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Attitude as a Mediator of Green Product Quality, Green Product Uniqueness and Green Purchase Intention: Electric Car Consumers

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Abstract

The aim of this study is to analyze the role of attitude as a mediating variable in the relationship between green product quality, green product uniqueness, and green purchase intention among electric car consumers. Although these two green product attributes are often identified as important factors in encouraging environmentally friendly behavior, previous empirical evidence still shows inconsistent results. Therefore, this study proposes an attitude mediation model to provide a more in-depth explanation. This study used a quantitative method with surveying 130 electric car consumers in the Special Region of Yogyakarta using a purposive sampling technique. Data were analyzed using SmartPLS-based Structural Equation Modeling (SEM). The findings indicate that green product quality and green product uniqueness have a significant effect on the formation of positive attitudes towards environmentally friendly products. However, green product quality does not have a significant effect on green purchase intention. In contrast, green product uniqueness and attitude are proven to have a significant effect on green purchase intention. These results confirm that attitude plays a significant role as a determinant of green purchase intention, especially in the context of electric car products. This study provides a theoretical contribution by strengthening the understanding of the psychological mechanisms of green consumers, as well as a practical contribution for electric car manufacturers to improve product quality and differentiation in order to encourage purchase intention.

Keywords: Attitude, Green Product Quality, Green Product Uniqueness, Green Purchase Intention.

Introduction

Sustainability issues and environment crises push increasing consumer awareness to importance friendly environment products (green products). Consumers now not only notice function and price, but also quality (green product quality) as well its uniqueness (green product uniqueness) compared to conventional product (1). green products perceived capability reduces impact negatively to the environment, for example with use of material recycling repeat, saving energy, or design friendly environment. Sustainability issues and environmenttal crises became the main focus of various global research in the last two decades. Study findings show that this problem not only impacts ecology, but also affects economic, social, and global governance. Several studies find that transitioning into a green economy can create new work fields and improve economic resilience for a long term, but many developing countries still face a dilemma between fast economic growth and preserving the environment, including Indonesia (1). Development issues in the global environment have pushed manufacturers in various industries, including the automotive industry, to adopt a strategy based on sustainability through innovative green products. Electric vehicles are one of the strategic solutions in reducing carbon emission and dependence to burn fossil material (2). However, the adoption rate of electric cars in many developing countries, including in Southeast Asia, is still relatively low despite increasing environmental awareness, which indicates that marketing strategies have not been fully effective in converting this awareness into purchasing decisions, thus impacting the less than optimal marketing performance of electric car products (3). Despite increasing environmental awareness among consumers, electric vehicle adoption remains limited in many developing countries, including Southeast Asian Nations (4). These conditions confirm the importance of understanding factors that influence purchase green

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intention, especially in the context of automotive products which are considered high risk and have relatively expensive prices.

Various previous studies show that quality (green product quality) is an important factor in influencing consumer perception of reliability, security and sustainability products (5). Green products with better quality tend to build consumer belief, which ultimately increase purchase intention (6). Besides that, uniqueness (green product uniqueness), such as innovative design, friendly environment technology, and economical energy features, also proven perception values form and products differentiation (7). Consumers tend to be more interested in the green products that offer added value and unique characteristics compared to conventional products (8).

Even so, it still required greater understanding about how second factors influence the purchase green intention, especially in the context of electric cars. Some studies show that quality and uniqueness of green products do not always have a direct influence on purchase intention, but are mediated by psychological variables like attitude (9). Attitudes to green products reflect positive evaluation or consumers negatively to environment benefit, performance, and symbolic product value (10). Positive attitudes proved to become strong predictors of green products purchase intention in various product categories, such as green fashion, green skincare, and electric vehicles (11).

However, research related attitude roles as a mediator still show inconsistency results. Some studies found full mediation (12), while another study found partial or even no significance in the context of automotive products (13). Besides that, most studies still focus on the low valuable green products, not on the products with high financial risk like electric cars. This is creating a research gap about how quality and uniqueness of green products influence attitude formation, and how the attitude finally pushes the intention to purchase green to electric cars consumers.

Previous studies examining the relationship between green product quality and green purchase intention produced inconsistent findings. Several studies report a significant positive effect, suggesting that consumers are more inclined to purchase environmentally friendly products when they perceive superior product quality. Conversely, other studies reveal insignificant or weaker relationships, which may be attributed to consumer scepticism regarding green claims, differences in environmental consciousness, perceived price premiums, and varying socio-cultural contexts. These conflicting findings indicate that the influence of green product quality on green purchase intention remains inconclusive and requires further empirical examination.

Based on this gap, this research makes an effort to give contribution either to theoretical and practical use role attitude tests as a mediator between quality green product and unique green product to purchase intention green to electric car consumers. This research also enriches green consumer behavior literature as well as adds understanding about how cognitive and psychological factors work in the process of forming high value friendly environment product purchase decisions.

Theory Behavior Planned which was developed from the Theory of Reasoned Action emphasizes that intention is the strongest predictor from behavior, and in many contexts attitude becomes the main determinant formation intention (14). Attitude formed through individual evaluation into behaviors, including beliefs and judgments about the consequences it causes (14). In the context of green consumption behavior, attitude plays a central role because it reflects affective response and consumer cognitive to green products attribute. Quality and uniqueness of green products become important factors that form positive consumer attitudes, which ultimately push green product purchase intention. Thus, TPB provides a strong theoretical base for explaining how attitudes formed by perception to attribute products can direct consumers on intentions and decisions to purchase friendly environment products.

Attitude was selected as the mediating variable because it represents a central psychological mechanism through which consumers translate perceptions of green product attributes into behavioral intentions. Consistent with established behavioral theories, attitudes reflect individuals' overall evaluations that directly influence purchase intention. Previous studies have also identified attitude as a significant mediator in explaining green consumption behavior. However, the relationship between green product

characteristics and purchase intention may also be shaped by other psychological factors, including perceived value, trust, environmental concern, and perceived behavioral control. Therefore, future research is encouraged to incorporate these variables to provide a more comprehensive understanding of green consumer behavior. The selection of attitude as a mediator is also supported by the Theory of Planned Behavior, which emphasizes attitude as a key determinant influencing behavioral intention.

Methodology

This study used a quantitative research design to examine the causal relationships among green product quality, green product uniqueness, attitude, and green purchase intention. Data were collected using a structured questionnaire measured on a five-point Likert scale. The study was conducted in the Special Region of Yogyakarta, Indonesia [approximately 7.7956° S, 110.3695° E]. The study population comprised electric vehicle consumers in the special Region of Yogyakarta who had purchased, used, or considered purchasing an electric vehicle. A purposive sampling technique was employed using the following criteria: respondents were at least 20 years old, domiciled in Yogyakarta, and possessed an interest in or knowledge of electric vehicles. To account for potential heterogeneity between actual users and prospective consumers, respondent characteristics were clearly classified and reported. This distinction helped minimize bias arising from differences between post-purchase evaluations and pre-purchase intentions. Prior to data collection, all participants were informed about the purpose of the study, the voluntary nature of their participation, the confidentiality of their responses, and their right to withdraw at any time without penalty. Written informed consent was obtained from all participants before they completed the questionnaire.

A total of 130 valid responses were collected. Meet the minimum size requirement sample of SEM analysis of 100 – 200. Past studies indicate that use of the SEM method in data analysis, requires a sample as much as 5-10 times the number of parameters that will be suspected (15). This research has 13 indicator parameters, so that amount of 10 x 13 samples is 130 samples.

To ensure sample adequacy beyond the "10-times rule," a statistical power analysis was conducted using G*Power 3.1.9.7. The analysis applied a medium effect size [$f^2 = 0.15$], significance level ($\alpha = 0.05$), statistical power of 0.95, and three predictors corresponding to the maximum number of antecedent variables affecting the endogenous construct. The results indicated a minimum required sample size of approximately 119 respondents. Since this study obtained 130 valid responses, the sample size exceeded the minimum threshold, confirming sufficient statistical power to detect significant effects and supporting the robustness of the SEM analysis.

Measurement

All constructs measured in this study use adapted instruments from previous study and assessed use five- point Likert scale [1 = very much agree up to 5 = strongly agree]. Green Product Quality measured use four adapted indicators from researchers (2) consists of from:

(a) Reliability friendly environment product,
(b) Suitability friendly environment product with users' expectation,
(c) Security perception of friendly environment product compared to conventional product, and
(d) Convenience perception and practicality friendly environment product use.

Green product uniqueness is measured with indicators from researchers (2) consists of:

(a) Personal image as caring individual environment;
(b) Efforts create uniqueness self through ownership friendly environment product; and
(c) Efforts create self-uniqueness through ownership friendly environment product.

Attitudes measured to purchase green products use three indicators:

(a) Benefit perception friendly environment product in reducing pollution;
(b) Contribution perception friendly environment product to nature preservation;
(c) Preferences to friendly environment product compared to conventional product.

Green product purchases intentions are measured with indicators:

(a) Intention to buy a friendly environment product in close time;
(b) Planned efforts for buying a friendly environment product;

(c) Purchase plan friendly environment product on next occasion.

Data Analysis

The data were analyzed using Structural Equation Modeling (SEM-PLS). The analysis procedure consisted of several stages. First, the outer model was evaluated to assess the reliability and validity of the measurement model through indicator loadings, Cronbach's alpha, composite reliability (CR), Average Variance Extracted (AVE), discriminant validity, and Heterotrait-Monotrait Ratio (HTMT). Second, the inner model was assessed using coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and collinearity diagnostics. Third, bootstrapping procedures with (e.g., 5,000) subsamples were conducted to examine the significance of the hypothesized relationships based on t-statistics and p-values. Finally, model fit was evaluated using relevant fit indices, including standardized root mean square residual (SRMR), to determine the overall adequacy of the proposed model. Bootstrapping analysis was performed using 5,000 resamples with a significance level of 0.05. Hypotheses were considered supported when the t-value exceeded 1.96 and the p-value was below 0.05.

Results

Characteristics Respondents

The demographic characteristics of the respondents show that the majority of electric vehicle consumers in the Special Region of Yogyakarta were male [66.5%]. Most respondents were between 31 and 40 years old [47.69%], held a bachelor's degree [46.92%], and had a monthly income ranging from IDR 5,000,000 to IDR 10,000,000 [57.69%]. In addition, the majority of respondents worked in organizations with 10–20 employees [49.28%]. The complete respondent profile is presented in Table 1.

Table 1: Presentation Characteristics Demographics Respondents

Characteristics Respondents	Frequency	Percentage (%)
Gender		
Man	86	66.15
Woman	44	33.8 5
Total	130	100
Age:		
< 20 years	0	0
21 to 30 years old	31	2 3.85
31 years to 40 years	62	4 7.69
41 years to 50 years	25	19.23
51 years to 60 years	9	6.92
> 60 Years	3	2.31
Total	130	100
Education		
Elementary School	0	0
Junior High School	1	0.77
High School	45	34.62
Diploma	15	11.54
Bachelor	61	46.92
Postgraduate	8	6.15
Income		
< Rp. 5,000,000	0	0
Rp. 5,000,000 to Rp. 10,000,000	75	57.69
> Rp. 10,000,000,- to Rp. 15,000,000,-	23	17.69
> Rp. 15,000,0000,- to Rp. 20,000,000,	19	14.62
> Rp. 20,000,000,- to Rp. 25,000,000,-	9	6.92
> Rp. 25,000,000,-	4	3.08
Total	130	100

Data

Screening

Structured questionnaire given in two formats: digital (using Google Forms) and print version. Google Form shared through affiliated WhatsApp groups within the Electric Car Community in Yogyakarta. For print questionnaires, researchers do direct visits to showrooms or electric car dealers to convey and explain questionnaires to respondents. Google Form received a total of 50

responses, while 80 legitimate responses collected in a direct distribution way. So, the questionnaire is complete and valid to be processed amounting to 130 respondents.

This study applies the quantitative approach analysis utilising Partial Least Squares (PLS) method in Structural Equation Modeling (SEM) framework. Procedure analysis done through two main stages. The first stage focuses on the evaluation of measurement models to ensure instrument research quality, including testing validity convergent, validity discriminant, as well as reliability composite. The entire process at this stage is estimated using SmartPLS software. Second stage covers structural model testing through analysis regression and analysis track for causal connection test between hypothesized variables. The estimation model at this stage is also using the PLS method to get more robust results against sample size and data distribution.

Evaluating the Outer Model or Measurement Model

Based on Table 2 evaluation results to items scale reflective show that all construct quality own excellent measurement. The standardized factor loading value for every indicator is above 0.89, which indicates contribution strength of each indicator to represent latent construct. In addition, The Cronbach's Alpha value for all constructs is in the range of 0.931 to 0.952, far beyond the minimum limit threshold of 0.70, so that shows very high internal reliability. In general, findings ensure that all constructs in this study have very good measurement quality, so worthy of use in structural model testing at the next stage of analysis.

Table 2: Measurement Scale Items

Reflective Scale Items (Measured on A 1-5 Interval Scale Indicating the Extent to Which Respondents Agree with the Following Statements	Standardized Factor Loading
Green Product Quality (Cronbach's α =0. 947)	
a) Reliable environmentally friendly electric car products	0. 952
b) Environmentally friendly electric car products according to my expectations	0.934
c) Environmentally friendly electric car spare parts are safer than conventional cars.	0.934
d) Environmentally friendly electric cars are practical and easy to use.	0.893
Green Product Uniqueness (Cronbach's α = 0.942)	
a) Purchasing eco-friendly products helps create a unique personal image for me as a person who cares about society and the environment.	0.954
b) I am actively trying to create personal uniqueness by having an environmentally friendly Electric Car.	0.958
c) Environmentally friendly Electric Car products are very different from similar conventional products.	0.928
Attitude (Cronbach's α = 0.952)	
a) Eco-friendly products help reduce pollution in water, land and air.	0.971
b) Eco-friendly products help save nature and its resources	0.945
c) If given a choice, I would prefer eco-friendly products over conventional products.	0.951
Green Purchase Intention (Cronbach's α =0.931)	
a) I plan to purchase eco-friendly products in the near future.	0.943
b) I will try to buy eco-friendly products in the near future.	0.909
c) I plan to buy eco-friendly products for my next purchase.	0.959

Table 3: Discriminant Validity Value (Cross Loading)

Indicator	Attitude	Green Product Quality	Green Product Uniqueness	Green Purchase Intention	Information
AT1	0.971	0.762	0.775	0.868	Good
AT2	0.945	0.710	0.770	0.892	Good
AT3	0.951	0.745	0.692	0.794	Good
GPI1	0.878	0.731	0.805	0.943	Good
GPI2	0.753	0.785	0.794	0.909	Good
GPI3	0.871	0.701	0.834	0.959	Good
GPQ1	0.788	0.952	0.769	0.752	Good
GPQ2	0.731	0.934	0.764	0.801	Good
GPQ3	0.721	0.934	0.703	0.706	Good
GPQ4	0.620	0.896	0.773	0.650	Good
GPU1	0.677	0.799	0.954	0.785	Good
GPU2	0.694	0.822	0.958	0.798	Good
GPU3	0.834	0.685	0.928	0.866	Good

Discriminant Validity

Based on the results presented in Table 3, the values factor loading every indicator on the construct each of their latent higher than mark loading cross on the construct others. This shows that every latent variable has fulfilled validity discriminant criteria with satisfaction, so that it confirms that indicators that associate in a unique way with intended and unintended constructs overlap in a significant way with others.

Reliability Evaluation

The criteria for validity and reliability testing can be assessed based on the reliability values of each construct and the Average Variance Extracted (AVE) for each construct. A construct is considered to have high reliability if the Composite Reliability value exceeds 0.70, the AVE value exceeds 0.50, and the Cronbach's alpha value exceeds 0.60. Table 4 presents the Composite Reliability, Cronbach's alpha, and AVE values for all variables included in this study.

Table 4: Composite Reliability

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Attitude	0.952	0.954	0.969	0.913
Green Product Quality	0.947	0.953	0.962	0.863
Green Product Uniqueness	0.942	0.947	0.963	0.896
Green Purchase Intention	0.931	0.934	0.956	0.878

Table 4 shows that all constructs demonstrated strong internal consistency and convergent validity. The Cronbach's alpha values ranged from 0.931 to 0.952, exceeding the recommended threshold of 0.70, indicating high reliability. Similarly, Composite Reliability (CR) values ranged between 0.956 and 0.969, confirming satisfactory construct reliability. The rho_A values also surpassed the acceptable level of 0.70, further supporting measurement consistency. In addition, all Average Variance Extracted (AVE) values ranged from 0.863 to 0.913, exceeding the recommended threshold of 0.50, which indicates adequate convergent validity. These findings confirm that all constructs are reliable and valid for further structural model analysis.

Structural Model Testing (Inner Model)

To evaluate connection between constructs as well as determine significance level and predictive capability from the research model, evaluation was carried out to the internal model or structural model. This evaluation covers t-statistics value analysis, significance coefficient path, and R-squared (R^2) value on endogenous constructs. Through indicators said, can assess to what extent the model is capable of explaining construct dependent variability and testing strength causal connection between hypothesized variables.

The results of the model in Figure 1 show that green product quality and green product uniqueness have a positive influence towards attitude, with uniqueness products give stronger influence. Consumer attitude furthermore influential significant towards green purchase intention, making it key factor in push purchase intention of friendly environment products.

Green product uniqueness influences directly towards purchase intention are also significant, while green product quality is almost not influential in a direct way, showing that quality more influences purchase intention through attitude. The R^2 value is 0.669 for attitude and 0.868 for intention purchase show that the model has very strong predictive ability. Overall findings confirm that attitudes and uniqueness perceptions product is the main determination on purchase intention of electric car friendly environment.

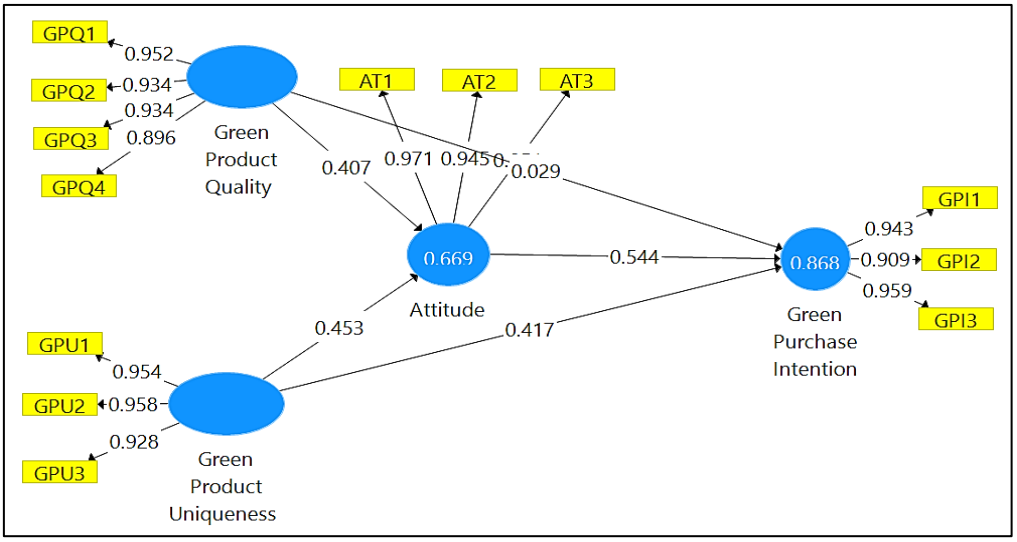

Figure 1: Structural Model

Testing Hypothesis

Testing hypothesis done to evaluate significance of the estimated parameters in the structural model. The coefficient value path, along with level its significance, gives important description about strength and connection intervariable research direction. This evaluation is based on the t-statistics and p-values obtained from estimate internal weight using software SmartPLS. Table 5 presents results parameter estimates used for validate hypothesis research and assessment feasibility of structural models in an overall way**.**

Table 5: Results for Inner Weights

	Original Sample (O)	T Statistics (|O/STDEV|)	p-Values
Attitude -> Green Purchase Intention	0.544	5.110	0.000
Green Product Quality -> Attitude	0.407	2.202	0.028
Green Product Quality -> Green Purchase Intention	0.029	0.299	0.765
Green Product Uniqueness -> Attitude	0.453	2.733	0.006
Green Product Uniqueness -> Green Purchase Intention	0.417	2.792	0.005

Hypothesis Test Result

Hypothesis 1: Green product quality has a positive effect towards attitude. Hypothesis testing shows that green product quality has a positive influence and significance towards attitude, with coefficient mark 0.407, t-statistic 2.202, and p-value 0.028. These findings show that consumer perception of the quality of environmentally friendly electric cars contributes in a positive attitude as the product said in a real way. When consumers evaluate green products that have good quality, reliable, and fulfilling hope, they tend to develop more attitude support to use it. This confirms the importance of quality in increasing reception to friendly environment products**.**

Hypothesis 2: Green product uniqueness has a positive effect towards attitude. Research results show that green product uniqueness has positive influence and significance towards attitude, with coefficient mark 0.453, t-statistic 2.733, and p-value 0.006. These findings show that *uniqueness* perception of electric cars as a friendly environment product plays an important role in forming a positive consumer attitude. When consumers look at the green product as something different, innovative, and reflective of self-caring environment identity, they tend to develop more attitude support to use the product. Thus, the uniqueness of the product can be one of the key factors in improving the consumer's reception to friendly environment products.

Hypothesis 3: Green Product Quality has an effect positive to Green Purchase Intention. Result analysis shows that Green Product Quality does not influence significantly towards Green Purchase Intention, as seen from coefficient track of 0.029 with t-statistic value 0.299 and p-value 0.765. These findings indicate that although green product quality is assessed by consumers, the perception not effect in a direct way pushes

intention for them to buy. Quality products seem not to have direct effectively and work through consumer attitude. Thus, the quality of friendly environment products do not become a direct determinant of purchase intention, but rather play a role as strengthening factors and influencing behavior of consumers.

Hypothesis 4: Green product uniqueness has an effect positive to green purchase intention. Testing hypothesis shows that Green Product Uniqueness has an effect positive and significant towards green purchase intention, with coefficient track of 0.417, t-statistic 2.792, and p-value 0.005. These findings confirm that uniqueness perception of friendly environment products in a direct way pushes the intention of the consumer to purchase. Consumers who see electric cars as unique, different products from conventional products, and reflect personal values tend to have stronger intentions to buy the product. This shows that product differentiation becomes a strategic factor in influencing green purchase intention.

Hypothesis 5: Attitude influential positive to green purchase intention. Analysis results show that attitude has influence positive and significant towards green purchase intention, as indicated by the coefficient track of 0.544 with t-statistic value 5.110 and p-value 0.000. These findings indicate that consumers' positive attitude to friendly environment products play an important role in pushing the intention for them to purchase. In other words, stronger consumers believe that friendly environment products benefit either ecological and social, increasing the trend for their intent to buy products. This confirms the attitude role as the main determinant in green purchase behavior.

Mediation Test

Table 6 contains indirect important information about connection mediation intervariable significance in the research model. Evaluation to indirect influence allows identification whether something construct plays a role as a mediator in bridge connection between variables independent and dependent. Thus, this analysis becomes a component key in ensuring the validity causal mechanism proposed in the theoretical model. SmartPLS output is presented following describe magnitude and level significance indirect influence, which becomes base in evaluating existence as well as strength effect mediation in the structural model.

Table 6: Indirect Effect Output

	Original Sample (O)	t-statistics (|O/STDEV|)	p-values
Green Product Quality -> Attitude -> Green Purchase Intention	0.221	1.994	0.047
Green Product Uniqueness -> Attitude -> Green Purchase Intention	0.246	2.532	0.012

Mediation Analysis

Hypothesis 6: Attitude capable mediate the influence of green product quality on intention green purchase. Analysis results show that green product quality has no significant direct influence towards green purchase intention through attitude, with mark coefficient of 0.221, t-statistic 1.994, and p-value 0.047. The findings indicate that consumer perception of green products quality not in a direct way push purchase intention, but influential through formation attitude positive moreover first. Thus, the attitude plays a role as a partial mediator that bridges connections between quality of friendly environment green products purchase intention. This result confirms that quality products contribute to behavior purchase only as long as consumers evaluate quality and produce a supportive attitude.

Hypothesis 7: Attitude capable mediate influence green product uniqueness against intention green purchase. The test results also show that green product uniqueness has no direct significant influence towards green purchase intention through attitude, with coefficient mark 0.246, t-statistic 2.532, and p-value 0.012. These findings confirm that uniqueness perception green product not only influence intention purchase in a direct way, but also indirectly through improvement positive consumer attitudes in this matter act as a mediator that strengthens connection, shows that the more consumer feel uniqueness friendly environment electric car, increasingly positive attitudes are formed, so increase their intention to purchase. These findings strengthen the importance of product differentiation in the marketing strategy of green products.

Discussion

Testing hypothesis show that green product quality has a positive influence and significance towards attitude, which indicates that the higher quality product perceived by green product consumers, then the more positive attitude they produce. This is consistent with theory behavior consumers who stated that perception quality is determinant important in formation attitude (14). In the context of green products, quality is not only seen from the functional aspect, but also from the attribute friendly environment attached to the product.

These results synchrone with a number of previous studies. Found that quality green products in a significant way increase evaluation affective consumers, which ultimately form a positive attitude to friendly environment products (12). Similarly, the perception of sustainable product quality has been identified as a key predictor in the development of attitudes that support green consumer behavior (4).

In addition, superior green product quality, such as energy efficiency, technological reliability, and the use of environmentally friendly materials, has been found to increase consumer trust in a product, thereby strengthening positive attitudes toward it (16). Furthermore, a high perception of product quality not only influences consumers' beliefs but also affects their emotions and evaluations of green products (17).

In the context of electric cars, quality products are often associated with battery performance, safety, comfort, and friendly environment technology offered. When consumers evaluate that electric car has good quality, they will show a more positive attitude and accept the product as alternative transportation sustainable. Consistent with previous research, positive consumer attitudes have been shown to develop in response to the perceived functional and environmental benefits associated with high-quality green products (9, 18). Therefore, the findings of this study reinforce the empirical evidence that green product quality plays a significant role in shaping consumer attitudes toward sustainable products. In turn, these positive attitudes act as an important driver of green purchasing behavior.

Research results show that green product uniqueness has an effect positive and significant towards attitude, which indicates that the higher consumer perception about uniqueness of green products, more and more positive attitude is also formed to product. The uniqueness in question can be in the form of innovative design, friendly environment features that are not owned by others, or mark plus sustainability that provides strong differentiation.

In a theoretical way, these findings consistent with Customer Value Theory states that consumers tend to form a positive attitude when they evaluate products that have superiority or a different mark compared to alternative others. Uniqueness of product increases perceived value, which then strengthens the attitude of consumers. This finding is also supported by the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB), which explain the attitude formed from individual evaluation to attribute products that are considered beneficial or worth. When the feature unique to the green product fulfills expectation value and sustainability, then attitude positive more easily formed.

Empirical evidence from previous studies supports this relationship. Green product differentiation has been shown to enhance perceived value and contribute to the development of positive consumer attitudes (4, 12). In addition, innovation and uniqueness in sustainable products have been found to strengthen consumers' positive evaluations of such products (16, 19). Furthermore, the uniqueness of environmentally friendly products has been reported to increase consumer appraisal, thereby fostering more favorable attitudes toward green products (17, 18).

This research result is consistent with runway theory and evidence empirical previously, at the same time confirming that uniqueness of product is an important element in forming consumer positive attitude to green products, including in context electric cars.

Analysis results show that green product quality does not influence significantly on green purchase intention. These findings indicate that consumer perception of green products quality including reliability, security, and convenience use is not yet enough for push formation intention to purchase electric cars directly. Although consumers evaluate the quality of friendly environments of electric cars as well, the thing not automatic increases the intention for them to make a purchase.

In a theoretical way, these findings are in line with the statement that quality product is not the only determinant in purchasing green products, especially when decision purchase involves high-cost risk, and changes significant behavior. In the context of green products, the Theory of Planned Behavior (TPB) emphasizes that intention purchase is often more influenced by attitudes, social norms, and perception control, not only attribute products evaluation. However, although quality products are assessed good, psychological and social factors can play more dominant roles.

Consistent with the present findings, previous research has indicated that green product quality does not necessarily translate into purchase intention unless consumers possess strong positive attitudes and perceive meaningful benefits from the product (10, 20). Purchase intention toward environmentally friendly products has also been shown to be influenced more by perceived sustainability value, environmental awareness, and green identity than by technical product quality alone (12, 18). Moreover, green product quality has frequently been viewed as a basic requirement rather than a differentiating factor, making it insufficient on its own to drive purchase intention without complementary emotional and social influences (16).

This research result shows that in the context of electric cars in Yogyakarta, increasing quality products is not enough for increase intention purchase consumers, so that marketing strategies need consider other factors such as formation attitude positive, promotion benefit sustainability, and strengthening mark symbolic green products.

Research results show that green product uniqueness has an effect positive and significant on green purchase intention. This finding indicates that the higher perception consumer to uniqueness of electric car that have good side feature of friendly environment, design innovative, as well as differentiation compared to conventional product, the stronger intentions they do for purchase. Uniqueness of products give symbolic marks, emotional, and social that strengthens consumer interest in green products.

In a theoretical way, this finding is consistent with the Theory of Consumption Values, which explains that uniqueness products can increase emotional mark and value expressive consumers, so that push intention purchase. In addition to that, the Theory of Planned Behavior (TPB) also emphasizes that perception positive to attribute unique to a product can form more confidence, which in the end increases intention to purchase.

The findings of this study are consistent with prior research. Purchase intention has been found to increase when green product differentiation enhances consumers' perceived value and personal identity (12). Environmentally friendly products are more likely to be purchased when they exhibit distinctive characteristics that differentiate them from conventional alternatives (16, 20). Furthermore, the perceived uniqueness of sustainable products has been reported to strengthen perceived benefits and positively influence purchase decisions (17, 18).

In a way overall, these results confirm that uniqueness is a strategic factor in marketing of green products, because it is capable of increasing emotional power and symbolic consumers which leads to an increased intention to purchase a friendly environment electric car.

Analysis results show that attitude itself influences positively and significantly on green purchase intention. These findings confirm that the more positive attitude consumer to friendly environment product especially related to benefit environment, values sustainability, and contribution to the reduction impact ecological the bigger intentions for them to purchase green products, like electric car (21).

In a theoretical way, these findings are consistent with the Theory of Planned Behavior (TPB) and the Theory of Reasoned Action (TRA), which places attitude as determinant main intention behavior. Attitudes positively reflect favorable evaluation to consequence use product, so that strengthens motivation to be involved in green product purchase behaviour. In context of electric car, belief that product is friendly environment, safe, and provide benefit social become main factor driver formation intention to purchase.

The present findings are consistent with previous research. Purchase intention has been found to increase when consumers develop positive attitudes toward green products (9, 12). Consumers' intentions to purchase sustainable products are significantly influenced by both affective and cognitive evaluations of green product attributes (20). Moreover, attitude has

been recognized as a key mediating mechanism through which perceptions of product attributes influence green purchasing decisions (16, 17).

In a way overall, these results confirm that forming a positive attitude is key in increasing intention to purchase green products. Therefore, marketing strategy of electric car need emphasize benefit environment, excellence sustainability, and value social for strengthen attitude consumers and encourage interest purchase.

Analysis results show that green product quality has no significant direct influence towards green purchase intention through attitude. This finding indicates that quality green products including reliability, security, and convenience usage, not in a direct way push the intention of the consumer to purchase, but precisely increase positive consumer attitude more than before. Attitude positive this is what then plays a role as a mechanism strengthening psychology intention purchase.

In a theoretical sense, this results in line with the Theory of Planned Behavior (TPB) and Attitude Formation Theory, which emphasizes that perception individual to attribute product influence attitude before finally influencing intention. That is, quality product functioning as constructive *belief* structure evaluation positive to benefits and values sustainability product. When consumers evaluate an electric car as having good quality as a friendly environment product, they tend to form a favorable attitude, which ultimately pushes intention purchase.

These findings are consistent with previous research. The influence of green product quality on purchase intention has often been found to occur indirectly through attitude rather than through a direct relationship (12, 16). Green product quality has been shown to enhance perceived value and consumer attitudes, which subsequently influence purchase intention (9, 20). Furthermore, attitude has been identified as an important mediating variable in the relationship between green product attributes and consumer purchasing behavior (16, 17).

Therefore, the result of this study confirms that a strong build quality green product is important for increasing the positive attitude of consumers, which ultimately can push their desire to purchase a friendly environment electric car. Marketing strategy needs to emphasize aspect quality for strengthening effective mediation attitude in increasing green purchase intention.

Test results show that green product uniqueness has no significant direct influence towards Green Purchase Intention through Attitude. This finding indicates that perception consumer to uniqueness green products good in matter design, technology friendly environment, as well as differentiation compared to conventional product is capable of form attitude positive then push intention for them to purchase the product. In other words, the uniqueness of green products not only impacts in a straight way, but also works through attitude as a mechanism strengthening psychological intention purchase (22).

In a theoretical way, this results in line with the Theory of Planned Behavior (TPB) and Attitude Formation Theory, which explains that perception positive to attribute a unique product will strengthen belief consumers and produce more attitude support, which in the end increases intention to purchase. Besides that, Consumer Value Theory states that uniqueness products create mark enriching symbolic and emotional experience consumers, so that trigger formation of positive attitude before influencing purchase decision.

The present findings are consistent with previous empirical evidence. Green product uniqueness has been shown to strengthen positive consumer attitudes and indirectly influence purchase intention (12, 16). Sustainable product differentiation has also been found to enhance consumers' positive evaluations, thereby promoting green purchasing behavior (16, 20). In addition, attitude has been recognized as a key mediating mechanism linking green product attributes to purchase intention (17).

Thus, the results of this study confirm that uniqueness product is strategic factor that capable increase effectiveness marketing of green products, especially when uniqueness the succeed form attitude positive the next consumer strengthen intention, they for buy electric car friendly environment.

The findings should also be interpreted within the specific context of Indonesia, particularly the Special Region of Yogyakarta. Government initiatives promoting electric vehicle adoption, including incentives and policies supporting sustainable transportation, may influence consumer

perceptions and purchase intentions toward environmentally friendly products (23). In addition, the availability and accessibility of electric vehicle charging infrastructure remain important factors affecting consumers' confidence in adopting electric vehicles. Environmental awareness among Indonesian consumers has gradually increased; however, differences in sustainability perceptions across regions may contribute to variations in green purchasing behavior (24). Economic considerations, including purchasing power and the relatively higher cost of electric vehicles compared with conventional vehicles, may also shape consumers' evaluations of green product quality and their intention to purchase (25). Therefore, the relationship between green product attributes and green purchase intention should be understood within these contextual conditions, which may differ from findings reported in other countries or sectors. These contextual factors may explain why consumers in Yogyakarta evaluate green product quality and uniqueness differently, thereby influencing attitudes and green purchase intentions within the local market environment (26).

Limitations

This study is subject to several limitations. The cross-sectional design restricts causal inference and does not capture changes in consumer behavior over time. The use of self-reported responses may introduce response bias, while the focus on respondents in the Special Region of Yogyakarta limits generalizability. In addition, potential common method bias cannot be entirely ruled out. Future research is recommended to adopt longitudinal designs, comparative studies across regions or countries, and multiple data sources to improve the robustness and generalizability of findings.

Conclusion

Based on results of PLS-SEM analysis, research concludes that green product quality and green product uniqueness play an important role in form attitude and intention to consumer's friendly environment electric cars purchase. Proven green product quality influential positive and significant towards attitude, however no-show direct influence significantly towards green purchase intention. This shows that quality green products play more role at the stage formation attitude than in push intention purchase in a way directly. On the other hand, green product uniqueness has influenced positive and significant good towards attitude and green purchase intention, which confirms that differentiation product friendly environment is an important factor in triggering consumers response. Besides that, attitude is proven as a predictor of main intention purchase and acts as a significant mediator in connection between quality and uniqueness of product to intention purchase. In overall, this research confirms that uniqueness products and positive attitudes are element keys in increased intention to purchase electric cars and an increasingly competitive market. Future research is recommended to employ longitudinal designs, comparative studies across different regions or countries, and additional psychological variables to enhance the understanding and generalizability of sustainable consumer behavior toward electric vehicles. Moreover, broader contextual factors, such as government policies, infrastructure availability, and economic conditions, should be considered in future investigations.

This study has several limitations. First, the research was conducted only in the Special Region of Yogyakarta, which may limit the generalizability of the findings to other regions with different demographic and market characteristics. Second, the use of a cross-sectional design captures respondents' perceptions at a single point in time and may not fully reflect changes in attitudes and purchase intentions over time. Third, the study focused on a limited set of variables, namely green product quality, green product uniqueness, attitude, and green purchase intention. Future research is encouraged to include additional factors, such as environmental awareness, perceived value, government incentives, and social influence, as well as to employ longitudinal designs and broader geographical coverage to enhance the robustness and generalizability of the findings.

Abbreviations

AVE: Average Variance Extracted, CR: Composite Reliability, PLS: Partial Least Squares, SEM: Structural Equation Modeling, TPB: Theory of Planned Behavior.

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Author Contributions

Eko Prasojo: Conceptualization, Study Design, Research Framework, Data Collection, Data Curation, Statistical Analysis, Result Interpretation, Writing- Original Manuscript Draft, Suyanto M: Academic Guidance, Research Process, Writing-Review, Editing, Result Interpretation. All authors read and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

Conflicts of Interest

The authors declare no potential conflicts of interest, whether real or perceived, related to this work.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declaration of Artificial Intelligence (AI) Assistance

Generative AI tools (ChatGPT, OpenAI) were used in a limited capacity for language refinement and sentence structuring, and all outputs were curated by the authors to ensure accuracy and consistency with the scientific content. The authors take full responsibility for the content's originality, interpretation and accuracy.

Ethics Approval

This study did not require ethical approval based on its design and scope. It adhered to all ethical research principles, including voluntary participation, anonymity, and confidentiality of participants' responses. For future studies involving a broader scope, ethical approval will be sought from the appropriate ethics committee.

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