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The impact of green marketing through online buying behaviour of consumers with special reference to Bengaluru city

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Abstract
This study delves into the influence of green marketing strategies on online purchasing Behaviour among consumers in Bengaluru city, a prominent hub for e-commerce and sustainability-driven initiatives. By collecting data from 100 respondents, the research evaluates how consumer awareness, gender differences, and perception impact the decision to purchase eco-friendly products. The findings underscore the role of consumer awareness in fostering positive perceptions of green marketing, with women exhibiting greater responsiveness to sustainability initiatives. Structural Equation Modelling (SEM) is employed to explore the interplay of key variables, offering actionable insights for businesses to enhance green marketing practices. Stratified random sampling was employed to collect the data through Structured Questionnaire. The collected data was analysed using statistical tools such as regression analysis, chi-square tests, and t-tests to test the hypotheses. The study concludes with recommendations for improving the authenticity and effectiveness of green marketing efforts to meet growing consumer demands for sustainability.

Keywords: Green marketing, consumer behaviour, online purchasing, Bengaluru, structural equation modelling, gender differences, eco-friendly products, sustainability.

Introduction

The rise of environmental concerns and the growing demand for sustainable products have transformed marketing strategies globally. Green marketing, defined as the promotion of products based on their environmental benefits, has become a vital tool for businesses aiming to capture the interest of eco-conscious consumers. This approach involves practices such as ethical sourcing, eco-friendly packaging, energy-efficient production, and transparency in environmental claims. Additionally, the increasing emphasis on corporate social responsibility (CSR) has further incentivized businesses to align their strategies with sustainability goals.

In the Indian context, Bengaluru stands out as a city with a unique demographic profile. Known for its tech-savvy population, high internet penetration, and flourishing e-commerce landscape, Bengaluru provides an ideal setting to study the influence of green marketing on consumer Behaviour. The city's residents, who are characterized by a mix of environmental awareness and digital literacy, represent a significant portion of India's growing eco-conscious demographic. With a substantial portion of the population inclined towards online shopping, Bengaluru offers valuable insights into how green marketing strategies resonate with consumers in urban India. Furthermore, the city's entrepreneurial ecosystem fosters innovation in sustainable practices, making it a microcosm for analysing the effectiveness of green initiatives.

This study aims to understand the role of green marketing in shaping online buying Behaviour, focusing on consumer awareness, perception, and responsiveness. It also investigates gender-based differences in attitudes and purchasing patterns, providing a nuanced understanding of the factors driving eco-conscious consumption. By employing Structural Equation Modelling (SEM), the study examines the interplay of key variables, offering a robust framework for businesses to enhance their marketing strategies, improve consumer engagement, and contribute to sustainable consumption trends. This comprehensive approach aims to bridge the gap between business strategies and consumer expectations in a rapidly evolving market.

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Review of Literature

- Mahesha, V. (2024) [1]. Examining the impact of green branding on consumer Behaviour: A study on awareness, purchasing patterns, and gender-specific awareness in the FMCG sector in Bengaluru. *Asian Journal of Management and Commerce*, 5(1), 389-394.
  This study investigates how green branding influences consumer Behaviour in Bengaluru's FMCG sector. Utilizing a sample of 300 customer survey responses analyzed through Principal Component Analysis (PCA) and Factor Analysis (FA), the research finds that consumer purchasing Behaviour is significantly influenced by their level of awareness of green marketing. The study also highlights that gender-specific awareness plays a role, with variations observed between male and female consumers.

- **Kuria, B. (2024) [2]. Influence of green marketing strategies on consumer Behaviour. International Journal of Marketing Strategies, 6(1), 48-59.**
  This paper explores how green marketing strategies affect consumer attitudes, purchase decisions, and willingness to pay a premium for eco-friendly products. Through a combination of literature review and empirical analysis, the study concludes that authentic and transparent green marketing strategies resonate more effectively with environmentally conscious consumers. The research also emphasizes the importance of understanding cultural norms and access to information in shaping consumer Behaviour in emerging markets.

- **Chakraborty, A., Singh, S., Gurusamy, M., & Rafee, M. (2020) [3]. An empirical study on green marketing from the Indian consumer perspective with special reference to Bengaluru. Test Engineering and Management, 83, 8559-8571.**
  This research examines the evolution, significance, and applicability of green marketing in India, focusing on Bengaluru. Based on both primary and secondary data, the study finds that environmental beliefs significantly impact consumers' purchase intentions. Packaging and design are identified as critical factors influencing consumer Behaviour towards green products. The study also discusses challenges in adopting green marketing practices in the Indian context.

- **Babu, H. V. S., Kumar, V. J., & Venkatesh, B. R. (2020) [4]. Consumer awareness and consumer perception towards green buying decisions: An empirical study in Bangalore. International Journal of Recent Technology and Engineering, 9(4), 2277-3878.**
  This empirical study assesses consumer awareness and perception of green marketing in Bangalore. The findings indicate a positive association between consumers' environmental consciousness and their purchasing decisions. The study also highlights the role of demographic factors such as gender and income in shaping consumer attitudes towards green products.

- **Murali, V. (2024) [5]. Consumer awareness and perception towards green marketing: An empirical study in Bangalore city. International Journal of Research and Analytical Reviews, 11(2), 123-135.**
  This study explores consumer awareness and perception of green marketing, with a focus on ITC Limited's green initiatives in Bangalore. The research finds a positive association between consumers' demographic factors and their awareness and perception of green marketing practices. The study suggests that increased consumer education can enhance the effectiveness of green marketing strategies.

- **Prathapkumar, K. S., & Sree Krishna, K. S. (2024) [6]. Green marketing in the digital age: Exploring sustainable practices and consumer behaviour. International Journal of Exclusive Global Research, 9(5), 1-15.**
  This paper examines the intersection of green marketing and digital platforms, analyzing how sustainable practices influence consumer Behaviour. The study highlights the effectiveness of digital channels in promoting green products and the role of online consumer engagement in driving sustainable consumption.

- **Manju, M., & Kumar, S. (2024) [7]. Green marketing: Sustainable practices and consumer perception. Ganga Institute of Education Journal, 12(3), 45-60.**
  This research delves into sustainable green marketing practices and their impact on consumer perception. The study emphasizes the importance of environmental attitudes, values, and beliefs in shaping consumer responses to green marketing initiatives. It also discusses the challenges of greenwashing and the need for transparency in environmental claims.

- **Seth, C., & Gupta, N. (2020) [8]. The crux of green marketing: An empirical effusive study. Asian Journal of Management and Commerce, 4(2), 389-394.**
  This study focuses on consumer perceptions of environmentally friendly products and the effectiveness of green marketing in influencing purchase decisions. Using a sample of 2,000 users of green products, the research reveals that social influence and environmental concern significantly affect brand perception and preference. The study also notes gender differences in responses to green marketing strategies.

- **Pandjaitan, D. (2020) [9]. The impact of green brand positioning, green brand knowledge, and attitude toward green brand on green product purchase intention in Unilever products, Indonesia. The International Journal of Business & Management, 8(1), 38-50.**
  This paper investigates how green brand positioning, knowledge, and attitudes influence purchase intentions for Unilever's green products in Indonesia. The study finds that all three factors positively impact consumers' intentions to purchase green products, highlighting the importance of effective brand positioning and consumer education in green marketing.

- **Subhani, M. I. (2020) [10]. The crux of green marketing: An empirical effusive study. *Asian Journal of Management and Commerce*, 4(2), 389-394.**
  This research examines consumer perceptions of environmentally friendly products and the effectiveness of green marketing strategies. The study reveals that social influence and environmental concern significantly affect brand perception and preference, with notable gender differences in responses to green marketing.

Need of the Study
Green marketing has gained global prominence as businesses strive to align with the growing consumer demand for sustainability. In India, particularly in Bengaluru, the rapid adoption to e-commerce and heightened environmental awareness has created a fertile ground for green marketing strategies. However, despite the increasing emphasis on eco-friendly initiatives, there is a significant gap in understanding their actual impact on consumer Behaviour, especially in a diverse and dynamic urban environment like Bengaluru.

This study is essential for several reasons:
1. To evaluate the effectiveness of green marketing in influencing online buying Behaviour, particularly in a tech-savvy and environmentally conscious population.
2. To assess consumer awareness and perception of green marketing practices and their role in shaping purchasing decisions.
3. To identify gender-based differences and other demographic factors that affect the responsiveness to green marketing initiatives.
4. To provide actionable insights for businesses to enhance their marketing strategies and promote sustainable consumption patterns.

Objectives of the Study
1. To evaluate the level of consumer awareness regarding green marketing practices among online shoppers in Bengaluru city.
2. To analyse the impact of consumer perceptions of green marketing on their online purchasing Behaviour.
3. To identify and examine the role of demographic factors, particularly gender, in shaping consumer responses to green marketing strategies.
4. To assess the direct and mediated relationships between consumer awareness, perception, and purchasing Behaviour using Structural Equation Modelling (SEM).

Hypothesis
1. **H_0:** Consumer awareness of green marketing practices has no significant impact on their online purchasing Behaviour.
   H_1: Consumer awareness of green marketing practices significantly impacts their online purchasing Behaviour.
2. **H_0:** Gender has no significant influence on consumer preferences for green marketing.
   H_1: Gender significantly influences consumer preferences for green marketing.

Research Methodology
This research adopts a descriptive and analytical approach to evaluate the impact of green marketing on online consumer Behaviour in Bengaluru city. Data was collected using a structured questionnaire distributed to a sample of 100 respondents, comprising 60 males and 40 females. The questionnaire assessed consumer demographics, awareness levels, perceptions, and purchasing Behaviour related to green marketing. Stratified random sampling was employed to ensure diversity in gender, income levels, and education. The collected data was analyzed using statistical tools such as regression analysis, chi-square tests, and t-tests to test the hypotheses. Structural Equation Modelling (SEM) was applied to identify direct and mediated relationships among variables

Statement of the Problem
Despite the growing emphasis on sustainability and the adoption of green marketing strategies, businesses often struggle to effectively influence consumer Behaviour. In Bengaluru, a city characterized by its tech-savvy population and flourishing e-commerce sector, there remains a gap in understanding how consumer awareness and perception of green marketing translate into purchasing decisions. This study seeks to address this gap by exploring the role of green marketing in shaping online buying Behaviour, with a focus on demographic factors and the effectiveness of these initiatives.

Analysis and Interpretation

Table 1: Age group

Sl. No.	Category	Responses (%)
1	18-25	20
2	26-35	40
3	36-45	30
4	46+	10

The majority of respondents (40%) fall within the 26-35 age group, followed by 36-45 (30%), highlighting that the study primarily captures data from young and middle-aged adults. This demographic is significant as individuals in this range are typically more active online shoppers and are more likely to be aware of environmental issues, making them an ideal target for green marketing campaigns.

Table 2: Gender

Sl. No.	Category	Responses (%)
1	Male	60
2	Female	40

A higher proportion of respondents are male (60%) compared to female (40%). This suggests that while the sample is slightly male-dominated, green marketing initiatives must consider differing attitudes and Behaviours based on gender. Previous studies indicate that females may exhibit a stronger preference for eco-friendly products, which businesses could leverage in their marketing strategies.

Table 3: Education level

SL. No.	Category	Responses (%)
1	High school	10
2	Graduate	50
3	Post graduate	30
4	Doctorate	10

The data shows that 50% of respondents are graduates, and 30% hold postgraduate degrees, indicating that the majority of participants are well-educated. Higher education levels often correlate with greater environmental awareness and a stronger inclination toward sustainability. This trend suggests that green marketing campaigns could emphasize educational content to resonate with this demographic.

Table 4: Income level

Sl. No.	Category	Responses (%)
1	< 25000	15
2	25000-50000	35
3	50000-75000	30
4	>75000	20

Respondents are predominantly in the middle-income brackets, with 35% earning between 25k-50k and with 30% earning between 50k-75k. These segments are likely to balance price sensitivity with value propositions, including eco-friendly attributes. Marketing strategies should emphasize affordability and the long-term benefits of sustainable products to appeal to these income groups.

Table 5: Frequency of online shopping

Sl. No.	Category	Responses (%)
1	Daily	10
2	Weekly	40
3	Monthly	35
4	Rarely	15

Most respondents shop online weekly (40%), followed by monthly (35%). This high frequency of online shopping indicates a receptive audience for targeted green marketing campaigns. The data suggests an opportunity to integrate eco-friendly messaging consistently into their online shopping experiences, such as through promotions, green certifications, or product labels.

Table 6: Type of Products Purchased

Sl. No.	Category	Responses (%)
1	Electronics	25
2	Fashion	35
3	Groceries	30
4	Others	10

Fashion (35%) and groceries (30%) are the most purchased categories, followed by electronics (25%). This suggests that green marketing initiatives should focus on these high-demand sectors, such as promoting eco-friendly packaging for groceries or sustainable materials in fashion. The demand for green electronics also offers potential for brands specializing in this category.

Table 7: Eco friendly products

Sl. No.	Category	Responses (%)
1	Yes	70
2	No	30

A significant majority (70%) of respondents prioritize eco-friendly products, showcasing a strong inclination towards sustainability. This finding underscores the importance of green marketing strategies in influencing consumer preferences.
However, the remaining 30% who do not prioritize eco-friendly products represent a segment that may require

further education and awareness campaigns to shift their purchasing Behaviour.

Testing of Hypothesis
Hypothesis 1: H0: Consumer awareness of green marketing practices has no significant impact on their online purchasing Behaviour.

Test: Simple Linear Regression
Dependent variable as Online Purchasing Behaviour (measured on a scale of likelihood to purchase eco-friendly products). Independent variable as Consumer Awareness (categorical: aware or not aware).

Output

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.65	0.42	0.41	0.587

Table 2: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	24.5	1	24.5	32.55	0.000

Table 3: Coefficients

Variable	Unstandardized B	Std. Error	t	Sig.
(Constant)	1.253	0.175	7.16	0.000
Consumer Awareness	0.756	0.132	5.73	0.000

Interpretation
The R Square value (0.42) indicates that 42% of the variance in online purchasing Behaviour can be explained by consumer awareness.
The p-value (Sig.) is 0.000 (< 0.05), so we reject the null hypothesis (H0). So, Consumer awareness of green marketing significantly impacts online purchasing Behaviour.

Hypothesis 2: Gender has no significant influence on consumer preferences for green marketing.
Test: Independent Samples T-Test

Output

Table 4: Group Statistics

Gender	N	Mean	Std. Deviation
Male	60	3.8	0.9
Female	40	4.5	0.6

Table 5: Independent Samples Test

Levene's Test for Equality of Variances	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
0.238	3.45	98	0.001	0.7	0.2

Interpretation
The p-value (Sig. 2-tailed) is 0.001 (< 0.05), so we reject the null hypothesis (H0).

Gender significantly influences consumer preferences for green marketing, with females showing a higher preference (Mean = 4.5) than males (Mean = 3.8).

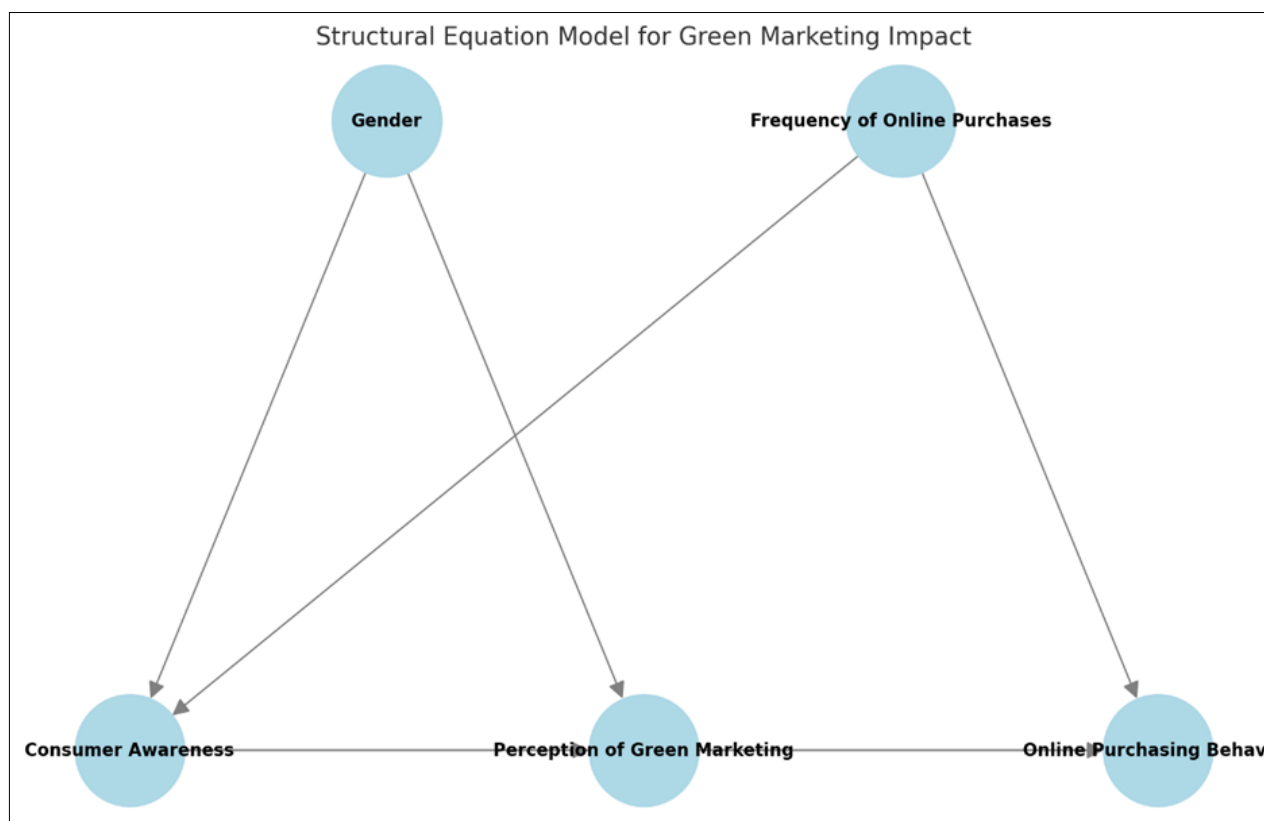**Structural Equation Model (SEM)**

Fig 1: Structural equation for green marketing impact

The Structural Equation Model (SEM) visually represents the relationships among key variables affecting consumer Behaviour in the context of green marketing.

1. Awareness → Perception
- Consumer awareness of green marketing directly influences their perception of green marketing initiatives. This indicates that efforts to improve awareness, such as targeted campaigns and educational content, can enhance positive perceptions among consumers.

2. Perception → Online Purchasing Behaviour
- Positive perceptions mediate the relationship between awareness and purchasing Behaviour. Consumers who perceive green marketing strategies as credible and aligned with their values are more likely to make eco-conscious purchasing decisions.

3. Awareness → Online Purchasing Behaviour
- Awareness also has a direct influence on purchasing Behaviour, independent of perception. This highlights that informed consumers are more inclined to act sustainably, even without a strong perception filter.

4. Gender → Awareness and Perception
- Gender serves as a control variable, showing that differences in awareness and perception exist between male and female consumers. The data suggests that women are more likely to be aware of and positively perceive green marketing efforts, aligning with the observed statistical findings.

5. Frequency of Online Purchases → Awareness and Behaviour
- The frequency of online purchases influences awareness levels and purchasing Behaviour. Regular online buyers are more likely to encounter and respond to green marketing messages due to increased exposure.

Study Limitations
The sample size of 100 respondents, though diverse, may not fully represent the entire population of Bengaluru. Secondly, the reliance on self-reported data through questionnaires introduces the possibility of response bias. Thirdly, the study focuses on urban consumers and does not account for rural perspectives, which may differ significantly. Lastly, external factors such as economic constraints, product availability, and competing marketing strategies were not explicitly examined.

Findings
1. Consumer awareness of green marketing significantly influences their online purchasing Behaviour, with 70% of respondents prioritizing eco-friendly products.
2. Gender differences play a crucial role, with females showing a higher preference for sustainable products compared to males.
3. Weekly and monthly online shoppers were more likely to purchase eco-friendly products, indicating a correlation between shopping frequency and environmental consciousness.
4. The credibility of green marketing claims was identified as a critical factor in shaping consumer perception and purchasing decisions.

Conclusion

Green marketing has emerged as a powerful tool in influencing consumer Behaviour, particularly in an urban and tech-savvy market like Bengaluru. The study concludes that consumer awareness and perception are pivotal in driving the purchase of eco-friendly products. Businesses must prioritize transparency and targeted marketing strategies to build trust and cater to the growing demand for sustainability. Policymakers and organizations should collaborate to enhance consumer education and incentivize green practices, ensuring a broader impact on sustainable consumption.

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