

A Study on Green Innovation and Consumer Responses in Eco Rabbit Products

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ABSTRACT - This study examines consumer behaviors toward sustainable innovations in semi-urban and rural India, using Eco Rabbit's biodegradable product line as a case example. A sample of 165 respondents from Piler, Chittoor, provided data through surveys, interviews, and situational observations, complemented by secondary sources. Employing a mix of statistical techniques descriptive and inferential the research analyses the relationships between awareness, trust, pricing, and purchasing behavior. Results indicate moderate brand awareness, strong influence of environmental concern and health benefits, and trust greatly enhanced by third-party certifications ($\chi^2 = 33.091$, $p = 0.001$). Factor analysis revealed eight key components explaining 64.6% variance, with trust & brand perception contributing 36%. Recommendations include youth-focused marketing strategies leveraging social media, highlighting certifications, offering bundled value deals, and improving packaging transparency.

KeyWords: Sustainable innovations, Biodegradable products, Semi-urban and rural India, Consumer behavior, Eco Rabbit

1. INTRODUCTION

The study on "Green Innovation and Consumer Response in Eco-Rabbit Products" aims to explore the intersection of sustainable product design and

consumer behavior in the context of the Eco Rabbit brand, which is known for its commitment to environmental responsibility. Green innovation refers to the development of products, processes, or services that have a reduced environmental impact, often through the use of eco-friendly materials, energy-efficient production methods, and reduced waste. This research will focus on how Eco Rabbit's innovative products, which prioritize sustainability, are perceived by consumers.

2. NEED FOR THE STUDY

The growing demand for sustainable products and the emergence of green innovations like Eco Rabbit require an in-depth understanding of consumer attitudes, preferences, and behavior. Assess how aware consumers are about Eco Rabbit's products and eco-friendly alternatives.

2.1 SCOPE OF THE STUDY

This study is focused on examining consumer behavior toward eco-friendly innovations in semi-urban and rural Indian contexts, with specific reference to Eco Rabbit's sustainable product line. It explores the level of awareness, perception, and trust that consumers have regarding green products, and investigates the factors such as price sensitivity, product quality, and brand perception that influence their purchasing decisions.

2.2 REVIEW OF LITERATURE

1.Tuncer et al. (2022): This study examines the growing demand for eco-friendly products and argues that companies can capitalize on this trend by integrating green innovation into their business strategies.

2.Brown and Green (2021): This research underscores the role of social influence in promoting green products, particularly through word-of-mouth and social media. Consumers are more likely to purchase products that are endorsed by their peers or through online reviews.

3.Gereffi (2021): Gereffi's work focuses on the global value chains in the context of sustainable development, particularly in industries with large environmental footprints like textiles.

4.Peattie (2020): Peattie's research focuses on the growing importance of green branding. It emphasizes how companies can leverage sustainable practices to create a strong, positive brand image.

5.Porter and van der Linde (2019): In their seminal work, Porter and van der Linde argue that environmental regulation and green innovation are not necessarily burdensome but can spur innovation and improve companies' competitiveness.

2.3 STATEMENT OF THE PROBLEM

The growing environmental crisis and increasing consumer awareness have led to a surge in demand for sustainable and eco-friendly products. One such emerging innovation is eco-rabbit products, which

utilize sustainable resources, biodegradable components, and ethical manufacturing practices to create eco-conscious alternatives.

2.4 OBJECTIVES OF THE STUDY

1.To understand consumer awareness about eco-rabbit products and green innovation.

2.To identify the factors that influence consumers to buy or avoided eco-friendly products.

3.To analyze consumer trust in the environmental claims made by eco-rabbit products.

4.To assess the impact of price, quality and brand perception on consumer decisions.

2.5 RESEARCH METHODOLOGY

- Surveys and Questionnaires: Structured questionnaires distributed to consumers to understand their awareness, attitudes, and preferences regarding Eco Rabbit products.
- Interviews: Personal or telephonic interviews with customers, company representatives, or stakeholders to gather in-depth insights.

Tools used:

Factor analysis

Correlation

Chi-Square test

Regression

Anova test

2.6 DATA ANALYSIS & INTERPRETATION

Table 1: Factor analysis

| KMO and Bartlett's Test | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .869 |
| | Approx. Chi-Square | 2140.206 |
| Bartlett's Test of Sphericity | df | 595 |
| | Sig. | .000 |

INTERPRETATION:

- KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy): 0.869 indicates good sampling adequacy for factor analysis.
- Bartlett's Test of Sphericity: The significance value of 0.000 suggests that the correlation matrix is not an identity matrix and is appropriate for factor analysis.

Table 2: Correlation

| | | 1. Gender | 2. Age | 3. Have you heard about eco-rabbit products before? | 4. How familiar are you with green or eco-friendly products? |
|--|---------------------|-----------|--------|---|--|
| 1. Do you check labels for eco-certifications or ingredients before buying an eco-friendly product? | N | 164 | 165* | 165 | 165 |
| | Pearson Correlation | .097 | .211 | .113 | .435 |
| 2. How important is third-party certifications in building your trust in a green products? | Sig. (2-tailed) | .216 | .007 | .148 | .000 |
| | N | 164* | 165 | 165* | 165** |
| 3. How would you rate your trust in the following green claims? 100% biodegradable, plastic free, eco- | Pearson Correlation | .180 | .328 | .113 | .450 |

| | | | | | | | |
|----|--|-------------------------|------------------|-------|------|-------|------|
| 4. | What influence your decision more when buying eco-rabbit products? | friendly | Sig. (2-tail ed) | .021 | .000 | .147 | .000 |
| | | N | 164 | 165* | 165 | 165 | |
| | | Pea rso n Cor rela tion | .151 | .178 | .197 | .315 | |
| 5. | If an eco-friendly product had slightly lower quality but was better for the environment would you still buy it? | | Sig. (2-tail ed) | .054 | .022 | .011 | .000 |
| | | N | 164 | 165** | 165 | 165 | |
| | | Pea rso n Cor rela tion | .169 | .219 | .306 | .277 | |
| 6. | Do you associate eco-friendly products with higher or lower 3 than conventional ones? | | Sig. (2-tail ed) | .030 | .005 | .000 | .000 |
| | | N | 164* | 165** | 165* | 165** | |
| | | Pea rso n Cor rela tion | .176 | .205 | .179 | .405 | |

| | | | | |
|------------------|-------|-------|------|-------|
| Sig. (2-tail ed) | .024 | .008 | .022 | .000 |
| N | 164** | 165** | 165 | 165** |

Interpretation:

- Gender and Age: There is a significant weak positive correlation between gender and age ($r = 0.173$, $p = 0.027$), meaning gender and age are slightly related.
- Age and Awareness: Older participants are more familiar with eco-friendly products and sustainable materials ($r = 0.211$, $p = 0.006$; $r = 0.250$, $p = 0.001$).
- Knowledge of Sustainable Materials: People more knowledgeable about eco-friendly materials are more likely to trust claims about biodegradability and plastic-free products ($r = 0.521$, $p < 0.001$).
- Encouragement to Buy: People are more likely to buy eco-friendly products if they are knowledgeable about sustainable materials ($r = 0.424$, $p < 0.001$).
- Certifications: There is a strong positive correlation between checking eco-certifications and trust in eco-friendly products ($r = 0.366$, $p < 0.001$).
- Perceptions of Quality: There's a significant correlation between how people perceive the quality of eco-friendly products compared to conventional ones and their decision to buy them ($r = 0.459$, $p < 0.001$).

Table 3: Chi-square test

| | What would increase your trust in eco-friendly products? | | | | | Total |
|-------|--|----------------------|---------------------|-------------------|---------------------|-------|
| | Certifications | Transparent labeling | Government approval | Customer services | Quality of products | |
| 20-25 | 30 | 22 | 31 | 5 | 16 | 104 |
| 26-30 | 2 | 11 | 7 | 3 | 2 | 25 |
| 30-35 | 1 | 6 | 10 | 7 | 3 | 27 |
| 36-40 | 0 | 1 | 6 | 0 | 2 | 9 |
| Total | 33 | 40 | 54 | 15 | 23 | 165 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square | 33.091 ^a | 12 | .001 |
| Likelihood Ratio | 33.892 | 12 | .001 |
| Linear-by-Linear Association | 6.712 | 1 | .010 |
| N of Valid Cases | 165 | | |

Interpretation: A significant relationship exists between age and trust factors in eco-friendly products ($\chi^2 = 33.091$, $df = 9$, $p = 0.001$).

Table 4: Regression

| Model Summary | | | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | |
| | | | | | R Square Change | F Change | df1 |
| 1 | .642 ^a | .412 | .159 | .570 | .412 | 1.629 | 34 |

- Interpretation:** The model explains 41.2% of the variance in the dependent variable, Gender.
- The adjusted R square of 0.159 indicates that, after adjusting for the number of predictors, the model explains 15.9% of the variation in Gender.
- The F-statistic of 1.629 is statistically significant ($p = 0.039$), indicating that the model as a whole is a significant predictor.

Table 5: Anova

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1 | Regression | 17.981 | 34 | .529 | 1.629 | .039 ^b |
| | Residual | 25.642 | 79 | .325 | | |
| | Total | 43.623 | 113 | | | |

- Interpretation:** The regression sum of squares represents the variation explained by the model

(17.981), while the residual sum of squares represents the unexplained variation (25.642).

- The F-value of 1.629 with a significance level of 0.039 indicates that the model as a whole is significant.
- Knowledge of sustainable materials ($B = 0.138$, $p = 0.032$) and Trust in eco-rabbit products being eco-friendly ($B = 0.335$, $p = 0.002$) are significantly associated with Gender.
- Confidence in increasing trust in eco-products ($B = -0.142$, $p = 0.028$) also shows a significant negative relationship.

2.7 FINDINGS

- Younger participants (Age 20–25) form the majority of respondents and are more aware of eco-friendly products (Mean Age = 1.64).
- Awareness of Eco-Rabbit products is moderate (Mean = 1.68), while familiarity with green products is fair (Mean = 2.82).
- Environmental concern and health benefits are key motivators for eco-friendly product purchases. Trust in product claims is influenced most by third-party certifications and government approval ($\chi^2 = 33.091$, $p = 0.001$).
- Factors influencing Eco-Rabbit product purchases differ significantly by age, with price, quality, and quantity being top considerations. A significant number of consumers check for certifications before buying (Mean = 1.81).
- Trust-building elements like checking labels and certifications also show strong positive

correlations with awareness and familiarity ($r > 0.3$, $p < 0.01$). The regression model explains 41.2% of the variance in Gender; however, the adjusted R^2 is 15.9%, indicating some over fitting.

2.8 LIMITATIONS OF THE STUDY

3. This study has several limitations that may affect the generalizability and depth of its findings. It is geographically confined to Piler and Chittoor (Andhra Pradesh), which may not reflect the perceptions and behaviors of consumers in other regions.

4. The limited sample size, influenced by time and resource constraints, may also restrict the broader applicability of the results.

5. Additionally, the relatively low level of brand awareness about Eco Rabbit among some respondents could impact the accuracy and depth of their feedback.

6. Response bias is another concern, as participants may provide socially acceptable answers rather than honest opinions regarding their eco-friendly consumption behavior.

2.9 SUGGESTIONS

1. Younger consumers, particularly those aged 20–25, make up the majority of your respondents and show higher awareness of eco-friendly products. This demographic should be a primary target for Eco Rabbit. Marketing strategies should leverage platforms popular among this age group, such as Instagram, Tik Tok, and YouTube. Initiatives like campus outreach programs, student ambassador partnerships, and

collaborations with young eco-influencers can create authentic engagement.

2. While overall awareness of green products is relatively fair, awareness of the Eco Rabbit brand itself is only moderate. To improve brand recognition, Eco Rabbit should invest in educational marketing campaigns that distinguish its offerings from other green alternatives.

3. Trust is a major factor in consumers' willingness to buy eco-friendly products, with a clear preference for products that are certified by third-party organizations and approved by the government.

4. Price, quality, and quantity remain key concerns for consumers across age groups. Eco Rabbit should consider introducing value bundles, discount schemes, or starter kits that make eco-friendly options more accessible.

5. Trust-building behaviors such as checking product labels and looking for certifications are strongly associated with higher awareness and familiarity.

3. CONCLUSIONS

This study reveals that while general awareness of eco-friendly concepts is moderate, specific brand recognition of Eco Rabbit remains low. Younger, educated, and urban-adjacent consumers show greater awareness and openness to sustainable alternatives, highlighting a key demographic for targeted outreach.

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