



Integrating service loyalty and planned behavior to explain green product loyalty

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ABSTRACT

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The study appropriately positions the constructs of the Theory of Planned Behavior (TPB) and the Service Loyalty Model (SLM) within the first two stages of the loyalty chain stages model to better examine how loyalty stages influence the formation of green loyalty intention and green purchase behavior. This research applied a quantitative approach by formulating a comprehensive framework consisting of 10 hypotheses. Data were collected from 679 customers mainly in the three major cities of Vietnam, and Explanatory Factor Analysis and PLS-SEM were used to analyze the data. In the unified framework, factors from previous stages significantly influence factors in the consequence stage to form consumer loyalty. Additionally, the results show that green perceived value (a factor of cognitive loyalty) and green satisfaction (a factor of affective loyalty) can directly influence one stage ahead factors without necessarily passing through the intermediate stage. The results also highlight the key roles of green perceived quality on loyalty intention and, critically, the significant influence of green satisfaction on purchase behavior. Moreover, the study demonstrates that experiential constructs (SLM's factors, including perceived quality, perceived value, and satisfaction) exert much stronger effects on customer loyalty than attitude.

Contribution/Originality: The study contributes to the existing literature by integrating factors of the TPB and SLM to explain green product loyalty under a unified framework. The results indicate that green perceived quality has the strongest impact on green loyalty intention, while green satisfaction exerts the most significant influence on purchase behavior.

1. INTRODUCTION

At present, the world is confronted with the severe challenge of accelerated global warming, which is expected to give rise to numerous future consequences with potentially irreversible impacts (IPCC, Hoesung, & José, 2023). In recent years, the world has been heavily affected by the consequences of climate change caused by environmental pollution and unsustainable consumption. Therefore, promoting green consumption has become a major trend in economies worldwide (NielsenIQ, 2022). Green consumption aims toward a consumption-based economy in which customers prioritize purchasing and using energy-saving, environmentally friendly products, and facilitate production resources efficiently. To promote this consumption trend, it is necessary to clearly identify the economic, psychological, social, and other factors that may influence customers' purchasing and usage behaviors. Among these, the factors affecting customers' continued consumption of green products (GP), or green loyalty, are particularly important.

Customer loyalty has been mainly examined in the field of service research, as evidenced by studies such as Cronin, Brady, and Hult (2000). Loyalty, or the intention to continue purchasing products and services, has also been investigated by several other authors (Gazi et al., 2024; Hasan, Al Amin, Arefin, & Mostafa, 2024; Zhang, Guo, Bu, & Jin, 2023). Cronin et al. (2000) pointed out that loyalty in service businesses is primarily influenced by satisfaction and perceived value. Some other authors have identified additional factors (Chi & Qu, 2008; Xu, Masukujjaman, Sobhani, & Rafi, 2025) that have significant impacts on customer loyalty.

The loyalty chain stages (LCS) theory (Oliver, 1999) proposes that the loyalty chain consists of four sequential stages: (1) cognitive loyalty, (2) affective loyalty, (3) conative loyalty, and (4) action loyalty. Bourdeau, Cronin, and Voorhees (2024) also identified these four phases in their research on redefining the customer loyalty process. Bourdeau et al. (2024) confirmed the validity of the LCS model, demonstrating that loyalty stages influence advocacy and share of wallet, with later stages of loyalty exerting stronger effects. In general, this theory provides a constructive framework for investigating the loyalty chain. However, each stage in the loyalty chain needs to be examined in greater detail, particularly identifying the specific factors that constitute each stage of the loyalty chain.

Although the four-stage loyalty model has been proposed by authors (Bourdeau et al., 2024; Oliver, 1999), the elements of this model have not yet been thoroughly analyzed, especially in research focusing on green product loyalty. In addition, prior studies have predominantly focused on explaining loyalty intention rather than actual purchase behavior, limiting the ability of the model to fully capture the process of forming actual behavior. This limitation is critical in the case of green consumption, in which the intention–behavior gap remains an under-documented issue. Therefore, this study integrates factors from the SLM (Cronin et al., 2000) and core relevant elements of the TPB within the four-stage loyalty chain framework in order to specify the variables affecting green loyalty intention and behavior.

This study builds upon prior research on the loyalty chain stages framework and addresses key limitations in existing studies. Specifically, previous research (Nguyen, Le-Anh, Nguyen, Nguyen, & Nguyen, 2026) focused on the first three stages of the loyalty chain and examined green loyalty intention as the final outcome. However, such an approach does not fully capture the transformation from intention to actual behavior, which remains a critical issue in green consumption research. To address this limitation, this study extends the loyalty chain framework by incorporating the fourth stage (action loyalty) through green purchase behavior, thereby providing a more comprehensive understanding of how loyalty is formed and translated into actual consumption behavior. Furthermore, beyond a purely sequential perspective, this study demonstrates that the effects of factors within the loyalty chain are not strictly step-by-step; rather, factors at one stage can exert direct influences on later stages. This cross-stage effect provides new theoretical insight into the dynamics of green loyalty formation.

The model in Nguyen et al. (2026) did not assess the influence of perceived quality (a cognitive factor) on green loyalty. However, perceived quality possesses a strong role in the SLM; therefore, the research introduces perceived quality into the proposed model to examine how perceived environmental quality performance may influence the stages of the loyalty model. In addition, the study of Nguyen et al. (2026) shows the dominant effect of satisfaction on loyalty intention compared to attitudinal factors. This raises the need to examine whether green satisfaction plays a more important role in affecting green purchase behavior than perceptual attitudinal or intentional factors. Accordingly, the proposed research model incorporates the fourth stage of loyalty (action loyalty) and evaluates the parallel impacts of satisfaction and loyalty intention on green purchase behavior (action loyalty). The findings also highlight the pivotal roles of perceived quality and satisfaction in influencing loyalty intention and green purchase behavior.

The article is organized according to the following order: a short introduction of the literature on loyalty models and a conceptual framework are described in the next section, followed by a section on research method, section 4 discusses key results of the paper, section 5 shows the conclusions and outlines the limitations of the study.

2. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Prior studies have examined customer loyalty from multiple theoretical perspectives, including the TPB, the SLM, and the LCS theory. The TPB emphasizes the role of attitudinal factors in shaping behavioral intention (Ajzen, 1991; Fishbein & Ajzen, 2010), while the SLM highlights the importance of perceived value and satisfaction in driving loyalty intention (Cronin et al., 2000). In contrast, the loyalty chain stages theory provides a process-oriented perspective, describing how loyalty develops progressively across cognitive, affective, conative, and action stages (Bourdeau et al., 2024).

This study integrates the TPB and the SLM under the guidance of the LCS framework. Several previous studies (Choi, Park, Oh, & Yu, 2024; Roy, Butaney, Sekhon, & Butaney, 2014) have focused only on the sequential effects among the stages within the loyalty chain, while others have examined the impacts of these loyalty stages on outcomes (Bourdeau et al., 2024; Han, Yu, Lee, & Kim, 2019). Nguyen et al. (2026) have investigated the determinants of certain stages in the loyalty chain; however, their analyses have been limited to the third stage (Conative loyalty).

In the literature, cognitive loyalty has been conceptualized differently across studies. It may be interpreted as perceived value (Bourdeau et al., 2024) or perceived quality (Roy et al., 2014). Meanwhile, affective loyalty can also be represented by different constructs, such as attitude (Choi et al., 2024) or satisfaction (Roy et al., 2014). This study clearly distinguishes two components of cognitive loyalty (green perceived quality and value) and two components of affective loyalty (attitude and satisfaction), incorporating conative and action loyalty in the loyalty chain stages in the context of green products. The constructs included in the proposed model represent the key elements of both the TPB and SLM models.

The study proposes an integrated framework that combines the service loyalty model (Cronin et al., 2000) in the service context with the Theory of Planned Behavior (Ajzen, 1991). This research framework decomposes the factors of the component theories according to the stages of the four-stage loyalty theory (Bourdeau et al., 2024). This integrated model is built on the theoretical basis of the interactions between certain factors of the SLM and TPB models. The study by Cronin et al. (2000) indicates that satisfaction is regarded as an outcome of perceptions of quality and value, which have a positive effect on behavioral intention of the related products/services. According to the TPB, attitude positively influences intention; therefore, it is also likely to positively influence loyalty intention, which is considered a subset of intention in general. In addition, the model hypothesizes non-sequential interactions among the elements of the framework.

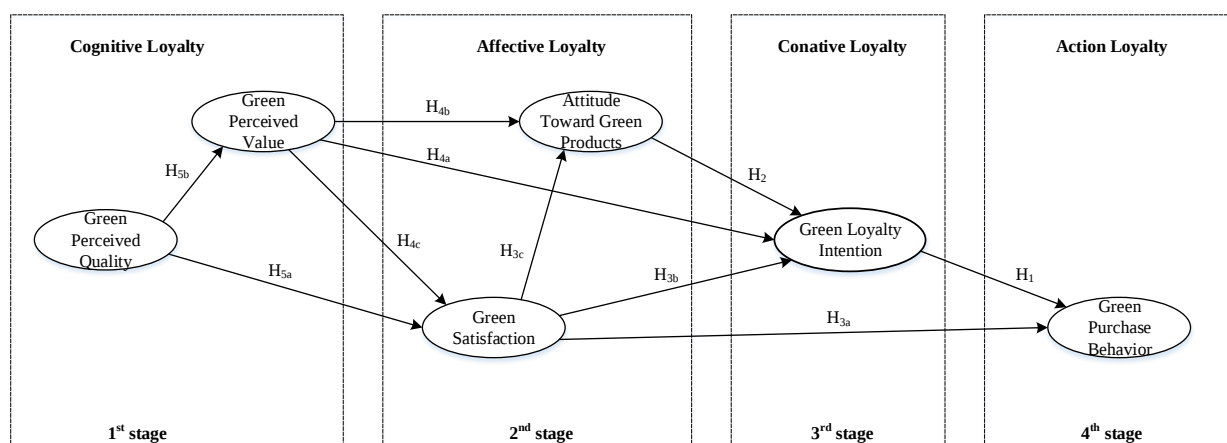


Figure 1. The loyalty chain stages model for green loyalty.

2.1. Green Loyalty Intention and Behavior

Intention and behavior are two key elements of the TPB model and are among the most widely examined factors in practice (Fishbein & Ajzen, 2010). Intention is defined as an individual's readiness or commitment to engage in a specific action. According to Ajzen (1991), under stable conditions, intention can be regarded as the primary

determinant reflecting behavior. However, under other conditions, behavior is also influenced by additional factors. In practice, some factors (e.g., attitude and subjective norms) may affect only intention, whereas other factors may influence both intention and behavior (e.g., perceived behavioral control) (Ajzen, 2002).

Loyalty intention reflects a customer's decision to continue purchasing a particular product or to continue using services from a given provider (Wei-Ming, Chia-Mei, Chin-Yuan, & Kuo-Chang, 2011). Loyalty intention itself is a manifestation of intention in general. The loyalty stage chain theory posits that conative loyalty (loyalty intention) has a direct effect on action loyalty (loyalty behavior). These are the final two stages in the loyalty stage chain theory. These two constructs may also be influenced by other factors. Given that intention has been identified as an important driver of behavior in previous studies, this study proposes the following hypothesis.:

H₁: Green loyalty intention significantly affects green purchase behavior.

2.2. Attitude towards Green Products

Attitude is an important component of the TPB model (Fishbein & Ajzen, 2010) and can be positioned as affective loyalty within the loyalty chain stages framework (Bourdeau et al., 2024). Attitude reflects the degree to which an individual evaluates a behavior positively or negatively, and it is assessed through beliefs linked to experience and the outcomes associated with the relevant behavior. The role of attitude in influencing intention has been examined through studies across various fields (Paul & Rana, 2012; Yadav & Pathak, 2016). Because attitude reflects an individual's beliefs and experiences, it directly influences behavioral intention. This is demonstrated by the central role of attitude in both the TPB and the Behavioral Reasoning Theory (BRT) (Sahu, Padhy, & Dhir, 2020; Westaby, 2005). However, previous theories do not suggest that attitude has a direct effect on behavior itself. For these reasons, the following hypothesis is proposed.

H₂: Attitude towards green products significantly influences green loyalty intention.

2.3. Green Satisfaction

Customer satisfaction reflects customers' overall evaluation of the benefits of a product/service in relation to their expectations (Cronin et al., 2000). Satisfaction with green products indicates the extent to which green products are able to meet customers' expectations regarding product attributes and the environmental value they provide. The service loyalty model affirms the decisive role of satisfaction in customers' loyalty intentions toward the services they receive. Logically, a customer who is satisfied with green products will hold a positive attitude toward green products (Oliver, 1997), continue to have intentions to purchase green products, and may directly translate these intentions into actual green purchase behavior (Mittal & Kamakura, 2001) in subsequent purchases.

Ertz and Sarigöllü (2019) argue that customer satisfaction is an outcome of behavior that affects customers' attitudes and, therefore, subsequently influences their intentions and behaviors. In practice, there are few studies that examine the direct impact of satisfaction on customer behavior. However, it is evident that satisfaction indirectly affects customer behavior through attitude. Mittal and Kamakura (2001), in examining the influence of customer satisfaction on customer retention, confirmed that satisfaction affects customers' repurchase behavior; however, this effect is nonlinear and heterogeneous across customer segments. Gazi, Yusof, Islam, Amin, and Senathirajah (2024), in studying the impact of job satisfaction, confirmed that satisfaction affects job performance, which is itself a form of behavior.

The nature of satisfaction and attitude indicates that these variables belong to the affective loyalty stage in the loyalty chain stages theory, as they both reflect emotions based on customers' experiences and beliefs. Based on the above discussions, this study proposes the following hypotheses.

H_{3a}: Green satisfaction significantly impacts green purchase behavior.

H_{3b}: Green satisfaction significantly impacts green loyalty intention.

H_{3c}: Green satisfaction significantly impacts attitude towards green products.

2.4. Green Perceived Value

Perceived value, as a perception-based factor from the customer's perspective, is defined as the customer's overall evaluation of a product's value, assessed based on the benefits received and the price paid (Zeithaml, 1988). By definition, perceived value can be regarded as belonging to the cognitive loyalty stage, when customers first come into contact with, perceive, and evaluate the value of green products. Perceived value is formed based on customers' expectations of the product, the quality obtained relative to the price paid, and their assessment of the value they receive in exchange for what they give up for the product (Woodruff, 1997). The greater the perceived value, the higher the customer's satisfaction tends to be, which in turn leads customers to develop more positive attitudes toward the product. Perceptions of value may also, in essence, have a direct impact on customers' attitudes toward green products (Ajzen, 2001).

Based on the above discussion, this study proposes the following hypotheses.

H_{1a}: Green perceived value significantly impacts green loyalty intention.

H_{1b}: Green perceived value significantly impacts attitude towards green products.

H_{1c}: Green perceived value significantly impacts green satisfaction.

2.5. Green Perceived Quality

Product quality is frequently characterized as the degree to which it fulfills consumer expectations, thereby reflecting the anticipated standard of excellence associated with a product or service (Guo, Ling, & Liu, 2012). Green perceived quality reflects consumers' evaluation of a product's superiority in environmental aspects. Green perceived quality is a cognitive construct representing customers' beliefs about the product's environmental friendliness, which tends to positively influence loyalty intention. Therefore, green perceived quality is an important component of cognitive loyalty. In this investigation, perceived green quality emphasizes the environmental performance dimensions of the product rather than solely its utilitarian significance.

Ziaullah, Feng, and Akhter (2014) indicate that product quality is an important factor influencing customer satisfaction. When customers perceive a green product as high quality, they feel satisfied with their choice. Satisfied customers are more likely to continue purchasing the product. This suggests that green perceived quality may serve as a foundation for both satisfaction and loyalty intention (Houston & Taylor, 1999).

Perceived quality is also a key determinant of perceived value. When perceived quality exceeds the costs incurred, perceived value is formed and enhanced (Zeithaml, 1988). In addition to functional value, green perceived value can also be strengthened through the environmental benefits of the product. Besides its implications for satisfaction, perceived green quality also significantly affects consumers' attitudes toward environmentally friendly products. When consumers recognize green products as high-quality, dependable, and efficacious, they are more inclined to cultivate favorable attitudes toward these products (Wang & Kim, 2017). Therefore, we propose the following hypotheses.

H_{2a}: Green perceived quality significantly influences green satisfaction.

H_{2b}: Green perceived quality significantly influences green perceived value.

3. METHODOLOGY

3.1. Constructs and Scales

This study proposes an integrated model of loyalty stages by adapting factors from the service loyalty model and the traditional TPB. Accordingly, the measurement scales of the variables used were adapted from scales employed in previous studies. The main reference studies for the measurement scales used in the research model are presented below: Green satisfaction and Green loyalty intention from Chen and Chang (2013), Green perceived quality from Wang and Kim (2017), Green perceived value from Yadav and Pathak (2017), Attitudes towards GPs from Matthes and Wonneberger (2014), and Green purchase behavior from Wang (2017). In this research, we adopted a five-point

Likert scale from 1 “strongly disagree” to 5 “strongly agree” to measure the variable indicators. Questionnaires also collected several demographic characteristics of customers, which were obtained in the first section of the survey. Additionally, the research team conducted a pilot survey with 50 customers to assess the appropriateness of the questionnaire content and measurement scales. The results of the pilot survey were used to revise and finalize the data collection instrument.

3.2. Gathering Data

Data used in the research have been gathered from multiple sources. Hard-copy questionnaires were distributed to and collected from customers at electronics centers, supermarkets, and shopping malls located in different geographical areas within the surveyed cities. Customers were invited to participate, and those who agreed completed the distributed questionnaires. In addition, the study used Google Forms to solicit responses to the survey items from customers of local electricity companies. In this research, we gathered data over a period of three months, from May to July 2024. During the data collection period, we received a total of 679 valid questionnaires with complete information from three major cities in Vietnam, with the sample distribution being relatively consistent with the targeted customer segments.

The sample size was determined according to widely accepted statistical methods: (a) responses ranged from 5 to 20 times the number of observed variables, with 18 variables requiring at least 90 observations; (b) the PLS-SEM analysis requirement, based on criteria from Hair, Hult, Ringle, and Sarstedt (2017), necessitated at least 103 respondents. During data collection, we obtained 679 appropriately answered questionnaires, which are considered sufficient for the study. This approach ensures the sample size is statistically valid and appropriate for the analysis conducted.

4. ANALYZING DATA AND DISCUSSION

4.1. Analyzing Data

Table 1 summarizes demographic characteristics gathered from respondents. These demographic characteristics are shown in Table 1, which are consistent with the nature of the survey data reported in previous studies (Qalati, Qureshi, Ostic, & Sulaiman, 2022).

Table 1. Respondents' characteristics.

Characteristic	Classification	Frequencies	Percentage (%)
Gender	Male	275	40.5%
	Female	400	58.9%
	Other	4	0.6%
Marital status	Married	422	62.2%
	Single	257	37.8%
Living area	Hanoi	225	33.1%
	Ho Chi Minh City	314	46.2%
	Da Nang	110	16.2%
	Other	30	4.4%
Education	K12	68	10.0%
	College	111	16.3%
	Bachelor	340	50.1%
	Postgraduate	160	23.6%
Age	Under 23	133	19.6%
	23 - under 30	173	25.5%
	30 - under 45	281	41.4%
	45 - under 60	83	12.2%
	60 and above	9	1.3%
Profession	Public servant	81	11.9%
	Entrepreneur	59	8.7%

Characteristic	Classification	Frequencies	Percentage (%)
	Manager/ Departmental head	76	11.2%
	Officer/ worker in a company	268	39.5%
	Free worker	51	7.5%
	Student	99	14.6%
	Other	45	6.6%
Monthly income (USD)	Under 200	124	18.3%
	200 - under 400	156	23.0%
	400 - under 1400	323	47.6%
	1400 - under 2000	60	8.8%
	2000 and above	16	2.4%
Total		679	100.0%

In this research, indicators have been adapted from academic literature to better suit the study. To guarantee the appropriateness of the constructs and scale, a traditional EFA procedure is deployed to evaluate the appropriateness of the constructs. The reliable criteria of factors and indicators conformed to the guidance by Hair, Black, Babin, and Anderson (2014) (Factor loading is greater than 0.5). This research also used SmartPLS (Hair et al., 2017) for analyzing the structural model. Table 2 presents information on factor loadings, several important statistical indicators, and the descriptive statistics of the survey data.

Table 2. Constructs and indicators of the model.

Construct and indicators	EFA	PLS-SEM	Mean	Std. dev.	CA	CR	AVE
Attitude Towards Green Products					0.893	0.933	0.823
I like green products	0.850	0.900	4.102	0.647			
I feel positive toward green products	0.875	0.903	4.068	0.653			
Green products are good for the environment	0.883	0.919	4.072	0.695			
Green Perceived Quality					0.908	0.942	0.844
The quality of the green brand is high with respect to environmental concerns	0.951	0.908	3.962	0.705			
The quality of the green brand is professional with respect to environmental reputation	0.706	0.918	3.959	0.659			
The quality of the green brand is good with respect to environmental image	0.923	0.930	3.943	0.721			
Green Perceived Value					0.891	0.932	0.821
The green product's environmental functions provide good value to me	0.942	0.911	3.971	0.671			
The green product's environmental performance meets my expectations	0.596	0.900	3.900	0.736			
I purchase green products because they have more environmental benefits than non-green products	0.857	0.907	3.982	0.678			
Green Satisfaction					0.900	0.937	0.833
You are glad about the decision to select the green product because of its environmental image	0.697	0.912	3.963	0.689			
You think that it is the right decision to purchase the green product because of its environmental functionality	0.979	0.905	4.041	0.639			
Overall, you are satisfied with the green product because of its environmental performance	0.774	0.920	3.993	0.668			
Green Loyalty Intention					0.877	0.942	0.891
I am willing to repurchase the green product because of its (environmental) functions	0.877		3.960	0.663			

Construct and indicators	EFA	PLS-SEM	Mean	Std. dev.	CA	CR	AVE
I prefer purchasing the green product over other products because of its (environmental) performance	0.880	0.943	3.981	0.666			
I intend to continue buying the green product because it is (environmentally) friendly	0.926	0.944	3.982	0.652			
Green Purchase Behavior					0.877	0.924	0.803
I often buy a product or service from an environmentally friendly brand	0.822	0.877	3.988	0.680			
When I have a choice between two brands, I often purchase the one that is less harmful to other people and the environment	0.932	0.902	4.050	0.643			
I make a special effort to buy environmentally friendly products, e.g., products in biodegradable packages, energy-saving products, etc.	0.866	0.909	4.046	0.663			

Table 3. Discriminant validity (HTMT).

Construct	ATT	GLI	GPQ	GPV	GPB	GS
Attitude towards GP (ATT)						
Green Loyalty Intention (GLI)	0.790					
Green Perceived Quality (GPQ)	0.724	0.807				
Green Perceived Value (GPV)	0.786	0.846	0.900			
Green Purchase Behavior (GPB)	0.769	0.795	0.819	0.898		
Green Satisfaction (GS)	0.810	0.885	0.872	0.892	0.839	

Discriminant validity was confirmed using the HTMT criterion (Table 3). According to the HTMT criterion, the values in the HTMT matrix should not exceed 0.9. The validity of data is also checked by looking at the VIF factors (variance inflation factor) attached to constructs. The conservative threshold of 3.3 (Hair et al., 2017) is considered to be good for avoiding multicollinearity.

Table 4. Variance inflation factors (VIF), effect size f^2 , Q^2 , and R^2 of constructs in the model.

Construct	ATT		GLI		GPV		GPB		GS		Q^2	R^2
	f^2	VIF	f^2	VIF	f^2	VIF	f^2	VIF	f^2	VIF		
Attitude towards GP (ATT)			0.056	2.311							0.463	0.567
Green Loyalty Intention (GLI)							0.080	2.615			0.596	0.675
Green Perceived Quality (GPQ)					1.906	1.000			0.192	2.906	0.000	
Green Perceived Value (GPV)	0.094	2.770	0.070	3.029					0.247	2.906	0.533	0.656
Green Purchase Behavior (GPB)											0.468	0.588
Green Satisfaction (GS)	0.175	2.770	0.173	3.254			0.247	2.615			0.576	0.697

The fit of a PLS-SEM model can be checked through SRMR values (Hair et al., 2017). An SRMR value of 0.059 (given from the model output) in this research is acceptable for model utilization. In addition, the value f^2 of 0.02 shows a remarkably small effect (0.15 and 0.35 for medium and large effects) within the model (Hair et al., 2017) (f^2 values given in Table 4). The Q^2 metrics for significant variables (surpassing zero) indicated in Table 4 guarantee that the proposed model in this research has robust predictive efficacy.

The R^2 values represent the explanatory power of constructs in the model (Table 4). The results indicate that the model can be considered to have a good explanation of variance in green satisfaction ($R^2 = 0.697$), green loyalty

intention ($R^2 = 0.675$), and green perceived value ($R^2 = 0.656$). In addition, the model demonstrates moderate explanatory power for purchase behavior ($R^2 = 0.588$) and attitude ($R^2 = 0.567$).

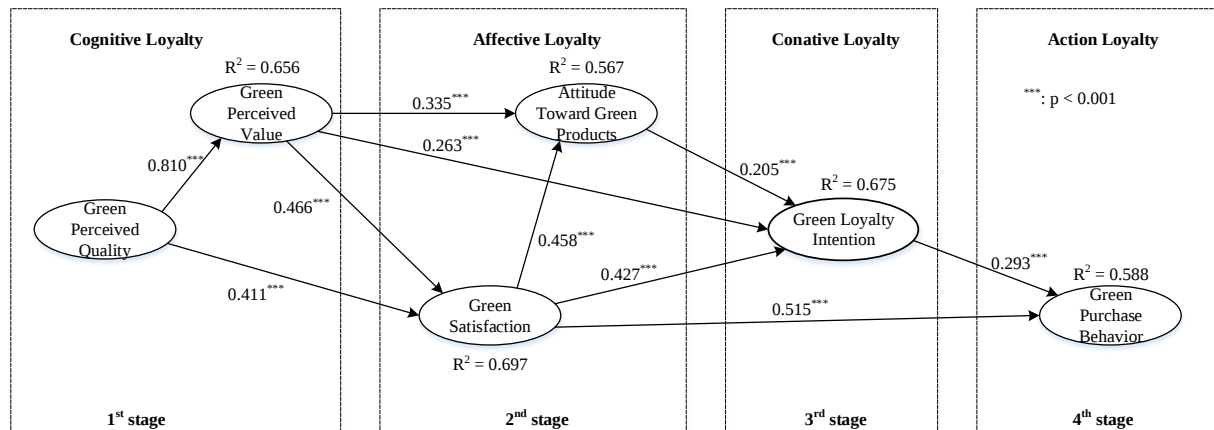


Figure 2. Results of hypothesis testing and influential coefficients.

This research runs a bootstrapping analysis in SmartPLS 4 with 5,000 resamples, and the results are illustrated in Figure 2. The results confirm all of the hypotheses proposed in the article.

Table 5. Total (direct plus indirect) impacts of factors in the model (output of the PLS-SEM model).

Path relationship	Original sample	Sample mean	Standard deviation	T statistics	P values
Attitude towards GP -> Green Loyalty Intention	0.205	0.206	0.050	4.120	0.000
Attitude towards GP -> Green Purchase Behavior	0.060	0.060	0.019	3.216	0.001
Green Loyalty Intention -> Green Purchase Behavior	0.293	0.292	0.068	4.318	0.000
Green Perceived Quality -> Attitude towards GP	0.633	0.632	0.037	17.211	0.000
Green Perceived Quality -> Green Loyalty Intention	0.679	0.680	0.033	20.373	0.000
Green Perceived Quality -> Green Perceived Value	0.810	0.810	0.023	34.473	0.000
Green Perceived Quality -> Green Purchase Behavior	0.605	0.606	0.040	14.948	0.000
Green Perceived Quality -> Green Satisfaction	0.789	0.788	0.029	27.087	0.000
Green Perceived Value -> Attitude towards GP	0.549	0.550	0.043	12.839	0.000
Green Perceived Value -> Green Loyalty Intention	0.574	0.574	0.050	11.518	0.000
Green Perceived Value -> Green Purchase Behavior	0.408	0.410	0.045	8.996	0.000
Green Perceived Value -> Green Satisfaction	0.466	0.466	0.049	9.429	0.000
Green Satisfaction -> Attitude towards GP	0.458	0.456	0.058	7.944	0.000
Green Satisfaction -> Green Loyalty Intention	0.521	0.521	0.063	8.285	0.000
Green Satisfaction -> Green Purchase Behavior	0.668	0.665	0.045	14.859	0.000

Note: Bold: most significant impact on green loyalty intention and green purchase behavior.

Data in Table 5 show the total effects (Including direct and indirect) of factors on others. All direct impacts are shown in Figure 2. Several factors that do not have direct influences on others, but still cause indirect impacts on other factors. Table 5 shows that green perceived quality has the highest total effect ($\beta = 0.679$), which includes only indirect impacts on loyalty intention, while green satisfaction causes the most important effect (including direct and indirect impacts) ($\beta = 0.668$) on purchase behavior.

4.2. Discussion

The theory of loyalty chain stages was proposed by Oliver (1999), according to which loyalty begins with cognition, leading to affect, conation, and ultimately action. The chain of green loyalty stages begins with cognitive loyalty, represented by two factors: green perceived quality and green perceived value (Figure 1). The study's results indicate that cognitive loyalty (Green perceived quality and Green perceived value) has a positive effect on affective loyalty (Green satisfaction and attitude toward GP). Oliver (1999) suggested that satisfaction is an important component of affective loyalty, influencing intention. This study confirms the positioning of satisfaction and attitude as two factors representing affective loyalty ("loyalty to a liking" (Oliver, 1999)).

Detailing factors in loyalty chain stages theory, this study posits green perceived quality and perceived value appropriately at the cognitive stage and green satisfaction and attitude at the affective stage due to the nature of these variables. Besides interaction between stages, factors in the cognitive loyalty and affective loyalty stages also interact with one another, as confirmed in several previous studies. Figure 2 further suggests that perceived quality significantly influences green perceived value ($\beta = 0.810$), and green satisfaction positively affects attitude toward GP ($\beta = 0.458$). Factors of affective loyalty also positively influence conative loyalty (green loyalty intention), and conative loyalty, in turn, positively affects action loyalty (green purchase behavior). Although green purchase behavior does not fully capture action loyalty, it still reflects key aspects of loyal behavior.

The results presented in Figure 2 also indicate that factors at an earlier stage may directly affect stages beyond the immediately subsequent stage, without necessarily operating through the adjacent mediating stage. Specifically, Figure 2 shows that perceived value directly affects loyalty intention, while satisfaction directly affects green purchase behavior. These effects have been partially (Mittal & Kamakura, 2001) or fully (Cronin et al., 2000) confirmed in previous studies. This suggests that when examining the chain of drivers across different stages of loyalty, it is necessary to consider specific interactions between factors at non-adjacent stages, as these effects may be substantial.

In this study, attitude towards green products confirms its role within the loyalty chain stages sequence, demonstrating that it is one of the key constructs in this theoretical framework. Attitude towards GP has a significantly positive effect on loyalty intention and serves as a mediating variable that transmits the effects of the SLM's factors on loyalty intention.

4.3. Implications

The research results indicate that perceived quality has the highest effect on loyalty intention, while satisfaction has the most critical impact on purchase behavior (Table 5). This suggests that green product quality is always the primary concern for customers when forming intentions to repurchase, whereas the actual occurrence of purchase behavior depends more heavily on customers' satisfaction with green products.

Green satisfaction is shown to have a very strong effect ($\beta = 0.521$) on green loyalty intention, which helps explain why this factor has been extensively examined in prior studies (Cronin et al., 2000; Shi & Fuchs, 2026). In the field of performance management, employee satisfaction has also been identified as a critical factor leading to improved work outcomes (Gazi et al., 2024). This implies the important practical role of green satisfaction and indicates that this factor deserves special attention when seeking to influence the behavior of green consumers.

The study confirms the importance of experiential factors (SLM's factors) in fostering green loyalty, compared to attitudes, which are inherently emotional in nature. Green loyalty can only be enhanced through positive experiences that exceed customer expectations. Therefore, to strengthen customer loyalty toward green products, manufacturers must pay particular attention to improving green product quality (which can be ensured through green certifications) and to effectively assess customer satisfaction with green products through regular surveys and feedback. The feedback results will enable manufacturers to optimally adjust their products and services to achieve the highest level of customer satisfaction.

Green perceived value, in this research, shows a strong role in affecting green satisfaction and green loyalty intention. Therefore, enhancing the perceived green value of a product through building an eco-friendly or environmentally responsible brand can increase customer loyalty toward green products.

5. CONCLUSION AND LIMITATION

5.1. Conclusions

Detailing examination of the components that constitute the first two stages (Cognitive and Affective Loyalty) of the LCS model and their roles in the formation of customer loyalty is a notable contribution of this research. This study incorporates and evaluates the effects of the components of cognitive loyalty (Green perceived quality and value) and affective loyalty (Attitude and Green satisfaction) on loyalty intention and purchase behavior. These constituent factors, derived from the TPB and the SLM, interact with one another and influence factors in subsequent stages of the loyalty chain.

The study also offers new theoretical insight by demonstrating that the relationships among constructs are not strictly sequential but may operate across multiple stages of the loyalty formation process.

Furthermore, the results underscore the important roles of green perceived quality and green satisfaction in shaping both green loyalty intention and green purchase behavior.

5.2. Limitations and Future Research

Besides significant contributions, several limitations still remain from this research. Firstly, the study is based on a cross-sectional design, which limits the ability to draw causal inferences among the constructs. Future research may employ longitudinal or experimental designs to better examine causal relationships.

Secondly, the generalization of the results can be limited because this research collected data in three cities in Vietnam. To generalize the results, it is necessary to gather data from other contexts. Additionally, moderator impacts can be considered in future research.

Thirdly, the collected data in this research is self-reported, which may cause bias due to respondents' opinions. Future research may design other instruments to reduce the limitations of this method, improving accuracy and reliability.

Fourthly, although green purchase behavior is used to represent the action loyalty stage in this study, it may only partially capture the underlying nature of action loyalty. This stage may be better represented by actual repurchase behavior. Future research could further explore more comprehensive measures of action loyalty to better reflect this stage.

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