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Research paper

A Study on Digital Green Marketing and Its Role in Promoting Eco-Friendly Products in Urban Markets

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Abstract

This paper explores the Digital Green Marketing (DGM) on Purchase Intention (PI) of consumers in Bangalore city in relation to the purchase of eco-friendly products, including Perceived Product Quality (PPQ) as a mediating variable and Environmental Awareness (EA) as a moderating variable. They employed a cross-sectional quantitative research design and gathered information on a structured questionnaire by use of five points of Likert questionnaire from respondents in four major urban areas in the city zones. The SPSS statistical analysis was done using descriptive statistics, reliability test, KMO, and the Bartlett test, Pearson correlation, multiple regression, and mediation/moderation analysis based on the Baron and Kenny model. Findings indicated that DGM plays a major positive role in PI, which confirms the fact that digital eco-marketing strategies are useful in increasing the intention of consumers to buy sustainable products. Moreover, it was discovered that PPQ moderated the connection between DGM and PI, partially indicating that the consumer's intention to purchase rises when they perceive eco-friendly products to be of high quality. Moreover, it was found that EA played a great role in moderating this relationship, meaning that consumers who are more aware of environmental issues react more to digital green marketing campaigns. The results indicate that properly designed electronic green marketing campaigns can contribute to sustainable consumption through the development of positive consumer attitudes and improving awareness regarding environmentally friendly decisions.

Keywords: *Digital Green Marketing; Perceived Product Quality; Environmental Awareness; Purchase Intention; Sustainability.*

1. Introduction

The advent of Digital Green Marketing (DGM) has proved to be a paradigm shift in consumer behavior and sustainability-driven business in the international market. Since the issues of climate change and resource depletion, as well as environmental degradation, are on the rise, consumers and corporations are moving towards environmentally friendly solutions. As Singh and Bhatnagar (2021) state, the digitalization process has increased the scope and impact of green marketing because it has become possible to incorporate the values of the environment into the online advertising process, social media communication, and e-commerce tools. DGM is the convergence of two major global trends, namely sustainability and digital transformation, which open up new possibilities for brands to reach new audiences connected with eco-conscious consumerism by means of digital storytelling, campaigns by influencers, and personal marketing. Urban areas, such as Bangalore, in India, have also experienced a growth in consumers who are environmentally conscious and tend to take an active interest in products that are environmentally focused, and they can be convinced via digital media. The digital innovation and green marketing convergence, as Mehta and Rao (2022) highlighted, is no longer a choice, but a necessity for firms that want to achieve profitability as well as sustainability at the same time.

The green marketing concept has transformed the traditional marketing methods that were based on product features to a comprehensive approach that is based on ethics, ecological balance, and involvement of stakeholders. In the previous research, the concept of green marketing was considered as a niche area, but due to the emergence of digital ecosystems, it is currently deployed as a general strategic tactic. Patel and Gupta (2022) noted that digital green marketing uses the power of social media analytics, search engine optimization, and

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mobile applications to create an impression on the consumer and facilitate sustainable consumption behaviors. Instagram and YouTube, e-commerce portals, are also crucial in spreading eco-messages, product certifications, and sourcing transparency. The effectiveness of digitally-centric sustainability campaigns, according to the authors, is especially significant among younger generations, like millennials and Gen Z, with more solid environmental principles and greater digital literacy (Kapoor and D'Souza, 2025). Such consumers want to associate with the brands that convey authenticity and responsibility with the help of digital interactions that help to reinforce the fact that DGM is a catalyst for behavior in contemporary markets.

The Indian urban market, particularly in such metropolitan cities as Bangalore, is a dynamic field where environmental awareness meets with the adoption of technology. Bangalore, commonly referred to as the Silicon Valley of India, has a very well-informed, technologically conscious population and is more exposed to the global sustainability trends. This was revealed by a recent report by NITI Aayog (2023), which established that more than 65 percent of city dwellers in Bangalore were ready to pay a premium on eco-friendly products with the support of acceptable digital information and green certification. Nevertheless, there are still problems trying to distinguish between true green marketing and greenwashing, where false or overstated environmental messages disfigure consumer confidence. As noted by Sharma and Menon (2024), transparency, consistency, and perceived product quality are the elements of credibility of digital green campaigns. In this regard, it is important to comprehend the effect of digital green marketing strategies on the perception of consumers on the quality of eco-products and the purchase intentions. Moreover, the moderating effects of Environmental Awareness (EA) and the mediation effects of Perceived Product Quality (PPQ) also give a more profound understanding of cognitive and affective processes that present consumers with decisions in digital green ecosystems.

Theoretically, Perceived Product Quality (PPQ) and Environmental Awareness (EA) are decisive psychological constructs used in consumer decision making with respect to green contexts. Whenever the digital green marketing initiatives convey the sustainable quality of a product, consumers will form a more positive perception of the product as reliable, durable, and ethically superior (Sharma et al., 2023). Such perceived quality, in its turn, boosts Purchase Intention (PI)- the readiness of a consumer to purchase eco-friendly alternatives. Nonetheless, mediatorship of PPQ suggests that the influence of DGM on PI is not completely direct, but acts via the promotion of quality and trust perceptions. In the same way, the relationship between Environmental Awareness and this effect is that highly aware customers are more receptive to the sustainability message and less cynical of green claims (Nair and Ramesh, 2024). Thus, the investigation of these interdependencies offers theoretical and managerial benefits of how digital marketing strategies can contribute to sustainable consumption and behavior change in the urban environment.

Empirical research also substantiates the fact that digital green marketing has been transformed into a strategic requirement among business organizations that seek to attain long term competitiveness and consumer loyalty. Banerjee and Gupta (2022) highlighted that the consumers of emerging markets are placing more emphasis on sustainability as part of the purchase criteria, and DGM is a useful means of communicating environmental differentiation. A study conducted by Chandra and Lee (2023) showed that interactive digital communication, eco-certification videos, a sustainability dashboard, and influencer collaboration can have a substantial positive impact on trust and purchase intention. Moreover, Kapoor and D'Souza (2025) noticed that environmental clarity in green communication and the standardization of messages on different platforms form closer emotional attachment to the consumers and eventually convert to brand preference and advocacy. It is with this background that this current research is based on the urban city of Bangalore, where digital penetration is intense, and consumer consciousness about sustainable living is escalating fast. In the study, the researcher seeks to empirically determine the effect of DGM on Purchase Intention, in addition to testing the mediating and moderating relationships of Perceived Product Quality and Environmental Awareness with firm statistical procedures using SPSS 28.

Overall, the paper can be considered a part of the ever-growing body of research in the field of digital sustainability, as it presents a comprehensive approach to the investigation of the impact of digital green marketing on the eco-friendly buying behavior of urban consumers. The article concentrates on the city of Bangalore, India, a digital and environmental center of India, to fill important gaps in comprehending the mediation and moderation of marketing outcomes by psychological constructs. The objectives of the study are threefold, namely, to assess the effect of Digital Green Marketing on consumer Purchase Intention, to analyze the mediating role of Perceived Product Quality between DGM and PI, and to examine the moderating effect of Environmental Awareness on this association. Based on the premises of the planned behavior theory and the theory of green marketing communication, the study not only adds to the knowledge base in academic circles but also offers some practical suggestions to marketers, policymakers, and business organizations that aim at combining sustainability and digital engagement strategies. In the end, it hopes to strengthen the value of genuineness, consumer confidence, and enlightenment towards the process of transforming India into a green and digitally enabled market.

2. Review of Literature

The development of Digital Green Marketing (DGM) became the focus of academic interest during the last few years due to the increase in the popularity of the idea of sustainability and consumer-focused eco-consciousness in the world. Singh and Kumar (2021) argue that digital green efforts have reinvented marketing communication since they incorporate environmental narratives in the online branding activities and social media marketing campaigns. Their results indicate that green communications made on digital platforms like Instagram and YouTube result in more consumer interaction and brand belief in their responsiveness to the environment. Likewise, as observed by Patel and Mehta (2022), the practices of DGM result in more intense emotional attachment between consumers and brands due to the arousal of digital storytelling and eco-labelling, which create a favourable attitude towards sustainable consumption.

The central role in mediating between the marketing intention and purchase outcomes concerns Consumer Perceived Product Quality (PPQ). Sharma et al. (2023) discovered that eco-friendly products are more likely to be bought by consumers who feel that they are of high quality and perform functional roles even at a high price. Moreover, online reviews, influencer marketing, and promotion on the basis of certification affect the positive perception of quality. Banerjee and Gupta (2022) noted in the Indian context that digital disclosure, including the presentation of sustainability data in the supply chain, increases the credibility of products and strengthens consumer confidence in green statements. These findings imply that perceived product quality is the mediator of DGM on purchase intention, and it is a critical psychological process.

The concept of Environmental Awareness (EA) has become a moderating variable that is very critical when it comes to green buying in online settings. A study conducted by Nair and Ramesh (2024) revealed that consumers who are more environmentally literate and digitally exposed have more behavioral intentions towards environmentally friendly products. The research has highlighted that consumer responsiveness increases when specific digital campaigns are aimed at ecological education and the reduction of carbon footprint. Likewise, in a cross-country study, Chandra and Lee (2023) revealed that, in the presence of digital advertisements that have promoted sustainability and

ethical sourcing, urban consumers in developing economies such as India showed higher levels of eco-sensitivity in their purchase intentions, which validates the moderating effect of awareness in influencing the formation of eco-conscious purchasing intentions.

Recent studies emphasize that Digital Green Marketing, Perceived Product Quality, and Environmental Awareness have a conspicuous effect on the development of green purchasing intentions. As Kapoor and Dsouza (2025) have claimed, integrated digital ecosystems (such as combining social media interaction, influencer promotion, and open dialogue about product sustainability) have a great impact on increasing consumer preparedness in adopting sustainable products. The results of their work are consistent with the global tendency of green consumerism and correspond to mediating and moderating mediations that were identified in the previous research. Accordingly, the literature provides a strong empirical foundation of the association of DGM, PPQ, and EA with consumer Purchase Intention (PI) and creates an all-encompassing model of consumer Purchase Intention in the urban Indian marketplace, like Bangalore.

Research Objectives

1) To test the connection between digital green marketing and the purchase intention of consumers.
2) To determine the effects of perceived product quality and environmental awareness on purchase intention.
3) To determine the mediating effect of the perceived product quality in the relationship between the digital green marketing and the purchase intention.

3. Methodology

This is cross-sectional quantitative research exploring the effect of Digital Green Marketing (DGM) on Purchase Intention (PI) in relation to eco-friendly products by urban consumers in the city of Bangalore. Four large regions, including North (55), South (60), East (55), and West (50) out of 350 distributed questionnaires, had 220 valid responses, which had representation of demography and region. A structured 5-point Likert scale questionnaire was developed, and a data collection instrument based on this scale was used to collect both online and offline data. The IBM SPSS Statistics Version 28 was used to analyze them. The variables are Digital Green Marketing (DGM), which is the independent variable; Perceived Product Quality (PPQ), which is the mediating variable; Environmental Awareness (EA), which is the moderating variable; and Purchase Intention (PI), which is the dependent variable, with gender, age, education, and income being the control variables. The research utilized a set of statistical methods, such as descriptive statistics to generalize the respondent characteristics, Cronbach Alpha to measure internal consistency, KMO and Bartlett tests of sampling adequacy and sphericity, Pearson correlation as a method of analyzing the relationships between variables, and multiple regression as a method of testing predictive usefulness of DGM on PI. The mediation and the moderation effects were also analyzed through the Baron and Kenny (1986) method to reveal the indirect and conditional impacts of PPQ and EA through the DGM-PI model.

Hypotheses

- H1: Digital Green Marketing (DGM) has a significant positive influence on Purchase Intention (PI).
- H2: Perceived Product Quality (PPQ) mediates the relationship between DGM and Purchase Intention (PI).

Analysis and Interpretation

Table 1: Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	126	57.3
	Female	94	42.7
Age	18–25	70	31.8
	26–35	82	37.3
	36–45	44	20.0
	46 and above	24	10.9
Monthly Income (₹)	<30,000	50	22.7
	30,000–60,000	86	39.1
	60,001–90,000	52	23.6
	Above 90,000	32	14.6
Zone	North	55	25.0
	South	60	27.3
	East	55	25.0
	West	50	22.7

The demographic analysis in Table 1 indicates an equal distribution of all four zones of Bangalore, resulting in geographic and socio-economic diversity. The biggest group was the respondents between 26-35 years old (37.3), which demonstrated the prevalence of young working professionals, who tend to be tech-savvy and conscious of the environment. Most of the respondents earned an income of 30,000-60,000 per month (39.1%), which means that it possesses a price-sensitive but willing to switch to sustainable, middle-income group of consumers. There was also a fairly even gender distribution (Male 57.3%, Female 42.7%), which facilitates generalizability between genders. The data structure, therefore, gives a solid foundation for the behavioral patterns analysis on the eco-friendly products and digital marketing exposure in the urban market setting within Bangalore.

Table 2: KMO and Bartlett's Test of Sampling Adequacy

Measure	Value
Kaiser-Meyer-Olkin (KMO) Measure	0.874
Bartlett's Test of Sphericity – Approx. Chi-Square	912.37
df	120
Sig.	0.000

Table 2 shows that the dataset passes the KMO and Bartlett's tests, indicating that multivariate analysis would be a good fit. An above-recommended KMO value of 0.874 indicates high sampling adequacy and low partial correlations across variables, as they are above the acceptable threshold of 0.70. Factor analysis and regression modeling are suitable applications of the observed data. The substantial chi-square value ($\chi^2 = 912.37$, $p < 0.001$) shown by the Bartlett's Test of Sphericity confirms that the correlation matrix is not an identity matrix and that the correlations across variables are robust enough to go further with advanced analysis. Our findings provide strong support for the dataset's factorability and confirm the statistical interrelationships between constructs like Digital Green Marketing (DGM), Perceived

Product Quality (PPQ), Environmental Awareness (EA), and Purchase Intention (PI). This lays the groundwork for future research using regression and mediation. These results guarantee that the study's data is suitable for investigating causal linkages and putting the hypotheses to the test.

Table 3: Reliability Statistics

Variables	Cronbach's Alpha	No. of Items	Reliability Status
Digital Green Marketing (DGM)	0.891	5	Excellent
Perceived Product Quality (PPQ)	0.867	4	Excellent
Environmental Awareness (EA)	0.841	4	Good
Purchase Intention (PI)	0.876	4	Excellent

The alpha value of 0.841 - 0.891 in Table 3 is above the minimum of 0.70; the items of the scale have a high level of internal consistency. This indicates that the questionnaire is reliable in gauging the desired constructs- particularly, DGM and PI, which recorded high reliability (>0.87). This is because the alpha is perpetually consistent, and the data are reliable to use in the subsequent parametric testing (correlation and regression). The SPSS 28 reliability output against the expectation showed that all item-total correlation was above 0.50, which confirmed that every variable contributed to the construct integrity.

Table 4: Pearson Correlation Matrix

Variables	DGM	PPQ	EA	PI
Digital Green Marketing (DGM)	1			
Perceived Product Quality (PPQ)	0.621**	1		
Environmental Awareness (EA)	0.558**	0.534**	1	
Purchase Intention (PI)	0.674**	0.646**	0.601**	1

(Note: **p < 0.01, two-tailed).

Table 4, which analysed the correlation matrix, indicates that there are significant and positive associations among all variables. Digital Green Marketing (DGM) shows a high correlation to Perceived Product Quality (r = 0.621, p < 0.01) and Purchase Intention (r = 0.674, p < 0.01), indicating that successful green digital campaigns increase consumer perceptions of the eco-product quality and their purchase intentions. The Environmental Awareness (EA) has a significant correlation with DGM (r = 0.558, p < 0.01) and PI (r = 0.601, p < 0.01), which means that more environmentally conscious consumers will be more responsive to the digital green marketing messages. The high intercorrelations between DGM, PPQ, and PI support the fact that the above constructs are conceptually and statistically connected. There is no evidence of multicollinearity since none of the correlation values are above 0.80, which is a regression assumption. The results confirm that DGM has a positive impact on consumer perceptions and buying behavior due to the awareness and perceived product quality.

Table 5: Multiple Regression Analysis

Predictor	β	Std. Error	t-value	Sig.	Result
Constant	0.812	0.210	3.87	0.000	—
Digital Green Marketing (DGM)	0.374	0.062	6.03	0.000	Significant
Perceived Product Quality (PPQ)	0.291	0.058	5.02	0.000	Significant
Environmental Awareness (EA)	0.216	0.054	4.00	0.000	Significant
$R^2 = 0.574$	Adjusted $R^2 = 0.567$	F (3,216) = 97.01, p < 0.001			

The multiple regression analysis table 5 reveals that the model is a significant predictor of Purchase Intention (PI) with an R 2 value of 0.574, which indicates that Digital Green marketing (DGM), Perceived Product Quality (PPQ), and Environmental Awareness (EA) explain 57.4 percent of the variance in Purchase Intention (PI). The significance of all the predictors (p < 0.001) proves that the consumer intention to buy is positively affected by increases in DGM predictors and positive attitudes towards the quality of eco-products. Digital Green Marketing (DGM) standardized coefficient (= 0.374) is the best predictor, which confirms (sH1): Digital Green Marketing (DGM) positively affects Purchase Intention (PI) significantly. This implies that as the companies communicate their environment-friendly activities to the consumers, via digital communication vehicles, the chances of consumers buying environment-friendly products become significant (PPQ, 0.291, followed by EA, 0.216), pointing out that efficient DGM efforts directly determine the extent to which consumers buy environmentally-friendly products. The overall significance of the regression model is justified by the F-statistic (F = 97.01, p < 0.001). The above results confirm the main hypothesis that DGM affects PI directly and significantly, whereas PPQ and EA influence consumer responses complementarily.

Table 6: Mediation and Moderation Analysis (Baron & Kenny Approach)

Path	Relationship	β	SE	t	Sig.	Result
Path a	DGM → PPQ	0.56	0.05	11.20	<0.001	Significant
Path b	PPQ → PI	0.27	0.06	4.50	<0.001	Significant
Path c	DGM → PI (Total Effect)	0.43	0.06	7.17	<0.001	Significant
Path c′	DGM → PI (Direct Effect)	0.28	0.06	4.67	<0.001	Significant
Indirect Effect (a×b)	DGM → PPQ → PI	0.15	0.04	—	<0.001	Partial Mediation
Moderation (EA × DGM → PI)	0.12	0.05	2.40	0.017	Significant Moderation	

Table 6 is a confirmation of the mediation hypothesis (H2): Perceived Product Quality (PPQ) mediates the relationship between DGM and Purchase Intention (PI). The overall effect (0.43) is reduced to 0.28 in the presence of PPQ in the model, and the indirect effect (0.15, p 0.001) is also significant, which means that DGM affects PI not only directly, but also indirectly via PPQ. This shows that the more consumers believe that eco-products are high quality, the more consumers are determined to buy them, and this enhances the marketing impact. Also, the moderation outcome (= 0.12, = 0.017) indicates that the Environmental Awareness (EA) is a significant multiplier of the DGM-PI relationship. That is, highly attentive consumers will be more attentive to digital green offers, which will contribute to increased purchase intentions. The results therefore confirm Hypothesis H3 and emphasize the dual nature of perceived quality and perceived awareness as psychological processes that determine eco-consumer behavior in the urban markets in Bangalore.

Table 7: Hypothesis Testing Summary

Hypothesis	Statement	Path Coefficient (β)	t-value	p-value	Result
H1	Digital Green Marketing (DGM) has a significant positive influence on Purchase Intention (PI).	0.43	7.17	<0.001	Supported
H2	Perceived Product Quality (PPQ) mediates the relationship between DGM and Purchase Intention (PI).	Indirect Effect (a×b) = 0.15	3.94	<0.001	Supported

Table 7 supported the two hypotheses of the study through the results of the hypothesis testing with SPSS v28. H1 stating that Digital Green Marketing (DGM) possesses a strong positive effect on Purchase Intention (PI) was highly supported (0.43, t = 7.17, p = 0.001). This observation underscores the point that online green marketing, including online eco-branding, eco-advertising campaigns, and online sustainability practices, plays an important role in increasing the willingness of consumers to buy green products in the urban market, such as Bangalore.

Likewise, H2, which postulated that the relationship between DGM and PI is mediated by Perceived Product Quality (PPQ), was also accepted, and the indirect effect was 0.15 ($p < 0.001$) and significant (3.94). This is the case of some mediation effect, i.e., as much as DGM has a direct impact on purchase intention, it also has an indirect impact on the purchase intention by indirectly affecting the perception of product quality of the consumers. That is, digital green marketing not only serves as a promotional measure in terms of environmental awareness but also boosts credibility and perceived quality of green products, thus making them more likely to be bought. The findings all point to the dual effect of DGM; both direct and mediated by the perceived product quality in encouraging sustainable consumer behavior.

4. Conclusion

The research finds that Digital Green Marketing (DGM) is a key component in arousing a Purchase Intention (PI) of the urban consumers of environment-friendly products in Bangalore. The exceptionally high positive correlation between DGM and PI shows that the digital sustainability initiatives that include online eco-branding, green social media promotions, and open communication of environmental values could be used to have positive impacts on consumer decision-making. Perceived Product Quality (PPQ) also appeared as a partial mediator, meaning that the higher the perception of the consumers regarding green products as high-quality, the stronger the intention to purchase. The moderating role of the Environmental Awareness (EA) indicates that a person who is more ecologically aware is more likely to have a positive reaction to digital campaigns that are green, now enhancing the effectiveness of marketing efforts.

The future work must take into consideration that the model needs to be applied to other geographical settings and other industry sectors to improve the external validity. Longitudinal designs may also be effective in the ability to monitor the changing perceptions of consumers over time. Also, the incorporation of the latest analytical tools like Structural Equation Modeling (SEM) or AI-based sentiment analysis can provide a substantial understanding of psychological and behavioral processes that facilitate sustainable consumption. The research on generational differences, cultural impact and post-purchase behaviors would also contribute to the increased insights into the long-term effects of digital green marketing on the sustainability trends in consumers.

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