

Analysis of the Influence of Green Branding, Green Perceived Value and Environmental Concern on Consumer Loyalty with Green Trust Moderation of Electric Buses in Transjakarta

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ABSTRACT

This study aims to analyze the influence of green branding, green perceived value, and environmental concern on consumer loyalty in the context of TransJakarta electric bus services, with green trust as a moderating variable. The background of this research is based on the urgency of the transition to sustainable transportation in Jakarta and the inconsistency of TransJakarta user loyalty data. This study uses a quantitative approach with a survey method of 204 respondents using TransJakarta electric bus services, as well as Structural Equation Modeling (SEM) analysis techniques based on Partial Least Squares (SmartPLS 4.0). The results of the analysis show that the three main variables, namely green branding, green perceived value, and environmental concern, have a positive and significant effect on consumer loyalty. However, of the three moderation interactions tested, only two were significant: green trust was shown to strengthen the relationship between green perceived value and environmental concern for loyalty, while green trust moderation was found to be insignificant with respect to green branding. These findings indicate that consumer trust in a company's environmental commitment plays an important role in reinforcing the value impact of green perception and environmental concern on loyalty but is not enough to moderate the pre-formed perception of green brands. This research makes a theoretical contribution to the development of the Stimulus–Organism–Response (SOR) model in the context of sustainable transportation and enriches the literature on green marketing in the public service sector. From a practical perspective, these findings can serve as the basis for developing more targeted marketing strategies and sustainability policies to increase the retention of electric-based public transportation users in urban areas.

Keywords: green branding, green perceived value, environmental concern, green trust, consumer loyalty, TransJakarta, Electric buses, SOR

INTRODUCTION

The Intergovernmental Panel on Climate Change (IPCC) report states that the transportation sector accounts for about 14% of total greenhouse gas (GHG) emissions globally, with fossil-fueled vehicles as a major contributor (Ipcc Report, 2023). Many industries still focus on financial gains without regard to the impact on the environment (Putri & Agustin, 2023). To reduce these negative impacts, various countries have begun to adopt low-emission transportation technology, one of which is through the use of electric buses (Babbie, 2020; Herman, Wardani, & Ratnawati, 2024).

As part of the transition efforts towards a sustainable transportation system, electric buses are increasingly being adopted by major cities around the world (Dinas Lingkungan Hidup Provinsi Jakarta, 2023). Studies conducted by Alarrouqi et al. (2020) show that the use of electric buses in some countries, such as China, the United States, and the European Union, not only lowers carbon

emissions but also improves operational efficiency and reduces air pollution in cities. The city of Shenzhen in China, for example, has converted 100% of its bus fleet to electric buses since 2017, making it a successful model in the electrification of public transportation (Baig et al., 2022).

In Indonesia, based on data from the Ministry of Transportation (2024), the transportation sector accounts for 27% of the nation's total carbon emissions, with the main source coming from fossil-fueled motor vehicles. In response to these environmental problems, the Jakarta Provincial Government (*Pemprov*) together with Transjakarta began to implement the electrification of the bus fleet as part of efforts to decarbonize public transportation (Kementerian Perhubungan Republik Indonesia, 2021; Transjakarta, 2024). This step is in line with the national policy in the National Energy General Plan (*Rencana Umum Energi Nasional* or *RUEN*) which targets increasing the use of electric vehicles in Indonesia to reduce dependence on fossil fuels (ESDM, 2021).

The Jakarta Provincial Government has taken concrete steps in reducing carbon emissions by introducing Transjakarta electric buses as part of the Jakarta Blue Sky 2030 plan (Jakarta Province, 2023). Research by Bunga et al. (2024) highlights that Jakarta, as the capital and economic center of Indonesia, faces major challenges in the transportation sector, especially related to congestion and air pollution.

To overcome these problems, the Jakarta Provincial Government (*Pemprov*) implements a public transportation electrification strategy, one of which is through the operation of Transjakarta electric buses. This program is part of the Jakarta Blue Sky 2030 vision, which aims to reduce greenhouse gas emissions and improve urban air quality (Transportation, 2024).

Branding is effectively able to increase consumer loyalty while providing a competitive advantage (Nugroho & Sihite, 2017). One of the branding strategies that can be applied is the practice of green branding, which has been proven to strengthen loyalty while building consumer trust (Pranata & Permana, 2021). Other studies mention that the application of green branding with the goal of sustainable development significantly increases consumer satisfaction and loyalty by aligning green practices such as social responsibility and environmental impact management (Rusmahafi & Wulandari, 2020).

Research results from Pradipta et al. (2021) demonstrate that the values perceived by consumers, or green perceived value, such as consumer satisfaction and trust, have a significant positive influence on consumer loyalty. Green marketing strategies have been proven to contribute positively and significantly to the perception of consumer value, where green perceived value directly impacts the increase in consumer loyalty (Krishnan et al., 2024).

Environmental concern also strengthens the influence of green branding in shaping brand image and consumer loyalty. Consumers with a high level of concern for the environment tend to be more responsive to the sustainability values carried by a brand (Nguyen Viet et al., 2024). Practices that reflect concern for the environment have also been shown to have a positive impact on consumer loyalty (Maharani, 2024).

In addition, the findings from Journey Firdausy et al. (2023) indicate that trust in environmental practices (green trust) significantly affects consumer loyalty. When consumers believe that a brand is truly committed to eco-friendly practices, they tend to show higher loyalty to the product. In this context, TransJakarta has become one of the main solutions in reducing people's dependence on private vehicles, especially after the implementation of the public transportation integration policy through the *JakLingko* system (ITDP, 2023).

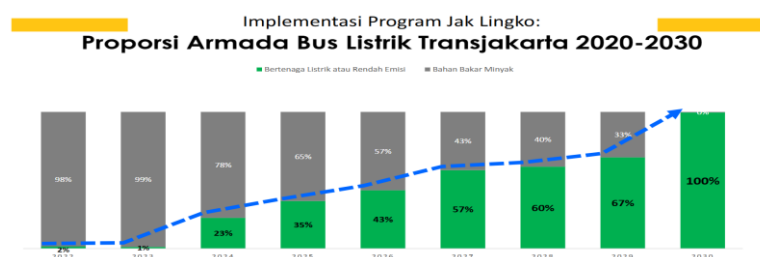


Figure 1. Proportion of Transjakarta Electric Bus Fleet 2020-2030

Source: (PT. Transjakarta / busworldseasia.org, 2023)

By mid-2025, TransJakarta has significantly increased the electrification of its fleet as part of its official commitment towards environmentally friendly public transportation. Citing an official statement, since December 2024 the company has operated 300 units of electric buses (Transjakarta, 2024). This research is also set against a background with a research gap. Previous research discussed the variables of green branding against consumer loyalty. According to Jalu et al. (2024), green branding directly improves green consumer loyalty and perceived value, significantly strengthening consumer loyalty. Another study found that green branding does not significantly affect consumer loyalty (Sofyan, 2023).

Throughout 2024, the number of TransJakarta passengers fluctuated significantly. In March, the number of passengers reached 30.09 million but declined sharply in April to 26.90 million (-10.6% month-to-month), which was the largest decline of the year, after a 2.7% decrease recorded in March compared to the previous month. Entering May, the trend turned positive with an increase to 29.00 million (+7.8%), continuing in June with 31.62 million (+9.0%), and reaching the highest peak in July with 35.50 million passengers (+12.3%), which was the most significant increase in 2024. However, in August the number of passengers corrected to 33.11 million (-6.7%) and fell again in September to 32.39 million (-2.2%). The positive trend reappeared in October with a surge to 35.65 million passengers (+10.0%) compared to the previous month.

Previous research by Uikey et al. (2025) explored how green transparency in electric vehicle branding builds brand image and brand credibility, which then enhance green brand loyalty and repurchase intention, using the SOBC framework and data from 386 EV users. However, their scope focused on the automotive sector and did not address public transportation modes or the moderating impact of consumer environmental concern. Meanwhile, Jalu et al. (2023) investigated the relationship between green brand innovation and green perceived value, demonstrating indirect effects on brand loyalty mediated by perceived value and moderated by green knowledge in the Ethiopian banking context. Yet, their study did not examine branding strategies (such as green branding) in public transit or the role of green trust as a moderator.

Based on the background described, this study aims to analyze the influence of green branding, green perceived value, and environmental concern on the consumer loyalty of TransJakarta electric bus users, as well as test the role of green trust as a moderating variable that strengthens the influence among the main variables. Specifically, this study examines the influence of each factor on consumer loyalty, as well as how green trust moderates these influences. The results are expected to provide a comprehensive understanding of the role of green marketing elements in building consumer loyalty, as well as enrich scientific studies in the field of sustainable marketing in the environmentally friendly energy-based public transportation sector. It contributes theoretically to sustainable marketing literature in transport by integrating these constructs into a cohesive model. Practically, it aims to evaluate how green branding, perceived value, and environmental concern influence user loyalty in TransJakarta electric buses, and how green trust strengthens these relationships—offering

actionable insights for policymakers, transit authorities, and marketers in advancing eco-friendly public transport.

METHOD

This research method uses a quantitative approach with a causal design to test the cause-effect relationship between independent variables (green branding, green perceived value, environmental concern) and the dependent variable (consumer loyalty), with green trust as a moderating variable. Primary data were collected through an online questionnaire on a Likert scale (1–5), which was compiled based on indicators tested for validity and reliability, and distributed to active consumers of TransJakarta electric buses in the Greater Jakarta area in June–July 2025. The sampling technique used was purposive sampling with a minimum number of 115 respondents, determined through statistical power analysis using G*Power ($\alpha = 0.05$, power = 0.95, effect size $r = 0.30$). Data analysis was carried out using the Partial Least Squares–Structural Equation Modeling (PLS-SEM) method to test the measurement model (outer model) and structural model (inner model), including validity, reliability, determination coefficient (R^2), effect size (f^2), predictive relevance (Q^2), and moderation analysis through path coefficient, t-statistics, p-values, and simple slope analysis. The test results are expected to shed light on the direct influence and the role of green trust moderation in strengthening the influence of the free variables on user loyalty.

RESULTS AND DISCUSSION

Measurement Test Results (*Outer Model*)

Convergent Validity Test

a) Uji *Outer Loadings*

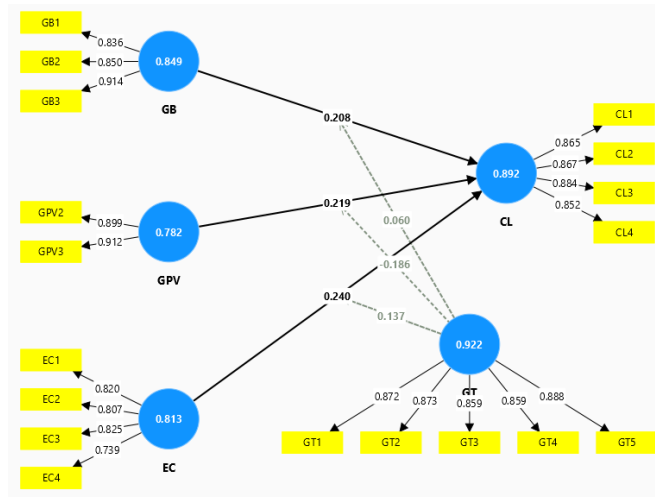


Figure 2. Outer loading

The table of *outer loading* is as follows:

Table 1. Outer Loading of each Indicator

Variable	Item	Indicator	Outer Loadings	Condition	Result
GB :Green Branding	GB1	Meet the eco-friendly needs of consumers	0.84	≥ 0.7	Valid
	GB2	Providing consumers with innovative eco-friendly solutions	0.85	≥ 0.7	Valid
	GB3	Offering new eco-friendly solutions for consumers	0.91	≥ 0.7	Valid

Variable	Item	Indicator	Outer Loadings	Condition	Result
GPV :Green Perceived Value	GPV2	The function of the environment is considered awesome	0.9	≥ 0.7	Valid
	GPV3	Considered more environmentally friendly	0.91	≥ 0.7	Valid
EC :Environmental Concern	EC1	Concern for environmental impacts is considered important	0.82	≥ 0.7	Valid
	EC2	The use of environmentally friendly products is considered a necessity	0.81	≥ 0.7	Valid
	EC3	Support is given for concern for the environment	0.83	≥ 0.7	Valid
	EC4	Purchases can reduce environmental pollution	0.74	≥ 0.7	Valid
GT :Green Trust	GT1	Environmental commitment is generally considered reliable	0.87	≥ 0.7	Valid
	GT2	Environmental performance is considered trustworthy in general	0.87	≥ 0.7	Valid
	GT3	Statements of concern for the environment are generally considered trustworthy	0.86	≥ 0.7	Valid
	GT4	Environmental care meets consumer expectations	0.86	≥ 0.7	Valid
	GT5	Keep promises and commitments in protecting the environment	0.89	≥ 0.7	Valid
CL: Consumer Loyalty	CL1	Environmental benefits drive the desire to continue using them	0.87	≥ 0.7	Valid
	CL2	Environmental performance increases preferences in brand selection	0.87	≥ 0.7	Valid
	CL3	Environmental awareness strengthens consumer loyalty	0.88	≥ 0.7	Valid
	CL4	Eco-friendly image is a reason to continue to use it	0.85	≥ 0.7	Valid

Source: Data processed by researchers (2025).

Based on the results of *the outer loading* test in table 1, all construct indicators resulted in indicators meeting the convergence validity criteria with a loading value above 0.70, as suggested by Hair et al. (2021). Overall, the results of these tests show that the constructs in the model have good measurement quality and are worthy of further analysis in the structural model.

b) *Average Variance Extracted (AVE)* Test

Table 2. Convergent Validity Test (AVE)

Construct	AVE	AVE ≥ 0.50	Validity
Consumer Loyalty	0.752	Meet	Valid
Environmental Concern	0.638	Meet	Valid
Green Branding	0.752	Meet	Valid
Green Perceived Value	0.819	Meet	Valid
Green Trust	0.757	Meet	Valid

Source: Data processed by researchers (2025).

All constructs tested in this study showed AVE values above 0.50, so it can be concluded that each construct meets the criteria for convergent validity. The highest AVE value was obtained by the *Green Perceived Value* (GPV) construct of 0.819, which indicates that the indicator in this construct is the most powerful in reflecting the construct. Meanwhile, the lowest AVE value was obtained by the *Environmental Concern* (EC) construct of 0.638, but this value is still above the minimum recommended threshold, so it is still declared valid in a convergent manner.

c) *Composite Reliability (rho_a) Test*Table 3. *Composite Reliability Test (rho_a)*

Construct	Composite Reliability (rho_a)	Criteria ≥ 0.70	Reliability Status
Consumer Loyalty	0.892	Meet	Reliable
Environmental Concern	0.813	Meet	Reliable
Green Branding	0.849	Meet	Reliable
Green Perceived Value	0.782	Meet	Reliable
Green Trust	0.922	Meet	Reliable

Source: Data processed by researchers (2025).

Based on the results of data processing using SmartPLS, all constructs in this research model showed a *Composite Reliability (rho_a)* value that exceeded the minimum threshold of 0.70. This indicates that each construct has good internal consistency in measuring the latent variable in question. The *Green Trust* (GT) construct obtained the highest *rho_a* value of 0.922, indicating that the indicators that make up the construct have a very strong internal correlation and are able to represent the concept of trust in the green aspect consistently. Meanwhile, the *Green Perceived Value* (GPV) construct recorded the lowest *rho_a* value of 0.782, which although the lowest among the other constructs, still exceeded the recommended threshold value and thus could be declared statistically reliable.

Test Results (Inner Model)*Coefficient of determination (R²) Test*Tabel 4. *Coefficient of determination (R²)*

	R-square	R-square adjusted	Criterion
Consumer Loyalty	0.705	0.694	Moderate

Source: Results of the researcher's processing using SmartPLS (2025).

The results of the analysis show that the R-Square value for CL is 0.705, or can be explained by 70.5% variance in the *Consumer Loyalty* construct can be explained by the independent constructs in the model. Meanwhile, the *Adjusted R-Square* value is 0.694, which has been adjusted for the number of predictors in the model, and indicates a fairly high stability in the prediction of consumer loyalty variables. The value is in the Moderate category (Hair, 2021).

*Effect Size (f²) Test*Tabel 5. *Effect Size (f²)*

Influence of Construct	Value f ²
Environmental Concern → Consumer Loyalty	0.064
Green Branding → Consumer Loyalty	0.048
Green Perceived Value → Consumer Loyalty	0.064
Green Trust × Green Branding → Consumer Loyalty	0.007
Green Trust × Environmental Concern → Consumer Loyalty	0.043
Green Trust × Green Perceived Value → Consumer Loyalty	0.056

Source: Results of the researcher's processing using SmartPLS (2025).

The result of *f²* shows that all constructs in the model make a significant but relatively small contribution to the *Consumer Loyalty* (CL) variable. The three main constructs, namely *Environmental Concern* (EC), *Green Perceived Value* (GPV), and *Green Branding* (GB), each had a small effect on consumer loyalty, with *f²* values ranging from 0.048 to 0.064. Some constructs are

close to the medium effect category, which suggests that trust in environmentally friendly aspects plays an important role in influencing user loyalty to TransJakarta electric buses.

However, on the other hand, *the effect of Green Trust's moderation on Green Branding → Consumer Loyalty* only showed an f^2 value of 0.007, which means it barely contributed any additional to the loyalty prediction. These findings show that *Green Trust* does not significantly strengthen the influence of *Green Branding* on *Consumer Loyalty* in this model.

Predictive Relevance (Q^2) Test

Table 6. Predictive Relevance (Q^2)

Variable endogenous	Q^2	Result
Consumer Loyalty	0.514	Has a good <i>predictive relevance</i> value (Big Effect)

Source: Results of the researcher's processing using SmartPLS (2025).

The Q^2 value for the *Consumer Loyalty* (CL) construct of 0.514 indicates that the model has a very high predictive relevance to the construct. This means that the predictive variables used in the model (namely *Green Branding*, *Green Perceived Value*, *Environmental Concern*, *Green Trust*, and their interactions) are able to predict well user loyalty to TransJakarta electric buses. This reflects that the model built is not only statistically valid (in R^2 testing), but also strong in its predictive ability on consumer loyalty behavior in the context of sustainable public transport.

Moderation Test Results

Patch Coefficient (T-Statistics dan P-Values)

Tabel 7. Patch Coefficient (T-Statistics dan P-Values)

Influence	Line Coefficient (O)	T-statistic	P-value	Information
Environmental Concern → Consumer Loyalty	0.24	2.172	0.015	Significant
Green Branding → Consumer Loyalty	0.208	2.119	0.017	Significant
Green Perceived Value → Consumer Loyalty	0.219	2.983	0.001	Significant
Green Trust × Green Branding → Consumer Loyalty	0.06	0.807	0.21	Insignificant
Green Trust × Environmental Concern → Consumer Loyalty	0.137	1.667	0.048	Significant
Green Trust × Green Perceived Value → Consumer Loyalty	-0.186	2.332	0.01	Significant (negative moderation)

Source: Results of the researcher's processing using SmartPLS (2025).

Based on the results of the path coefficients analysis, all the main constructs in this study were proven to have a positive and significant influence on the loyalty of TransJakarta electric bus users, although with different levels of influence. Environmental Concern (EC) showed the strongest influence with a coefficient of 0.240 ($T = 2.172$; $P = 0.015$), which means that the higher the awareness of environmental issues, the greater the tendency of users to be loyal. Green Branding (GB) also had a significant effect (coefficient of 0.208; $T = 2.119$; $P = 0.017$), indicating that an eco-friendly brand image can drive user engagement. Furthermore, Green Perceived Value (GPV) recorded the highest statistically significant influence (coefficient of 0.219; $T = 2.983$; $P = 0.001$), indicates that the perceived value of utility from electric bus services is the main reinforcer of experience-based loyalty.

In the moderation relationship, the results showed interesting variations. The interaction of Green Trust with Green Branding ($GT \times GB$) on loyalty was not significant (coefficient 0.060; $P =$

0.210), which means that green confidence does not automatically reinforce the branding effect. In contrast, Green Trust amplifies the influence of Environmental Concern on loyalty marginally significantly (coefficient 0.137; $P = 0.048$), indicating that confidence in TransJakarta's sustainability can strengthen the relationship between environmental concern and loyal decisions. However, in the interaction of Green Trust with Green Perceived Value ($GT \times GPV$), a significant negative influence was found (coefficient -0.186; $P = 0.010$), which suggests that high trust can actually weaken the impact of environmental value perceptions on loyalty, possibly due to a mismatch between expectations and real experiences. Overall, this model affirms the important role of environmental values, trust, and sustainability perceptions in shaping loyalty to clean energy-based public transportation.

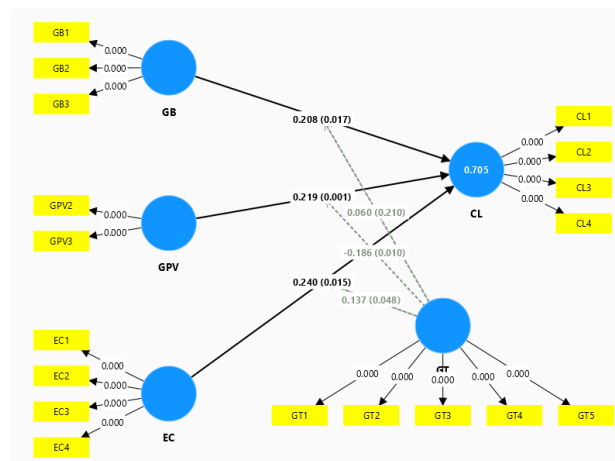


Figure 3. Structural Model (patch coefficient t-values and p-values)

In figure 3, the structural model and measurement above illustrate the results of the analysis using the *Partial Least Squares Structural Equation Modeling* (PLS-SEM) approach with the help of the SmartPLS application. Overall, all major exogenous constructs (*Green Branding*, *Green Perceived Value*, *Environmental Concern*, and *Green Trust*) have a significant direct effect on *Consumer Loyalty*. However, the moderation effect showed varied results, some insignificant, marginally significant, and even significantly negative. These findings illustrate the complexity of the relationship between trust in the green aspect and user perception and loyalty. Therefore, these results are important to discuss further in Chapter V as a basis for the development of brand communication strategies and the management of public trust in green transportation services.

Simple Slope Analysis

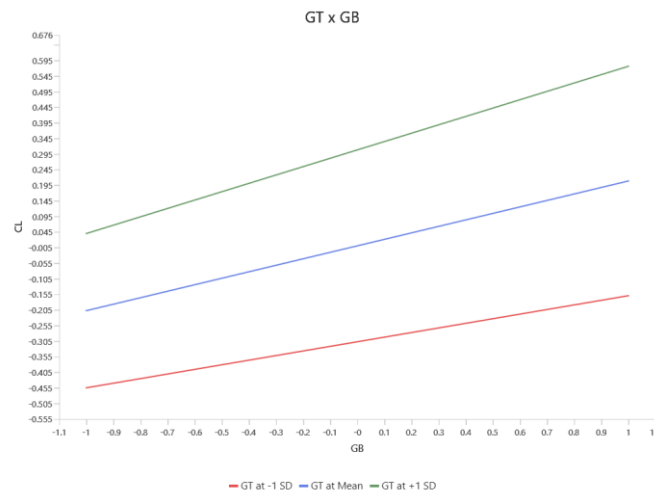


Figure 4. *Green Trust moderates Green Branding over Consumer Loyalty*

The image illustrates the results of a *simple slope* analysis of the interaction between *Green Trust* (GT) and *Green Branding* (GB) on *Consumer Loyalty* (CL). Three lines show the relationship between *Green Branding* GB → *Consumer Loyalty* CL at different GT levels: low (red), medium (blue), and high (green). It can be seen that the higher the *Green Trust* (GT), the stronger the influence of *Green Branding* GB on *Consumer Loyalty* CL, which is indicated by the steeper slope of the line.

Visually, this indicates that *Green Trust* can strengthen the influence of *Green Branding* on loyalty. However, based on statistical tests, this interaction was not significant ($T = 0.807$; $P = 0.210$), so that although a moderation pattern appears, the effect is not strong enough to be empirically concluded. These findings show that the role of *Green Trust* (GT) as a moderator is still potential and needs to be further reviewed in the development of TransJakarta's green branding strategy.

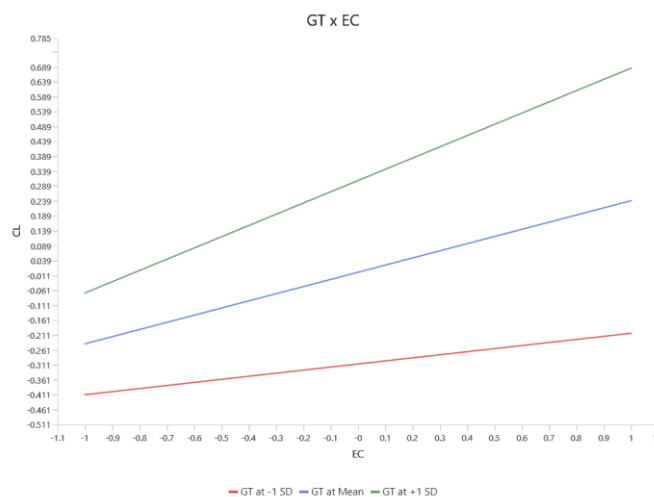


Figure 5. *Green Trust moderates Environmental Concern to Consumer Loyalty*

The image above shows the results of a *simple slope analysis* of the interaction between *Green Trust* (GT) and *Environmental Concern* (EC) in influencing *Consumer Loyalty* (CL). Three lines indicate different levels of *Green Trust* (GT): low (red line), medium (blue), and high (green).

The visual results show that the higher the level of trust of the *Green Trust* (GT), the stronger the influence of *Environmental Concern* on loyalty, which is indicated by the steepest green line. This shows that *Green Trust* GT strengthens the relationship between *Environmental Concern* (EC) and *Consumer Loyalty* (CL), in line with statistical test results showing a marginally significant moderation effect ($T = 1,667$; $P = 0.048$). Thus, users' trust in the sustainability aspect of the service

reinforces the impact of their environmental concern on loyalty. Although the power is not great, this effect is still relevant to support loyalty enhancement strategies through environmental values education.

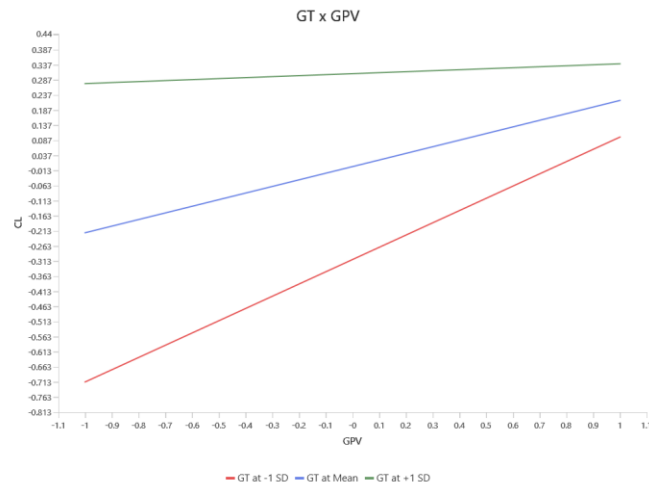


Figure 6. Green Trust moderates Green Perceived Value to Consumer Loyalty

The figure above illustrates the results of a *simple slope analysis* to test the interaction between *Green Trust* (GT) and *Green Perceived Value* (GPV) in influencing *Consumer Loyalty* (CL). Three regression lines show the relationship between *Green Perceived Value* (GPV) and *Consumer Loyalty* (CL) at different levels of *Green Trust* (GT): low (red line), medium (blue line), and high (green line).

Visually, it can be seen that the lines with a high confidence level (GT +1 SD) have the flatter slope, while the lines with a low confidence level (GT -1 SD) show the steepest slope. This indicates that the influence of *Green Perceived Value* (GPV) on loyalty is stronger when *Green Trust* (GT) is low, but weakens when GT increases.

These results are consistent with previous statistical tests that showed that this interaction had a negative and significant effect, with a T-statistic value of 2.332 and a P-value of 0.010. These findings mean that Green Trust actually weakens the influence of *Green Perceived Value* (GPV) on user loyalty, a negative moderation effect that is rarely found.

Conceptually, this condition can be explained by the possibility of too high expectations from users with high confidence in the green aspect of TransJakarta, so that when the perception of the value received is not in line with their expectations, loyalty can be compromised. Therefore, these results are important inputs to ensure that the promised environmental value is truly felt by consumers, especially those with high levels of trust.

Hypothesis Testing

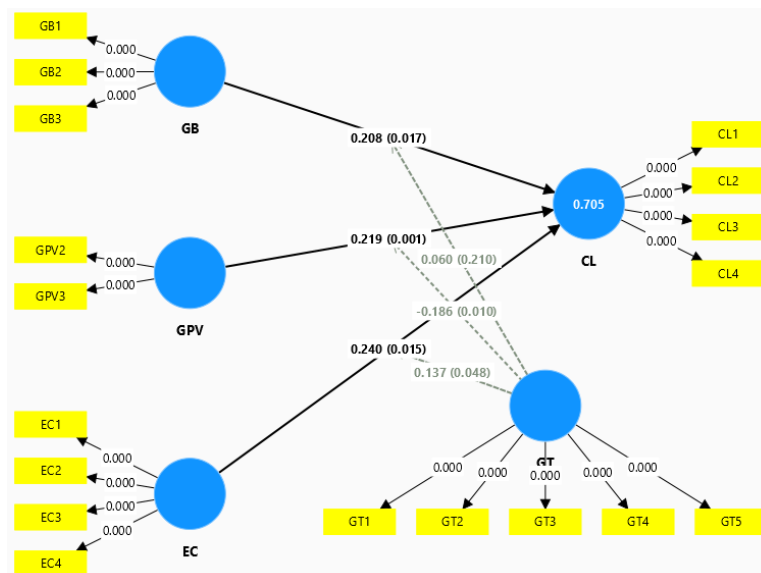


Figure 7 Hypothesis Test Based on Construct Relationships (*Patch Coefficient*)

Hypothesis testing was carried out to evaluate the significance of the relationship between constructs in the research model. This test includes both the direct influence between independent variables on the dependent variable (*Consumer Loyalty*), as well as the influence of Green Trust interaction (moderation) on the relationship. The significance assessment was carried out by paying attention to the t-statistic and p-value values of the bootstrapping results on SmartPLS. A relationship is said to be significant if the t-statistic value is greater than 1.96 and the p-value is less than 0.05 for a significance level of 5% (Hair et al., 2019). The results of the relationship test are explained in the table as follows:

Table 8. Construct Relationship Line Test

Influence	Line Coefficient (O)	T-statistic	P-value	Result
Direct Influence				
Green Branding (GB)→ Consumer Loyalty (CL)	0.208	2.119	0.017	Significant
Green Perceive Value (GPV)→ Consumer Loyalty (CL)	0.219	2.983	0.001	Significant
Environment Concern (EC) → Consumer Loyalty (CL)	0.24	2.172	0.015	Significant
Indirect Influence				
Green Trust (GT) × Green Branding (GB)→ Consumer Loyalty (CL)	0.06	0.807	0.21	Insignificant
Green Trust (GT) × Green Perceive Value (GPV)→ Consumer Loyalty (CL)	-0.186	2.332	0.01	Significant (negative moderation)
Green Trust (GT) × Environment Concern (EC) → Consumer Loyalty (CL)	0.137	1.667	0.048	Significance (margin)

Source: By the author from SmartPLS data (2025)

The results of the lane test with SmartPLS showed that Green Branding, Green Perceived Value, and Environmental Concern had a positive and significant influence on the loyalty of TransJakarta electric bus users, with lane coefficients of 0.208, 0.219, and 0.240, respectively. This indicates that green brand image, perception of environmentally friendly values, and concern for the environment are important factors in building consumer loyalty. In terms of moderation, Green Trust was not significant in strengthening the relationship between Green Branding and loyalty, but showed a significant negative effect on the relationship between Green Perceived Value and loyalty, which hinted at a potential mismatch of consumer expectations. In contrast, Green Trust was able to strengthen the relationship between Environmental Concern and loyalty marginally significantly. These findings confirm the important role of sustainability values, brand image, and trust in influencing the loyal behavior of environmentally friendly public transportation users.

Green Branding has a positive and significant influence on Consumer Loyalty.

Green Branding has a positive and significant effect on Consumer Loyalty, with a path coefficient of 0.208, a *t-statistic* value of 2.119, and a *p-value* of 0.017. These values show that customers' positive perception of TransJakarta's green brand image actually drives loyalty to the service. Results The results of the study show that *Green Branding* has a positive and significant influence on customer loyalty. In this context, TransJakarta's green branding reflects a strategic effort to instill an environmentally friendly image in the minds of consumers through the provision of an emission-free electric bus fleet. When consumers feel that a public transportation brand has a commitment to the environment, they develop a positive brand perception that ultimately forms loyalty.

Customers tend to be loyal when brands not only offer services, but also reflect values they care about, such as environmental sustainability and social responsibility. Green branding, as stated by Lin et al. (2024), is effective in building emotional connections and values, for example in the use of TransJakarta electric buses that make customers feel that they contribute to reducing carbon emissions. However, as Chen & Chang (2013) warned, green imagery must be balanced with a consistent service experience, as mismatches between claims and reality can undermine loyalty. In the framework of Stimulus-Organism-Response (SOR), green branding acts as an external stimulus that influences consumers' internal perception and evaluation, which is then manifested in the form of loyalty (Chen & Chang, 2012). Han & Hyun's (2019) study shows that green branding is able to create significant emotional attachment and perceived value to the intention to continue using green services, while Wang et al. (2024) prove that green marketing attributes, including green brand image, can activate loyalty through strengthening green trust. Thus, the consistency of service and brand credibility are the keys to green branding being truly effective in forming loyalty.

Green Perceived Value has a positive and significant influence on Consumer Loyalty.

Green Perceived Value also has a positive and significant influence on customer loyalty, with a coefficient of 0.219, *t-statistic* of 2.983, and *p-value* of 0.001. This value confirms that customers' perception of the environmental benefits of TransJakarta services plays an important role in increasing their loyalty. *Green Perceived Value* has also been proven to have a positive and significant influence on customer loyalty. The value perceived by customers includes both direct benefits (such as convenience and accessibility) and indirect benefits (such as emission reductions and contributions to air quality). Customers will be loyal when they feel that using electric buses is not only an alternative to transportation, but also a morally and ecologically meaningful action.

According to Krishnan et al. (2024), the perception of high green value provides intrinsic motivation for customers to continue using services because they feel they are part of positive social and environmental changes, such as TransJakarta electric buses which are considered to help reduce the carbon footprint in the midst of Jakarta's congestion and air pollution. However, if this perception is not supported by real evidence or direct experience, for example, electric buses rarely operate, are often full, or are not integrated with other transportation systems, then the perceived value can decrease and loyalty is affected. Liu et al. (2021) found that green value perception can increase loyalty intentions through positive psychological responses such as satisfaction and pride, while Han et al. (2019) show that the perception of positive impacts on the environment can trigger higher loyalty due to moral values aligned with personal identity. In the context of public services, these findings confirm that sustainability-based perceived value is an important stimulus in the SOR model that is able to activate the psychological processes that shape customer loyalty.

Environmental Concern has a positive and significant influence on Consumer Loyalty.

Environmental Concern has a path coefficient of 0.240, *t-statistic* 2.172, and *p-value* of 0.015, showing a positive and significant influence on customer loyalty. Consumers who have a high concern for the environment show a strong preference for transportation services that support sustainability values.

Environmental Concern, or concern for environmental issues, shows a significant positive relationship with customer loyalty. This means that ecologically conscious consumers tend to be more loyal to environmentally friendly public transportation services. This is consistent with the theory of social values, which states that consumer behavior is influenced by personal values that are intended to be realized in real actions (Schwartz, 1992).

Mohd Suki (2016) stated that consumers with a high level of *environmental concern* not only consider the functional aspects of the product, but also its impact on environmental sustainability, so that TransJakarta can be a means to realize this value and strengthen loyalty. However, this loyalty is vulnerable if the service is inconsistent with the promised green values, for example the electric fleet is not fully operational or the fossil fuel fleet is still in use. Paul et al. (2016) found that concerns about environmental degradation drive more responsible consumption decisions, while Han & Hyun (2018) show that *environmental concerns* can trigger *green satisfaction* and *green trust* leading to increased loyalty. These findings confirm that concern for the environment is the main stimulus in the SOR model that is able to encourage consumer behavioral loyalty to sustainable public transportation services.

Green Trust does not moderate the relationship between Green Branding and Consumer Loyalty.

The results of the study show that the *Green Trust variable* does not moderate the relationship between *Green Branding* and *Consumer Loyalty* significantly. This can be seen from the path coefficient value of 0.060, *t-statistic* 0.807, and *p-value* 0.210. In addition, the effect size measurement results through f-square analysis showed a value of 0.007, well below the minimum threshold of 0.02 for the small influence category as set by Hair et al. (2019). This value indicates that the existence of *Green Trust* in strengthening the influence of *Green Branding* on customer loyalty does not have a significant practical effect.

In the SEM-PLS structural model, *effect size (f²)* is used to measure the extent to which a construct affects a dependent variable when it is omitted from the model. When the *f²* value of *Green Trust* $\times$ *Green Branding* interactions reaches only 0.007, this means that its contribution to customer

loyalty variance is minimal and practically negligible. In the context of moderation, *this very small* effect size value suggests that the existence of *Green Trust* does not substantially increase the strength of the relationship between *Green Branding* and loyalty.

Conceptually, moderation occurs when the third variable changes the strength or direction of the relationship between independent and dependent variables, but because the direct influence of Green Branding on Consumer Loyalty is only 0.048 (small category), the potential for Green Trust moderation is limited. Dawson (2014) emphasized that moderation requires a strong enough basic effect for interaction to be significant, and in the context of TransJakarta, consumer loyalty is more influenced by real experiences such as convenience and consistency of service than just green image. Ha (2022) stated that without tangible and consistent evidence of service sustainability, trust in brands is difficult to grow solidly. Green Trusts also tend to be more effective in strengthening functional value-based relationships such as Green Perceived Value (Nguyen-Viet et al., 2024), as trusts are formed from a belief in long-term performance and commitment, rather than just exposure to green branding (Lee, 2008). Based on the quantitative results ($f^2 = 0.007$; $p = 0.210$) and theoretical foundations, the unproven role of Green Trust moderation is an empirically and rationally valid finding, confirming the need for an integrated strategy between communication and operations to build loyalty, while supporting the achievement of SDG 11 and SDG 13 through sustainable public transport.

Green Trust moderates the relationship between Green Perceived Value and Consumer Loyalty.

The interaction between Green Trust and Green Perceived Value on loyalty showed a significant negative influence, with a coefficient of -0.186, *t-statistic* 2.332, and *p-value* of 0.010. This means that the higher the trust in green attributes, the more it weakens the influence of green values felt on loyalty. The most interesting finding from this study is the negative influence of moderation from *Green Trust* on the relationship between Green Perceived Value and customer loyalty. This means that when *Green Trust* is high, the influence of *Green Perceived Value* on loyalty actually decreases. This phenomenon can be explained by the effect of "*green skepticism*" or excessive expectations.

When consumers have high Green Trust, their expectations of service also increase, so realities such as delays, under-fleet or suboptimal service can lower loyalty even if green values are still recognized. This finding is in contrast to Mahendra et al. (2024) who show that Green Trust strengthens the influence of green values on loyalty, indicating that the context of service and consumer perception play a major role in determining the effect of trust. Mari et al. (2014) added that too high trust can reduce the urgency of consumers to reevaluate green values, so in the SOR model, trust is not only a stimulus amplifier, but also serves as a cognitive filter that can limit the influence of stimuli on responses. Thus, trust in the context of sustainability needs to be built proportionately and accompanied by real evidence so as not to raise excessive expectations that lead to skepticism or a decrease in loyalty.

Green Trust moderates the relationship between Environmental Concern and Consumer Loyalty.

Green Trust's *moderation* of the relationship *between Environmental Concern* and loyalty showed a marginally significant influence, with a coefficient of 0.137, *t-statistic* of 1.667, and *p-value* of 0.048. Although the *t-value* does not reach the conventional threshold of 1.96, the $p < 0.05$ value still indicates a practically relevant moderation effect. *Green Trust* has been shown to

marginally strengthen the relationship between *Environmental Concern* and customer loyalty. Consumers who care about the environment tend to be more loyal when they believe that the services they use do support sustainability values. This trust provides validation to their actions, thus strengthening loyalty.

Dananjoyo (2023) emphasized that trust is an important factor in converting personal values into loyal actions, so that without trust in green claims, the environmental values owned by consumers will not be realized in loyalty. Although the significance is marginal, these findings suggest that for consumers who care about environmental issues, trust is a crucial factor in driving sustainable loyalty. Acampora et al. (2022) proved that green trust can strengthen the relationship between *green attitude* and *green behavior* when consumers feel supported by environmentally credible institutions, while Nguyen et al. (2019) found that trust in corporate sustainability reinforces the effect of environmental concern on loyalty to green products. Thus, these results extend the application of the S-O-R theory by placing trust not only as a stimulus outcome, but also as an internal reinforcing mechanism (*organism*) that validates moral impulses into loyal behaviors, making them practically relevant in reinforcing the impact of pro-environmental attitudes on sustainable consumption decisions.

CONCLUSION

This study analyzes the influence of green branding, green perceived value, and environmental concern on consumer loyalty of TransJakarta electric bus users, with green trust as a moderating variable, using the SEM-PLS method. The results showed that the three main variables had a positive and significant effect on loyalty, while green trust only significantly moderated the relationship between green perceived value and consumer loyalty but did not moderate the influence of green branding. These findings confirm that image- and value-based green marketing strategies are able to drive loyalty, with effectiveness that can be strengthened through green trust. The theoretical contribution of this research extends the Stimulus–Organism–Response (S-O-R) model to the context of sustainable public transport, while its practical contribution provides guidance for TransJakarta and other transport operators to combine green image communication with real evidence of environmentally friendly practices. In terms of policy, the results encourage regulations that combine environmentally friendly technology with transparency, green labeling, sustainability incentives, and public education to build an ecosystem of trust and user loyalty.

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