



Making the World a Better Place by Creating Eco-Friendly Products and Customers Adoption Intentions: A Mediating Role of Perceived Product Eco-Friendliness

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ABSTRACT

This study aims to explore the role of eco-friendly products and the customers' adoptions towards those products through uncovering the probable mediating role of perceived product eco-friendliness. Nevertheless, companies are considering green marketing as an effective way to promote business ideas, and ultimate products & services. In the prevailing economic climate the companies are focusing on the influencing consumers towards green products because the said is driving factor for eco-friendly production. This study intends to analyze the moderating role of eco-friendliness in the relationship between customer adoption intentions towards those products furthermore, the impact of customers' adoption of those eco-friendly through the eco-friendliness. Using the concept of marketing management, companies strive to cover long-term customer retention through better marketing performance. Eco-friendly production is a relatively new precautionary environmental strategy that seeks to increase the efficiency of the product, process, and service resources and ultimately reduces the risk to people and the relative environment as well.

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1. Introduction

Nowadays, there is an emerging debate on consumption of different products in terms of environment sustainability. Where companies are trying towards green, and therefore instructed by the government to create products that are eco-friendly in nature to sustain the environment cleaner. Therefore the 'green marketing' has a vital role and has becoming significant in globally contemporary environment (Zhang, Qiu, Tsai, Hassan, & Alamri, 2015). In the prevailing economic situation the main focus of the companies is to inspire the products that are green in nature (Liu et al., 2000). Although, the eco-friendly products distribution has created a lot of opportunities for companies to capture market share. In the earlier time like: 1900s, for the researchers, the green marketing and environment friendly products & services was a great area of interest whereas, the eco-friendly is modified subset of green marketing (Lal et al., 2020).

The preservation of environmental health is largely discussed from the last few decades and many studies drawn the attention of researchers towards the risks of environment due to growing industrial productions (Cutter, Renwick, & Renwick, 1991). The said increase in the industrial production has drastic effects upon environmental health if the products are not eco-friendly in nature so it may cause in the terms of loss of resources like air, water, global warming (Cutter et al., 1991). Therefore, the corrective actions right from the business entities and society are impative to keep the environment cleaner (Cutter et al., 1991).

In the year of 1972, the conference of the United Nations related to the sustainability of the environment has created the policies for different countries regarding environmental sustainability (Arora & Mishra, 2019). As the certain practices of green marketing has been emerged drastically globally and in Pakistan as well (Trigkas, Karagouni, Mpyrou, & Papadopoulos, 2020). Theoretical assumptions of the eco-friendly or green marketing were proposed in the year of 1995, and the purpose of these assumptions were to develop sustainable products, protecting the environment from the population and running the product stewardship process (Hart, 1995).

2. Literature Review and Development of Hypotheses

Companies are now focusing upon the creation of the products that are eco-friendly in nature (Juwaheer, Pudaruth, & Noyaux, 2012). According to the Abraham, the importance and significance of the eco-friendly and green marketing has been explained a lot (Sawcer et al., 2011). By understanding the customers segmentations and sustainability of the environment, the eco-friendliness and green marketing is an emerging tool for the companies to sustain in the market and strengthen their brand name (Dangelico & Vocalelli, 2017). As the (Polonsky, 1994) claimed that the green marketing techniques are developing more and more strategies to make the environment safer. It is now observing a lot that these eco-friendly techniques used by the companies are covering the market trends and marketing strategies like product creation processes, it designs, its advertising, and its labeling and branding too (Polonsky, 1994). There is a brand named "Sapphire" in Pakistan and this is one of the famous clothing brands in Pakistan. This brand is basically come up with a great idea of eco-friendliness by providing its customers the biodegradable bags which are created by the seeds of the plants and even you can sow it (Dobrovinskaya, Lytvynov, & Pishchik, 2009). It was a great innovative idea from the management of the "Sapphire" brand, and even they know people are used to of throwing shopping bags here and there and if someone does like this it will be beneficial for the environment as it will be dissolved in the land. As we know, international brands like Toyota and other automobile industry now promoting and developing hybrid and environment friendly vehicles and these brands are making more and more innovations in their products to keep the environment clean and safe (Simão & Lisboa, 2017). However, this research shows here the relationship of customers' adoption intentions with eco-friendliness. There are some customers who prefer to use the products that are eco-friendly and do not harm the environment as well (Podvorica & Ukaj, 2019). People have more knowledge, and educated people tend to adopt more green products that are beneficial for the environment as well (Deng et al., 2012).

The literacy rates or education levels are important to consider here first and affecting consumers' awareness levels ultimately. This is a basic socio-demographic factor that significantly varies across the social classes of consumers (Kai & Haokai, 2016). Different marketing theories depict that eco-friendly consumer innovativeness is not the only factor that affects its behavior toward product adoption; there might be other factors are precisely (Joshi & Rahman, 2015). In the year of 2013, Phillips presented a theory that aided in the comprehension of sustainable consumer behaviour. Their hypothesis placed an emphasis on the significance of previous conduct and evaluated it as an indicator of a sustainable future (Kalburan & Haşiloğlu, 2018).

Many companies create different types of products, and even there are many retailers and whole sellers who sometimes import products from other countries and sell them. After understanding this all, a question came into our mind: whether these products are eco-friendly or beneficial in any case for the environment or not?. In the current situation, when there are a lot of innovations, it is not difficult to sustain the environment by creating environmentally friendly products. Manufacturing technology is developing, making it easy to produce environment-friendly products (Lozada & Mintu-Wimsatt, 1996). Manufacturers of well-known brands such as Ariel now verify their green credentials on the packaging of their advertising campaigns (Ferraz & Belhot, 2010).

2.1. Eco-friendly customers' innovativeness and customers' adoption intentions

Price is the most common factor that everyone should notice while purchasing a product. According to (Suchard & Polonski, 1991) a study carried out in the United States on people who are concerned about the environment and their impact on the planet, respondents indicated that they are willing to pay up to 15 - 20 percent more than the standard price for environmentally friendly products. Another survey held in 1989 found that 67 percent of Americans were willing

to shell out an additional fee, ranging from 5-10 percent, in order to purchase goods that were environmentally friendly (Coddington, 1990). Moreover, (Nash, Hafeez, & Hou, 2002) also noted that "even when customers claim significant support for environmental conservation, they are nonetheless exceedingly price-sensitive when purchasing environmentally friendly products."

H₁: Eco-friendly customers' innovativeness significantly impacts customers' adoption intentions.

2.2. Price and customers' adoption intentions

The function of perceived product eco-friendliness as a mediator between customer adoption intentions, innovativeness of eco-friendly consumers, pricing, and customer adoption intents. As (Chen & Chang, 2012) defined that "*perceived value*" as an overall appraisal of customers about the net benefit a product or service provides between the give and take relationship (Tsang et al., 2016). Traditional Development is different from Sustainable development as it refers to environmental protection (Rochikashvili & Bongaerts, 2018).

In existing research, sustainable development has been considered a more practical approach to development; this has been a hot research topic and has many publications (Aaboud et al., 2017). Green development can either be provide differentiation and a competitive edge (Silverberg, Garg, Paller, Fishbein, & Zee, 2015). The customer's readiness or intention to acquire green goods is used as a measurement for determining the customer's adoption intention towards buying an environmentally friendly product. These consumers have either made a conscious decision to purchase environmentally friendly products or are aware of their intention of doing so (Joshi & Rahman, 2015). Consumers who have and display a sense of responsibility for the environment are always likely to purchase products that are more environmentally friendly (Sadachar, Feng, Karpova, & Manchiraju, 2016).

H₂: Price has a significant impact on customers' adoption intentions.

2.3. Perceive Product eco-friendliness and customer adoption intentions

The practice of green shopping entails selecting things that are less harmful to the environment, such as those that are recyclable or biodegradable, and avoiding those that are harmful to the community and the environment (Mostafa, 2007). Customers have either made a conscious decision to purchase environmentally friendly products or are aware of their intention of doing the so (Joshi & Rahman, 2015). There is a plethora of studies that have been conducted worldwide on pro-environmental behavior, green consumption (Beaney et al., 2018), the purchase of eco-labelled products (Wilson et al., 2018). Companies must deal with unanticipated and impulsive purchasing habits on a regular basis, which are dependent on customer product knowledge (Moreira, de Santa-Eulalia, Ait-Kadi, Wood-Harper, & Wang, 2015). Consumers who feel and demonstrate a sense of responsibility for the environment always seem to be more likely to choose eco-friendly products (Sadachar et al., 2016).

H₃: Perceived product eco-friendliness has a significant impact on customer adoption intentions.

2.4. Perceived product eco-friendliness mediates the relationship between customers' adoption intentions and the eco-friendly customer innovativeness

It is an idea about how customers perceive a product having eco-friendliness and environment-friendly attributes. In the year of 2012, Chen and Chang defined "perceived value" as an overall appraisal of customers about the net benefit a product or service provides between the give and take relationship (Tsang et al., 2016). Traditional Development is different from Sustainable development as it refers to environmental protection (Rochikashvili & Bongaerts, 2018). In previous research, sustainable development has been considered a more practical approach to development; this has been a hot research topic and has many publications (Aaboud et al., 2017). Green development can provide differentiation and a competitive edge (Green et al., 2015). The raw material used in green products is selected after considering the environmental issues and risk environmental consequences and risks (Elia & Gnoni, 2013). There were no precise requirements for product development and lifecycle that consider "green" except its "an efficient approach for the ecosystem" (Kim, Njite, & Hancer, 2013). However, "Green" is either termed as a "Sustainable" or "Environment-Conscious" process (Suki, 2016). As the

researcher discussed above, the companies are using the techniques and procedures that help them create eco-friendly products for the welfare of society and the sustainability of the environment. Eco-branding helps organizations to generate demand and improve customers buying intention toward eco-friendly products (Zheng et al., 2021). This helps them effectively introduce their products in the market and creates a strong position among their competitors (Ahmadzadeh et al., 2017). The definition of eco-friendliness varies according to different countries. The commission of Europe has defined the eco-friendliness as "energy efficient, free of any toxic compounds, made of reused or reused materials, durable and easy to repair and during any product." Therefore, the product lifecycle should be designed to ascertain the sustainability of the environment (De Angelis, Adigüzel, & Amatulli, 2017).

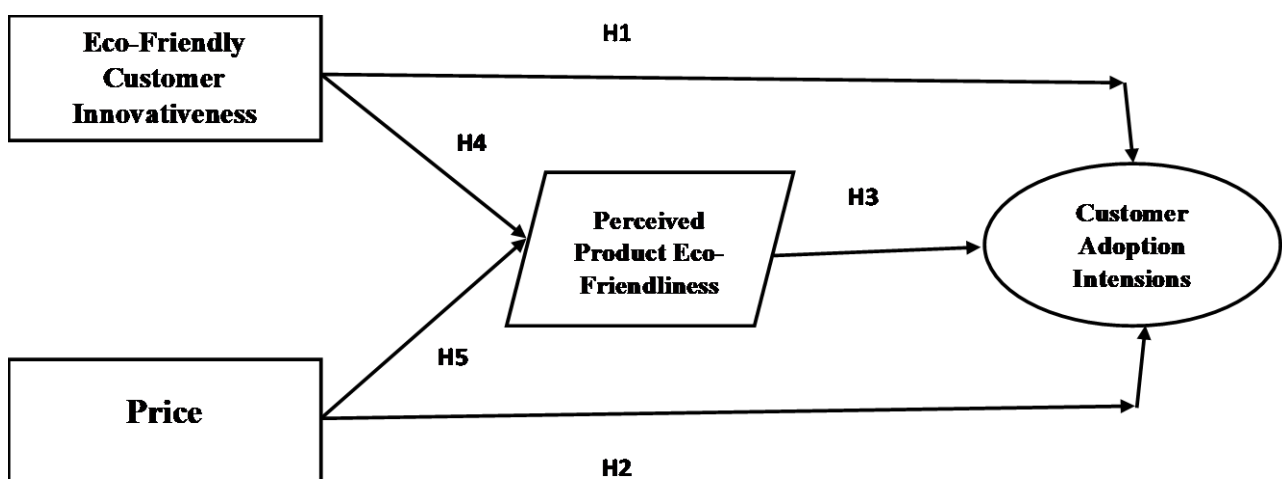
H4: Perceived product eco-friendliness mediates the relationship between customers' adoption intentions and the eco-friendly customer innovativeness.

2.5. Perceived product eco-friendliness mediates the relationship between customers' adoption intentions and the product's price:

According to the findings of a variety of academics, the economic component that is directly dependent upon the price of the goods is the single most significant factor that influences the customers' intents to make a purchase (Brucks, Zeithaml, & Naylor, 2000). Carry out research to investigate how important aspects of marketing affect the decision-making processes of customers. In addition to the product's features and its name or brand, they believe the price to be the single most important component factor or variable. According to what we already know, the success of a product is directly proportional to its price, and there is a common belief that when the price of a product goes up, a customer's intentions regarding that particular product would decrease. Customers weigh this information by comparing the previous price to the one that is now being charged, and then make a decision based on their findings. According to the experimental models, a difference between the real price of a product and its reference price indicates utility, and this difference will thus influence the purchase behavior of consumers and 67 percent of Americans, according to the findings of a poll conducted in 1989, were willing to pay an additional fee, ranging from 5 to 10 percent, to ensure that the things they purchased were environmentally friendly (Coddington, 1990). Another research such as (Suchard & Polonski, 1991) probed that the participants in this survey indicated that they would be willing to spend an additional 15% to 20% over the going rate for environmentally friendly products.

H5: Perceived product eco-friendliness mediates the relationship between customers' adoption intentions and the product's price.

Figure 1: Theoretical Framework



3. Methodology

For instance, a quantitative research method was used to probe the results measuring on nominal scale bearing the cause and effect relationship between the concerned. The sample of the study based on 250 respondents male and female as well.

4. Results and Discussion

There are 250 responses out of which 154 males and 96 females. However, most of the respondents are young and dynamic. The qualification of respondents consists on four regular points, i.e., 4 Year Hons., Masters- 3Years, M-Phil-1.5 Years, and Ph.D. whereas most of the respondents are graduated, students. In an online questionnaires survey the respondents were given three questions to better understand the characteristics of respondents. The demographic characteristics of the data, such as gender, age, and qualification level, have been analyzed with the help of frequency distribution from 250 responses 154 are males and 96 are females. The first division of the table is broken according to the classification of gender, and it is obvious to see that there is a disparity between the number of males and females. There are 61 percent of male and rest are female. In order to cover all of the possible respondents, we additionally gathered information from those who were older than 40 years old; the majority of these individuals were doctoral students. In the table under "Demographics," it is possible to see that the percentage of people aged 40 and over is 18 percent. In the meantime, the third part of the table discusses the qualifications of those who responded to the survey.

Table 1: Demographic Analysis

		Frequency	Percentage	Valid %	Cumulative %
Gender	Male	154	61	61	61
	Female	96	39	39	100.0
Age	20-25	141	49.6	49.6	49.6
	25-30	69	24.3	24.3	24.3
	30-40	137	4.6 2.5	4.6 2.5	4.6 2.5
	40 Above	20	7.0	7.0	7.0
	Below 20				
Education	Bachelors	100	35.2	35.2	47.2
	Masters	54	19.0	19.0	66.2
	MPhil/MS	79	27.8	27.8	94.0
	PhD	17	6.0	6.0	100.0
Income	0-24,999	116	40.8	40.8	52.8
	25,000-	67	23.6	23.6	84.5
	49,000				

4.1. Reliability Analysis

Cronbach's is the valid measure of validity more than .7 value indicate that data is normal and reliable (Morgan, Leech, Gloeckner, & Barrett, 2004) . The said analysis indicates that the scale must be consistently reflect the variables and help measure the stability of consistent responses in the questionnaires (Iqbal & Iqbal, 2014).

Table 2: Inner Item Consistency-Cronbach Alpha

Variable Names	No. of Items	Cronbach's alpha
Eco-friendly Customer Innovativeness	5	0.726
Price	5	0.844
Perceived Product Eco-friendliness	5	0.719
Customer Adoption Intentions	5	0.767

4.2. Descriptive Statistics

The section deals with of descriptive statistic analysis which help to decide the normality of data. The trend as well as the amount of existence of variables were described using descriptive statistics. Because the mean of all four variables is greater than 3, it may be concluded that the agreement area contains all of the averages of the responses.

Table 3: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Statistic Error
ECI	250	2.80	5.00	4.1192	.83211	.863 .224
PR	250	1.80	5.00	3.4290	.70816	.621 .194
PPE	250	2.00	5.00	3.3237	.55117	.221 .113
CAI	250	1.60	5.00	4.4139	.62158	1.582 .102

The values of skewness must range from -3 to +3 for the normality of the data (Sekaran & Bougie, 2003). In said table all values look normal (Groeneveld & Meeden, 1984). The skewness statistics, as well as the lowest and maximum values, are all within acceptable ranges. Therefore, the information that was gathered for this investigation is appropriate (Mardia, 1974).

4.3. Correlation Matrix

The matrix displayed the probable measure of association among the variables. This demonstrated that there is a strong relationship between the variables. However, the significance of the coefficient confirms the solid associations. The Correlation between the independent variables (Eco-friendly Customer Innovativeness, Price), mediating variable (Perceived Product Eco-friendliness), and dependent variable (Customer Adoption Intentions) showed the value of 0.411, 0.449 and 0.476, respectively (Benesty, Chen, Huang, & Cohen, 2009).

Table 4: Correlation Matrix

	ECI	PR	PIPE	CAI
ECI	1			
PR	.315**	1		
PPE	.543**	.346**	1	
CAI	.411**	.449**	.476**	1

** . Correlation is significant at the 0.05 level (2-tailed).

4.4. Regression Analysis

The aforesaid regression analysis indicate that there is the subnational of ecofriendly consumer innovativeness on customers adoption. The value of R square is 0.242, which explains a 24.2 percent variation in the dependent variable (*Customer Adoption Intentions*) due to the independent variable (Eco-friendly Customer Innovativeness, Price). Beta is the slope of the relationship (Courville & Thompson, 2001). However, the significant value of the variable (Eco-friendly Customer Innovativeness, Price) is less than 0.05. Therefore, we could handsomely say that the hypotheses H1, H2 and H3 are accepted amicably.

Table 5: Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.360	.342		4.155	.000
CAI	.657	.055	.684	8.291	.000

N = 250, R = 0.438, R square = 0.242, adjusted R square = .259; F Stat= 95.149; p<0.01
 Dependent Variable= CAI (Customer Adoption Intentions), Predictor: CAI (Customer Adoption Intentions)

The table showed that since the primary paths H1, H2, and H3 are significant, which is less than 0.05 (p>0.05), and T-value is 6.2106, greater than 2. As the primary path is significant, so further steps of mediation were checked. This shows that hypotheses H4 and H5 are accepted. Hence there is mediation between the Independent and dependent variables.

Table 6: Mediation Analysis of Perceived Product Eco-Friendliness

	Coeff.	SE	T	P	LLCI	ULCI
INT_1	.1251	.1721	6.2106	.005	.0511	.3321

Table 7: Summary of Hypotheses

Hypotheses	Statement of Hypotheses	Result
Hypothesis 1 (H1)	H1: Eco-friendly customers' innovativeness significantly impacts customers' adoption intentions.	Accepted
Hypothesis 2 (H2)	H2: Price has a significant impact on customers' adoption intentions.	Accepted
Hypothesis 3 (H3)	H3: Perceived product eco-friendliness has a significant impact on customer adoption intentions	Accepted

Hypothesis 4 (H4)	H4: Perceived product eco-friendliness mediates the relationship between customers' adoption intentions and eco-friendly customer innovativeness.	Accepted
Hypothesis 5 (H5)	H5: Perceived product eco-friendliness mediates the relationship between customers' adoption intentions and the product's price.	Accepted

5. Conclusion

This research is basically conducted on the basis of customers/Customers adoption intentions, which basically relaying upon the price of the product and eco-friendly customer innovativeness. In this research the perceived product eco friendliness is playing a role of mediator. Eco-friendly marketing approaches has become increasingly significant globally. It is noticed that companies are considering eco friendliness as an effective way to advertise and promote business ideas, products, and services. Eco-friendly marketing is closely associated with the protection of the natural environment. In the current economic climate, the focal point of companies is to inspire green product consumers because consumption is considered a driving force. This study describes that customer adoption intentions are affected by the innovativeness adopted by the companies and the price of the specific product or service. The previous researchers studied the impact of Green Marketing Approaches upon the customers' adoptions but this study elaborates the impact of price and eco-friendly customer innovativeness upon the adoption intentions of customers. This study basically provides valuable insights to the business managers regarding product design and manufacture with little or no damage the environment. This study is not taking the impact of other factors that influence the customer's adoption intentions, such as green labelling, green certification, green advertising, and shared geographical location. The first recommendation for the future researcher is that this study can be replicated with the same model and variables in a different context or country. This research is done in the universities of Gujranwala, so future research can add up other universities as a sample and population. This study is also done in the context eco-friendly products or services category, and future research can target other sectors or industry related products and services.

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