

The Influence of Green Attribute Communication on Electric Vehicle Purchase Intention Mediated by Green Trust

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ABSTRACT

Keywords

Green Attribute Communication; Green Trust; Electric Vehicle Adoption; Sustainability Communication; Green Purchase Intention

The increasing promotion of electric vehicles as a sustainable mobility solution has encouraged automotive companies to use green attribute communication strategies to shape consumer perceptions of the product's environmental value. On the other hand, increased exposure to sustainability messages has also raised doubts about the credibility of environmental claims, thus placing consumer trust as a crucial factor in purchasing decisions. This study aims to analyze the influence of green attribute communication on electric vehicle purchase intentions with green trust as a mediating variable. Green attribute communication is represented through green brand image, green perceived quality, and green perceived value. This study used a quantitative approach with a survey method of 200 millennial respondents working in the SCBD area of Jakarta. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results showed that all dimensions of green attribute communication had a positive and significant effect on green trust and green purchase intention. In addition, green trust was proven to act as a mediating variable that strengthens the relationship between green attribute communication and purchase intention. These findings confirm that sustainability communication not only shapes consumer perceptions but also plays a role in building trust as a psychological mechanism that encourages sustainable consumption behavior. This research contributes to the development of green marketing and sustainability communication studies by positioning green attributes as a message construct that influences consumer perceptions and trust in the context of electric vehicles.

1. Introduction

Global climate change and increasing pressure on environmental sustainability have become major concerns in various development sectors, including the transportation sector. Fossil fuel-based transportation activities are known to contribute significantly to increasing greenhouse gas emissions, which impact global warming and environmental degradation. This situation has prompted governments, industry, and the international community to develop more sustainable mobility solutions to reduce the environmental impact of the transportation sector. One technological innovation currently being widely promoted as a sustainable mobility solution is electric vehicles (EVs). Electric vehicles are seen as having the potential to reduce carbon emissions, increase energy efficiency, and support the transition to a more environmentally friendly transportation system compared to conventional fossil fuel-based vehicles (International Energy Agency, 2023).

The global development of electric vehicles has shown significant growth in recent years. Various countries have begun encouraging the use of electric vehicles through incentive policies, the development of charging infrastructure, and regulations supporting the transition to clean energy. (Kementerian Keuangan Republik Indonesia., 2023). Despite this, the rate of electric vehicle adoption by consumers still shows significant variation across regions. This phenomenon suggests that consumer decisions to adopt electric vehicles are influenced not only by technological factors or government policies, but also by how consumers perceive the environmental value of the product. Consumer perceptions of a product's eco-friendly attributes are a crucial factor that can influence attitudes and behaviours regarding sustainable consumption (Yeğin & Ikram, 2022).

The proliferation of electric vehicles is not only related to technological innovation, but also to the communication strategies companies employ to build consumer perceptions of product sustainability. The automotive industry is intensively using sustainability narratives and eco-friendly imagery in marketing communications to position electric vehicles as a cleaner and more sustainable mobility solution (Kim et al., 2025). Pesan-pesan tersebut disampaikan melalui berbagai strategi komunikasi seperti kampanye keberlanjutan, simbol-simbol lingkungan, serta narasi tentang kontribusi kendaraan listrik dalam mengurangi emisi karbon. Strategi komunikasi ini berperan penting dalam membentuk bagaimana konsumen memahami dan memaknai atribut lingkungan dari suatu produk (Kottala et al., 2025).

Several studies have shown that green claims in the electric vehicle industry do not always fully reflect the overall environmental impact. Life cycle analyses of electric vehicles show that the production process for electric vehicle batteries is energy-intensive and involves the extraction of minerals such as lithium, cobalt, and nickel, potentially causing significant ecological and social impacts (Koroma et al., 2022; Niri et al., 2024). The production of electric vehicle batteries can even produce significant carbon emissions at the manufacturing stage due to the energy-intensive production process and the mining activities for battery raw materials (Tunley Environmental, 2025). Furthermore, approximately 40% of the climate impact of lithium-ion battery production comes from mining and processing the minerals used in their production (Institute for Energy Research, 2023). These findings suggest that claims of electric vehicle environmental friendliness need to be more critically understood, as the environmental impacts of electric vehicles occur not only at the point of use but also throughout the production and supply chain (Eltohamy et al., 2024).

The development of the electric vehicle industry is also closely linked to the increasing global demand for strategic minerals used in battery production, particularly nickel. Indonesia holds a crucial position in the global electric vehicle supply chain as it is the world's largest nickel producer, with approximately 42% of global nickel reserves (ASEAN Briefing, 2025). Indonesia's nickel production supplies a significant portion of the lithium-ion battery industry's demand for electric vehicles. This makes Indonesia a key player in the global electric vehicle battery supply chain (Mulyono et al., 2025).

The expansion of the nickel industry to support electric vehicle battery production also poses a number of environmental challenges. Research shows that nickel mining and processing activities have the potential to cause deforestation, water pollution, and increased carbon emissions due to the use of coal-based energy in the smelting process (Mubarok & Kartini, 2024). Nickel production is even estimated to produce quite high carbon emissions during the production stage, thus creating a paradox in the global energy transition, where technologies promoted as environmental solutions actually depend on supply chains that have significant ecological impacts (Pambudi, 2025).

This situation has given rise to critical discourse regarding the sustainability narrative in the electric vehicle industry. Several studies have shown that automotive companies often use communications messages that emphasize the environmentally friendly image of electric vehicles without always transparently disclosing the environmental impact of the battery production supply chain. This type of communication practice is often associated with the phenomenon of greenwashing, a communication strategy that overemphasizes the image of sustainability over the reality of its actual environmental impact (Dudziak, 2022). This phenomenon demonstrates that green attribute communication plays a significant role in shaping consumer perceptions and trust in companies' sustainability claims. Greenwashing refers to communication practices or marketing strategies that overemphasize a product's environmental image or underrepresent its true

environmental impact (Ha, 2022). Several recent studies have shown that the phenomenon of greenwashing is also starting to emerge in the electric vehicle industry, where companies use sustainability narratives to strengthen the product's environmentally friendly image without always being accompanied by transparency regarding the environmental impacts that occur in the production process or supply chain (Gao et al., 2025). This kind of communication practice has the potential to influence consumer perceptions of a product's environmental attributes and shape consumer trust in the sustainability claims made by the company

This research stems from the development of sustainability communication studies that position corporate communication not only as a promotional tool, but as a strategic mechanism in shaping meaning, legitimacy, and public trust in sustainability claims. Sustainability communication literature shows that messages regarding a product's environmental attributes do not function as neutral information, but rather as symbolic constructions formed through framing processes in organizational and marketing communications (Delmas & Burbano, 2011). Through this process, companies highlight certain aspects of a product's environmental reality through brand narratives, sustainability symbols, and language choices that emphasize a product's ecological benefits. This message construction process influences how consumers interpret the credibility of environmental claims and shape their evaluations of the company's sustainability commitments (Szabo & Webster, 2021; Nyilasy et al., 2014). Green attribute communication can be understood as a strategic sustainability communication practice that plays a role in shaping consumer perceptions, beliefs, and behavioral intentions toward products claimed to be environmentally friendly. This approach emphasizes that the study of electric vehicles is not only concerned with technological innovation or marketing strategy, but also with how sustainability messages are constructed and communicated to the public within the context of environmental and sustainability communication.

This phenomenon indicates that green attribute communication plays a significant role in shaping consumer perceptions of electric vehicles. Green attribute communication is not only understood as the technical characteristics of a product, but also as a construction of meaning formed through communication messages delivered by companies to consumers. Consumer perceptions of a product's environmental attributes are often formed through symbolic representations, brand narratives, and the framing of sustainability messages used in marketing communication strategies. Based on this perspective, green attribute communication in this study is understood as a communication process that builds consumer perceptions of a product's environmental value through various communication messages delivered by companies (Srivastava & Mittal, 2025). Green attribute communication in this study is represented through three main dimensions: green brand image, green perceived quality, and green perceived value. Green brand image refers to the environmentally friendly image built by a brand through communication messages regarding product sustainability. Green perceived quality describes consumer perceptions of a product's environmental quality, formed through communication claims regarding the product's environmentally friendly technology or characteristics. Meanwhile, green perceived value refers to consumer perceptions of the environmental value and sustainability benefits offered by a product as a result of the communication narrative conveyed by the brand.

Green attribute communication in this study is represented through three main dimensions: green brand image, green perceived quality, and green perceived value. Green brand image refers to the environmentally friendly image built by a brand through communication messages regarding product sustainability. Green perceived quality describes consumer perceptions of a product's environmental quality, formed through communication claims regarding the product's environmentally friendly technology or characteristics. Meanwhile, green perceived value refers to consumer perceptions of the environmental value and sustainability benefits offered by a product as a result of the communication narrative conveyed by the brand (Wasaya et al., 2021; Chen & Chang, 2013).

According to Chen & Chang, (2012) *Green marketing shows that a sustainability-oriented brand image can strengthen consumer trust in a brand and increase preference for green products* (Tan et al., 2022). Furthermore, consumer perceptions of a product's environmental value have also been shown to influence purchase intentions for environmentally friendly products. Other research shows that factors such as green brand awareness, green brand associations, and perceived environmental quality can influence consumer intentions to purchase environmentally friendly products (Mombeuil

& Diunugala, 2024). These findings indicate that green attributes play a significant role in shaping consumer attitudes and behaviors toward products claimed to have environmental benefits.

In addition to product attributes, consumer trust in environmental claims is also a crucial factor in shaping sustainable consumption behavior. The concept of green trust refers to the level of consumer confidence in environmental claims made by companies regarding a particular product or brand. Previous research has shown that green trust plays a significant role in mediating the relationship between perceived green attributes and green product purchase intentions (Chen & Chang, 2012). Consumers tend to exhibit higher purchase intentions for products perceived as having credible environmental claims. Other research also shows that consumers' perceived value of a product's environmental attributes can increase trust in that product, ultimately driving purchase intentions (Wasaya et al., 2021).

Research on electric vehicles has identified several factors influencing consumers' decisions to adopt more environmentally friendly transportation technologies. These factors include perceptions of environmental benefits, economic value, and perceptions of electric vehicle technology itself (Han et al., 2024). Most studies discussing the adoption of electric vehicles still focus on technological factors, policies, or product characteristics, while the communication aspects that shape consumer perceptions of environmental attributes still receive relatively little attention in the existing literature.

Several previous studies positioned green attributes as objective product characteristics, such as energy efficiency, battery technology, or carbon emission levels. This approach tends to view environmental attributes as technical features of a product without considering how these attributes are perceived by consumers through the company's communication processes. However, in practice, consumer perceptions of a product's environmental attributes are often formed through communication messages delivered by the company through various marketing channels. These communication strategies can include sustainability narratives, environmental symbols, or message framing that emphasizes a product's ecological benefits (Hartmann & Apaolaza Ibáñez, 2006). This shows that green attributes can not only be understood as product characteristics, but also as communication constructs that influence how consumers interpret the environmental value of the product.

These limitations open up research opportunities to examine green attributes from a communication perspective. A communication approach allows for a more comprehensive understanding of how sustainability messages are constructed, selected, and presented by companies, thus shaping how consumers interpret a product's environmental value. This study uses Framing Theory as a theoretical foundation to explain how messages about environmental attributes are packaged in corporate communications and how these message frames influence consumer perceptions and assessments (Zaklama, 2025). *Framing Theory [DD2.1][VE2.2] explains that social reality is not perceived directly by the audience, but rather through a process of selection and highlighting certain aspects in communication* (Entman, 1993). This process causes certain information to become more prominent, thus influencing how individuals understand and evaluate an issue. In this study, Framing Theory is placed within a post-positivism paradigm, where framing is viewed as a message construction that can be identified and empirically tested for its influence on consumer perceptions and attitudes. The way messages are constructed in green attribute communications plays a role in influencing consumer assessments of electric vehicle products. Message framing in sustainability communications is often used by companies to emphasize a product's environmental benefits through various symbolic representations and sustainability narratives. Messages regarding green brand image, product environmental quality, and sustainability values are often packaged in such a way as to highlight the product's contribution to environmental issues. This message framing process can influence how consumers understand a product's environmental attributes and shape their level of trust in the company's environmental claims. Previous research has shown that environmental message framing in marketing communications has a significant influence on consumer perceptions of the credibility of sustainability claims and on environmentally friendly consumption behavior (Matthes & Wonneberger, 2014). The framing theory framework provides a relevant conceptual basis for explaining how green attribute communication can shape consumers' perceptions, beliefs, and behavioral intentions towards electric vehicles through the process of interpreting messages constructed in corporate communications.

This study positions green attribute communication as a form of message construction in sustainability communication that influences how consumers understand and evaluate a product's environmental claims. This perspective stems from Framing Theory, which explains that social reality is not perceived directly by the audience, but rather through a process of selecting and highlighting certain aspects of a reality in communication practice (Entman, 1993). Through this framing process, organizations or companies shape how audiences interpret an issue by highlighting certain aspects they deem relevant. In sustainability-oriented marketing communications, companies often frame a product's environmental attributes through brand narratives, sustainability symbols, and messages emphasizing a product's ecological benefits. This message framing process influences how consumers interpret a product's environmental value and shapes their evaluations of the credibility of the company's sustainability claims (Matthes & Wonneberger, 2014). Based on this perspective, this study views green attribute communication as a message construction represented through three main dimensions: green brand image, green perceived quality, and green perceived value. These three dimensions describe how companies frame product environmental attributes in brand communications to shape consumer perceptions of electric vehicles. This communication process subsequently influences green trust, namely the level of consumer confidence in the credibility of environmental claims made by the company, which ultimately plays a role in shaping green purchase intentions for electric vehicles.

This research contributes by positioning green attributes as a result of communication construction that shapes consumer perceptions and beliefs, rather than simply product characteristics. Unlike previous research that emphasized functional aspects, this study demonstrates that the influence of green attributes on purchase intentions occurs through framing mechanisms and the formation of trust.

Furthermore, this study addresses the paradox in the context of electric vehicles: the conflict between the narrative of being an environmentally friendly solution and the reality of the ecological impacts of nickel production. This tension positions trust as a key factor in bridging sustainability claims with consumer perceptions, thus broadening the study of green marketing in the context of sustainability communication. This study aims to analyze the influence of green attribute communication on purchase intentions for electric vehicles by utilizing green trust as a mediating variable.

2. Method

2.1 Research Design

This study uses a quantitative approach with an explanatory survey research design to analyze the relationship between green attribute communication, consumer trust in environmental claims, and electric vehicle purchase intentions. The quantitative approach was chosen because this study aims to empirically test the causal relationship between variables through statistical analysis based on a structural model. The survey method allows researchers to collect data from a number of respondents who represent consumer perceptions of sustainability communication messages delivered by companies in the context of electric vehicles (Creswell, 2024).

Epistemologically, this research is based on the post-positivism paradigm, which holds that social phenomena can be understood through empirical examination of relationships between variables using scientific methods. The post-positivism paradigm emphasizes that social reality can be analyzed through the measurement of observable variables and the testing of hypotheses using statistical approaches to explain causal relationships in a social phenomenon (Daniel Stockemer, 2019). This research uses quantitative communication, a widely used paradigm, to explain how communication messages influence audience perceptions, attitudes, and behavior through an empirically testable model of variable relationships.

This research focuses on green attribute communication as a form of sustainability communication used by companies to build consumer perceptions of a product's environmental value. Green attribute communication is represented through three main dimensions: green brand image, green perceived quality, and green perceived value, which reflect how companies communicate their products' environmental attributes to consumers. (Chen, 2010; Chen & Chang,

2012). These three dimensions are thought to influence green trust, which is the level of consumer confidence in the credibility of environmentally friendly claims made by companies. Green trust is then positioned as a mediating variable explaining how green attribute communication influences green purchase intention, which is the tendency of consumers to purchase products perceived as environmentally friendly. Previous research has shown that trust in a company's environmental claims is a significant factor influencing environmentally friendly consumption behavior (Wasaya et al., 2021).

The relationships between variables in this study were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). This method was chosen because it is capable of analyzing complex structural relationships between several latent variables simultaneously and is suitable for use in research focused on predictive model testing and theory development (Hair et al., 2022). Based on the conceptual framework, Figure 1 shows a research framework that describes the relationship between green attribute communication, green trust, and green purchase intention in the context of electric vehicles.

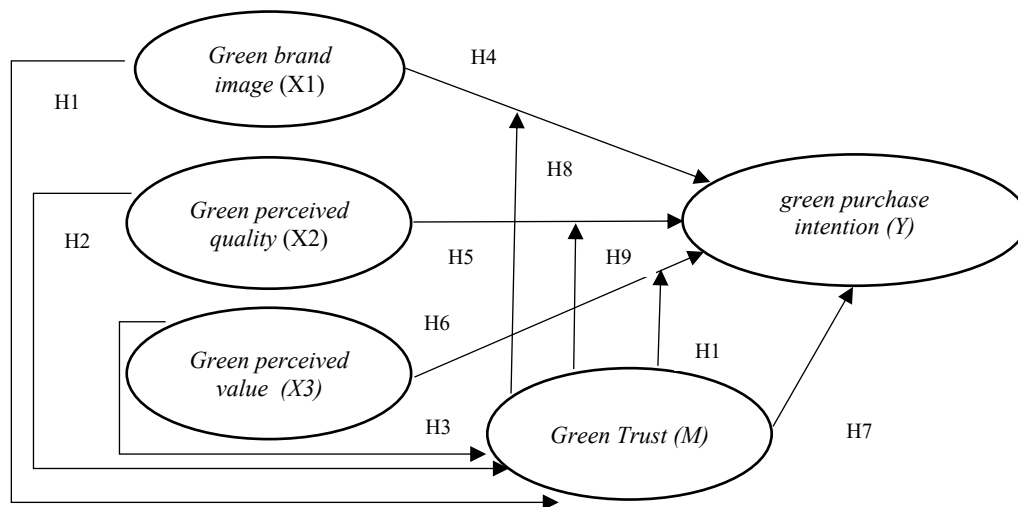


Figure 1. Proposed Research Model

Based on the research framework, the research hypotheses are formulated as follows:

1. H1: Green brand image has a positive effect on green trust.
2. H2: Green perceived quality has a positive effect on green trust.
3. H3: Green perceived value has a positive effect on green trust.
4. H4: Green brand image has a positive effect on green purchase intention.
5. H5: Green perceived quality has a positive effect on green purchase intention.
6. H6: Green perceived value has a positive effect on green purchase intention.
7. H7: Green trust has a positive effect on green purchase intention.
8. H8: Green trust mediates the relationship between green brand image and green purchase intention of electric vehicles.
9. H9: Green trust mediates the relationship between green perceived quality and green purchase intention of electric vehicles.
10. H10: Green trust mediates the relationship between green perceived value and green purchase intention of electric vehicles.

2.2 Population and Sample

The population in this study is millennials working in the Sudirman Central Business District (SCBD) area of Jakarta. Millennials were chosen because this group is a consumer segment that has a high level of adaptability to technological innovation and shows greater concern for sustainability

and environmental issues than previous generations. Furthermore, workers working in central business districts like SCBD generally have high levels of mobility and broader access to information about new transportation technologies, including electric vehicles. In this study, millennials are defined as individuals born between 1981 and 1996, who at the time of the study were aged approximately 28 to 43. This definition refers to a widely used generational classification in social and consumer behavior research, which identifies millennials as a group that grew up in the era of digital technology and is characterized by a relatively open attitude to technological innovation and environmental sustainability issues (Dimock, 2019).

The sample determination in this study used a probability sampling technique with a simple random sampling (SRS) approach. This technique was chosen because respondents must meet certain criteria in accordance with the research objectives, namely individuals who fall into the millennial generation category, work in the SCBD area of Jakarta, and have knowledge or interest in electric vehicles. The sample determination in this study used a probability sampling technique, where each member of the population has an equal chance of being selected as a research sample. The technique used was simple random sampling (SRS), with the consideration of minimizing sample selection bias and increasing the generalizability of the research results. The population in this study were millennials who work in the SCBD area of Jakarta and have knowledge or interest in electric vehicles. The sample was selected randomly from this population while still considering the suitability of the respondents' characteristics to the research objectives. The use of simple random sampling (SRS) in quantitative research with statistical tests aims to produce more representative data and enable the generalization of research findings to a wider population (Creswell, 2024).

The number of samples in this study was determined based on recommendations in the Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis. According to Hair et al., (2022) The minimum sample size in research using PLS-SEM can be determined by considering the number of measurement indicators in the research model. A commonly used approach is to multiply the number of indicators by a factor of between 5 and 10, depending on the complexity of the research model. The number of indicators in this study is 29 indicators multiplied by 5 for 145 respondents. This approach is widely used in research involving latent constructs measured through several questionnaire indicators.

This study used a sufficient number of respondents to ensure that the structural model could be reliably analyzed using the PLS-SEM method. A sufficient sample size is crucial for obtaining stable parameter estimates and increasing the reliability of the structural model analysis results (Hair et al., 2022). Data collection was conducted by distributing questionnaires to respondents who met the research criteria, namely millennials working in the SCBD area of Jakarta and having knowledge or interest in electric vehicles.

2.3 Data Collection

This study utilized two types of data sources: primary and secondary data. The use of both data types aimed to gain a comprehensive understanding of the phenomenon under study and ensure that the analysis was supported by adequate theoretical and empirical foundations. Primary data was obtained through the distribution of a structured questionnaire to respondents who met the research criteria: millennials working in the Sudirman Central Business District (SCBD) in Jakarta and who had knowledge or interest in electric vehicles. Questionnaires are one of the most commonly used instruments in quantitative research because they allow researchers to systematically collect data on respondents' perceptions, attitudes, and behaviors toward a particular phenomenon (Creswell & Creswell, 2018). Through the questionnaire, researchers were able to obtain data on respondents' perceptions of green attribute communication, their level of trust in companies' environmental claims, and their intention to purchase electric vehicles.

The questionnaire instrument in this study was designed based on measurement indicators adapted from previous research relevant to the research variables: green brand image, green perceived quality, green perceived value, green trust, and green purchase intention. The use of indicators adapted from previous research is important to ensure that the measurement instrument has conceptual validity and can be used to reliably measure latent constructs (Hair et al., 2022). All statement items in the

questionnaire were measured using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The Likert scale is widely used in consumer behavior research because it can capture respondents' perceptions of a statement in a more structured manner and is easy to analyze statistically (Sekaran & Bougie, 2022).

The questionnaire was distributed online to facilitate data collection and reach respondents working in the SCBD area with high work mobility. The online survey method also allows for more efficient data collection and minimizes the potential for errors in data processing (Creswell, 2024).

In addition to primary data, this study also utilizes secondary data obtained from various literature sources, such as academic books, scientific journal articles, research reports, and publications from international institutions relevant to the topics of electric vehicles, sustainability communication, and consumer behavior toward environmentally friendly products. Secondary data is used to strengthen the theoretical foundation of the study and provide a broader context regarding research developments related to green attribute communication and sustainable consumption behavior (Sekaran & Bougie, 2022).

2.4 Measurement of Variables

The variables in this study were measured using indicators adapted from previous research relevant to the context of green marketing, consumer trust, and green purchase behavior. The use of indicators from previous research is essential to ensure the constructs have conceptual validity and measurement reliability (Hair et al., 2022). All indicators in this study were measured using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. The following are the measurements of the variables used in this study.

Green trust is defined as the level of consumer confidence that a brand or company has a credible commitment to environmental protection and is capable of fulfilling environmental claims made to consumers. This concept reflects consumer confidence in the credibility, integrity, and reliability of a brand's environmental claims (Chen & Chang, 2012).

Table 1. Green Trust Measurement Table

Variabel	Kode	Indikator	Sumber
Green Trust	GT1	Belief that the brand/company's environmental commitments are consistent and reliable	Chen & Chang (2012); Mombeuil & Diunugala (2024)
	GT2	Perception that the product's environmentally friendly performance is functional and delivers tangible benefits	Chen & Chang (2012)
	GT3	Belief that the company's environmental claims are honest and not simply greenwashing	Chen & Chang (2012)
	GT4	Belief that the product meets consumer expectations regarding ecological benefits	Chen & Chang (2012)
	GT5	Perception that the brand's environmental image is generally credible	Chen & Chang (2012)
	GT6	Belief that the product's performance matches the company's claims	Chen & Chang (2012)
	GT7	Perception that environmental claims are consistent with actual consumer experiences	Chen & Chang (2012)

Green purchase intention refers to consumers' tendency to purchase products perceived as having environmental benefits and supporting ecological sustainability. This concept describes consumers' willingness to choose environmentally friendly products over conventional products in the purchasing decision-making process. In consumer behavior research, green purchase intention is often used as a predictor of sustainable consumption behavior because it reflects the likelihood of consumers making actual purchases of environmentally friendly products (Chen & Chang, 2012; Yadav & Pathak, 2017). This variable is measured using indicators adapted from (Chen and Chang, 2012; Yadav & Pathak, 2017).

Table 2. Green Purchase Intention

Variabel	Kode	Indikator	Sumber
<i>Green Purchase Intention</i>	GPI1	Likelihood of purchasing eco-friendly products due to their ecological benefits	Chen & Chang (2012); Yadav & Pathak (2017)
	GPI2	Intention to purchase eco-friendly products in the future	Chen & Chang (2012)
	GPI3	Preference for choosing eco-friendly products over conventional products	Paul et al., (2016)
	GPI4	Willingness to support sustainable consumption through purchasing green products	Yadav & Pathak (2017)
	GPI5	Consistency of attitude in choosing products with environmental benefits	Yadav & Pathak (2017)
	GPI6	Commitment to purchasing eco-friendly products	Chen & Chang (2012)

Green brand image refers to consumers' perceptions of the environmental commitment associated with a brand. This concept describes how consumers perceive a brand to be concerned about environmental protection and to offer environmentally friendly products. In green marketing literature, a sustainability-oriented brand image can increase consumers' positive perceptions of the brand and influence attitudes and purchasing decisions for environmentally friendly products (Bashir et al., 2020). Dalam penelitian ini, variabel green brand image diukur menggunakan indikator yang diadaptasi oleh In this study, the green brand image variable was measured using indicators adapted by (Zameer & Yasmeen, 2022; Tsai et al., 2025).

Table 3. Green Brand Image

Variabel	Kode	Indikator	Sumber
<i>Green Brand Image</i>	GBI1	The perception that the image of electric vehicles is attractive and creates a positive impression.	Zameer & Yasmeen (2022); Tsai et al. (2025)
	GBI2	The belief that this electric vehicle brand consistently supports environmental sustainability.	Zameer & Yasmeen (2022)
	GBI3	The brand's association with green innovation in the automotive industry.	Tsai et al. (2025)
	GBI4	The perception that electric vehicles are chosen for their environmental benefits compared to conventional vehicles.	Tsai et al. (2025)

GBI5	The belief that the environmental performance of electric vehicles meets consumer expectations.	Zameer & Yasmeen (2022)
GBI6	The perception that electric vehicles demonstrate environmental performance that differentiates them from conventional vehicles.	Tsai et al. (2025)

Green perceived quality refers to consumers' assessment of a product's quality or superiority in relation to environmental and sustainability aspects. This perception reflects the extent to which consumers assess a product as having good environmental performance and meeting expected quality standards in the context of environmentally friendly consumption. Green perceived quality is considered a consumer's evaluation of a product's superiority based on its environmental attributes, which can then influence consumer trust and purchasing behavior for environmentally friendly products (Hashish et al., 2022).

Table 4. Green perceived quality

Variabel	Kode	Indikator	Sumber
<i>Green Perceived Quality</i>	GPQ1	Perception that electric vehicles have good environmental quality	Chen & Chang (2013); Hashish (2022)
	GPQ2	Belief that electric vehicles have reliable environmental performance	Chen & Chang (2013)
	GPQ3	Perception that electric vehicles meet environmental quality standards	Y.-S. Chen et al., (2015)
	GPQ4	Belief that electric vehicle technology provides tangible environmental benefits	Chen & Chang (2013)
	GPQ5	Perception that the environmental quality of electric vehicles is better than that of conventional vehicles	Hashish (2022)

Green perceived value refers to consumers' overall evaluation of the environmental benefits derived from a product relative to the associated costs, such as cost, time, or effort. This concept describes the extent to which consumers perceive a product as providing added value related to environmental sustainability and contributing to environmental protection. Green perceived value is often considered an important factor influencing consumer attitudes, trust in green products, and purchase intentions for environmentally friendly products (Tsai et al., 2025). High environmental value perceptions can increase consumers' tendency to choose products that support sustainable consumption practices.

Table 5. Green perceived quality

Variabel	Kode	Indikator	Sumber
<i>Green Perceived Value</i>	GPV1	Perception that electric vehicles provide valuable environmental benefits to consumers	Liu et al. (2025); Hashish (2022)
	GPV2	Perception that electric vehicles provide higher environmental value than conventional vehicles	Liu et al. (2025)

GPV3	Belief that using electric vehicles makes a positive contribution to the environment	Hashish (2022)
GPV4	Perception that the environmental benefits of electric vehicles are worth the cost or effort involved	Liu et al. (2025)
GPV5	Perception that electric vehicles provide sustainable value to society and the environment	Hashish (2022)

2.5 Data Analysis Technique (PLS-SEM)

This study uses the Partial Least Squares–Structural Equation Modeling (PLS-SEM) approach to analyze the relationships between variables in the research model. The PLS-SEM method was chosen because it is capable of analyzing complex research models with multiple latent variables and is suitable for use in predictive and exploratory research. Furthermore, PLS-SEM is relatively more flexible with moderate sample sizes and does not require strict data distribution assumptions compared to covariance-based SEM (Hair et al., 2021). Data analysis was conducted using SmartPLS software, which allows simultaneous testing of the measurement model (outer model) and the structural model (inner model). The first stage in PLS-SEM analysis is the evaluation of the outer model (measurement model), which aims to assess the validity and reliability of the indicators in reflecting the latent construct. The evaluation of the outer model is conducted through several tests, as follows:

1. **Convergent Validity**
Convergent validity is used to assess the extent to which indicators within a construct have a high correlation with each other. This test is conducted by observing the recommended outer loading value of above 0.70 and the Average Variance Extracted (AVE) value, which must be greater than 0.50. An AVE value that meets the criteria indicates that the construct is able to explain more than half of the variance in the indicators used.
2. **Discriminant Validity**
Discriminant validity aims to ensure that a construct has adequate differentiation compared to other constructs in the model. This test is conducted using the Fornell–Larcker criterion and cross-loading, where the square root of the AVE value for each construct must be greater than its correlation with other constructs.
3. **Construct Reliability**
Construct reliability is used to measure the internal consistency of indicators in representing latent constructs. This test is carried out by looking at the Composite Reliability (CR) and Cronbach's Alpha values, where the recommended value is above 0.70 to indicate a good level of reliability.

The second stage is the evaluation of the inner model (structural model), which aims to test the causal relationships between constructs in the research model. The inner model evaluation is conducted using the following indicators:

1. **Coefficient of Determination (R^2)**
The R^2 value is used to assess the ability of the independent variables to explain the dependent variable in the research model.
 2. **Effect Size (f^2)**
Effect size is used to measure the contribution of each exogenous variable to the endogenous variable in the structural model.
 3. **Predictive Relevance (Q^2)**
The Q^2 value is used to assess the model's predictive ability to explain the endogenous variable.
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4. Hypothesis Testing (Bootstrapping)

Hypothesis testing is conducted using a bootstrapping procedure to obtain t-statistics and p-values. The relationship between constructs is considered significant if the t-statistics value is >1.96 and the p-value is <0.05 at the 5% significance level.

3. Result and Discussion

3.1 Measurement Model Evaluation (*Outer Model*)

Evaluation of the measurement model (outer model) was conducted to ensure the validity and reliability of the latent constructs used in the research. Testing included convergent validity and construct reliability.

Convergent Validity

Convergent validity was evaluated based on outer loading and Average Variance Extracted (AVE) values. The analysis showed that all indicators had outer loading values above the recommended threshold of 0.70, indicating that each indicator adequately reflected the latent construct.

Furthermore, the AVE values for all variables were also above 0.50, indicating that the constructs explained more indicator variance than error variance. Specifically, the AVE values for Green Brand Image (0.796), Green Perceived Quality (0.814), Green Perceived Value (0.774), Green Purchase Intention (0.727), and Green Trust (0.789) indicated a good level of convergent validity.

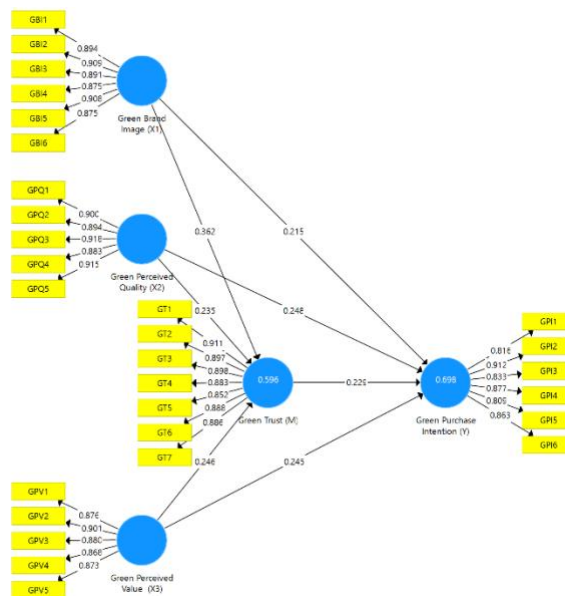


Figure 1. Measurement and Structural Model Results

Construct Reliability

Construct reliability was evaluated using Cronbach's Alpha and Composite Reliability (CR) values. The analysis results showed that all constructs had Cronbach's Alpha and CR values above 0.70, indicating excellent internal consistency.

Table 6. Composite Reliability and Cronbach's Alpha

	Cronbach's Alpha	Composite Reliability
Green Brand Image (X1)	0.949	0.959

Green Perceived Quality (X2)	0.943	0.956
Green Perceived Value (X3)	0.927	0.945
Green Purchase Intention (Y)	0.925	0.941
Green Trust (M)	0.955	0.963

The Composite Reliability (CR) and Cronbach's Alpha tables show that all variables in the study have a very good level of reliability. The Cronbach's Alpha value for Green Brand Image (X1) is 0.949, Green Perceived Quality (X2) is 0.943, Green Perceived Value (X3) is 0.927, Green Purchase Intention (Y) is 0.925, and Green Trust (M) is 0.955. Meanwhile, the Composite Reliability (CR) value is recorded higher, namely 0.959 for Green Brand Image (X1), 0.956 for Green Perceived Quality (X2), 0.945 for Green Perceived Value (X3), 0.941 for Green Purchase Intention (Y), and the highest is 0.963 for Green Trust (M). Overall, all Cronbach's Alpha and CR values are well above the minimum threshold of 0.7, which indicates that the measurement instruments for all variables are highly reliable and consistent.

3.2 Inner Model Evaluation (Structural Model)

Evaluation of the structural model (inner model) was carried out to test the causal relationship between constructs and the predictive ability of the research model.

Table 7. Coefficient of Determination (R^2)

	<i>R Square</i>	<i>R Square Adjusted</i>
<i>Green Purchase Intention (Y)</i>	0.698	0.690
<i>Green Trust (M)</i>	0.596	0.587

The analysis results show that the model has quite strong explanatory power. Green Purchase Intention has an R^2 value of 0.698, meaning that 69.8% of the variance can be explained by Green Brand Image, Green Perceived Quality, Green Perceived Value, and Green Trust. Meanwhile, Green Trust has an R^2 value of 0.596, indicating that 59.6% of the variance in consumer trust can be explained by the three green attribute communication variables. Overall, the model has moderate to strong explanatory power.

Hypothesis Testing (*Bootstrapping Results*)

Hypothesis testing was conducted using bootstrapping procedures to test the significance of the relationship between variables in the structural model.

Table 8. Direct Effects

Relationship	Coefficient (O)	T-Statistics	P-Values
Green Brand Image → Green Purchase Intention	0.215	3.127	0.002
Green Brand Image → Green Trust	0.362	3.511	0.000
Green Perceived Quality → Green Purchase Intention	0.248	3.039	0.002
Green Perceived Quality → Green Trust	0.235	2.594	0.010
Green Perceived Value → Green Purchase Intention	0.245	2.844	0.005

Green Perceived Value → Green Trust	0.246	2.96	0.003
Green Trust → Green Purchase Intention	0.229	3.877	0.000

The test results show that all direct relationships between variables in the research model are significant at the 5% significance level ($p < 0.05$). Green Brand Image, Green Perceived Quality, and Green Perceived Value are proven to have a positive influence on Green Trust and Green Purchase Intention. Specifically, Green Brand Image shows the strongest influence on Green Trust ($\beta = 0.362$), which indicates that brand image plays an important role in building consumer trust in environmental claims. In addition, Green Perceived Quality ($\beta = 0.248$) and Green Perceived Value ($\beta = 0.245$) also show a relatively balanced influence on Green Purchase Intention. Green Trust as a mediating variable is also proven to have a significant influence on Green Purchase Intention ($\beta = 0.229$), which indicates that consumer trust in environmental claims is an important factor in driving electric vehicle purchase intentions.

Table 9. *Indirect Effects (Mediation)*

Relationship	Coefficient (O)	T-Statistics	P-Values
Green Brand Image → Green Trust → Green Purchase Intention	0.083	2.437	0.015
Green Perceived Quality → Green Trust → Green Purchase Intention	0.054	1.965	0.05
Green Perceived Value → Green Trust → Green Purchase Intention	0.056	2.64	0.009

The results of the indirect effect test indicate that Green Trust acts as a mediating variable in the relationship between green attribute communication and Green Purchase Intention. All mediation paths show a positive and significant influence at the 5% significance level. The relationship between Green Brand Image and Green Purchase Intention mediated by Green Trust shows significant results ($\beta = 0.083$; $p = 0.015$), indicating that brand image contributes to increasing purchase intention through building consumer trust. The relationship between Green Perceived Value and Green Purchase Intention through Green Trust is also proven to be significant ($\beta = 0.056$; $p = 0.009$), indicating that perceived environmental value plays a role in strengthening trust and driving purchase intention. The relationship between Green Perceived Quality and Green Purchase Intention through Green Trust is at the limit of significance ($\beta = 0.054$; $p = 0.050$), indicating that although the mediation effect still exists, its influence is relatively weaker compared to the other paths. Overall, these findings indicate that Green Trust functions as an important mediating mechanism in explaining how green attribute communication influences consumer behavior towards electric vehicles. These findings indicate that communication of green attributes plays a significant role in shaping consumer trust and purchase intention, which will be further discussed in the following section.

Discussion

The Influence of Green Brand Image on Green Trust (H1)

The findings of this study indicate that green brand image has the strongest influence on shaping green trust compared to other green attribute communication dimensions. This indicates that the brand image constructed through a sustainability narrative plays a dominant role in building consumer confidence in the credibility of environmental claims. From the perspective of Framing Theory (Entman, 1993), these results confirm that communication messages that emphasize sustainability aspects not only convey information but also shape consumers' perceptual reality. Green brand image, in this context, functions as the result of a framing process that directs consumers' attention to specific environmental attributes deemed relevant and valuable.

This finding is consistent with Chen and Chang (2012) and Tan et al. (2022), who demonstrated that green brand image plays a strategic role in building consumer trust. However, this study expands on these findings by demonstrating that in the context of electric vehicles, which are fraught with complex environmental issues, brand image becomes more dominant than technical attributes. This suggests that consumers respond more to symbolic representations than to technical information in evaluating sustainability claims.

The Influence of Green Perceived Quality on Green Trust (H2)

The significant effect of green perceived quality on green trust indicates that perceptions of environmental quality still play a role in shaping trust, although its strength is less than that of brand image. This indicates that consumer evaluations of environmental quality are rational and based on cognitive assessments of product performance. Perceived quality reflects consumers' evaluations of a product's ability to meet functional expectations (Zeithaml, 1988). In the context of environmentally friendly products, this evaluation encompasses the extent to which the product is perceived to provide tangible ecological benefits. This finding aligns with Wasaya et al. (2021) and Chen and Chang (2013), which showed that green perceived quality contributes to shaping green trust.

The relatively weaker role of quality can be explained through signaling theory (Spence, 1973), where limited information regarding the technical aspects of electric vehicles encourages consumers to rely on external signals such as brand image and communication messages. Framing theory (Entman, 1993) also explains that environmental quality is not always perceived directly, but rather through the way the information is packaged and conveyed by the company. These findings indicate a shift from functional attribute-based evaluations to symbolic perception-based evaluations, which strengthens the role of communication in shaping consumer trust in electric vehicles.

The Influence of Green Perceived Value on Green Trust (H3)

The significant influence of green perceived value on green trust indicates that consumers' perceptions of environmental benefits play a role in shaping trust in a product. This indicates that value is understood not only as economic benefits but also as a contribution to environmental sustainability.

Perceived value reflects consumers' evaluation of the benefits gained relative to the sacrifices incurred (Zeithaml, 1988). In the context of environmentally friendly products, this evaluation includes consumers' perceived ecological value as part of their consumption decisions. This finding aligns with Chen and Chang (2012), who demonstrated that green perceived value is closely related to the formation of green trust.

The role of value in building trust is also related to the way environmental information is communicated to consumers. Framing Theory (Entman, 1993) explains that a product's ecological benefits are often perceived through a message framing process that selectively emphasizes environmental contributions. This results in environmental value not always being understood as an objective attribute, but rather as a result of the interpretation of the communication message.

These findings suggest that environmental values do not stand alone as product characteristics, but are formed through communication constructs that influence how consumers evaluate and believe sustainability claims on electric vehicles.

The Influence of Green Brand Image on Green Purchase Intention (H4)

The significant influence of green brand image on green purchase intention indicates that a strong sustainability image can directly drive consumer purchase intention. This indicates that brand image not only shapes perceptions but also plays a role in influencing consumer behavioral decisions regarding environmentally friendly products. Green brand image reflects a symbolic representation constructed through marketing communications and consumer experiences with the brand.

This image serves as a reference in the consumer evaluation process, especially when information regarding the product's technical attributes is not fully understood. This finding aligns with Yadav

and Pathak (2016) and Tan et al. (2022), who demonstrated that green brand image is an important determinant in driving purchase intention for sustainable products. Furthermore, Bashir et al. (2020) also emphasized that green brand image plays a strategic role in shaping consumer behavioral outcomes, including purchase intention. In the context of electric vehicles, brand image serves as a signal that helps consumers reduce uncertainty regarding complex environmental claims.

The role of brand image in this study suggests that electric vehicle purchase decisions are not solely based on rational considerations but are also influenced by symbolic representations constructed through communication. Framing Theory (Entman, 1993) explains that the way a company frames sustainability attributes can influence consumers' interpretation of a product's value. These findings suggest that green brand image serves not only as an identity but also as a communication mechanism that shapes perceptions and drives consumers' purchase intentions for electric vehicles.

The Influence of Green Perceived Quality on Green Purchase Intention (H5)

The significant influence of green perceived quality on green purchase intention indicates that perceived environmental quality plays a role in driving consumer purchase intention for electric vehicles. This indicates that consumers continue to consider a product's environmental performance as part of the decision-making process.

Perceived quality reflects consumers' evaluation of a product's ability to meet expectations, including the ecological benefits it offers (Zeithaml, 1988). This finding aligns with Mombeuil and Diunugala (2024) and Hashish et al. (2022), which show that environmental quality contributes to forming purchase intention for sustainable products. The relatively limited influence suggests that quality is not always a dominant factor in the context of electric vehicles. The complexity of the technology and consumers' limited understanding of technical aspects encourage them to rely on external cues in evaluating products. Signaling theory (Spence, 1973) explains that in conditions of asymmetric information, consumers tend to use indicators that are easier to interpret, such as brand image or communication messages.

Framing Theory (Entman, 1993) also explains that perceptions of environmental quality are not always formed directly from product attributes, but rather through how that information is communicated to consumers. This causes quality to function as a supporting factor, rather than a primary factor in driving purchase intentions. These findings suggest that while environmental quality remains relevant, its role in influencing purchasing decisions tends to depend on how these attributes are communicated and perceived by consumers.

The Influence of Green Perceived Value on Green Purchase Intention (H6)

The significant influence of green perceived value on green purchase intention indicates that perceived environmental benefits are an important factor in driving consumer purchasing decisions for electric vehicles. This indicates that consumers consider not only the functional aspects of a product but also its perceived ecological value as part of their consumption decisions.

Perceived value reflects consumers' evaluation of the benefits gained relative to the sacrifices incurred (Zeithaml, 1988). In the context of environmentally friendly products, this value includes contributions to sustainability and positive environmental impacts. This finding aligns with Yadav and Pathak (2016) and Kottala et al. (2025), which show that perceived value has a significant influence on purchase intentions for sustainable products, including electric vehicles.

The role of value in this study also indicates that purchasing decisions are not solely driven by utilitarian needs, but also by normative considerations and environmental awareness. This strengthens the relationship between pro-environmental attitudes and consumption behavior, as explained in the Theory of Planned Behavior (Paul et al., 2016).

Framing Theory (Entman, 1993) explains that perceptions of environmental value are formed through the way information about ecological benefits is communicated to consumers. This value stems not only from product attributes, but also from how those benefits are framed as relevant and meaningful to consumers. These findings suggest that green perceived value acts as a bridge between

environmental awareness and consumption behavior, thus being a crucial factor in driving electric vehicle adoption.

The Influence of Green Trust on Green Purchase Intention (H7)

The significant influence of green trust on green purchase intention indicates that trust is a key factor in driving consumer purchase intention for electric vehicles. This indicates that consumption decisions are influenced not only by perceptions of environmental attributes but also by the belief that sustainability claims are credible.

Green trust reflects consumers' willingness to rely on a product based on their belief in its promised environmental performance (Chen & Chang, 2012). This finding aligns with Wasaya et al. (2021) and Hashish et al. (2022), which show that trust plays a significant role in shaping purchase intentions for environmentally friendly products.

The crucial role of trust in this study is also related to increasing consumer skepticism toward greenwashing practices. Research by Delmas and Burbano (2011) and Nyilasy et al. (2014) shows that misalignment between environmental claims and actual practices can undermine consumer trust. In the context of electric vehicles, supply chain complexity and sustainability issues such as battery production reinforce the need for trust as a basis for purchasing decisions.

Framing Theory (Entman, 1993) explains that trust is formed through how environmental information is communicated and perceived by consumers. This suggests that credible and consistent communication is a crucial factor in building trust and driving purchase intentions. These findings suggest that green trust serves as a primary mechanism linking perceptions of green attributes to sustainable consumption behavior.

The Mediating Role of Green Trust in the Relationship between Green Brand Image and Green Purchase Intention (H8)

The results show that green trust mediates the relationship between green brand image and green purchase intention. This indicates that the influence of brand image on purchase intention is not only direct but also through the process of consumer trust formation. Green brand image serves as an initial signal that forms positive perceptions of the brand, while green trust strengthens consumers' belief in the credibility of environmental claims. This finding aligns with Bashir et al. (2020) and Tan et al. (2022), who demonstrated that green brand image can influence consumer behavior through trust mechanisms.

This mediating role suggests that the relationship between communication and behavior is indirect, but rather through psychological processes involving consumer evaluation and belief. Within the framework of consumer behavior, this suggests that perceptions formed through communication need to be converted into trust before they can optimally influence purchase decisions.

Framing Theory (Entman, 1993) explains that brand image is formed through the process of framing messages, which are then interpreted by consumers and influence levels of trust. This suggests that the effectiveness of sustainability communication depends not only on the message itself but also on how it builds trust. These findings suggest that green trust plays a significant role in explaining the relationship between brand image and purchase intention for electric vehicles.

The Mediating Role of Green Trust in the Relationship Between Green Perceived Quality and Green Purchase Intention (H9)

The mediating effect of green trust on the relationship between green perceived quality and green purchase intention showed borderline significance. This indicates that environmental quality plays a relatively weaker role in influencing purchase intention compared to other dimensions of green attribute communication. Perceived quality reflects the functional evaluation of a product's performance, including the ecological benefits it offers (Zeithaml, 1988). These results align with Hashish et al. (2022), who showed that environmental quality can influence consumer behavior, but this influence often depends on the level of trust established.

The limited mediation strength suggests that quality does not automatically translate into purchase intention without adequate trust. Signaling theory (Spence, 1973) explains that under conditions of imperfect information, consumers require credible signals to assess product quality. Without trust, perceived quality tends to be insufficient to drive purchase decisions. Framing Theory (Entman, 1993) also explains that environmental quality is not always perceived directly, but rather through the way the information is communicated to consumers. This confirms that communication credibility is a crucial factor in strengthening the relationship between quality and purchasing behavior. These findings suggest that green trust acts as a necessary mediating mechanism for positively interpreting environmental quality and driving purchase intentions for electric vehicles.

The Mediating Role of Green Trust in the Relationship between Green Perceived Value and Green Purchase Intention (H10)

Green trust has been shown to mediate the relationship between green perceived value and green purchase intention. This suggests that consumers' perceptions of environmental value need to be reinforced through trust to effectively drive purchasing behavior. Perceived value reflects consumers' evaluation of the benefits gained relative to the sacrifices incurred (Zeithaml, 1988). In the context of eco-friendly products, this value includes perceived ecological benefits and contributions to sustainability. This finding aligns with Kottala et al. (2025) and Yadav and Pathak (2016), which show that perceived value influences purchase intention, especially when supported by psychological factors such as trust.

The mediating role of green trust suggests that environmental value does not directly drive purchasing decisions, but rather through an evaluation process involving belief in the credibility of environmental claims. This is related to increasing consumer skepticism towards greenwashing practices, where consumers tend to evaluate not only the benefits offered but also the validity of that information (Delmas & Burbano, 2011; Nyilasy et al., 2014).

Framing Theory (Entman, 1993) explains that perceived value is formed through the way environmental benefits are communicated to consumers. This value becomes more meaningful when linked to messages that are credible and relevant to consumers. These findings suggest that green trust acts as a reinforcement linking perceived value to consumption actions, thus becoming a crucial element in driving electric vehicle adoption.

4. Conclusion

This study aims to analyze the role of green attribute communication in influencing green purchase intention, with green trust as a mediating variable in the context of electric vehicles. The research findings indicate that green attribute communication, represented through green brand image, green perceived quality, and green perceived value, plays a significant role in shaping consumer trust and subsequently influencing purchase intention.

The results confirm that green trust serves as a key mechanism bridging consumer perceptions and purchasing behavior. Perceptions of environmental attributes do not directly drive consumption but first develop trust in the credibility of sustainability claims. This suggests that trust is a key psychological factor in driving sustainable consumption behavior, particularly in the electric vehicle industry, which faces complex environmental issues.

This study provides a theoretical contribution by positioning green attributes not merely as product characteristics but as the result of communication constructs that shape consumer perceptions and trust. The integration of Framing Theory in this study expands the study of green marketing by emphasizing that the effectiveness of green attributes depends heavily on how sustainability messages are communicated and interpreted by consumers.

Practically, these findings suggest that companies need to prioritize credible and consistent communication strategies in conveying environmental messages. The formation of a green brand image and perception of environmental value need to be supported by consumer trust, especially amidst growing skepticism towards greenwashing practices.

Future research is recommended to examine other variables such as environmental concern, perceived risk, and skepticism towards environmental claims to deepen our understanding of sustainable consumption behavior. Furthermore, research in different industry or regional contexts is also needed to test the generalizability of the model developed in this study.

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