Green Marketing and Sustainability: The Role of Brand Value and Authenticity in Consumer Choice

The Journal of Educational Paradigms
2025, Vol. 07(02) 363-372

ISSN (Print): 2709-202X
ISSN (Online): 2709-2038
DOI:10.47609/0702032025

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Abstract

Brands are adopting green marketing techniques to improve their environmental performance and consumer perceptions in response to the growing demand for sustainable fashion. Consumer expectations in the fashion industry are changing due to growing environmental concerns, which are driving brands to adopt more sustainable and transparent methods. Using brand value and authenticity as mediating variables, this study investigates how green products and green promotion affect environmental sustainability. The study uses Signaling Theory to explain how eco-friendly marketing strategies and sustainable product features serve as credibility signals that influence consumer trust and perceived brand strength. Customers' interactions with sustainable fashion firms were examined using a quantitative method. The results show that green products and green marketing greatly increase brand value and authenticity, both of which have a favorable impact on environmental sustainability. The impact of green marketing strategies on sustainability results is partially transmitted by both mediators. Green products and green promotion greatly improve brand-related perceptions, which in turn improve sustainability outcomes, according to a systematic survey of fashion customers. The findings highlight how crucial real green signals are for promoting ethical consumer behavior and advancing long-term environmental objectives. By highlighting the significance of credible green signals in boosting consumer confidence and encouraging environmentally responsible behavior, the study adds to the body of knowledge on sustainable fashion.

Keywords: Green Marketing, Sustainability, Brand Value, Authenticity, and Consumer Choice.

INTRODUCTION

Environmental issues and sustainable development have been the hot topics of global business and marketing discussions in recent years. As the evidence of climate change, resource depletion, and waste generation continues to mount, businesses are beginning to come under pressure to act in an environmentally friendly way, and the end-user is becoming increasingly conscious of the environmental standards of the brands they purchase (Abel & Kenechukwu, 2024). The urgency to embrace sustainable practices is especially high in the apparel and fashion sector, which is characterized by high volumes of production, short consumption cycles, and a large amount of waste. This research thus analyzes the effects of the marketing activities of apparel brands, including the introduction of green products and green promotional activities, on brand value and brand authenticity, ultimately promoting environmental sustainability.

The term green products is used to refer to products that comprise environmentally friendly materials, processing, packaging, and end-of-life recyclability or reuse. Customers are increasingly favoring brands that utilize sustainable raw materials, recycled materials, or packaging materials that minimize their environmental impact (Ghobbe & Nohekhan, 2023). At the same time, green promotion refers to the marketing communications of companies to ensure the promotion of their environmental credentials, i.e., eco-labeling, green advertising, the use of ecological certifications, and messages that emphasize low ecological footprints. Studies have revealed that green advertising contributes a lot to influencing consumer behavior and consumer purchase (Li, 2025; Schiaroli, Fraccascia & Dangelico, 2024).

Nevertheless, the fact that green products and green promotion messages do not necessarily assure the consumer will trust the sustainability results in the long run. There are two mediating variables, i.e., brand value and brand authenticity, which are important in the interpretation of how green marketing transpires into sustainable consumer behavior and industry performance. Brand value is the perceived worth of a brand in the mind of the consumer- how much the brand contributes to what is being offered in the product besides functional features. Brand value can be enhanced in green situations where consumers think that the brand supports their environmental values and can provide an alternative that is superior to traditional brands (Mohammadi, Barzegar & Nohekhan, 2023). Brand authenticity, however, has everything to do with whether the environmental claims of a brand seem to be real, consistent, and in accordance with the brand name and values. Studies indicate that consumers uncertain about the sincerity of greenwashing are punishing brands whose message in this regard seems weird or misleading (Fang, 2024; Azazz, 2024). Therefore, the research suggests a model according to which the elements of green products and green promotion affect the environmental sustainability within the apparel industry, and the mediating variables are the brand value and brand authenticity. The dependent variable, which is environmental sustainability, simply assesses the degree to which consumers think that their purchases contribute to the reduction of waste and hazardous material use, energy use, and the use of environmentally friendly materials. It is through the exploration of these relationships within the clothing industry that the study would have a contribution to

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theory: it brings together the concepts of green marketing, brand value, brand authenticity, and sustainability in a single framework; and contribution to practice: the study would provide information that can be applied to apparel brands who aim to adopt credible green strategies that can result in authentic brand perceptions and sustainable consumer behavior.

Recently, the level of environmental awareness has risen; thus, clothing companies are trying to implement green marketing concepts. However, many consumers are now doubting the authenticity of such green claims, and this has been induced by the emergence of greenwashing, whereby brands may blow out of proportion or even lie about their environmental initiatives (Alaa M. S. Azazz et al., 2024). This skepticism is also a problem to be trust and deteriorates the effect of green measures (Testa et al., 2018). Although earlier studies have examined the results of green marketing, we do not fully understand how green product characteristics and environmentally friendly advertisements drive environmental sustainability, considering the role of brand value and authenticity as an intermediate phenomenon in the apparel sector.

This research aims to study the effect of green product practices and green promotion strategies on environmental sustainability in the apparel industry, and the mediating effect of brand value and authenticity on this relationship. The research paper provides evidence that can result in an increase in the effectiveness of green marketing and in sustainable consumer behavior (Chen, 2010).

Research Questions

Although more attention is paid to eco-friendly clothes, customers are not clear about the truth of green claims and the actual influence of clothing brands (Deshmukh & Tare, 2024). Therefore, we seek to answer the following questions:

- How does a green product directly influence environmental sustainability?
- How does green promotion directly influence environmental sustainability?
- Does brand value mediate the relationship between green product and environmental sustainability?
- Does brand value mediate the relationship between green promotion and environmental sustainability?
- Does authenticity mediate the relationship between green product and environmental sustainability?
- Is the relationship between green promotion and environmental sustainability mediated by authenticity?

Research Objectives

The overall aim of the study is to investigate the impact of green product performance and green promotional performance on environmental sustainability within the apparel sector. The secondary objectives include:

- To examine the direct effect of green product and green promotion on environmental sustainability.
- To analyze the mediating role of brand value between green practices (green product & green promotion) and environmental sustainability.
- To analyze the mediating role of authenticity between green practices (green product & green promotion) and environmental sustainability.

The clothing business is under pressure to practice environmental sustainability because of the increasing consumer sustainability concerns (Geneva Environment Network, 2025). Widespread greenwashing has, however, brought about mistrust in terms of credibility on the validity of green claims, and it has become difficult to establish that the brands are genuine in their environmental commitment (Vangeli et al., 2023). The research hypothesis is that brand value and authenticity can be used to improve green product practices and green promotional strategies to improve environmental sustainability. Through the empirical investigation of these associations, the study would add to the body of literature and make contributions to the apparel companies that aim to enhance consumer confidence, increase environmental friendliness, and promote sustainable purchasing habits.

LITERATURE REVIEW

Products that are typically non-toxic, recyclable, or reusable, free of animal testing, non-polluting, minimally packed, and made using natural ingredients, recycled materials, and permitted chemicals are referred to as "green products" (Khan, S.N. et al., 2017). Concerns about sustainability and the environment influence consumer beliefs, behaviors, and the acquisition of green products. Green goods purchases are more likely to come from participants in eco-friendly initiatives. It might be challenging for businesses to attract green customers (Tafsir et al., 2016). In addition to wanting eco-friendly products, customers also want companies to engage in eco-friendly activities like recycling and energy saving. These consumers use their resources to support environmental initiatives in order to maintain their lifestyle. Compared to green customers who support environmental legislation and believe they must address environmental issues, they are probably going to spend more money on green products (Lu et al., 2013).

Corporate environmental management has recently turned its focus from pollution prevention and clean technologies to products (Pujari, 2006; Chung & Tsai, 2007). This change is caused by a number of variables, including the possibility that products could be considered sources of environmental burden and the reality that various stakeholders have an impact on their environmental features (de Bakker et al., 2002). Furthermore, products are becoming a bigger focus of environmental regulations. Green product innovation has a major role in developing green brand equity and encouraging sustainable consumption in emerging countries, claims Nguyen-Viet (2023). Thus, by encouraging long-term ecological balance and ethical production methods, green product initiatives provide a basis for environmental sustainability in the fashion industry (Dangelico & Vocalelli, 2017). Therefore, H1 proposes that green products have a positive and significant effect on brand value.

Green products range from the creation of new items that are less harmful to the environment than existing ones to the redesign of existing items to lessen their environmental impact (Yi & Tsai, 2007). Designing green products entails reducing the product's and its manufacturing process's environmental impact (Fiskel, 2001,

quoted by Yi-Chan & Tsai). Customers view a brand as credible when its green products and promotions are in line with authentic practices; this increases their advocacy and loyalty (Crane, Palazzo, & Matten, 2014). Authenticity reduces skepticism and reaffirms the benefits of green branding for environmental sustainability, according to studies in green marketing (Hafez, 2021). Therefore, H2 suggests that green products positively and significantly influence brand authenticity.

Consumer perceptions of authenticity and confidence in green promises are greatly influenced by green promotion (Sharma, 2021). Research indicates that fashion firms can improve their brand image and customer loyalty by effectively promoting sustainability messages (Dinh et al., 2023). Additionally, consumers' trust and willingness to pay higher costs for sustainable products are mediated by green advertising and eco-labels (Nguyen-Viet, 2023). However, the perceived genuineness of the brand's sustainability messaging is a major factor in how successful green promotion is (Delmas & Burbano, 2011). False green claims can result in "greenwashing," which erodes long-term sustainability objectives and erodes consumer trust. Therefore, transparent and authentic green marketing techniques encourage environmental sustainability in the fashion sector and enhance a brand's reputation. Hence, H3 depicts that green promotion has a positive and significant effect on brand value.

Sustainable brands show consideration for the environment and the community (Monteil et al., 2014), foster goodwill, improve the company's reputation (Farooq et al., 2015), increase demand for dividends for shareholders, and secure future earnings through advocacy (Barnett et al., 2007 & Oliveira et al., 2018) and stakeholder loyalty, all of which combine to increase brand value. Companies with strong brands can charge higher prices, draw in devoted clients, and become more resilient in unstable marketplaces (Jave-Chire et al., 2025). Brand value serves as a link between sustainability results and green marketing campaigns in the sustainable fashion industry. Green marketing mix components, especially green product and promotion, have been shown by Nguyen-Viet (2023) to greatly increase customer-based brand equity, which in turn promotes sustainable consumer behavior. Hence, H4 asserts that green promotion positively and significantly affects authenticity.

A company's ability to minimize waste, pollution, and resource consumption is known as environmental sustainability (Geissdoerfer et al., 2017). Sustainability in the fashion business is accomplished by using circular economy principles, ethical supply chains, and environmentally friendly materials (Oliveira Duarte et al., 2022). By lowering carbon footprints and encouraging responsible consumption, the incorporation of green products and promotions advances sustainability objectives (Seuring & Müller, 2008). In an effort to reduce their carbon footprints and meet the needs of contemporary consumers, businesses are increasingly adopting sustainable marketing strategies (Sheth & Parvatiyar, 2021). Research has indicated that consumer experiences are positively impacted by sustainable marketing tactics. Tan et al. (2022) showed that such methods had a favorable effect on purchase intentions and perceived brand value, while Wibowo et al. (2020) noted that they boost customer satisfaction and brand loyalty. Therefore, to establish long-lasting customer trust and gain a competitive edge in a market that is becoming more and more defined by ecological consciousness, green marketing initiatives need to go beyond token gestures and instead represent genuine commitments to sustainability (Jave-Chire et al., 2025; Nguyen-Viet, 2023). Therefore, H5 assumes that brand value mediates the relationship between green products and environmental sustainability.

Studies have shown that sustainable marketing tactics improve customer experiences. While Wibowo et al. (2020) pointed out that these strategies increase customer satisfaction and brand loyalty, Tan et al. (2022) showed that they had a positive impact on purchase intentions and perceived brand value. Therefore, green marketing initiatives must go beyond small actions and instead represent genuine commitments to sustainability to build lasting customer trust and gain a competitive edge in a market that is increasingly defined by environmental awareness (Jave-Chire et al., 2025; Nguyen-Viet, 2023). Therefore, H6 postulates that the relationship between environmental sustainability and green products is mediated by authenticity.

This leads to an underpinning theory named signaling theory. According to Signaling Theory, businesses use intended signals that customers can assess to convey intangible attributes like sustainability, credibility, and ethical commitment (Spence, 1973). By enabling customers to determine a brand's true environmental objectives, signals like eco-friendly products, sustainability labels, and green advertising messages help in the reduction of disparities in information in green marketing (Connelly et al., 2011). Particularly in areas where customers are skeptical of greenwashing, fashion businesses convey powerful signals that strengthen brand value and reinforce perceptions of authenticity when they introduce green items or communicate transparent green marketing. Pro-environmental assessments of the company are more likely to be influenced by authentic signals, such as recyclable materials, validated certifications, and ethical sourcing (Delmas & Burbano, 2011). Therefore, by demonstrating how green product initiatives and promotional efforts function as reliable signals that enhance brand views and ultimately promote environmental sustainability, signaling mechanisms support the pathways in the proposed framework.

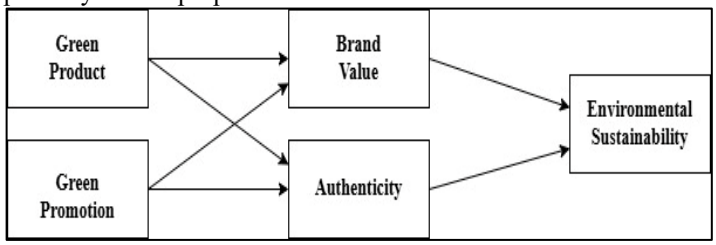

Figure 2.1: Theoretical Framework

H1: Green product has a significantly positive effect on environmental sustainability.

H2: Green promotion has a positive and significant effect on environmental sustainability.

H3: Brand value mediates the relationship between green product and environmental sustainability.

H4: Brand value mediates the relationship between green promotion and environmental sustainability.
H5: Authenticity mediates the relationship between green product and environmental sustainability.
H6: Authenticity mediates the relationship between green promotion and environmental sustainability.

METHODOLOGY

This study employs a quantitative research design to examine the influence of green product practices and green promotional strategies on environmental sustainability within the apparel industry, with brand value and brand authenticity serving as mediating variables. A quantitative approach was selected because it enables objective measurement of relationships among constructs and allows for empirical testing of theoretical assumptions.

A cross-sectional survey was conducted to collect primary data from consumers who are aware of and engage with sustainable apparel brands. The cross-sectional design was appropriate as it captured consumer perceptions and attitudes toward green marketing initiatives at a specific point in time. The conceptual framework of the study was developed based on existing literature linking green marketing strategies, brand perception, and environmental sustainability outcomes.

The study targeted consumers from major urban centres where awareness of sustainability and eco-friendly fashion is relatively higher. A non-probability convenience sampling method was used due to its practicality and accessibility, particularly for exploratory studies in consumer research. Efforts were made to include respondents from diverse demographic backgrounds in terms of age, gender, and income. A total of 201 valid responses were received and used for analysis, resulting in a satisfactory response rate for behavioural research.

Data were collected through a structured questionnaire divided into two sections. The first section gathered demographic information, while the second measured the key study variables. All measurement items were adapted from previously validated scales to ensure reliability and content validity.

- Green Product and Green Promotion were measured using items from Dangelico and Vocalelli (2017) and Nguyen-Viet (2023).
- Brand Value items were adapted from Mohammadi, Barzegar, and Nohekhan (2023).
- Brand Authenticity was assessed using scales from Hafez (2021) and Fang (2024).
- Environmental Sustainability items were drawn from Seuring and Müller (2008) and Geissdoerfer et al. (2017).

All items were rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), allowing respondents to express the degree of their agreement with each statement.

The collected data were analysed using the Statistical Package for the Social Sciences (SPSS) software. Initial data screening and descriptive analyses were performed in SPSS to check for missing values, normality, and demographic distribution. Reliability was evaluated using Cronbach's alpha, and construct validity was assessed through Composite Reliability (CR) and Average Variance Extracted (AVE).

To test the hypothesized relationships, regression analysis was done in order to see the mediation effects of brand value and brand authenticity.

Ethical standards were strictly observed throughout the research process. Participation was voluntary, and respondents were informed of the academic purpose of the study. All data were collected anonymously, and participants' confidentiality was maintained. The study ensured that no personal or sensitive information was disclosed.

Table 3.1: Variable Definitions and Operationalization

Variable	Definition	Operationalization / Measurement Items	Source / Scale Adapted From	Items
Green Product (Independent Variable 1)	The extent to which apparel products are designed, manufactured, and packaged using environmentally friendly processes and materials that minimize ecological harm (Dangelico & Vocalelli, 2017).	Measured using Likert-scale items (1 = Strongly Disagree to 5 = Strongly Agree) assessing: • Use of recycled or organic materials • Environmentally safe production process • Eco-friendly packaging and recyclability • Product durability and waste reduction	Dangelico & Vocalelli (2017); Khan et al. (2017); Nguyen-Viet (2023)	4 items (5-point Likert scale)
Green Promotion (Independent Variable 2)	Marketing communication that highlights environmental benefits, sustainability claims, and eco-friendly initiatives to influence consumer attitudes (Nguyen-Viet, 2023).	Measured by consumer perceptions of: • Use of eco-labels and green advertising • Environmental messages in promotions • Transparency in sustainability claims • Use of certifications (e.g., Fair Trade, organic)	Sharma (2021); Delmas & Burbano (2011); Nguyen-Viet (2023)	3 items (5-point Likert scale)
Brand Value (Mediating Variable 1)	The added worth and perceived value a brand creates in the minds of consumers based on quality, trust, and ethical positioning (Mohammadi et al., 2023).	Measured by: • Consumer perception of brand quality and value • Trust in the brand's environmental responsibility • Willingness to pay a premium for a green brand • Emotional attachment to the brand	Mohammadi, Barzegar & Nohekhan (2023); Tan et al. (2022)	2 items (5-point Likert scale)
Brand Authenticity (Mediating Variable 2)	The perception that a brand's sustainability efforts are genuine, consistent, and aligned with its stated values (Hafez, 2021).	Measured by: • Consistency between words and actions • Perceived sincerity of environmental claims • Brand credibility and transparency • Long-term commitment to sustainability	Hafez (2021); Fang (2024); Crane, Palazzo & Matten (2014)	4 items (5-point Likert scale)
Environmental Sustainability (Dependent Variable)	The extent to which consumer behavior and corporate practices contribute to ecological balance by reducing waste, pollution, and resource use (Geissdoerfer et al., 2017).	Measured through items related to: • Reduction in waste and pollution • Preference for sustainable consumption • Contribution to ecological preservation • Support for brands with green initiatives	Geissdoerfer et al. (2017); Seuring & Müller (2008); Wibowo et al. (2020)	4 items (5-point Likert scale)

RESULTS

Descriptive Statistics

Table 4.1: Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	67	32.1	33.3	33.3
Female	134	64.1	66.7	100.0
Total	201	96.2	100.0	

The total number of respondents who participated: 201 people (67 (32.1%) are male, and 134 (64.1%) are female). Women constitute almost two-thirds of the sample, which means that the survey

outcomes can represent mostly female views. Greater female representation ought to be made as a consideration in generalizing findings, especially when the subject might differ between the genders.

Table 4.2: Age Group

	Frequency	Percent	Valid Percent	Cumulative Percent
18-24 years	124	59.3	61.7	61.7
25-34 years	61	29.2	30.3	92.0
35-44 years	14	6.7	7.0	99.0
45-54 years	2	1.0	1.0	100.0
Total	201	96.2	100.0	

Most of the respondents are in the younger age groups. In particular, 124 (59.3%) individuals are between the ages of 18-24 years, 61 (29.2%) between the ages of 25-34 years, 14 (6.7%) between the ages of 35-44 years, and 2 (1%). This shows that they have a largely young population, with more than 88 percent of them being under 35 years old. This kind of distribution is indicative of the fact that the results are probably affected by the views of younger adults who are probably more tech-savvy, trendy, or flexible to new behavior.

Table 4.3: Education Level

	Frequency	Percent	Valid Percent	CP
Intermediate or below	45	21.5	22.4	22.4
Bachelor's degree	133	63.6	66.2	88.6
Master's degree	21	10.0	10.4	99.0
Other	2	1.0	1.0	100.0
Total	201	96.2	100.0	

The majority of the respondents have a higher education level. There are 133 (63.6%) with a Bachelor's degree, 21 (10%) with a Master's degree, 45 (21.5%) with an Intermediate education or below, and 2, which contributes to only 1%, having other categories. The sample is well-educated based on the fact that more than 73 percent of subjects hold at least a bachelor s-level degree. This implies that the respondents will have a good understanding of survey questions and informed decision-making ability.

Table 4.4: Monthly Household Income

	Frequency	Percent	Valid Percent	CP
Below 50,000 PKR	25	12.0	12.4	12.4
50,001–100,000 PKR	30	14.4	14.9	27.4
100,001–200,000 PKR	19	9.1	9.5	36.8
Above 200,000 PKR	127	60.8	63.2	100.0
Total	201	96.2	100.0	

The level of income is skewed to higher incomes. Particularly, 127 respondents (60.8%) have a household income of over 200,000 PKR monthly, 30 (14.4%) have a household income of between 50,001-100,000 PKR monthly, 25 (12%) have less than 50,000 PKR monthly, and 19 (9.1%) have 100,001-200,000 PKR monthly. The higher-income households that are predominant might affect spending behaviors, tastes, and affordability perceptions, and the findings could be an indicator of the behavior of more financially comfortable respondents.

Table 4.5: Occupation

	Frequency	Percent	Valid Percent	CP
Student	129	61.7	64.2	64.2
Employed (Private Sector)	16	7.7	8.0	72.1
Employed (Public Sector)	7	3.3	3.5	75.6
Self-employed / Business	30	14.4	14.9	90.5
Homemaker	17	8.1	8.5	99.0
Other	2	1.0	1.0	100.0
Total	201	96.2	100.0	

The biggest occupational group is represented by students, 129 of whom took part in the study (61.7%). Other categories are self-employed/business (30, 14.4%), homemakers (17, 8.1%), employees in the private sector (16, 7.7%), employees in the public sector (7, 3.3%), and 2 (1.0) in other jobs. The large percentage of college students implies that survey results might be biased towards younger (and more academically oriented) students who might have dissimilar consumption or lifestyle habits to the working or household demographics.

Table 4.6: Descriptives

Variables	Mean	Std. Deviation
GP	15.0746	2.95117
GPromo	11.9751	1.96326
BV	7.1891	1.70414
AU	15.3781	2.44056
ES	15.7711	2.66971

The standard deviations of the key variables show the degree of dispersion in the responses. The one with the largest variability is Green Product (GP), with a standard deviation of 2.95 and a mean of 15.07, implying that respondents have different perceptions concerning the green product attributes. The next one is Environmental Sustainability (ES), which has a mean of 15.77 with a Standard deviation of 2.67, meaning that the respondents are relatively varied in their opinions. Authenticity (AU) has a mean of 15.38 with a standard deviation of 2.44, as compared to Green Promotion (GPromo) and Brand Value (BV), that have relatively smaller dispersion of means, 11.96 and 7.19, with a standard deviation of 1.96 and 1.70, respectively, indicating that there is a higher agreement among respondents in promotional strategies and brand value perceptions.

Table 4.7 Reliability

Variables	Cronbach's Alpha	No. of Items
GREEN PRODUCT	.821	4
GREEN PROMOTION	.666	3
BRAND VALUE	.760	2
AUTHENTICITY	.763	4
ENVIRONMENTAL SUSTAINABILITY	.798	4

The alpha values of Cronbach show internal consistency of each scale. Green Product ($\alpha = 0.821$) has an impressive degree of reliability, and this indicates a high level of consistency among the four items. Good reliability is also exhibited by Authenticity ($\alpha = 0.763$) and Environmental Sustainability ($\alpha = 0.798$), indicating that the respondents have consistency in their responses to these items. Green Promotion ($\alpha = 0.666$) is moderately reliable, which is not bad, but the fact that the correlation is moderately high means that there is variability in the responses of different people to the three items of Green Promotion. Brand Value ($\alpha = 0.760$) also has a good Cronbach's alpha value. In general, the scales can be considered as largely reliable and good to work on.

Table 4.8: Correlation Analysis

		GP	GPromo	AU	BV	ES
GP	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	201				
GPromo	Pearson Correlation	.532**	1			
	Sig. (2-tailed)	.000				
	N	201	201			
AU	Pearson Correlation	.488**	.513**	1		
	Sig. (2-tailed)	.000	.000			
	N	201	201	201		
BV	Pearson Correlation	.566**	.523**	.428**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	201	201	201	201	
ES	Pearson Correlation	.649**	.599**	.598**	.465**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	201	201	201	201	201

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

Pearson correlations indicate that there are significant positive correlations between all the variables at the level of 0.01. It is worth noting that the scale of Green Product is closely linked to the scale of Environmental Sustainability ($r = 0.649$, $p<0.01$), which means that those respondents who appreciate green products also believe that green products help to achieve sustainability. Brand Value ($r = 0.566$, $p<0.01$) and Authenticity ($r = 0.488$, $p<0.01$) also have moderate correlation with Green Product, indicating that the perceptions related to the environment are associated with product quality and authenticity. All the variables have a positive correlation with Green Promotion, except Environmental Sustainability ($r = 0.599$, $p<0.01$) and Brand Value ($r = 0.523$, $p<0.01$), which demonstrates how successful promotional activities are in influencing brand perception and sustainability feelings. Authenticity is shown to relate to both Environmental Sustainability ($r = 0.598$) and Brand Value ($r = 0.428$), highlighting the importance of authentic product representation on the perception and behavior of the brand in a sustainable manner. All in all, these correlations imply that there are strong interrelations between constructs of green marketing, brand perception, and environmental sustainability attitudes.

Table 4.9: Regression Analysis

X1---M1—Y

Model 4	
Y	ES
X	GP
M	BV

BV

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.5659	.3202	1.9841	93.7322	1.0000	199.0000	.0000

Model						
	coeff	se	t	p	LLCI	ULCI
constant	2.2634	.5184	4.3663	.0000	1.4067	3.1200
GP	.3268	.0338	9.6815	.0000	.2710	.3825

ES

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.6601	.4357	4.0627	76.4332	2.0000	198.0000	.0000

Model						
	coeff	se	t	p	LLCI	ULCI
constant	6.4080	.7765	8.2525	.0000	5.1248	7.6913
GP	.5145	.0586	8.7834	.0000	.4177	.6113
BV	.2236	.1014	2.2043	.0287	.0560	.3912

DIRECT AND INDIRECT EFFECTS OF X ON Y

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.5145	.0586	8.7834	.0000	.4177	.6113

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
BV	.0731	.0392	.0097	.1376

X1—M2—Y

Model 4	
Y	ES
X	GP
M	AU

AU

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.4876	.2377	4.5632	62.0568	1.0000	199.0000	.0000

Model						
	coeff	se	t	p	LLCI	ULCI
constant	9.3000	.7861	11.8299	.0000	8.0009	10.5991
GP	.4032	.0512	7.8776	.0000	.3186	.4878

ES

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.7251	.5257	3.4144	109.7462	2.0000	198.0000	.0000

Model						
	coeff	se	t	p	LLCI	ULCI
constant	3.1582	.8875	3.5586	.0005	1.6915	4.6248
GP	.4247	.0507	8.3753	.0000	.3409	.5085
AU	.4039	.0613	6.5863	.0000	.3025	.5052

DIRECT AND INDIRECT EFFECTS OF X ON Y

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.4247	.0507	8.3753	.0000	.3409	.5085

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
AU	.1628	.0449	.0951	.2406

X2—M1—Y

Model 4	
Y	ES
X	GPromo
M	BV

BV

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.5230	.2735	2.1204	74.9208	1.0000	199.0000	.0000

Model						
	coeff	se	t	p	LLCI	ULCI
constant	1.7528	.6364	2.7543	.0064	.7012	2.8045
GPromo	.4540	.0524	8.6557	.0000	.3673	.5406

ES

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.6247	.3903	4.3898	63.3618	2.0000	198.0000	.0000

Model						
	coeff	se	t	p	LLCI	ULCI
constant	5.4458	.9330	5.8371	.0000	3.9040	6.9876
GPromo	.6664	.0885	7.5264	.0000	.5200	.8127
BV	.3263	.1020	3.1989	.0016	.1577	.4948

DIRECT AND INDIRECT EFFECTS OF X ON Y

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.6664	.0885	7.5264	.0000	.5200	.8127

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
BV	.1481	.0522	.0638	.2341

X2—M2—Y

Model 4	
Y	ES
X	GPromo
M	AU

AU

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.5133	.2635	4.4090	71.1889	1.0000	199.0000	.0000

Model						
	coeff	se	t	p	LLCI	ULCI
constant	7.7369	.9177	8.4309	.0000	6.2204	9.2534
GPromo	.6381	.0756	8.4374	.0000	.5131	.7631

ES

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.6881	.4734	3.7909	89.0135	2.0000	198.0000	.0000

Model						
	coeff	se	t	p	LLCI	ULCI
constant	2.6778	.9913	2.7013	.0075	1.0396	4.3160
GPromo	.5390	.0817	6.5965	.0000	.4040	.6740
AU	.4317	.0657	6.5675	.0000	.3231	.5403

DIRECT AND INDIRECT EFFECTS OF X ON Y

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.5390	.0817	6.5965	.0000	.4040	.6740

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
AU	.2755	.0683	.1703	.3956

Green Product (GP) → Environmental Sustainability (ES) via Brand Value (BV)

The first mediation model examined the effect of GP on ES through BV. GP significantly predicts BV ($\beta = 0.327$, $t = 9.682$, $p < 0.001$), with the model explaining 32.0% of variance in BV ($R^2 = 0.3202$). When both GP and BV are included as predictors of ES, GP remains significant ($\beta = 0.515$, $t = 8.783$, $p < 0.001$), and BV also significantly predicts ES ($\beta = 0.224$, $t = 2.204$, $p = 0.029$). The indirect effect of GP on ES through BV is 0.073, with a bootstrapped 95% confidence interval of 0.010 to 0.138, indicating partial mediation. This suggests that GP positively influences ES both directly and indirectly through BV.

Green Product (GP) → Environmental Sustainability (ES) via Authenticity (AU)

In the second mediation model, GP significantly predicts AU ($\beta = 0.403$, $t = 7.878$, $p < 0.001$), explaining 23.8% of variance ($R^2 = 0.2377$). When predicting ES, both GP ($\beta = 0.425$, $t = 8.375$, $p < 0.001$) and AU ($\beta = 0.404$, $t = 6.586$, $p < 0.001$) are significant, with the model explaining 52.6% of variance in ES ($R^2 = 0.5257$). The indirect effect of GP on ES through AU is 0.163 (95% CI: 0.095–0.241), indicating a meaningful mediation effect. GP enhances ES directly and also indirectly by increasing perceptions of authenticity.

Green Promotion (GPromo) → Environmental Sustainability (ES) via Brand Value (BV)

For GPromo, the predictor significantly affects BV ($\beta = 0.454$, $t = 8.656$, $p < 0.001$, $R^2 = 0.2735$). When both GPromo and BV predict ES, GPromo remains strongly significant ($\beta = 0.666$, $t = 7.526$, $p < 0.001$) and BV also contributes positively ($\beta = 0.326$, $t = 3.199$, $p = 0.002$). The indirect effect of GPromo on ES via BV is 0.148 (95% CI: 0.064–0.234), indicating partial mediation. This confirms that promotional strategies enhance sustainability perceptions both directly and through improved brand value.

Green Promotion (GPromo) → Environmental Sustainability (ES) via Authenticity (AU)

Finally, GPromo significantly predicts AU ($\beta = 0.638$, $t = 8.437$, $p < 0.001$, $R^2 = 0.2635$). In the full model predicting ES, both GPromo ($\beta = 0.539$, $t = 6.597$, $p < 0.001$) and AU ($\beta = 0.432$, $t = 6.567$, $p < 0.001$) are significant, explaining 47.3% of variance ($R^2 = 0.4734$). The indirect effect of GPromo on ES via AU is 0.276 (95% CI: 0.170–0.396), indicating strong mediation. This suggests that promotional efforts enhance environmental sustainability perceptions directly and by increasing authenticity perceptions.

Across all models, both GP and GPromo have significant direct effects on ES. The mediators, BV and AU, consistently exhibit partial to substantial mediation effects. Authenticity emerges as a stronger mediator than brand value in both cases, highlighting its critical role in translating green initiatives and promotional efforts into enhanced perceptions of environmental sustainability.

Table 4.10: Summary of all Hypothesis Results

	Hypothesis Statement	Results
H1	A green product has a significantly positive effect on environmental sustainability.	Supported
H2	Green promotion has a positive and significant effect on environmental sustainability.	Supported
H3	Brand value mediates the relationship between green product and environmental sustainability.	Supported
H4	Brand value mediates the relationship between green promotion and environmental sustainability.	Supported
H5	Authenticity mediates the relationship between green products and environmental sustainability.	Supported
H6	Authenticity mediates the relationship between green promotion and environmental sustainability.	Supported

DISCUSSION

This research explored the relationships between green product practices (GP), green promotion strategies (GPromo), brand value (BV), brand authenticity (AU), and environmental sustainability (ES) within the apparel industry. The findings from the regression analysis provide strong empirical support for the proposed theoretical model.

A key finding is the significant direct positive effect of both GP and GPromo on ES. This aligns with the necessity for the fashion industry to reduce its carbon footprint and meet contemporary consumer demands through sustainable marketing strategies3. Consumers clearly perceive that a brand's efforts in using environmentally friendly materials and processes (GP), and communicating these efforts transparently (GPromo), directly contribute to their own assessment of environmental sustainability outcomes. The study also confirms the crucial mediating roles of Brand Value and Authenticity in translating green marketing efforts into perceived environmental sustainability.

Both GP and GPromo influence ES indirectly through BV, indicating partial mediation. Green products and promotions increase the perceived worth of a brand when consumers feel the brand supports their environmental values, which in turn positively affects their perception of environmental sustainability.

The findings show that AU acts as a stronger mediator than BV in both the GP→ES and GPromo→ES relationships. This is a particularly insightful result, highlighting that for green initiatives to truly resonate with consumers and drive sustainability perceptions, they must be seen as genuine, consistent, and aligned with the brand's core values. Given the rising skepticism from consumers due to "greenwashing," authenticity is critical for building long-term trust and confirming the sincerity of a brand's environmental claims. The stronger indirect effect through authenticity (0.163 for GP and 0.276 for GPromo) suggests that without perceived genuineness, the effectiveness of both green products and promotions in promoting environmental sustainability is significantly diminished.

Theoretical Implications

This research makes several significant contributions to the existing literature by integrating multiple constructs into a single, comprehensive framework within the apparel sector. The study successfully brings together the concepts of green marketing (GP and GPromo), brand perception (BV and AU), and environmental sustainability (ES). This empirical investigation answers the call for a better understanding of how the characteristics of green products and environmentally friendly advertisements influence ES, specifically by examining the intermediate roles of brand value and authenticity.

It provides robust quantitative evidence of the mediating effects of Brand Value and Brand Authenticity on the Green Marketing-Environmental Sustainability link, thereby adding depth to the understanding of consumer-based brand equity in the sustainable fashion context.

Most importantly, the research establishes that Authenticity is a more potent mediator than Brand Value in this context. This refines current theoretical models in green marketing by showing that the credibility and sincerity of sustainability claims are paramount in transforming brand practices into perceived environmental outcomes for consumers. This finding validates studies indicating that consumers punish brands whose green messaging appears misleading.

This study makes several significant theoretical contributions to the fields of green marketing, sustainability, and branding. First, the findings extend Signaling Theory, which argues that firms use observable cues to convey hidden qualities to consumers. Spence (1973) explains that "signals are valuable only when they credibly differentiate one market actor from another." In the context of this research, green product features and transparent green promotions act as credible environmental signals that help reduce information asymmetry. The results support the argument by Connelly et al. (2011), who maintain that "effective signals must be visible, costly to imitate, and aligned with organizational behavior." Your findings affirm that when consumers perceive these signals as authentic, they develop stronger assessments of a brand's environmental commitment.

Second, the study enriches theoretical understanding of consumer-based brand equity by establishing brand value as a psychological pathway connecting green marketing practices to sustainability perceptions. Keller (1993) notes that brand equity arises when consumers "hold strong, favorable, and unique brand associations in memory." In this research, green product attributes and promotional efforts enhance such associations by fostering perceptions of environmental responsibility, which in turn strengthens perceived brand value. This supports the view of Aaker (1996) that "brands with ethical and responsible identities create deeper and more enduring equity," extending brand equity theory into the sustainability domain.

Third, this research elevates brand authenticity as a central construct in green marketing scholarship. Beverland (2006) argues that authenticity emerges when brands are "perceived as true to their values, genuine in intent, and consistent over time." The study's findings validate authenticity as a powerful mediator, suggesting that consumers rely on authenticity as a cognitive filter to evaluate the truthfulness of green claims. This aligns with the position of Napoli et al. (2014), who assert that "authentic brands generate trust because consumers believe their actions are sincere rather than strategic." Thus, the study strengthens the theoretical claim that authenticity is essential for effective sustainability communication.

Fourth, the findings contribute to the growing debate on greenwashing versus green credibility. Lyon and Montgomery (2015) caution that "overstated or deceptive environmental claims undermine consumer trust and damage market credibility." Your results empirically demonstrate that green marketing is only effective when perceived as sincere, thereby reinforcing Delmas and Burbano's (2011) assertion that "greenwashing increases consumer skepticism and reduces the impact of legitimate sustainability efforts." This theoretical clarification distinguishes between symbolic and substantive environmental practices.

Finally, by examining these relationships within the apparel sector, the study offers industry-specific theoretical insights. Joy et al. (2012) highlight that "fashion is a high-impact industry where sustainability concerns are urgent and highly visible." The study expands on this by showing that green marketing, brand value, and authenticity collectively shape sustainability perceptions in a sector known for environmental challenges. This supports the argument that industry context matters—an idea emphasized by Gupta and Hodges (2012), who note that "consumer expectations for sustainability vary across industries, necessitating tailored theoretical approaches."

Practical Implications

The findings offer actionable insights for apparel brands aiming to adopt effective and credible green strategies. Brands must focus on building genuine commitment to sustainability that is consistent with their core values, rather than just engaging in token gestures. The high mediation effect of Authenticity suggests that investment in measurable, transparent, and long-term environmental practices (e.g., ethical supply chains, circular economy principles) will yield a greater return in consumer confidence and sustainability perceptions than superficial claims. Since both GP and GPromo have direct and indirect effects, a successful strategy requires a dual focus.

Invest in truly environmentally friendly materials, processing, and packaging. This forms the foundation of credibility. Communicate these efforts transparently using eco-labels, green advertising, and certifications, but ensure the messaging is truthful to avoid the backlash from greenwashing. By making environmental commitment an integral part of their brand identity, companies can enhance Brand Value, allowing them to charge a higher price and attract loyal clients. Brand communication should emphasize how the green practices provide a superior alternative to traditional brands.

Limitations and Future Research Directions

This study offers important insights into the impact of green product practices and green promotional strategies on environmental sustainability; however, several limitations provide avenues for further inquiry. First, the cross-sectional design restricts causal interpretation and captures consumer perceptions at only one point in time. Future studies should adopt longitudinal or experimental designs to better assess how attitudes toward sustainability, authenticity, and brand value evolve.

Second, the sample is dominated by young, educated, and higher-income respondents, which limits generalizability. Future research should examine more diverse demographic groups to capture broader variations in green consumption behavior. Third, reliance on self-reported data may introduce social desirability and method bias; therefore, future studies should incorporate behavioral or observational data, such as purchase records or digital trace data, to validate consumer claims.

Fourth, the study focuses solely on the apparel industry. Given that sustainability expectations differ across sectors, comparative research across industries such as food, electronics, or hospitality would help determine whether authenticity remains the strongest mediator in all contexts. Finally, the model includes only two mediators. Future work should explore additional psychological

constructs, such as green trust, environmental concern, skepticism, or moral identity, and consider how digital platforms shape perceptions of green authenticity.

The Cronbach's Alpha for Green Promotion (0.666) was only moderately reliable, suggesting that the three items used to measure this construct showed a higher degree of variability in responses compared to other scales. This indicates a potential need to refine the GPromo measurement scale in future studies to improve internal consistency.

CONCLUSION

This research highlights the growing imperative for the apparel industry to adopt genuine sustainable practices in response to mounting environmental concerns and increasing consumer awareness. The study empirically demonstrates that both green product attributes and green promotional strategies significantly enhance consumer perceptions of environmental sustainability. This research confirms that the respondents were the young generation Alpha of Pakistan who value and prioritize green marketing as compared to the generations Z and Y of Pakistan. Crucially, the effects are substantially mediated by Brand Authenticity, highlighting that credibility and sincerity are the most critical factors in successfully translating green marketing efforts into positive environmental outcomes and sustainable consumer behavior. For apparel brands, the path to long-term environmental sustainability and consumer trust lies not just in what they do (green products) or how they communicate (green promotion), but in ensuring that their actions are fundamentally perceived as authentic.

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