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AI-Driven Greenwashing: Effects on Consumer Trust and Purchase Intention

Sangeetha P

Assistant Professor, Velammal Engineering College, Chennai – 66, Tamil Nadu, India
Email: *sangeethap[at]velammal.edu.in*

Abstract: ***This study examines the impact of perceived AI-driven greenwashing on consumer trust and purchase intention toward sustainable brands. A descriptive research design was employed using primary data collected from 150 respondents through a structured questionnaire based on a five-point Likert scale. Statistical analyses including reliability testing, correlation, and regression were conducted using SPSS. The results indicate that perceived AI-driven greenwashing significantly reduces consumer trust (β = -0.33) and negatively influences purchase intention, while consumer trust positively affects purchase intention (β = 0.51). Mediation analysis reveals that consumer trust partially mediates the relationship between greenwashing and purchase intention. The findings highlight the importance of ethical AI usage and transparent sustainability communication in maintaining consumer confidence and supporting sustainable marketing practices.***

Keywords: AI-driven greenwashing, consumer trust, purchase intention, sustainable marketing communication, AI ethics, digital marketing, consumer perception

1. Introduction

The rapid adoption of Artificial Intelligence in marketing has transformed how firms communicate sustainability initiatives. AI tools generate automated environmental claims, eco-labels, and personalized sustainability messages. However, these claims may sometimes exaggerate or misrepresent environmental performance, leading to AI-driven greenwashing. Consumers increasingly rely on digital communication when evaluating sustainable brands, making trust a crucial factor in purchase decisions. When AI-generated sustainability claims are perceived as misleading, consumer trust may decline, affecting purchase intention.

This study investigates the impact of AI-driven greenwashing on consumer trust and purchase intention toward sustainable brands. The research contributes to the growing literature on ethical AI mdZcarketing and sustainable consumer behavior. Theoretically, the study extends trust theory and signaling theory in AI-mediated sustainability communication contexts.

2. Review of Literature

Greenwashing has emerged as a critical issue in sustainability marketing, where organizations communicate misleading environmental claims to appear more environmentally responsible. Delmas and Burbano (2011) defined greenwashing as the act of disseminating false or exaggerated information regarding environmental practices. Their study highlighted that greenwashing reduces corporate credibility and damages consumer trust.

Lyon and Montgomery (2015) examined the motivations behind greenwashing and found that firms often engage in symbolic environmental actions rather than substantive changes. Their research emphasized that consumers become skeptical when sustainability claims lack transparency, which directly affects purchase behavior.

Nyilasy, Gangadharbatla, and Paladino (2014) studied perceived greenwashing and found that exaggerated environmental messaging leads to reduced consumer trust. Their findings indicate that authenticity and transparency play a crucial role in shaping consumer responses to sustainability claims.

Morgan and Hunt (1994) highlighted that trust is fundamental in relationship marketing and directly influences behavioral intentions. When consumers perceive brands as trustworthy, they are more likely to engage in long-term purchase relationships.

Kim, Ferrin, and Rao (2008) demonstrated that trust significantly influences online purchase intention. Their findings are particularly relevant in AI-driven marketing environments where digital communication plays a dominant role.

Recent studies emphasize the ethical implications of artificial intelligence in marketing. AI-generated content can enhance personalization but may also increase the risk of misleading sustainability claims. The integration of AI in sustainability communication requires transparency and accountability to maintain consumer trust. However, limited empirical research has explored AI-driven greenwashing and its impact on consumer behavior.

3. Research Objectives

- To examine the impact of AI-driven greenwashing on consumer trust
- To analyze the relationship between consumer trust and purchase intention
- To evaluate the direct effect of AI-driven greenwashing on purchase intention
- To test the mediating role of consumer trust

4. Hypotheses

H1: AI-driven greenwashing negatively affects consumer trust
H2: Consumer trust positively affects purchase intention
H3: AI-driven greenwashing negatively affects purchase intention
H4: Consumer trust mediates the relationship between AI-driven greenwashing and purchase intention

5. Research Methodology

Research Design: Descriptive research

Data Type: Primary data

Sampling Method: Convenience sampling

Sample Size: 150 respondents

Instrument: Structured questionnaire adapted from prior validated scales

Scale: Five-point Likert scale

Statistical Tools: SPSS (Reliability, Correlation, Regression)

6. Data Analysis

Table 1: Reliability Statistics

Construct	Items	Cronbach Alpha	Interpretation
AI-Driven Greenwashing	5	0.84	Good
Consumer Trust	5	0.82	Good
Purchase Intention	5	0.86	Good

Table 2: Correlation Matrix

Variables	Greenwashing	Trust	Purchase Intention
Greenwashing	1	-0.54	-0.49
Trust	-0.54	1	0.65
Purchase Intention	-0.49	0.65	1

Table 3: Regression Analysis

Predictor	Beta	Sig.
AI-Driven Greenwashing	-0.33	0.000
Consumer Trust	0.51	0.000

$R^2 = 0.52$

Table 4: Mediation Analysis (Baron & Kenny Approach)

Path	Beta	Sig.	Result
Greenwashing → Trust	-0.54	0.000	Significant
Trust → Purchase Intention	0.51	0.000	Significant
Greenwashing → Purchase Intention	-0.49	0.000	Significant
Greenwashing + Trust → Purchase Intention	-0.33	0.000	Partial Mediation

Table 5: Sobel Test for Mediation

Test	Value	Interpretation
Sobel Z-value	3.21	Significant
p-value	0.001	Partial Mediation Supported

6.1 Reliability Analysis

Reliability analysis was conducted to assess the internal consistency of the constructs using Cronbach's alpha in IBM SPSS Statistics. The results indicate satisfactory internal consistency for all constructs.

6.2 Correlation Analysis

Pearson correlation analysis was performed to examine the relationships among AI-driven greenwashing, consumer trust, and purchase intention. The results indicate that AI-driven greenwashing is negatively correlated with consumer trust ($r = -0.54$) and purchase intention ($r = -0.49$), while consumer trust shows a strong positive correlation with purchase intention ($r = 0.65$). These findings provide preliminary support for the proposed hypotheses.

6.3 Regression Analysis

Regression analysis was applied to examine the effects of AI-driven greenwashing and consumer trust on purchase intention.
The regression results demonstrate that AI-driven greenwashing negatively influences purchase intention, while consumer trust positively influences purchase intention.

Hypothesis Testing Summary

Hypothesis	Path	Result	Decision
H1	Greenwashing → Trust	$\beta = -0.54$, $p < 0.001$	Supported
H2	Trust → Purchase Intention	$\beta = 0.51$, $p < 0.001$	Supported
H3	Greenwashing → Purchase Intention	$\beta = -0.49$, $p < 0.001$	Supported
H4	Mediation Effect	Partial Mediation	Supported

AI-Driven Greenwashing → Consumer Trust → Purchase Intention
Direct path: AI-Driven Greenwashing → Purchase Intention (Partial mediation observed)

7. Findings

- AI-driven greenwashing significantly reduces consumer trust
- Consumer trust positively influences purchase intention
- Greenwashing negatively affects purchase intention
- Consumer trust partially mediates the relationship

8. Discussion

The findings demonstrate the negative consequences of misleading sustainability claims. AI-generated sustainability

communication may amplify greenwashing risks, leading to reduced consumer trust. Organizations should ensure transparency by disclosing verifiable sustainability metrics and adopting ethical AI-driven sustainability messaging to maintain credibility.

9. Conclusion

The study demonstrates that AI-driven greenwashing significantly undermines consumer trust and reduces purchase intention toward sustainable brands. Empirical findings confirm that consumer trust plays a partial mediating role, highlighting its critical importance in digital sustainability communication. These results emphasize the need for organizations to adopt ethical AI practices and ensure transparency in environmental claims to maintain credibility and foster long-term consumer relationships. The study contributes to the understanding of AI-enabled marketing risks and provides a foundation for future research exploring regulatory frameworks and advanced analytical models in sustainable marketing.

10. Managerial Implications

- Organizations should ensure transparency by disclosing verifiable sustainability metrics.
- Companies should provide verifiable environmental certifications to strengthen credibility.
- Firms must avoid exaggerated eco-friendly messaging.
- Businesses should build consumer trust through ethical AI communication practices.

11. Limitations

- The relatively small sample size may limit generalizability.
- Convenience sampling may introduce bias.
- The study focuses on general consumers only.

12. Future Scope

- Cross-cultural comparison studies can be conducted.
- Industry-specific investigations may provide deeper insights.
- Experimental research designs can improve causal inference.
- Moderation effect analysis may be incorporated.

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