Influences of environment perception and social media communication via brand loyalty on the intention to buy green products among Vietnamese youth

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Abstract

Environmental issues are becoming more and more people's concern. One of them is social media, which attracts numerous young people to operate and interact far beyond geographical limits. The purpose of the study is to build a novelty research model by combining the Theory of Planned Behavior (TPB) to measure customer intentions in terms of environmental perception and influencing factors of social media communication through brand loyalty. The authors initially used the ground theory to review literature on previous studies, identified gaps in research, built research models, as well as proposed hypotheses between constructs. The qualitative research method was used in a focus group interview to evaluate and adjust the official questionnaire before measuring the concepts study. The quantitative research method was used after having an official survey and scale with 282 Vietnamese Gen Z to evaluate indicators to measure by SmartPLS software for assessment. This study identified hypotheses about the relationship between electronic word of mouth (EW) and online communities (OC), which have positive effects on brand loyalty (BL), significantly affecting green purchasing intentions (GPI). In addition, the relationships between environmental knowledge (EK), attitude towards green products (AT), subjective norm (SN), electronic word of mouth (EW), online communities (OC), online advertising (OA), and brand loyalty (BL) directly affect the green purchasing intention of Vietnamese Gen Z. The findings of the study will contribute to both scholars and practitioners to a theoretical framework for the impact of environmental perception, social media communication through brand loyalty, and green purchase intention of younger generation consumers.

1. Introduction

Environmental hazards and their negative influence on human health are causing anxiety among customers. As a result, there has been a shift toward environmental sustainability, which has influenced consumer needs and behavior (Mendleson & Polonsky, 1995). When customers care about the environment and favor ecologically friendly products and services, "green consumerism" emerges as a type of eco-friendly consumption (Moisander, 2007; Nimse, 2007). Growing concern for future generations, increased knowledge, increased health awareness, and a yearning for a healthy living environment have all contributed to the green movement's growing appeal. The rise of green consumer behavior shifts the weight of various factors and consumer intentions in determining whether to buy a product. Therefore, in order to develop effective marketing strategies, green food product marketers must first understand the predictors of green food product purchasing intentions. Following that trend, choosing behavior patterns and buying green products is one way that people apply to protect the environment (Gordon-Wilson & Modi, 2015).

Recent studies show that new customer behavior trends stem from the use of social media (Wibowo, Chen, Wiangin, Ma, & Ruangkanjanases, 2020; Wijaya, Rai, & Hariguna, 2019; Yadav & Rahman, 2018). Therefore, marketers need to evaluate two aspects: consumer buying behavior and the reasons why customers appreciate brands. As a result, social media is becoming increasingly important for consumers.

In 2020, Vietnam had 71 million social media profiles, an increase of 11% (or 7 million accounts) since January of that year (Digital 2020: Vietnam, 2020). YouTube (Google) is the most popular social network in Vietnam, with 92 percent of Vietnamese web users, followed by Facebook (91.7 percent), Zalo (76.5 percent), Instagram (53.5 percent), and Tiktok (47.6 percent) (Digital 2020: Vietnam, 2020). As a result, business advertising on social networks has increased significantly with Vietnam expected to spend $290 million on digital advertising in 2020, a 9.2 percent increase from 2019 (Digital 2020: Vietnam, 2020). These opportunities allow marketers to engage with customers, and fine-tune programs that aim and preserve, a brand focus on digital marketplaces (Evans, 2010). Generation Z is a significant force using social networks today, and they are better able to navigate online communities than their siblings or parents. Therefore, the behavior of Generation Z with social media communication is the key for marketers to capture consumer tastes, particularly in the area of green buying. As a result, researchers care a lot about how people feel about green products. Researchers and academics are particularly interested in the elements of green buying intention and green product discovery intention (Chan & Lau, 2002; Ling-Yee, 1997) as it helps to develop strategies for green products. Customers are becoming more sophisticated, and social media communication helps them to develop new tactics for finding, evaluating, selecting, and purchasing goods and services (Hidalgo & Albors, 2008). Previous studies have been carried out on consumer intentions and purchasing behavior for a variety of green products in different national contexts (Ha & Janda, 2012; Kalafatis, Pollard, East, & Tsogas, 1999; Kim, Cho, & Han, 2013; Kim & Han, 2010; Teng, 2011). However, few studies have concentrated on young consumers' reactions to green or environmentally friendly products, despite their proficiency in using social media. This paper aims to address the following gaps in the existing literature. Firstly, there has been limited research on green purchasing behaviour among Generation Z consumers in developing countries. Secondly, the theory of planned behaviour (TPB) has been widely used by researchers to examine purchasing intentions and behaviours (Aijzen, 1991). Classic models, or their modified versions have not been adequately reviewed in the context of technology, particularly in social media communication. To fill these gaps, the authors have developed a model that explores research on the far-reaching effects and mechanisms of green purchasing behavior from the point of view of Vietnamese Gen Z. This study adds to the TPB model's robustness by incorporating several cognitive characteristics, such as environmental concerns, the impact of online advertising, virtual communities, and e-WOM effects on customer brand loyalty and purchase intent. E-Wom refers to online activities where people share their opinions about a product or service, influencing others' decisions to buy it.

2. Research Elaboration

2.1. Green Purchase

We describe green purchasing as the purchase of ecologically friendly products while avoiding products that are environmentally detrimental (Chan, 2001). The most commonly used measurement for green purchasing is green purchase intention (Troudi & Bouyoucef, 2020; Yogananda & Nair, 2019). The term used to describe the propensity of consumers to buy green products green purchase intention (Laroche, Bergeron, & Barbaro-Forleo, 2001; Tsen, Phang, Hasan, & Buncha, 2006). Intentions capture the motivating factors that influence consumers' green purchasing decisions (Ramayah, Lee, & Mohamad, 2010). Green buying intention is a term used in the judgement process to characterize an individual's proclivity to consider and choose a green product over a traditional one (Ali & Ahmad, 2016; Binti Aman, 2011; Rashid, 2009). The purchase intention and the purchase of environmentally friendly goods driven by customer purchase desire are critical factors in the subsequent action when obtaining green items (Park & Ha, 2012).

2.2. Environment Perception

2.2.1. Environmental Knowledge (EK)

We describe environmental knowledge as knowledge of facts and an understating of essential relationships, which lead to long-term growth through individual environmental responsibility and contribute to environmental repercussions (Fryxell & Lo, 2003; Taufique, Siwar, Chamhuri, & Sarah, 2016). Environmental knowledge has a substantial impact on environmental issues, according to Hill and Lynchehaun (2002). Understanding the environment will impact the ability of customers to make purchasing decisions (Lee, Choi, Youn, & Lee, 2012; Mahesh & Ganapathi, 2012). Although other factors also influence purchase intention (Joshi & Rahman, 2015; Vicente-Molina, Fernández-Sáinz, & Izagirre-Olaizola, 2013; Wang, Liu, & Qi, 2014), previous studies have shown that environmental knowledge has the most positive influence. As a result, in this investigation, we propose the following hypothesis:

H1. EK has a positive impact on the GPI of Vietnamese Gen Z.

2.3. Theory of Planned Behaviour (TPB)

The theory of planned behaviour (TPB) defines behaviour as a function of behavioural intentions, which are determined by three factors: Perceived Behavioural Control, Subjective Norms, and Attitudes (Aijzen, 1991). The three determinants that influence behavioural intentions are Behaviour attitudes, normative beliefs, and control beliefs (Aijzen, 1991).

In recent years, scholars have used the TPB model to analyse pro-environmental behaviour. Ahmed et al. (2021) found that the TPB model is a good framework for explaining consumers' intentions to purchase organic food. Klöckner (2013) determined that it was an appropriate hypothesis for anticipating customers' readiness to adopt new energy vehicles. Similarly, Auza and Mouloudj (2021) found that the TPB model was effective in predicting consumers' green food purchases.

2.4. Attitude toward Green Products

Customer attitude plays an extremely essential role in evaluating an individual's conduct and determining the environmental friendliness of purchased goods, thus anticipating green purchasing behaviour (Aijzen, 1991). Previous research has found that attitude is a significant factor in purchasing intent, with consumers who hold positive attitudes towards green products being more likely to purchase them (Dickinger & Kleijnen, 2008; Han, Meng, & Kim, 2017; Ru, Qin, & Wang, 2019). Consistent with the previous research, this study also confirms that a good attitude toward green products influences purchasing intent (Göçer & Oflaç, 2017; Han & Kim, 2010). As a result, in this investigation, we propose the following hypothesis:

H2. AT has a positive impact on the GPI of Vietnamese Gen Z.

2.5. Subjective Norms

Subjective norms are perspectives of others' cultural pressure that are crucial to a person's performance and they convey people's feelings about specific behaviors (Aijzen, 1991). In several studies, we have found the subjective norm to be a key factor that impacts intentions to buy organic food, visit green hotels, and engage in environmentally friendly consumption (Dean, Raats, & Shepherd, 2012; Khare, 2015; Sun, Liu, Wang, & Zhang, 2017; Teng & Chang, 2014). According to the current research, customers will create good intentions to purchase ecological products if they learn that their significant others desire to do so. As a result, we developed the following hypotheses in this study:

H3. SN has a positive impact on the GPI of Vietnamese Gen Z.

2.6. Perceived Behavioral Control

Perceived behavioral control refers to the perceived ease or difficulty of performing a certain behavior (Aijzen, 1991). While some external factors, such as time, price, expertise, and skills may be out of a person's control when purchasing green products (Sun & Wang, 2020), individuals' perceptions of their own behavior control are higher when they believe they have more options and capabilities, and expect fewer challenges, leading to greater green buying intentions (Sun & Wang, 2020). Consistent with previous studies, consumers are more likely to engage in green purchasing intentions when they believe they have control over the relevant factors (Auza & Mouloudj, 2021; Wibowo et al., 2020; Wijaya et al., 2019). As a result, we propose the following hypothesis:

H4. PBC has a positive impact on the GPI of Vietnamese Gen Z.

2.7. Social Media Communication
2.7.1. Electronic Word-of-Mouth (EW)

Since the invention of the Internet, we have been able to expose consumers to and engage with one another in a more convenient manner. This has impacted people's purchases on social media and their online word-of-mouth behavior (Brown, Broderick, & Lee, 2007; Dellarocas, 2003). Hennig-Thurau, Gwinner, Walsh, and Gremler (2004) defined e-WOM as any positive or negative statement made by a potential customer over the Internet about the experience of a product or brand offered for countless users and organizations. E-WOM can take place through a variety of online channels (Goldsmith, 2006; Vilpponen, Winter, & Sundqvist, 2006). In this study, e-WOM is defined as the act of exchanging marketing information among consumers online. The authors concentrate on social networking sites that encourage buyers to share favorable feedback.

e-WOM also has a considerable influence on purchase intentions, depending on the type of virtual community (Cheung, Lee, & Thadani, 2009). In their paper, Tseng, Kuo, and Chen (2014) wrote that e-WOM was found to have a crucial impact on purchase intentions. Positive e-WOM is associated favourably with purchase intentions and has a bigger influence on purchase intent than commercials (Tseng et al., 2014). According to the findings, firms should encourage members to share their knowledge or experience rather than just posting ads, especially in non- transactional virtual communities (Tseng et al., 2014). Because low-involvement commercials have negative consequences in phantom communities, businesses should create elevated ads like virtual props, blogs, and rich media to entice potential consumers (Tseng et al., 2014). Severi, Ling, and Nasermoadeli (2014) illustrated that e-WOM significantly impacted brand loyalty in this specific association. Customer satisfaction has an increasing additive effect on brand loyalty. The findings also verify

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the linear link presented in the model (Severi et al., 2014). Community involvement through e-WOM has been shown to have a direct and beneficial impact on brand loyalty. Therefore, the following hypotheses are developed:

H5. EW has a positive impact on the GPI of Vietnamese Gen Z.

H6. EW has a positive impact on the BL of Vietnamese Gen Z.

2.8. Online Communities (OC)

Ray, Kim, and Morris (2014) define online communities as new social institutions that rely on new information technology to function and tackle similar current concerns. Haron and Razzaque (2008) also stated that online social networking refers to the socialization activities that occur in the online environment when Internet users group together to form online relationships. The creation of these virtual communities provides a platform for online customers to communicate and exchange ideas, as well as information about products and services (Balakrishnan, Dahnil, & Yi, 2014). This creates enormous opportunity for retailers, particularly those that run their operations online (Balakrishnan et al., 2014).

This article demonstrates how online customers have faith in the online communities by demonstrating stronger interactions on social networking sites. One piece of advice given is to participate in online shopping groups on websites to better understand their clients. Allowing internet marketers to solely engage and promote their marketing plans can have a negative impact and lead to a steady loss of market share among consumers. Marketers can gain direct feedback and recommendations from their customers instead of just directly marketing products. As the popularity of online communities continues to grow, Gyrd-Jones and Kornum (2013) stated online brand communities can help develop brand loyalty. Relevant documentation and community engagement are two characteristics that play a crucial role in the development of brand loyalty, according to Gyrd-Jones and Kornum (2013). The commitment of community members to the community leads to increased connection to the brand that the community revolves around, resulting in repurchase intent and favorable word of mouth. Therefore, the following hypotheses are developed:

H7. OC has a positive impact on the GPI of Vietnamese Gen Z.

H8. OC has a positive impact on the BL of Vietnamese Gen Z.

2.9. Online Advertisement (OA)

Direct advertising is the most effective and preferred technique of communication for developing different communication strategies and meeting the changing needs of technology, methods, and channels (Bakshi & Gupta, 2013). Online advertising is a type of marketing that uses the Internet and the World Wide Web to send marketing messages to potential customers (Tobi, Ayodele, & Akindele, 2020). In the research of Mohammed and Alkubise (2012), Jordanian university students stated with the rising adoption and fragmentation of the Internet, the World Wide Web is gradually becoming a mainstream advertisement platform. The global reach of a company's advertising is more effective through websites, which bring the best in their interactive services and multimedia capabilities. The students at the University of Jordan experienced this research and discovered the factors that influence online advertising and other aspects that are affecting the effectiveness of online advertising (Mohammed & Alkubise, 2012). These insights can aid in determining what is most important to youthful consumers in emerging countries, especially their purchase intention behavior.

In another study, Agrawal and Siddharth (2010) stated advertising has become an extremely significant factor in building brand loyalty. The internet allows the e-marketer to boost sales by using other firms' brand loyalty by promoting and building relationships on other loyalist quirky websites (Harden & Heyman, 2009). Every year, the amount of money spent on such internet advertisements increases. Therefore, we developed the following hypothesis:

H9. OA has a positive impact on the GPI of Vietnamese Gen Z.

H10. OA has a positive impact on the BL of Vietnamese Gen Z.

2.10. The relationship between Purchase Intention and Brand Loyalty

Customers are motivated to buy the same brands over and over again largely because of their commitment to the brands, which is expressed via their loyalty to those brands (Ahmed & Moosavi, 2013). According to research by Pandey and Srivastava (2016), brand loyalty is a significant factor that determines whether or not consumers plan to make future purchases. In addition, Almohaimmeed (2019) discovered that brand loyalty significantly affects the purchase intentions of consumers in a study examining the impact of social media marketing. According to research by Chi, Yeh, and Yang (2009), consumer brand loyalty leads to an increased intent to buy, a result that has been consistent across several research studies (Calvo-Porral & Lévy-Mangin, 2015; Chen, Tso-Jen, & Lin, 2016). Therefore, the following hypothesis has been proposed:

H11. BL has a positive impact on the GPI of Vietnamese Gen Z. From the above discussion, the author proposes a research model:

Based on constructed hypotheses, the authors have proposed a research model in Figure 1.
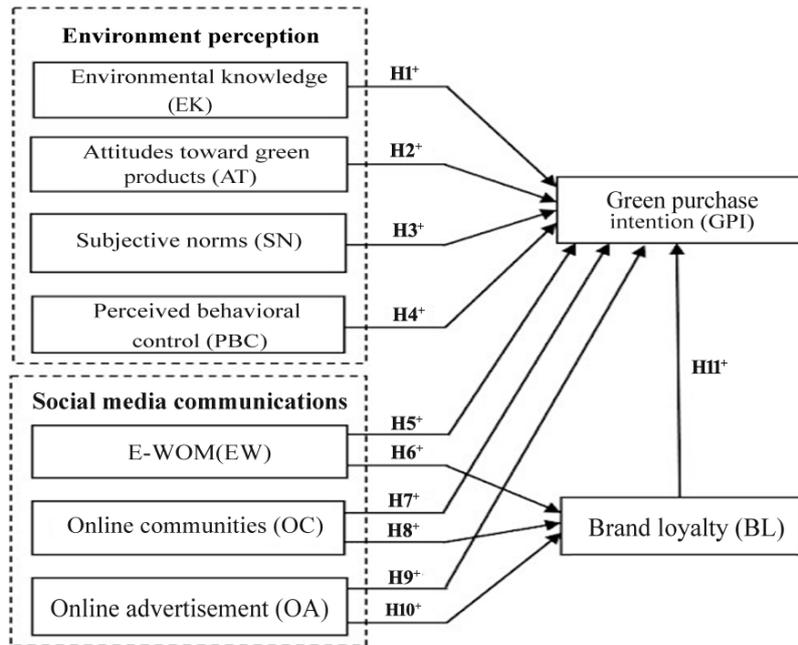
Figure 1. Research model.

2.11. Qualitative Research

The authors began by identifying their research topic as exploring the factors that affect green purchase intention among Vietnamese Gen Z, focusing on their environmental perception and social media communication through brand loyalty. They used grounded theory to review previous studies and build research models, proposing hypotheses among constructs. For the initial phase, they employed a qualitative research approach in a focus group interview with 5 young Vietnamese Gen Z individuals. The goal of this phase was to review the evaluation and questionnaire construction process, as well as identify and adjust the observed variables that will measure the study concepts. To develop the questionnaire and identify the variables, the interviewers were asked to clarify the meaning of the question based on the measures used in previous research. The observed variables were selected based on the principle of being easy to observe, while those with no choice or that could easily be confused were eliminated. The stage of qualitative research is presented in Figure 2.
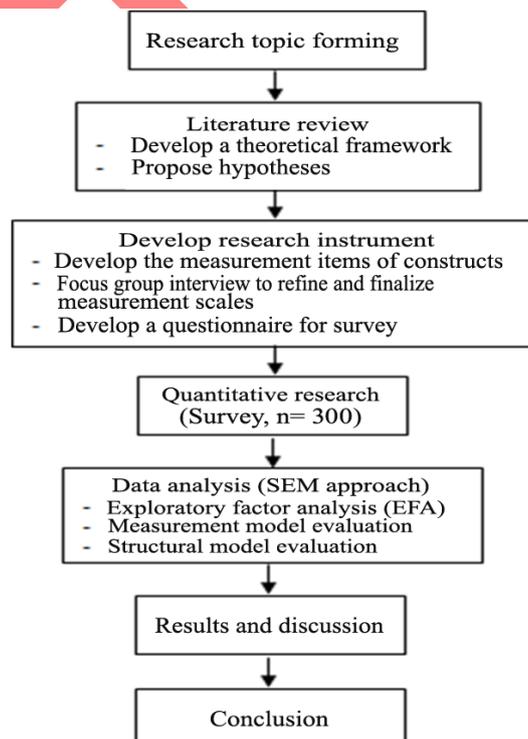

Figure 2. Research process.

The results show that the concept of green purchasing intention can be measured by two groups of variables, including environment perception, which has a direct impact, and social media communication, which has an indirect impact through brand loyalty, on the green purchase intention of consumers. Specifically, the group of variables related to the perception of the environment includes environmental knowledge (3 indicators), attitude towards green products (4 indicators), subjective norms (3 indicators), and perceived behavioral control (3 indicators). Meanwhile, social media communication, including e-WOM (4 indicators), online communities (3 indicators), and online advertisement (3 indicators), impact green purchase intention (3 indicators) through brand loyalty (3 indicators) of Vietnamese generation Z. Table 1 presents all scales of factors collected from previous studies.

Table 1. Measurement scales for constructs in the proposed research model.

Symbol	Items	Source
Environmental knowledge (EK)		
EK1	I know I buy green products that can help protect the environment	Developed from Hou and Wu (2021) and focus group interview
EK2	I can recognize various environmental terms and symbols on the products	
EK3	I know how to choose environmentally friendly green products	
Attitudes toward green products (AG)		
AG1	Protecting the environment is important to me when buying products	Developed from McCarty and Shrum (1994) and focus group interview
AG2	I believe green products help reduce pollution (Water, air, etc.)	
AG3	I believe green products help save natural resources and protect the environment	
AG4	I would prefer to choose a green product over a regular product	
Subjective norms (SN)		
SN1	My family thinks that I should purchase green products rather than normal products	Adapted from Maichum, Parichatnon, and Peng (2016)
SN2	My close friends think I should purchase green products rather than normal products	
SN3	Most people who are important to me think I should purchase green products rather than normal products	
Perceived behavioural control (BC)		Adapted from Maichum et al. (2016); Zahan, Chuanmin, Fayyaz, and Hafeez (2020)
BC1	I believe I can buy green products whenever I want	
BC2	I see myself capable of purchasing green products in the future	
BC3	I have enough money, time and willingness to buy green products	
e-WOM (EW)		
EW1	I often read other consumers' post on social media to make sure I buy the right product/brand.	Adapted from Jalilvand and Samiei (2012)
EW2	I often read other consumers' post on social media to know what products/brands make a good impression on others	
EW3	I often read other consumers' post on social media to gather information about products/brands	
EW4	I often read other consumers' post to have confidence in my buying decision	
Online advertisements (OA)		Developed based on the conceptualization of Online Video Advertisements Jain, Rakesh, and Chaturvedi (2018) and a focus group interview
OA1	Online advertising on social media is very helpful when I search for relevant information about green products/brands.	
OA2	Online advertising on social media attracts me to search for information about green products/brands.	
OA3	Online advertising on social media is very important to my final decision when purchasing green products/brands.	

Symbol	Items	Source
Online communities (OC)		Developed from Bateman, Gray, and Butler (2011) and a focus group interview
OC1	I will discuss with my online communities on social media before deciding to purchase or choose a green product/brand.	
OC2	I will share my opinion with my online communities on social media about purchasing or choosing a green product/brand.	
OC3	I will trust the opinions of other online communities on social media about a green product/brand.	
Brand loyalty (BL)		Developed from Ceyhan (2019) and a focus group interview
BL1	I will recommend the green brand that I regularly purchase from others	
BL2	With the green brands I regularly buy, I will continue to support their new products in the future	
BL3	With the green brands I regularly buy, I will not stop supporting their other environmental activities	
Green purchase intention (PI)		Developed from Maichum et al. (2016); Auza and Mouloudj (2021) and a focus group interview.
PI1	I plan to buy green products because of its eco-friendly effects	
PI2	In the future, I plan to buy green products for a long time	
PI3	I will buy green products on my next purchase if they are available	

Source: Secondary data.

2.12. Quantitative Research

2.12.1. Sample Size

The authors followed the guidelines of Hair, Black, Babin, and Anderson (2009) to calculate the sample size required for the SEM model. According to the guidelines, the minimum sample size should be at least 5 times larger than the number of observed variables. Therefore, since our study had nine components, including 29 indicators used in the formal scale, a minimum sample size of 145 responses was required. Additionally, Zaman (2020) suggested that a sample size of over 200 respondents is considered sufficient for the SEM method and can provide a reliable statistical path analysis model. In this study, there were 282 valid responses. As a result, the PLS-SEM approach was used to qualify the final sample for data analysis.

2.12.2. Data Collection

We conducted a survey to collect data through convenient random sampling from Vietnamese customers belonging to Generation Z who intended to buy green products. This study spans a large geographical area, so the authors used Google Forms to reach the number of respondents most efficiently (Zikmund, 1997) across Vietnam and completed it in March 2022. The structure of the questionnaire is designed with the objectives of the study stated in the first section of the questionnaire. The next section collects socio-demographic information, and consumer opinions on the influencing factors proposed in the research model are in the final section of the questionnaire. The indicators in the final section of the evaluation are scored on a 5-point Likert scale, from 1 (totally disagree) to 5 (totally agree).

2.12.3. Data Analysis

Within the scope of this study, we assess the suggested research model in two phases: the measurement model and the structural model (Henseler & Chin, 2010). To start, the authors use convergent and discriminant reliability metrics to assess the indicators' dependability. When the outer loading coefficient is greater than 0.5, the observed variables have sufficient reliability, and the composite reliability, which is used to assess the model's goodness of fit, must be greater than 0.7. (Hulland, 1999). Then, the scale's consistency is measured using convergent reliability. Fornell and Larcker (1981) stipulate that a factor load of at least 0.7 for each indication and an AVE of at least 0.5 indicate adequate reliability of the scale. Discriminant validity is helpful for making sure there is a clear distinction between variables. The factors used to rate them are unrelated. The discriminant level and validity of the factors can be assessed by comparing the latent variable correlations in the factor to the square root of the average variance extracted (AVE) (Fornell & Larcker, 1981). To test whether or not the hypotheses are correlated, the authors next turned to structural modelling. Each indicator's relative importance was calculated using the outer weights, with a t value larger than 1.96 representing statistical significance. Hair, Sarstedt, Hopkins, and Kuppelwieser (2014) state that the external load factor is typically lower than the structural model's outer weight.

3. Results and Discussions

3.1. Demographic Profile

Table 2 summarizes the demographic information of the respondents in this study. Specifically, there is no big difference between the number of male (49.3%) and female (50.7%) participants in the survey. The majority of participants were between the ages of 18 and 22 (63.1%), and the rest of the participants were between the ages of 23 and 25 (36.9%). The author excluded participants under the age of 18 from the study because of their inability to control finances and manage spending. The most used social media among the respondents was Facebook (51.4%), followed by Instagram (25.2%). While YouTube (5.7%) was also popular, a recently popular platform, TikTok, was used by (11%) of the respondents, and the remaining 6.7% used other platforms. The respondents' income or allowance was assessed to be uniform and unremarkable. However, the majority of respondents (57.1%) reported purchasing green products between 1 to 3 times per month, while a small group of respondents (9.2%) reported purchasing green products less than 10 times per month. These findings suggest that although respondents have different income levels, they all allocate a certain amount of spending on green products in their daily lives.

Table 2. Demographic profile of survey participants.

Group	N	%	Group	N	%
Gender			Income or allowance		
Male	139	49.3	Less than 1 million	34	12.1
Female	143	50.7	1 - 2 Millions	90	31.9
Age			2 – 5 Millions	68	24.1
18 - 22	178	63.1	5 – 10 Millions	52	18.4
23 - 25	104	36.9	More than 10 millions	38	13.5
Most used social media			Purchases per month		
Facebook	145	51.4	1–3 Times	161	57.1
Instagram	71	25.2	4–6 Times	60	21.3
Youtube	16	5.7	7–9 Times	35	12.6
TIktok	31	11	More than 10 times	26	9.2
Other	19	6.7			

Table 3. The results of the measurement model evaluation.

Construct	Outer loading	VIF	Cronbach's alpha	Composite reliability (CR)	AVE
Environment knowledge (EK)					
EK1	0.780	1.383	0.775	0.870	0.691
EK2	0.816	1.948			
EK3	0.893	2.307			
Attitude toward green purchase (AT)					
AT1	0.834	2.162	0.846	0.895	0.681
AT2	0.820	2.718			
AT3	0.787	2.533			
AT4	0.858	2.293			
Subjective norm (SN)					
SN1	0.861	2.034	0.870	0.877	0.794
SN2	0.910	2.505			
SN3	0.901	2.528			
Perceived behavior control (BC)					
BC1	0.741	1.346	0.749	0.779	0.667
BC2	0.891	1.834			
BC3	0.811	1.63			

Construct	Outer loading	VIF	Cronbach's alpha	Composite reliability (CR)	AVE
e-WOM (EW)					
EW1	0.851	2.303	0.925	0.947	0.817
EW2	0.916	4.016			
EW3	0.934	4.214			
EW4	0.912	3.831			
Online advertisement (OA)					
OA1	0.895	2.416	0.888	0.930	0.817
OA2	0.914	2.647			
OA3	0.902	2.662			
Online communities (OC)					
OC1	0.898	2.668	0.905	0.910	0.840
OC2	0.932	3.361			
OC3	0.920	2.947			
Brand loyalty (BL)					
BL1	0.867	1.951	0.859	0.914	0.780
BL2	0.902	2.408			
BL3	0.880	2.266			
Green purchase intention (PI)					
PI1	0.883	2.201	0.864	0.866	0.786
PI2	0.914	2.687			
PI3	0.862	2.053			

3.2. Measurement Model Evaluation

Table 3 displays the results that demonstrate that Cronbach's Alpha value and the combined reliability values of all 9 constructs in the proposed research model are above 0.7. This proves that the internal reliability of the scales is good (Henseler, Ringle, & Sinkovics, 2009). Moreover, to evaluate the validity through external load, all indicators meet the requirement of reaching the minimum value of 0.7 (Hulland, 1999). The AVE values of all constructs range from 0.667 to 0.840, which is higher than 0.5 (Fornell & Larcker, 1981). As a result, the external loadings of the remaining 39 measurement items and the AVE values of all 9 constructs meet the requirements, which indicate high convergent validity of the measurement model in the present study. Finally, the results presented in Table 4 exhibit discriminatory validity when the AVEs are larger than the correlation between their respective constructs. This indicates that the top coefficients are larger than the coefficients in the same column and row (Fornell & Larcker, 1981). Therefore, the discriminant validity of the proposed measurement model is supported by the results of this study.

Table 4. The result of discriminant validity by Fornell-Larcker matrix.

Construct	AT	BL	EK	EW	OA	OC	PB	PI	SN
AT	0.825								
BL	0.708	0.883							
EK	0.747	0.668	0.831						
EW	0.652	0.581	0.608	0.904					
OA	0.482	0.410	0.469	0.580	0.904				
OC	0.465	0.481	0.428	0.558	0.506	0.917			
PB	0.705	0.712	0.704	0.640	0.526	0.459	0.817		
PI	0.742	0.788	0.727	0.660	0.508	0.403	0.721	0.887	
SN	0.611	0.616	0.637	0.572	0.435	0.547	0.661	0.645	0.891

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Table 5. The result of an evaluation of predictive capability.

Construct	R^2	Q^2
BL	0.375	0.286
PI	0.754	0.578

3.3. Structural Model Evaluation

First, Table 5 shows two indices, R^2 and Q^2, the coefficient of determination R^2 was used to evaluate the predictive ability and accuracy of the research model. The coefficient of determination (R^2) represents the amount of explained variance of each endogenous latent variable (Hair et al., 2014). It is also an indicator of the model's predictive accuracy (Hair et al., 2014). The results indicate that the factors EW, OA, and OA explain 36.8% of the variance in BL, and 74.7% of the variance in PI is explained by the factors EK, AT, BC, SN, EW, OA, OC, and BL. According to Henseler et al. (2009), the R^2 value of BL is reported to be at a moderate level, while the PI of Vietnamese Gen Z reported a high level of predictive accuracy. Second, the authors evaluated the value of Q^2 to assess the predictive relevance of the endogenous variables in the model. The results show that the values of BL and PI are 0.286 and 0.578, respectively, which are greater than 0. Therefore, with medium and high predictive accuracy, the proposed research model is sufficient to assess (Hair, Risher, Sarstedt, & Ringle, 2019). In summary, the findings of R^2 and Q^2 demonstrate that the research model achieved significance and predictive power.

After testing the external models, the internal model was evaluated by measuring multicollinearity and path coefficients. We tested multicollinearity using variance inflation factors (VIF), and the resulting VIF coefficients are all less than 5, indicating no multicollinearity in the model (Hair et al., 2014), as shown in Table 2. Table 6 and Figure 3 confirm the 11 hypotheses of this study, accepting 9 hypotheses and rejecting 2 hypotheses. The evaluation results were based on t-statistics greater than 1.96 or p-values less than 5%. Specifically, the hypotheses H1, H2, H3, H5, H6, H7, H8, H10 and H11 were supported, while the remaining hypotheses H4 and H9 were not supported.

Table 6. The result of the path coefficient.

Hypotheses	Path	Coefficient (B)	T-statistic	P-value	Decision
H1	EK → GPI	0.149	2.113	0.037	Supported
H2	AT → GPI	0.146	2.349	0.020	Supported
H3	SN → GPI	0.123	2.443	0.016	Supported
H4	PBC → GPI	0.055	0.897	0.380	Not supported
H5	EW → GPI	0.157	3.240	0.001	Supported
H6	EW → BL	0.432	5.046	0.000	Supported
H7	OC → BL	0.214	3.107	0.002	Supported
H8	OC → GPI	-0.161	3.214	0.002	Supported
H9	OA → BL	0.051	0.502	0.610	Not supported
H10	OA → GPI	0.106	2.494	0.014	Supported
H11	BL → GPI	0.413	7.251	0.000	Supported

The study provides new insights into the green purchasing intentions of Vietnamese generation Z, focusing on the effects of environmental perception and social media communication through brand loyalty. The factors that influence brand loyalty explain 37.5% of the effects of social media communication. Combined with the impact of perception, they explain 75.4% of the influence on the green purchase intention of customers. The results show the effectiveness of the experimental framework proposed in related studies and contribute to theoretical understanding. The study is the first to identify the influence of environmental perception and social media communication on brand loyalty, serving as an evaluation basis for understating consumer intentions and behavior. The findings shed light on the view that people's lifestyles are closely related to the development of digital forms, highlighting the positive effects of customer loyalty formation through social media activities on consumer purchase intention. These findings have important implications for future studies exploring and developing similar models and examining the significant effects of social media associated with changing times.

For the group of environmental perception factors, EK (β= 0.149; p-value < 0.05), AT (β= 0.146; p-value < 0.05), and SN (β= 0.123; p-value < 0.05) are the factors that have a significant direct impact on the GPI of

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Gen Z Vietnamese. We have clearly equipped buyers with more and more environmental knowledge. Environmental issues are always important to human existence, and environmental knowledge is key to educating people to live more environmentally friendly lives. Meanwhile, green products and their purpose of creation are no longer strange to the young generation. Along with the impact on people in society, encouraging customers to buy green products more and more will boost their purchase intention. These results are consistent with findings reported in previous studies (Dean et al., 2012; Göçer & Oflaç, 2017; Joshi & Rahman, 2015; Khare, 2015; Sun et al., 2017; Teng & Chang, 2014; Vicente-Molina et al., 2013; Wang et al., 2014). The results show that PBC (β= 0.055; p- value > 0.05) does not affect the GPI of Gen Z Vietnamese. These results contradict some previous studies (Auza & Mouloudj, 2021; Wibowo et al., 2020; Wijaya et al., 2019). However, for young people, the availability of resources and willingness to try to buy new things are always present. They are not afraid to create and pursue new trends in society, as seen with the trend of using environmentally friendly products. The young generation of Gen Z in Vietnam is no exception, being a large force leading the community in viral green trends on social networks. They are always confident in their ability to control their individual buying behavior.
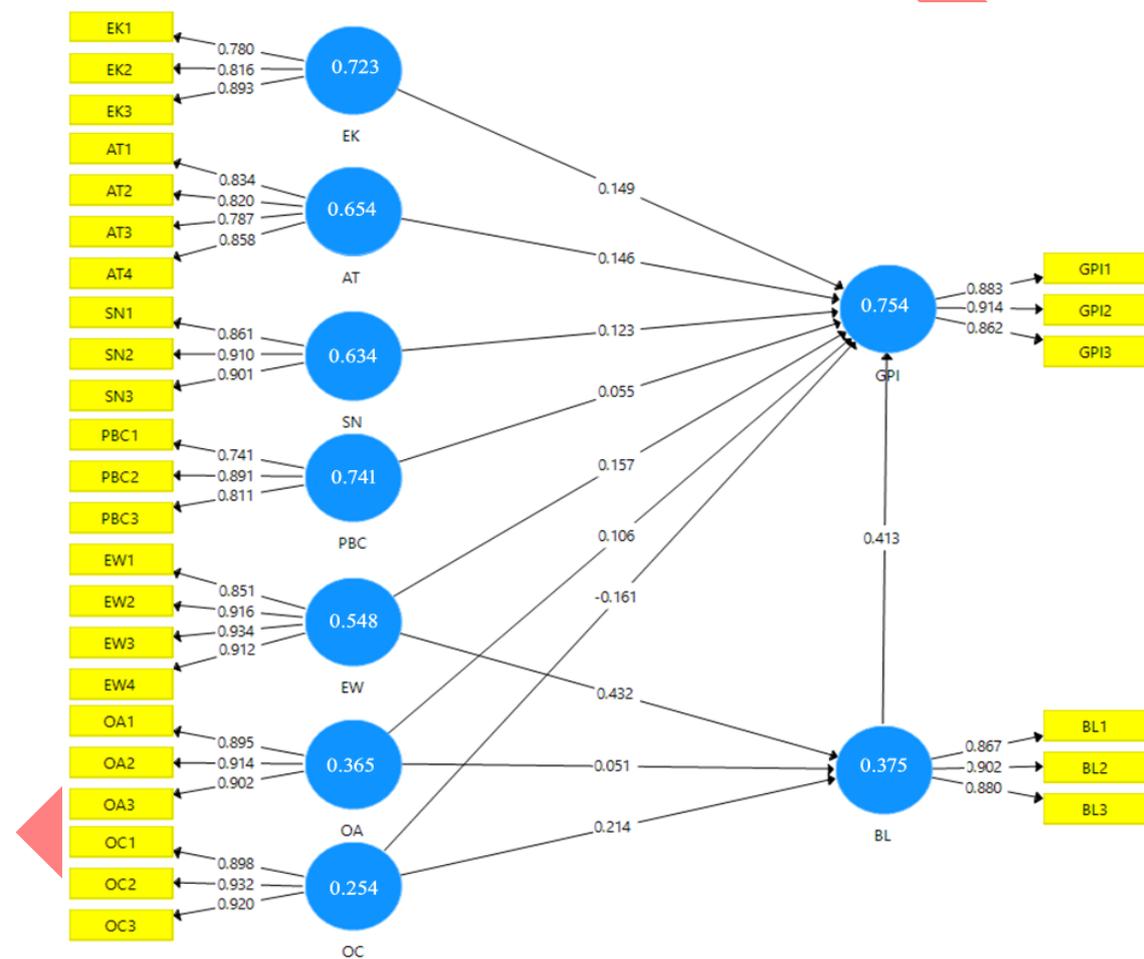

Figure 3. Structural equation model.

For social media communication factors, EW has a significant impact on both BL (β= 0.432; p-value < 0.05), and GPI (β= 0.157; p-value < 0.05). This result is consistent with the findings of the previous studies (Severi et al., 2014; Tseng et al., 2014). EW refers to the act of gathering information from other buyers on a social network. The word-of-mouth information of previous buyers has more or less impact on their loyalty and, moreover, their purchase intention. EW is what a business or a salesperson cannot expect the share with old customers. Therefore, it is the basis of genuine purchasing decisions from the perspective of each individual buyer. This habit is also an opportunity for businesses that want to build credibility in their business activities on social networking sites, as it is a powerful tool for encouraging customers to share experiences. This completely confirms that EW has had a positive impact on the GPI of customers.

Similarly, OC was also assessed to have a significant impact on both BL (β = 0.214; p-value < 0.05), and GPI (β = -0.161; p-value < 0.05). This finding supports the results of previous studies (Balakrishnan et al., 2014; Gyrd-Jones & Kornum, 2013). OC shows the interaction of individuals on social networks. They will

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share their buying experiences and discuss with other shoppers on social networking communities before making their purchasing decisions. OC creates a two-way interaction between opinion shares and opinion collectors. Buyers themselves can join this community to build trust in their purchasing decisions. Therefore, OC has effects on the formation of BL for a certain brand and, finally, has a positive influence on GPI.

The last factor is that OA has a significant effect on GPI (β= 0.106; p-value < 0.05) but negates a relationship with BL (β= 0.051; p-value > 0.05). We interpreted this result similarly to the findings of Mohammed and Alkubise (2012), and Harden and Heyman (2009). This means that the information that OA provides on social networks is for reference only and is not completely trusted by customers. The essence of advertising is to polish and highlight products and services. Young people are modern and access new information sources quickly and continuously, so they control public opinion sources, such as the effects of EW and OC. Brand loyalty is not driven by temporary advertisements, but affects immediate purchase intention. OA can attract and impress customers, stimulate searching, and collect information, arousing the GPI of Gen Z Vietnamese. Last but not least, it is worth mentioning the significant effects of BL and GPI (β = 0.413; p- value < 0.05). Similar to previous findings in related studies (Calvo-Porral & Lévy-Mangin, 2015; Chen et al., 2016), it is undeniable that when shoppers prefer a brand that they frequently buy, they will recommend and support that brand for a long time, and purchase intention is also enhanced.

4. Conclusions

The research results initially fill the gap in previous research papers regarding the effects of environmental perception and social media communication on brand loyalty on green purchase intention. As social media is closely associated with the young generation, which is the target of this study, the findings provide experimental results and a theoretical basis for future literature. The young generation represents a large force of customers in all fields, including the demand for buying green products. In addition, this study enhances the robustness of the TPB model by providing some understanding of constructs such as environmental concerns and the role of social media in brand loyalty and consumer purchase intention. This contribution is a novelty that was developed in this study.

The implications have a positive contribution to practitioners, including policymakers of businesses, companies providing green products and services, and marketers to help them understand the important factors affecting green purchase intention of customers. Specifically, the young generation of Gen Z in Vietnam represents several potential customers, both now and in the future. Policymakers can evaluate the development of policies to create favorable conditions for businesses and companies to exploit the green market, by offering products that have a positive impact on the environment. Developing this field is increasingly popular and meaningful in people's daily lives. For marketers, it is possible to come up with plans and strategies to attract more Gen Z customers to drive sales on social media platforms. Along with the strong development of the digital platform, the young knowledge base, and development opportunities of developing countries like Vietnam, research becomes more comprehensive, making practical contributions to the growing life of humanity.

Despite its contributions to scholars and practitioners, this study is not immune to certain limitations. First, this is a cross-sectional study conducted to measure green purchase intention due to the time constraints during implementation. However, intention is a variable that can change over time with the continuous development of society. Therefore, the author proposes a longitudinal study to be conducted at different times for the same object to evaluate the relationship between purchase intention and the actual buying behavior of customers. Second, future studies may also extend from the research model beyond the variables affecting consumer intention, as done in this study, to include other factors that could enhance the significance of future research papers.

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