence interval was in the acceptable range for inward environment attitude. Hypothesis 2_a was supported.

Direct effects of perceived consumer effectiveness on green product purchase intention

The direct effect of perceived consumer effectiveness on green product purchase intention was tested. For inward environment attitude, the relationship between perceived consumer effectiveness on consumers' intention to buy green products was significant with coefficient of 0.216 (t-value 4.427). The relationship had effect size greater than the cut-off value of 0 (Henseler et al., 2009). Predictive relevance was acceptable at 0.274. Hypothesis 3_a was supported.

Moderation of consumer green perceptions

The model was regressed in SmartPLS with the path running from inward environment attitude. Reason being that it allows multiple moderators like five sub-variables of consumer green perceptions (green product perception, green hardness, green stigma, green readiness, and green responsibility) to be tested simultaneously on the same model. The t-value for green product perception, green stigma, green readiness, and green responsibility was below the acceptable range of 1.9. Green product perception, green stigma, green readiness, and green responsibility did not moderate the path of perceived consumer effectiveness and green product purchase intention. The multiple moderations of consumer green perceptions showed that green hardness was significant (β= -0.307 and t-value 4.044). Therefore, customer's perception about hard to become environment friendly weakened the relation perceived consumer effectiveness and green product purchase intention. Therefore, hypothesis 5a was supported, while support for hypotheses 4a, 6a, 7a, and 8a was not found.

Mediation of perceived consumer effectiveness

Mediation of perceived consumer effectiveness was tested between inward environment attitude and green product purchase intention. Indirect path with inward attitude were significant with a beta coefficient of 0.065 and t-values above 1.90. According to Hayes (2013), the indirect effects were in the acceptable range of 95% confidence interval as they did not include 0 (CI [0.015; 0.135]); hence the mediation effect for inward environment attitude and green product purchase intention was significant and hypotheses H_{9a} was supported. This result showed that the direct relationship of inward environment attitude with green product purchase intention is mediated through perceived consumer effectiveness. Table 4.5 shows the relationship results for inward environment attitude.

Table 4.5: Hypotheses results (Inward environment attitude)

Hypotheses	Relationships	Path Coefficient	*t*-values	f^2	Q^2	95% CI
H_{1a}	Inward Environment Attitude→ GPPI (Total Effect)	0.493***	7.398	0.318	0.18	
H_{2a}	Mod Eco-Literacy (IEA-PCE) → Perceived Consumer Effectiveness	0.145***	3.095			0.042; 0.224
H_{3a}	Perceived Consumer Effectiveness→ GPPI	0.216***	4.427	0.062	0.274	
H_{4a}	Mod: PP (PCE-PI) → GPPI	0.124	1.31			-0.086; 0.226
H_{5a}	Mod: Hardness (PCE-GPPI) → GPPI	-0.307***	4.044			-0.433; -0.112
H_{6a}	Mod: Stigma (PCE-GPPI) → GPPI	-0.167	1.477			-0.315; 0.114
H_{7a}	Mod: Readiness (PCE-GPPI) → GPPI	-0.001	0.011			-0.201; 0.123
H_{8a}	Mod: Responsibility (PCE-GPPI) → GPPI	0.142	1.542			-0.05; 0.311
H_{9a}	IEA→ GPPI (Direct effects)	0.428***	7.236			0.279; 0.520
	IEA →PCE → GPPI (Indirect effects)	0.065**	2.253			0.019; 0.135

*IEO: Inward Environment Attitude, PCE: Perceived Consumer Effectiveness, PP: Product Perception GPPI: Green Product Purchase Intention

The relationship results for inward environment attitude obtained controlling for age, gender and information.

4.3.2 Relationship results for outward environment attitude

Direct effect of outward environment attitude on green product purchase intention

Path coefficient for outward environment attitude was significant with a coefficient of 0.279 (t-value 3.527) using bootstrapping technique with 5,000 sub-samples. Hypothesis 1_b was accepted. According to Henseler et al. (2009), the f2 values should be above the cut-off value of zero to be considered acceptable. The effect size of outward environment attitude was 0.265. Stone-Geisser's (Q^2) shows predictive relevance of the model was acceptable at 0.010 (acceptance above 0). The relationship between outward environment and green product purchase intention was significant.

Moderation of eco-literacy

The moderation effect of eco-literacy on the direct effect of outward environment attitude and green product purchase was significant with path coefficient 0.131 and *t*-value 2.666. The confidence interval also showed acceptable result. Hence hypothesis 2_b was supported.

Direct effect of perceived consumer effectiveness on green product purchase intention

The direct effect of perceived consumer effectiveness on green product purchase intention was tested. For outward environment attitude the relationship coefficient was 0.221 (t-value 2.551). The relationships had effect size greater than the cut-off value of 0 (Henseler et al., 2009). Predictive relevance was acceptable at 0.403.

Moderation of consumer green perceptions

For outward environment attitude the moderation of consumer green perceptions was tested. All five dimensions of consumer green perceptions moderated the direct link between perceived consumer effectiveness and green product purchase intention. Green hardness was significant at 0.01 level, green product perception, green readiness and green responsibility at 0.05 whereas green stigma was significant at the level of 0.1.

Mediation of perceived consumer effectiveness

The direct relation of outward environment attitude and green product purchase intention was then tested with the mediation of perceived consumer effectiveness. Indirect path with outward attitude was significant with a beta coefficient of 0.063, respectively, and with t-values above 1.90. Table 4.6 shows the relationship results for outward environment attitude.

Table 4.6: Hypotheses results (Outward environment attitude)

Hypotheses	Relationships	Path Coefficient	t-values	f^2	Q^2	95% CI
H_{1b}	Outward Environment Attitude →GPPI (Total effect)	0.279***	3.527	0.010	0.265	
H_{2b}	Mod Eco-Literacy (OEA-PCE) →Perceived Consumer Effectiveness	0.131***	2.666			0.036; 0.225
H_{3b}	Perceived Consumer Effectiveness→ GPPI	0.221**	2.551	0.044	0.403	
H_{4b}	Mod: PP (PCE-GPPI) → GPPI	0.251**	2.43			0.075; 0.431
H_{5b}	Mod: Hardness (PCE-GPPI) → GPPI	-0.296***	3.208			-0.444; -0.077
H_{6b}	Mod: Stigma (PCE-GPPI) → GPPI	-0.224*	1.736			-0.476; -0.016
H_{7b}	Mod: Readiness (PCE-GPPI) → GPPI	-0.179**	2.497			-0.308; -0.025
H_{8b}	Mod: Responsibility (PCE-GPPI) → GPPI	0.253**	2.453			0.083; 0.480
H_{9b}	OEA → GPPI (Direct effects)	0.216***	2.701			0.108; 0.382
	OEA →PCE→GPPI (Indirect effects)	0.063**	1.982			0.015; 0.130

*OEO: Outward Environment Attitude, PCE: Perceived Consumer Effectiness, PP: Product Perception GPPI: Green Product Purchase Intention

The relationship results for outward environment attitude were obtained controlling for age, gender and information.

The graphs presented below provide the depiction of significant moderation results for inward and outward environment attitude.
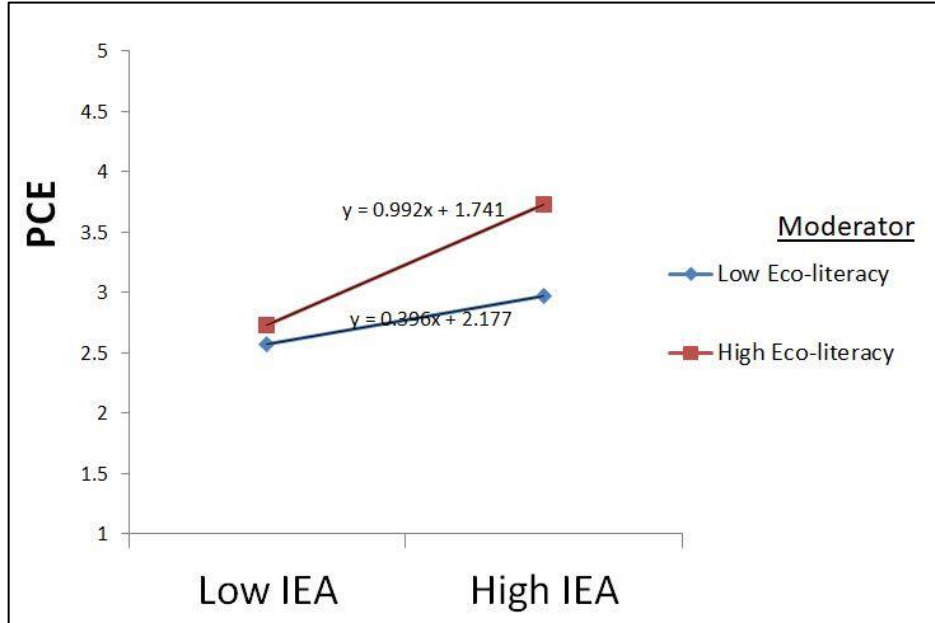
For inward environment attitude

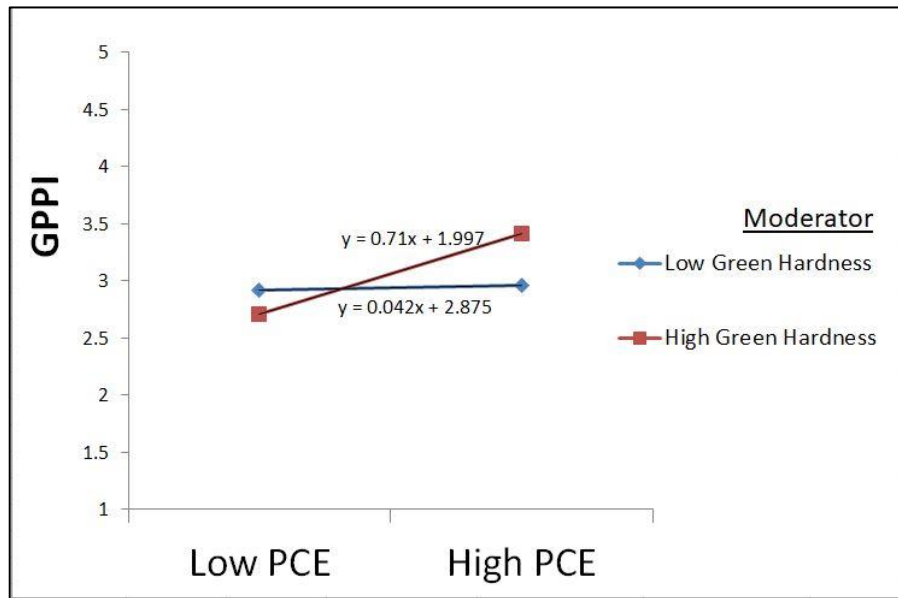**Figure 4.1: Moderation of Eco-literacy (IEA)**

Inside figure: PCE (y-axis); Low IEA, High IEA (x-axis); $y = 0.992x + 1.741$; $y = 0.396x + 2.177$; Moderator: Low Eco-literacy, High Eco-literacy

Figure 4.2: Moderation of Green Hardness (IEA)

Inside figure: GPPI (y-axis); Low PCE, High PCE (x-axis); $y = 0.71x + 1.997$; $y = 0.042x + 2.875$; Moderator: Low Green Hardness, High Green Hardness
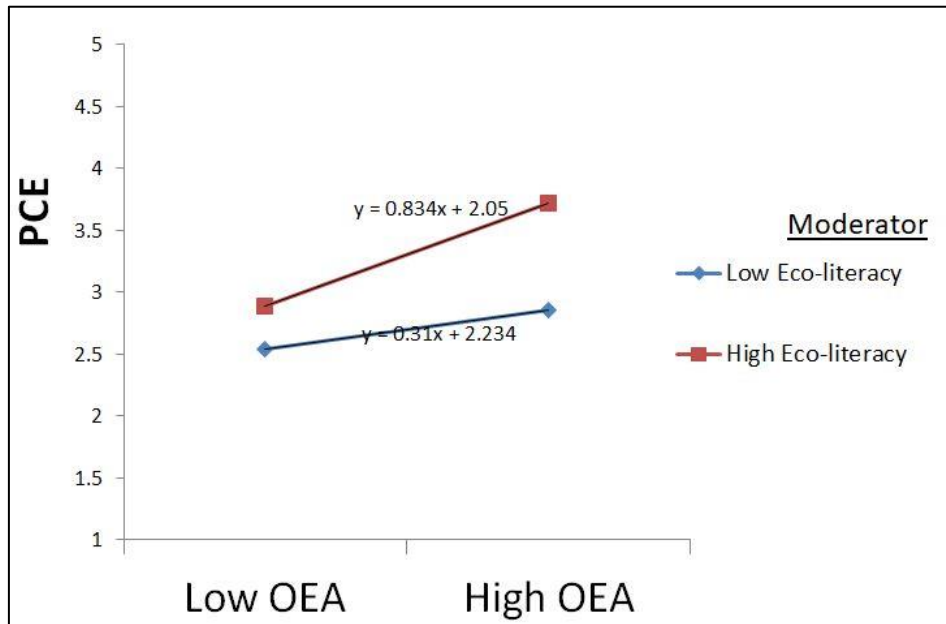
For outward environment attitude

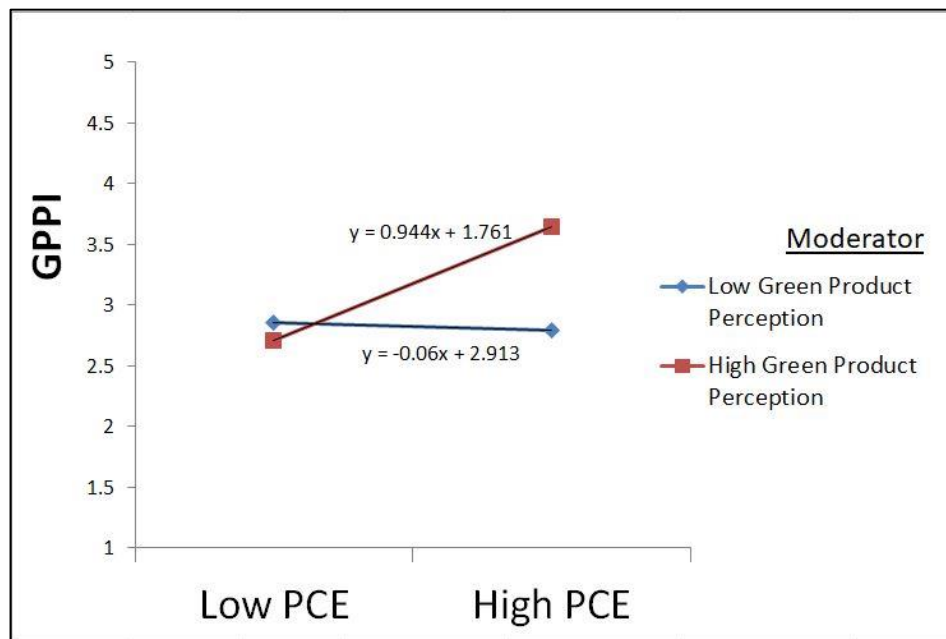**Figure 4.3: Moderation of Eco-literacy (OEA)**

Figure 4.4: Moderation of Green Product Perception (OEA)
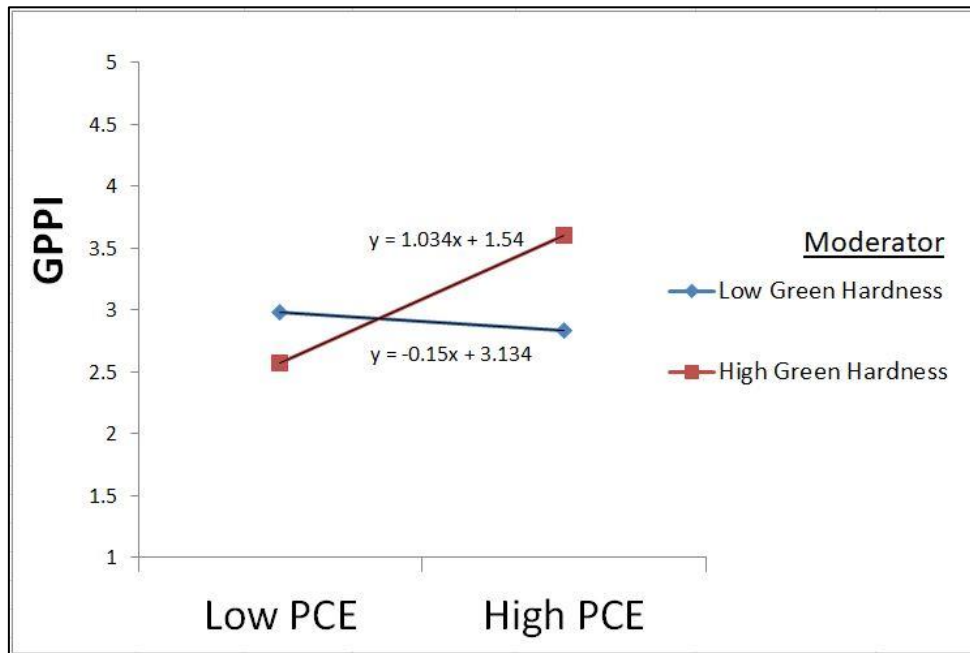
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Figure 4.5: Moderation of Green Hardness (OEA)
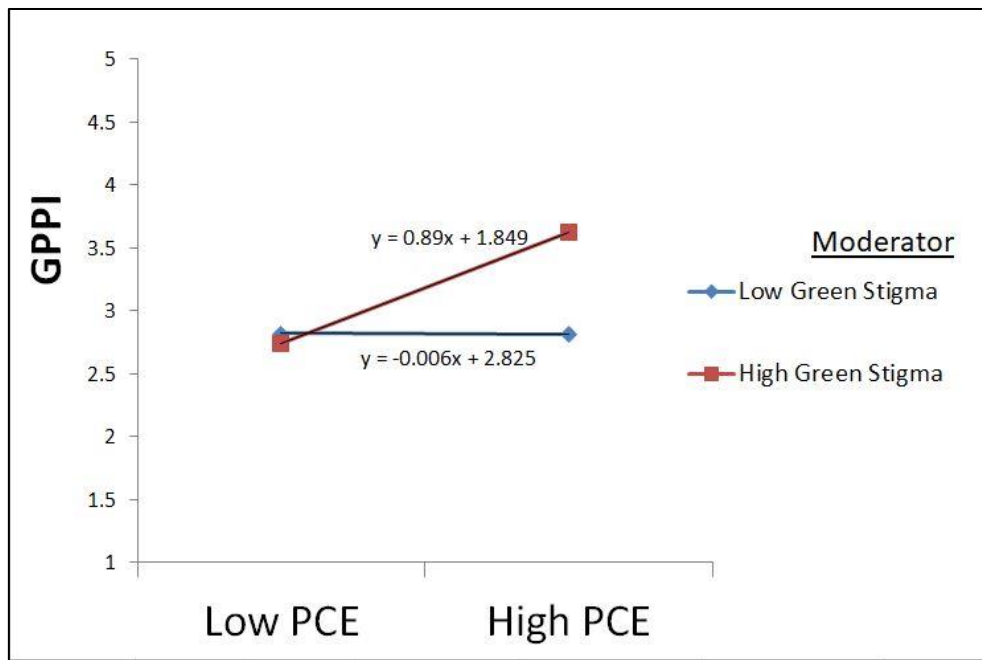

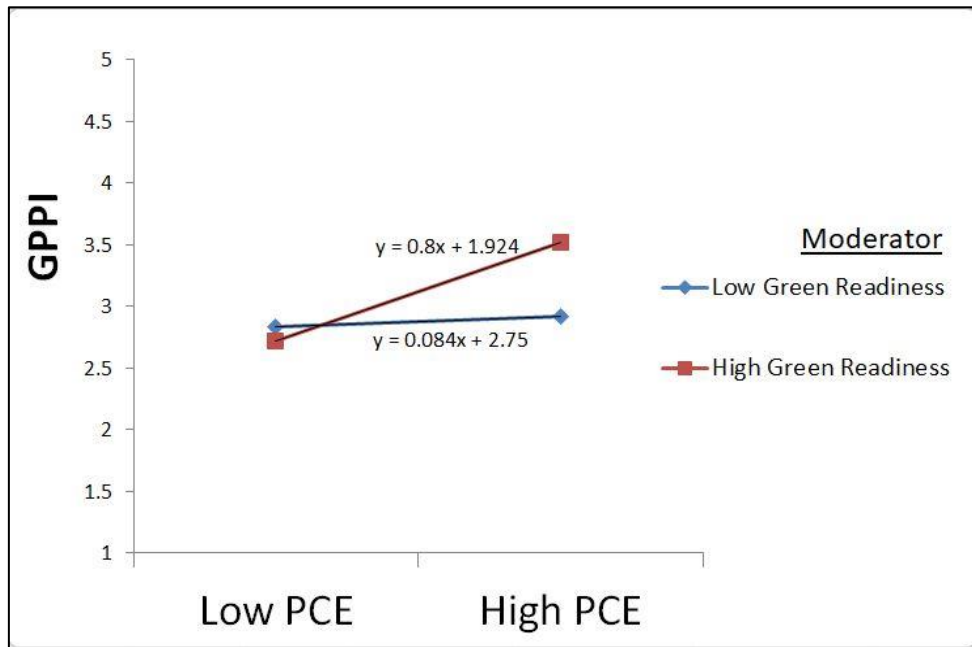**Figure 4.6: Moderation of Green Stigma (OEA)**

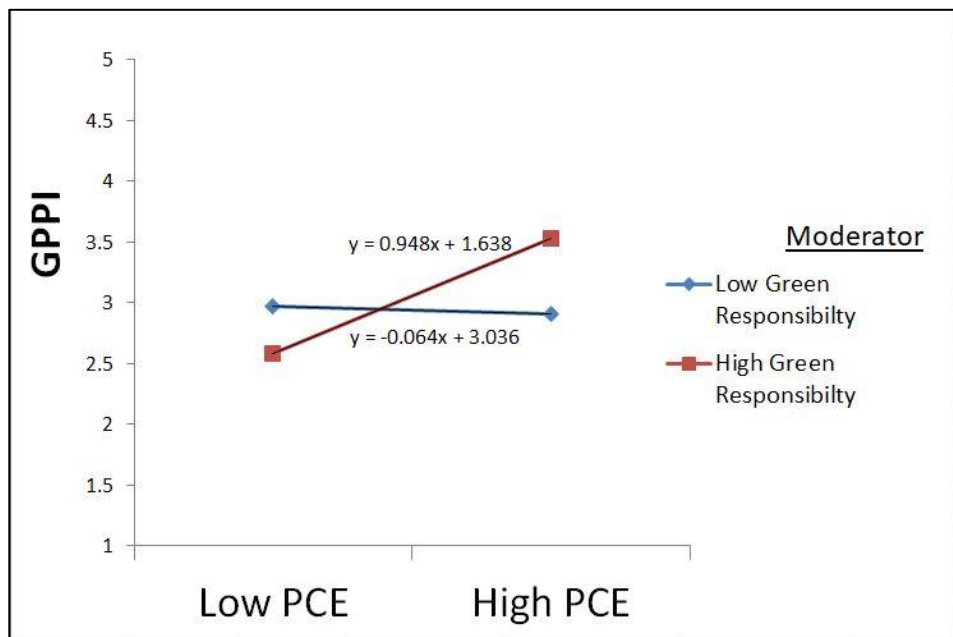**Figure 4.7: Moderation of Green Readiness (OEA)**

Figure 4.8: Moderation of Green Responsibility (OEA)

The summary of the results is presented in Table 4.7 and 4.8

Table 4.7: Hypotheses Table (Inward Environment Attitude)

Sr.	Hypotheses Statement	Results
H_{1a}	Inward environment attitude has a positive relationship with green product purchase intention.	Accepted
H_{2a}	Eco-literacy moderates the relationship between inward environment attitude and perceived consumer effectiveness such that higher (lower) eco-literacy will strengthen (weaken) the relationship between inward environment attitude and perceived consumer effectiveness.	Accepted
H_{3a}	For inward environmental attitude, perceived consumer effectiveness will lead to green product purchase intention.	Accepted
H_{4a}	For inward environment attitude, green product perception moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green product perception strengthens (weaken) relationship.	Not Accepted
H_{5a}	For inward environment attitude, green hardness moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green hardness weakens (strengthens) relationship.	Accepted
H_{6a}	For inward environment attitude, green stigma moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green stigma weakens (strengthens) relationship.	Not Accepted
H_{7a}	For inward environment attitude, green readiness moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green readiness weakens (strengthens) relationship.	Not Accepted
H_{8a}	For inward environment attitude, green responsibility moderates the relationship of perceived consumer effectiveness with green product	Not

	purchase intention such that higher (lower) customer's green responsibility strengthens (weaken) relationship.	Accepted
H₉ₐ	Perceived consumer effectiveness mediates the relationship between inward environment attitudes with green product purchase intention.	Accepted

Table 4.8: Hypotheses Table (Outward Environment Attitude)

Sr.	Hypotheses Statement	Results
H₁ᵦ	Outward environment attitude has a positive relationship with green product purchase intention.	Accepted
H₂ᵦ	Eco-literacy moderates the relationship between outward environment attitude and perceived consumer effectiveness such that higher (lower) eco-literacy will strengthen (weaken) the relationship between outward environment attitude and perceived consumer effectiveness.	Accepted
H₃ᵦ	For outward environmental attitude, perceived consumer effectiveness will lead to green product purchase intention.	Accepted
H₄ᵦ	For outward environment attitude, green product perception moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green product perception strengthens (weaken) relationship.	Accepted
H₅ᵦ	For outward environment attitude, green hardness moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green hardness weakens (strengthens) relationship.	Accepted
H₆ᵦ	For outward environment attitude, green stigma moderates the relationship of perceived consumer effectiveness with green product	Accepted

	purchase intention such that higher (lower) customer's green stigma weakens (strengthens) relationship.	
H_{7b}	For outward environment attitude, green readiness moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green readiness weakens (strengthens) relationship.	Accepted
H_{8b}	For outward environment attitude, green responsibility moderates the relationship of perceived consumer effectiveness with green product purchase intention such that higher (lower) customer's green responsibility strengthens (weaken) relationship.	Accepted
H_{9b}	Perceived consumer effectiveness mediates the relationship between outward environment attitudes with green product purchase intention.	Accepted

Chapter 5: Discussion and conclusion

The present study aimed to analyze online consumer behavior during the COVID-19 pandemic that engulfed the world with panic. Theoretically, this study intended to answer calls in literature for examining the role of consumer green perceptions (CGPs) in the theory of planned behavior (Szabo & Webster, 2020; Tan et al., 2016). Furthermore, the roles of key antecedents of consumer green behavior were explored in the context of social media advertisements. For this purpose, relevant literature was gathered, and hypotheses were developed. The consumer sample was selected based on age, with the acceptance age being 18 years and above, along with consumers' active use of social media and awareness regarding environmental issues. Five hundred questionnaires were sent through social media platform, Facebook out of which a total useable sample of 278 was received. SmartPLS was employed to test the research hypotheses. The results of this study are discussed in this chapter. Research implications, limitations, and future research recommendations conclude this study.

5.1 Discussion

The presence of social media has greatly influenced the image development of products over the years. To better assess the green behavior of consumers, this study adopted the theoretical frame of the theory of planned behavior (Ajzen, 1991) in order to identify major key drivers of green consumer behavior. Szabo and Webster (2020) stated in their study that perceptions of consumers regarding green behaviors are critical to green marketing strategy development. Multiple studies have discussed social media's role in shaping consumer image about products and destinations (Zollo et al., 2020; Gao & Feng, 2016; Alhabash et al., 2016).

Volvo (2010) discovered that tourists' perception of destinations is influenced by social media and social media outlets. The study results are supported by Palacios-Marques, Merigo, and Soto-Acosta (2015), who stated that the influence of social media on someone's judgment takes place through certain imagery that leads to purchase intention.

Many researchers in the past have explored green consumer behavior, but the context of social media and COVID-19 has not been previously explored in the current model of green consumer purchase intentions. The effect of knowledge and perceptions of consumers regarding the environment and its issues were also studied in this research. Two types of attitudes were examined in this study. Inward environment attitude relates to an individual's beliefs about his/her role in making a change in the environment and outward environment attitude that relates to views of an individual about the role major society institutions play in environmental preservation (Trivedi et al., 2016). Results showed that the relationship of inward environment attitude with green product purchase intention was positive and significant. This result supports what Pinto et al. (2011) suggested that if a person believes that he/she can make a change in the environment through themselves or their families, they are more inclined towards buying green products. The result is consistent with the theory of planned behavior that postulates attitude towards a behavior leads to certain behavioral outcomes (Ajzen, 1991). Outward environment attitude had a significant relation with green product purchase intention, i.e., individuals' belief about the role of social institutions would affect their intention to buy green products in Pakistan.

Eco-literacy was tested on the relationship of both inward and outward environment attitude with perceived consumer effectiveness. Eco-literacy was found to significantly and positively affect the relationship of inward environment attitude with perceived consumer effectiveness. Therefore, when consumers are more aware and knowledgeable about their

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environment, they will have greater perceived effectiveness in their beliefs about affecting the environment (Wang et al., 2018). Outward environment attitude's relationship with perceived consumer effectiveness was also affected by an individual's knowledge about the environment. This presence of relationship may be due to consumers' belief that public performance regarding the environment can significantly impact outcomes, making them believe the effort is worth their time and beneficial (Follows & Jobber, 2000).

The moderated mediation model was run first with inward environment attitude as independent variable and later with outward environment attitude. For inward environment attitude consumer green perceptions were tested as a moderator on the relation of perceived consumer effectiveness and green product purchase intention along with the moderation of eco-literacy. Green hardness had a significant negative moderating effect among the five dimensions (green product perception, green hardness, green stigma, green readiness, and green responsibility). In Pakistan, the more sacrifices consumers believe they have to make to buy a green product, the less likely they will be willing to make a green product purchase even if they believe they can solve issues regarding their environment (Chen, 2016).

The remaining four dimensions of consumer green perceptions (green product perception, green stigma, green readiness, and green responsibility) played an insignificant role as a moderator hence not affecting the relationship between perceived consumer effectiveness and green product purchase intention. This insignificant result can be attributed to COVID-19, as study results were acquired during the pandemic, and consumer buying behavior was affected by the pandemic panic (Bischetti & Bambini, 2020). The panic leads to impulsive buying among consumers, which is majorly oriented towards products consumers are already confident and comfortable buying (Sheth, 2020). In both developed and emerging countries like Pakistan,

social media usage has seen a surge as people spend 40% more time on social media to gather information (Haug et al., 2020). Previous literature shows that social media impacts consumer buying behavior (Liu et al., 2018; Kumar et al., 2020). The insignificant result for green product perception, green stigma, green readiness, and green responsibility may be due to people's attention being focused mainly on surviving the pandemic and returning to normalcy, not on the effect of their actions on the environment (Naeem, 2021).

For outward environment attitude significant results were obtained when the model was tested. Moderation of consumer green perceptions and eco-literacy was significant on the mediation of perceived consumer effectiveness. The significance of consumer green perceptions can be attributed to the involvement of bigger institutions like the government and environment protection organizations that enable people to better assess their surrounding and have more confidence in their decision making (Long et al., 2020).

Perceived consumer effectiveness was found to act as a mediator between inward environment attitude, outward environment attitude and green product purchase intention. An individual's attitude towards the need for change in his/her role regarding the environment and the role major institutions play in making it easier for consumers to be more environmentally friendly directly affects their green product purchase intention (Graves et al., 2013). This attitude also affects that individual's perception of their ability to solve environmental problems, which affects their intention to purchase green products (Griskevicius et al., 2012).

5.2 Implications

5.2.1 Theoretical implications

The present study provides several contributions to green marketing literature. The first contribution of this research is that it examined people's view of pro-environment activities in the context of social media during the time of novel coronavirus. Awareness regarding environmental issues was also tested to assess how it affects the relationship between environment attitude (inward and outward) and perceived consumer effectiveness. The results gathered through social media align with the study by Barkus et al. (2009) that showed that digital experiences have a long-lasting effect on consumers. The present study adds to the literature by conducting research on the effect of two types of environmental attitude, inward and outward, on green product purchase intention. The study presented that perceived consumer effectiveness mediated the relationship through inward environment attitude and through outward environment attitude. This study showed that at the time of the pandemic, people were concerned both about their individual activities and also what was happening on a larger scale. This high concerning behavior may be due to the panic atmosphere that made people more inclined towards their own life and actions taking place around them.

Secondly, the role of consumer green perceptions was defined in a model of theory of planned behavior. Previous research suggested incorporating consumer green perceptions in other theories of green consumer behavior (Trivedi et al., 2018; Tan et al., 2016). The present study extends the theory of planned behavior by (Ajzen, 1991) by investigating the characteristics of the five dimensions of consumer green perceptions and analyzed whether they moderate the relation between perceived consumer effectiveness and green product purchase intention.

Lastly, the multi-faceted phenomenon of consumer green perceptions has been discussed in detail. The five dimensions were moderated on the mediation of perceived consumer effectiveness with firstly inward environment attitude acting as independent variable and second with outward environment attitude as independent variable to see if there is any change in effect as a whole group. The results were different in both cases with hard to become green being significant when inward environment attitude was acting as independent variable, whereas complete five dimensions of consumer green perceptions were significant when outward environment attitude was placed as independent variable. Tan et al. (2016) stated that consumer green perceptions negatively affect consumers' green purchase intention, which can be changed through marketers' involvement and better regulations on the part of the government. This paper tested this concept during COVID-19 to examine if similar beliefs were upheld during a time of the pandemic. The significance of green product hardness in both cases showed that CGPs still acted as a moderator. Pakistan being an emerging economy, the government has recently begun the process of developing environmental reforms.

5.2.2 Practical implications

The findings have important implications for marketers and policymakers. The influence and importance of social media has been discussed that highlight the need to develop effective and motivating messages on online platforms that attract consumers' attention. Failure to communicate the right message to target markets leads to unawareness regarding green products and their benefits to consumers (Alhabash, Chiang & Huang, 2014). Marketers can create segments based on consumers' eco-friendly attitudes, and market offerings can be adjusted accordingly. The importance and characteristics of green products can be marketed on social

media platforms allowing consumers to gather information on green products without actively searching for them, hence removing the time-saving barrier (Sarker, 2016). As lifestyles are usually associated with the construction of identity, marketers should advertise green lifestyle in a manner that appeals to consumers so much that they aspire to adopt it (Sheikh et al., 2019). An increase in consumer's involvement in green products and perceived effectiveness should increase the probability of paying more for green products (Yoon et al., 2018). Value-based branding can create a sustainable and strong position for brands (Toussaint et al., 2021). Marketers can also organize special sales on green products to make them more attractive for consumers.

In current times, environmental issues require special attention from policymakers (Naeem, 2021). Governments have been inspiring policymakers to incorporate evidence-based policy development (Iqbal & Younas, 2021). Policymakers can evaluate critical problems highlighted in this paper and develop policies in response to these problems. Examination of consumer green perceptions sheds light on the hindrances present in the path of becoming a green consumer, which should allow policymakers to create an environment where making a green purchase seems feasible and appropriate to consumers (Verhagen & Dolen, 2011). An appeal to emotions and personal beliefs can be incorporated in policymaking as individualized efforts for environment preservation should be praised and encouraged (Zhang, 2010). Policymakers should facilitate the development of programs that enable consumers to analyze the effects of their actions in present times and the future.

5.3 Research limitations and future research directions

First, the current study gathered data at one point in time during the COVID-19 pandemic due to time constraints. Future researchers can apply a longitudinal design in their studies and gather data after the pandemic is settled (Iqbal & Younas, 2021). Additionally, consumer responses can be compared pre and post COVID-19 period to analyze if any change occurred in consumer behavior because of the pandemic, helping managers better position their brands. There is a need to add to the literature the differential effect of inward and outward environmental attitude on purchase intention for environment-friendly products (Trivedi et al., 2016).

Second, the present study incorporated negative aspects of environment-friendly behavior as a whole; future studies should broaden this scope by conducting studies on the association of green perceptions like stigma and the effect of greenwashing (Gatti, Seele & Rademacher 2019). Negative associations are part of a wide domain of attitudes and emotions (Banister & Hogg, 2015). Researchers can analyze and differentiate consumers based on their personality type. Last, the limitation of the study stems from being conducted in an emerging economy like Pakistan. Emerging economies are fairly new to the concept of green consumer behavior, and there is uncertainty in adopting green behavior (Carrete, Castano & Felix, 2012). Future researchers can study the model in an advanced economy regarding green consumer behavior and analyze if the relationships are consistent with a developed economy.

5.4 Conclusion

The objective of the research was to understand and analyze the role of social media in delivering a positive and environment-friendly image of brands. The data gathered from

consumers for this study was collected during the time of Covid-19 pandemic. Since people were advised to stay indoors for their safety, they were inclined towards making purchases through online platforms hence they were more exposed to advertisements displayed on social media. This research demonstrated the role of environmental knowledge in leading to informed decision making regarding green products. The importance of consumer green perceptions in making environment friendly purchase decisions was also verified. The results showed the positive and negative image consumers associate with green products and green consumers that might affect consumers' decision making.

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Appendix A

Questionnaire

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

Please choose one option for the given statements
I have seen on social media eco-friendly ads that have been done by different brands.
Through social media information it seems environmental issues need immediate attention
Information on social media has made me think I cannot help to slow down environmental deterioration
Social media information shows that I do not need to do anything because the environment is not a major concern in Pakistan
I do not feel responsible for the environment
Even with green coverage on social media I have insufficient knowledge about environmental issues
I have insufficient time for environmental issues
I have too many other responsibilities to worry about environment
I have insufficient income
Green brand consumers tend to be people who want to do something different from the general trend.
Consumers of green clothing brands think they are better than others because they make an effort to be environmentally-friendly
I think consumers of green clothing brands make others feel guilty for not being as environmentally-friendly as them

Kindly check one option for the below given statements.
Due to information on social media, I believe environmentally-friendly clothing brands:

Perform better
Are better for the environment
Use packaging materials which are less harmful to the environment
Are more trustworthy
Please choose the degree of below given statement options as you seem fit with 7 as very little and 1 as a lot
Due to information on social media I think purchasing from environment friendly clothing brands requires
Effort
Time
Sacrifice of money

Please choose one option for the given statements
With the help of social media I have good knowledge about clothing brands working against environmental issues.
Through social media I know a lot of about environmentally friendly clothing products sold in the marketplace.
Due to information on social media I am comfortable reading environmental safety information on clothing brand labels without any assistance.
I am very confident in discussing environmental issues with others on social media
In my opinion each person's behavior can have a positive effect on if that person promotes environmental awareness on social media.
I feel I can contribute in saving our natural resources by promoting clothing brands that are involved in environment friendly activities.
Where clothes are concerned not much can be done about protecting environment.
The presence of environment related information on social media has made me very concerned about my environment.

Based on environment related info on social media I would be willing reduce my consumption of products to help protect the environment
I would give part of my own money to help protect environment.
I have asked my family to recycle some of the products we use.
Info on social media shows that major political change is necessary to protect the natural environment.
Through social media I have come to believe that major social changes are necessary to protect the natural environment.
Social media tells us that humans are severely abusing the environment through their consumption patterns.

Green product purchase intention
In the future, for the purpose of personal use, I intend to buy green products.
In the future, for the purpose of personal use, my intention to buy green products is strong
I will recommend others to buy and use green products.