Analysis of Gap Between Green Purchase Intention and Green Purchase Behavior a Case Study of Vietnamese Students

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Abstract

Why do people say they want green products, but they do not tend to buy them? This phenomenon is known as green gap. Image Research Theory and Motivation-Opportunity-Ability Theory were used to build up the conceptual framework reflecting sequencing relationships from green purchase intention, implementation intention, to green purchase behavior with two moderators (e.g., action self-efficacy, coping self-efficacy). Online questionnaires were distributed to respondents (i.e., Facebook users and university students) with their preferential purchase, experiences and involvement

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in green products. A total of 233 valid cases was collected for theoretical estimation by using partial least squares structural equation modelling. It reveals significant sequencing relationships among green purchase intention, implementation intention, and green purchase behavior with positive impacts. It may bring theoretical implication on green gap in Vietnam context, and practical implications to encourage sustainable consumption among younger generation.

Keywords: Green Gap, Green Purchase Intention, Green Purchase Behavior, Implementation Intention.

การวิเคราะห์ช่องว่างระหว่างความตั้งใจในการซื้อที่เป็นมิตรต่อสิ่งแวดล้อมกับพฤติกรรมการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม: กรณีศึกษานักศึกษาชาวเวียดนาม

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บทคัดย่อ

เมื่อคนกล่าวว่าตนต้องการผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อม แต่เหตุใดจึงไม่ตั้งใจซื้อผลิตภัณฑ์ดังกล่าว ปรากฏการนี้เรียกว่า ช่องว่างความเป็นมิตรต่อสิ่งแวดล้อม การวิเคราะห์นี้ใช้ทฤษฎีภาพลักษณ์และทฤษฎีความส่งเสริมแรงจูงใจ การให้โอกาสและความสามารถ เพื่อสร้างกรอบแนวคิดที่สะท้อนลำดับความสัมพันธ์ระหว่างความตั้งใจในการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม การตั้งใจจะที่ปฏิบัติและพฤติกรรมการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม โดยมีสองตัวแปรกำกับ (ปฏิบัติการรับรู้ความสามารถของตน และการจัดการการรับรู้ความสามารถของตน) โดยทำการแจกแบบสอบถามออนไลน์ให้ผู้ตอบ (เช่น ผู้ใช้เฟซบุ๊ก นักศึกษามหาวิทยาลัย) เรื่อง การซื้อประสบการณ์และความเกี่ยวข้องกับผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อม

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ที่ตนชอบมากกว่า ทั้งนี้ได้รับคืนแบบสอบถามที่ใช้ได้ทั้งหมด 233 ชุด และนำไปใช้ประมาณค่าตามทฤษฎีด้วยวิธีสมการโครงสร้างกำลังสองน้อยที่สุดบางส่วน ผลลัพธ์แสดงให้เห็นว่ามีความสัมพันธ์ตามลำดับโดยมีนัยสำคัญระหว่างความตั้งใจในการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม การตั้งใจที่จะปฏิบัติ และพฤติกรรมการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม ที่มีผลกระทบในเชิงบวก กล่าวคือ สามารถแสดงนัยทางทฤษฎีว่าด้วยช่องว่างความเป็นมิตรต่อสิ่งแวดล้อมในบริบทของประเทศเวียดนาม และนัยเชิงปฏิบัติ ทั้งนี้เพื่อส่งเสริมการบริโภคอย่างยั่งยืนในกลุ่มคนอายุน้อยกว่า

คำสำคัญ: ช่องว่างความเป็นมิตรต่อสิ่งแวดล้อม ความตั้งใจในการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม พฤติกรรมการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม การตั้งใจจะที่ปฏิบัติ

Introduction

In recent years, green consumption has been considered as one of the effective solutions to reduce pressure on the environment and promote sustainable development. According to a survey by (IBM Institute for Business Value, 2021), the COVID-19 pandemic has positively impacted 90% of 14,000 respondents in nine countries regarding environmental sustainability. It is revealed that 86% of Vietnamese customers are willing to pay more for products and services from companies with ESG-related claims, compared to 76% of Asia Pacific consumers (Nielsen, 2017). Environmental sustainability approaches are included in producing goods and services at every stage (Veleva and Ellenbecker, 2001). Furthermore, it is crucial to engage in ecologically responsible purchasing, as unconsciously buying things can have severe negative impacts on the environment (Joshi & Rahman, 2015) therefore understanding the consumers perspective towards intention to purchase green products is very essential (Chan and Lau, 2002). Presuming the intention-behavior inconsistency (Hanss et al., 2016; Lee, 2008; Peattie, 2010), this quantitative research aims to explore the transition of plans to go green and actions that plan to take into actual green purchase behavior among students in VNU-HCM and to verify the moderating of action self-efficacy and coping self-efficacy. Most studies on consumers' green purchase intention/behavior have focused on developed nations, examining their attitudes and perspectives towards buying environmentally friendly products (Khare, 2015; Paul et al., 2016). In Vietnam, prior studies have focused on determinants of sustainable consumption intention and behavior for specific industries or products (M. T. T. Nguyen et al., 2019; X. C. Nguyen et al., 2022), while the intention-behavior gap is under-examined (Hoang Mai & Poddar, 2021; H. V. Nguyen et al., 2019) and also a gap in Vietnamese literature on green customers' psychological traits.

Although the theory of planned behavior is popular, the intention-behavior gap is one of its shortcomings due to its neglect of contextual variables (H. V. Nguyen et al., 2019; Peattie, 2010). Following Tawde et al. (2023), this paper tests the combined model of IRT (Beach & Mitchell, 1987) and MOA (Blumberg & Pringle, 1982) theories under the framework of Stimulus-Organism-Response (Russell & Mehrabian, 1974) in the Vietnamese context, observing the variations in terms of nature of the response now that it focuses on the students

who are active and pro-environmental generation Z on Facebook, specifically the students of six member universities of VNU-HCM were chosen to be the target respondents. The reason behind this sample profile is that students represent the young and highly educated population, who have an awareness of pro-environmental issues and are likely to behave sustainably and purchase green products. They can provide relevant insights (Chan, 2001). This study not only extended the knowledge on the intention behavior in green consumerism in Vietnamese literature but also made recommendations to target customers with Implementation intention in eco-friendly purchasing promotion.

Literature Review

Stimulus-Organism-Response Framework

Russell & Mehrabian (1974) constructs the S-O-R model from the concept that stimulation from the outside environment (stimulus) shape an individual's cognitive and emotional state (organism), which then generates a specific response an approach/avoidance behavior (Response). Based on S-O-R framework, numerous research has been carried out in the field of consumer science and environmental sustainability. For instance, Huang (2012) empirically examined the virtual good purchase intention on social network websites by applying S-O-R model; Peng & Kim (2014) used the paradigm to investigate the effect of website stimuli on emotional regulation, online shopping behavior, and repurchase intention; Chai et al. (2019) extended prior research with the combined model of S-O-R, TPB, and theory of Expectancy Confirmation to study the smartphone customer behavior of Thai students; likewise, Asl & Khoddami (2023) developed a framework of S-O-R, TPB, and theory of consumption values to better understand Iranian green consumer.

Image Research Theory

To examine how people make value-laden decisions, Beach & Mitchell (1987) introduced Image Research Theory with three basic schematic knowledge structures: Value image-Trajectory image-Strategic image, corresponding to the values-goals-strategies of the decision-makers. Nelson (2004) recommended using IRT for future studies related to social responsibility issues as compared to other decision theories, it emphasizes more value to guide consumers' choices and behavior. In our proposed framework, Value image is

represented by green purchase intention, which involves the consumer's principles, morals, and beliefs; Strategic image is represented by Implementation intention, or in other words, the pre-thought plan with timelines and detailed execution steps to assure outcome; Trajectory image is represented by green purchase behavior, the achievable end goal after following plan and tactics.

Motivation-Opportunity-Ability Theory

Motivation-Opportunity-Ability Theory (Blumberg & Pringle, 1982) acknowledged three key factors to perform a behavior: Motivation, Opportunity, and Ability. The authors argue that under volitional control, the predictive power of a performance can be improved by incorporating Ability the habit and task knowledge, and Opportunity the facilitating conditions. According to Jackson (2005), MOA provides an integrated structure that is highly compatible with the theme of pro-environmental behavior. In the context of this study, Green purchase intention is considered as Motivation, an internal drive to commit to green purchasing; Implementation intention is considered as Opportunity, a precondition of behavior when carefully crafted plans provide customers with accessibility and resource availability; Action self-efficacy and Coping self-efficacy are considered as Ability, since these two components assure the readiness to take action and the resilience to handle stressful situations, guiding to enact the Green purchase behavior.

Therefore, this paper has adopted the S-O-R framework with the combined model of IRT and MOA theories (Tawde et al., 2023) to understand how consumers' self-driven psychic traits play a role in green purchase decisions as well as test the relevance of this integration model in the Vietnamese context. With a collaborative approach, this study aims to comprehend the intention-behavior gap in green consumption by the theoretical outline of Stimulus-Organism-Response (Russell & Mehrabian, 1974) for synergistic benefits. The linkages in the S-O-R framework is supported by Image Research Theory (IRT) (Beach & Mitchell, 1987) and Motivation-Opportunity-Ability Theory (MOA) (Blumberg & Pringle, 1982). Tawde et al. (2023) propose the combined theoretical lens as it can identify opportunities and challenges a consumer can encounter before and in actual shopping situations, thus addressing the green gap closure from different perspectives, and improving the model's robustness.

Gap of Green Purchase Intention - Green Purchase Behavior

Green purchasing includes the acquisition of environmentally sustainable products and avoiding the purchase of things that have negative impacts on the environment (Chan, 2001). Green purchasing is commonly assessed by evaluating both the intention and behavior to make environmentally friendly purchases. Green buying intention is the inclination of people to buy environmentally friendly products. Intentions capture the motivational aspects that impact the green purchasing behavior of customers (Ramayah, Lee, and Mohamad, 2010). Green purchasing behavior is a multiple presentation of ethical decision-making practice and is seen as a kind of socially responsible activity. In the context of social responsibility, the green consumer is an individual who considers the societal impacts of their personal consumption and endeavors to utilize their buying influence to effect social transformation (Moisander, 2007).

This research mainly revolves around the concept of green gap, which is the inconsistency between the intention and behaviour related to green purchasing, or the struggle to convert pro-environmental change the intention to gain into actual behavior (ElHaffar et al., 2020; Johnstone & Tan, 2015b; H. V. Nguyen et al., 2019). In simple words, it is about the customers who purchase conventional products despite having a positive attitude and intention towards green alternatives. Green purchase intention (GPI) is defined as the willingness to perform green buying behavior in order to promote environmental sustainability (Jaiswal & Kant, 2018; Wang et al., 2019), while green purchase behavior (GPB) refers to the choice to buy and use products that are eco-friendly or sustainable and do not cause harm to the environment and society (Chan, 2001; Jaiswal & Kant, 2018; Mostafa, 2008).

Several empirical studies applied theory of planned behavior (Ajzen, 1991) and theory of reasoned action (Fishbein & Ajzen, 1975) to measure the correlation between intention and behavior in the field of green consumption. However, the results varied considerably, from closely related (V. H. Nguyen et al., 2015; Wu & Chen, 2014) to either ambiguous or inconsistent (Hanss et al., 2016; Peattie, 2010; Young et al., 2010); hence, it implied a green intention-behavior gap. Extant literature has explored some variables that facilitate the intention translation into purchase decisions. For instance, Wyss et al. (2022) proposed costs, benefits, and self-control; H. V. Nguyen et al. (2019) suggested availability of

environmentally friendly products and the perceived effectiveness of these products among consumers; Hallsworth et al. (2017) highlighted the role of green nudges; (Carrington et al. (2014) emphasized the purchase situations. Among these contributions, customer's cognitive behavior and perception of green buying had a noticeable impact on green gap, thus, it called for further studies to focus more on consumers' intrapsychic traits to narrow green intention-behavior link (ElHaffar et al., 2020; Hanss et al., 2016; Tawde et al., 2023).

So far, in Vietnam, most existing literature mainly investigates the antecedents of the two constructs' intention to make environmentally friendly purchases (Lan et al., 2023; Thi et al., 2020; Tran et al., 2022) and green purchase behavior (Diep Le, 2021; Hung et al., 2018; Le, 2021), aiming at customers in general. This both led to the under-research of green gap (Duong, 2022; H. V. Nguyen et al., 2019) and the limitation of young generation's perspective of green consumption (Hoang Mai & Poddar, 2021; M. T. T. Nguyen et al., 2019). To fulfill the existing gap, this study adopted cognitive variables from the prior research of Tawde et al. (2023), including Implementation intention, action self-efficacy, and coping self-efficacy.

Implementation Intention

The principle of implementation intention (II), introduced by Gollwitzer (1999), has been used as a self-regulatory strategy to support the translation of intention into actual behavior (Conner et al., 2010). "Implementation intention", "Implementation plans", "Action planning" or "Plans", this term has different names but they all bear the same meaning, which specifies "when, where, and how an individual would perform the intended behavior" (Conner et al., 2010; Dholakia et al., 2007; Gollwitzer, 1999) (e.g., "Next time when I go shopping at the supermarket, I will choose and buy the green alternatives available.").

Gollwitzer & Sheeran (2006) elaborated on implementation intention as an if-then plan of situational cues linking to specific responses for goal pursuit. Furthermore, the authors conducted a meta-analysis of 94 independent tests and found an effect size of medium-to-large magnitude (d = .65), indicating that implementation intention has a positive impact on goal achievement. The role of Implementation intention is essential to overcome the intention-behavior gap since simple plans act as a mental simulation, an individual can seize the opportunity to realize the intention and prepare for situational and internal conflicting factors (Dholakia et al., 2007; Webb & Sheeran, 2006). Following

prior research, this study proposes Implementation intention into the causal relationship of Green intention-behavior, especially when "Participating in green purchasing requires conscientious effort, personal control, additional resources, heightened dedication, and unwavering self-confidence in executing actions." (Johnstone & Tan, 2015a; Tawde et al., 2023).

Self-Efficacy in Green Consumerism

Self-efficacy refers to an individual's belief in their own ability to carry out a specific behaviour (Bandura, 1997). It is noted that individuals with a high level of self-efficacy are likely to enact the intended behavior successfully (Rhodes et al., 2008). Likewise, in the context of green consumption, if customers deem green shopping as a complex and difficult task, they are less likely to engage in buying decisions. (Balderjahn, 1988; Johnstone & Tan, 2015b).

Although previous studies had demonstrated the effectiveness of implementation intention in bridging intention-behavior gap, both Di Maio et al. (2021) and Tawde et al. (2023) were concerned that the unfavorable conditions (e.g., physical discomfort, bad weather, exposure to competing brands) might hinder the plan execution. The authors recommended self-efficacy in such situations, as it can stimulate self-motivation, support individuals to overcome obstacles, and continue to translate their plans into behavior. Besides, existing literature related to self-efficacy in green consumerism is relatively limited, calling for further research (Rainisio et al., 2022).

Based on these arguments, this study adds self-efficacy as a moderator to boost the role of self-efficacy. Under the approach of phase-specific Self-efficacy of Schwarzer and Renner (2000), two variables action self-efficacy and coping self-efficacy match pre-actional phase and actional phase correspondingly, within the green purchase intention-behavior discord.

Moderating Role of Action Self-Efficacy

In the pre-actional phase, action self-efficacy (ASE) relates to the boldness to take initiative, optimistic belief in success, and strong self-esteem when creating plans (Marlatt et al., 2010; Schwarzer & Renner, 2000). Bagozzi & Edwards (2007) describes individuals with high Action self-efficacy as those who are not afraid to adopt a new behavior, confident to anticipate possible scenarios and strategies aligned with, and doing so without self-doubt or delay. In the process of simulating action plans, Action self-efficacy will interact with green purchase intention, creating a synergistic effect on Implementation intention (Tawde et al., 2023).

Moderating Role of Coping Self-Efficacy

In the actional phase, coping self-efficacy (CSE) refers to the confidence, commitment, and persistence to deal with the difficulties that are created during the implementation of programs (Schwarzer & Renner, 2000). The higher level of coping self-efficacy, the longer one can persist in stressful situations. In case of failed attempts, Coping self-efficacious individuals also recover more quickly and invest more effort to achieve the end goal (Bandura, 2001). Tawde et al. (2023) proposed that the effect between Coping self-efficacy and Implementation plan, the possibilities of successful enactment of Green purchase behavior.

Conceptual Framework

The purpose of this study is to explore eco-friendly buying among students of VNU-HCM, using the framework with the combined model of IRT and MOA theory. Specifically, this study investigates the sequencing relationships from Green purchase intention, Implementation intention to Green purchase behavior, Action self-efficacy, and Coping Self-efficacy intervening (See Figure 1).

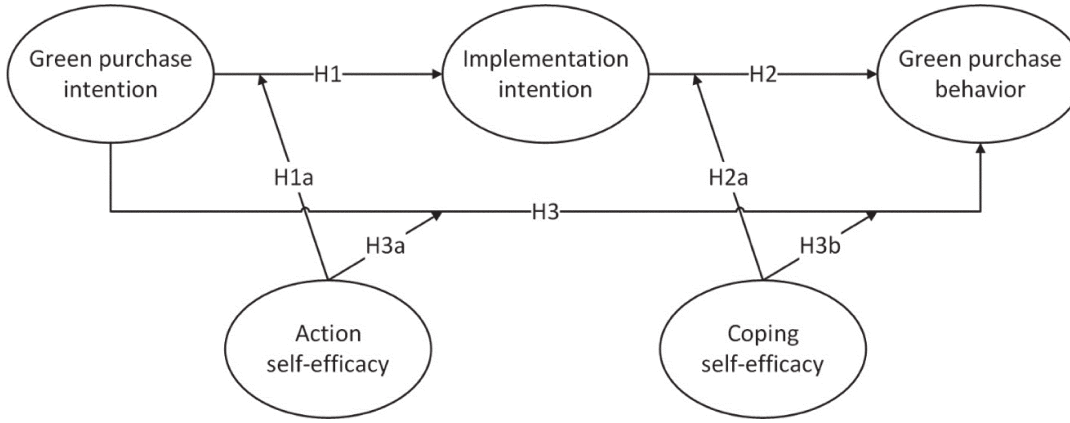

Figure 1: Proposed Conceptual Framework

Source: The Authors.

This study postulates the following hypotheses:

H1: Green purchase intention positively impacts implementation intention.

H1a: Action self-efficacy moderates the positive relationship between green purchase intention and Implementation intention.

H2: Implementation intention positively impacts green purchase behavior.

H2a: Coping self-efficacy moderates the positive relationship between Implementation intention and green purchase behavior.

H3: Green purchase intention positively impacts green purchase behavior.

H3a: Action self-efficacy moderates the positive relationship between green purchase intention and green purchase behavior.

H3b: Coping self-efficacy moderates the positive relationship between green purchase intention and green purchase behavior.

Methodology

Research Design and Sample

This study applied the quantitative research method with non-probability sampling (e.g., purposive sampling, snowball sampling and convenient sampling) to investigate the sequencing relationships from green purchase intention, implementation intention, to green purchase behavior (see Figure 1).

"Campbell, Gilliland et al. (2018) stated that non-probability sampling can be employed to capture the views and perceptions of respondents in social research, especially when compiling a sampling frame from a hidden population poses challenges. However, this sampling approach does not produce findings generalisable to the wider population because the sample has not been collected in random settings. Radević, Dimovski et al. (2023), cited in Ngoc Ton and al (2023), criticised probability sampling, as well as random samples, highlighting their impracticality and unfeasibility. Instead, they introduced the purposive strategy (i.e., one type of non-probability sampling) to effectively target specific populations" (Tran-Pham et. al, 2024).

"Non-sampling errors, such as unwillingness to complete the survey, time constraints in answering the survey and inability to respond to the survey, as well as sampling errors related to the sample selection process and difficulty collecting random samples, should be considered in social research. Non-sampling issues can be mitigated by conducting a pilot study to estimate dropout rates and gauge respondents' understanding of the survey while expanding the sample size can help address sampling errors (Campbell et al., 2018)." (Tran-Pham et. al, 2024).

Indeed, non-probability sampling (e.g., purposive sampling, snowball sampling and convenient sampling) was applied to approach the target population (i.e., university students) in this study. Data were collected during the spring semester of the school year 2022-2023 through an online anonymous questionnaire survey to assess the level of GPI, GPB, II, ASE, and CSE of the students at six member universities of VNU-HCM. Three main approaches were applied to seek support for student recruitment and survey distribution: through the official Facebook group of each university, through Facebook groups related to VNU-HCM (e.g., Dormitory Zone A, Dormitory Zone B), and through Messenger with direct messages. From 272 participants in data gathering, after excluding the invalid responses due to missing values and low variation, there were 233 valid copies in total. The overall response rate was approximately 85.66%.

Table 1 demonstrates the demographic statistics. The gender ratio is roughly equal (45.49% male and 54.51% female). As the target respondent is university students, most of them are from 18 to 23 years old and more than 50% are in the fourth year of bachelor's degree. Among six member universities, except International University (VNU-HCM) makes up nearly 34% of the total, each contributes within the range of 11% - 15%.

Measurement Scale and Assessment Method

The measurement scale was adapted from priori. Three items of green purchase intention construct were modified (Chan, 2001; Chekima et al., 2015; Tawde et al., 2023). Green purchase behavior was measured by eight items (Sudbury-Riley & Kohlbacher, 2016; Tawde et al., 2023). Implementation intention was measured by six items (Dholakia et al., 2007; Gollwitzer, 1999; Tawde et al., 2023). Action self-efficacy with two items and coping self-efficacy with three items were adopted from report of Schwarzer & Renner (2000) and Tawde et al. (2023). A five-point Likert scale was used in all items of the questionnaire, ranging from 1 (i.e., indicating "highly disagree") to 5 (i.e., indicating "highly agree") (see measurement items in Appendix A).

For statistical analysis, SmartPLS (version 3) software was used for hypothesis testing (see Figure 1).

Results

Testing Measurement Model

Table 2 shows reliability and validity of all latent variables. First, in terms of internal consistency reliability, all constructs displayed values of Cronbach's alpha, CR, and rho_A above the acceptable thresholds. Cronbach's alpha of ASE is only 0.69, but it still meets the lower limit for the construct reliability of acceptance ranging from 0.6 to 0.7 (Hair et al., 2015). Then, the convergent validity of each measure is assessed with factor loadings, CR and AVE. There were six deleted items in the measurement model (GPB1, GPB2, GPB3, GPB4, GPB6, and CSE3). Table 2 shows all the items with factor loadings exceeding 0.708, CR between 0.7 and 0.95, and AVE higher than 0.50, verifying the convergent validity (Fornell & Larcker, 1981; Hair et al., 2015).

Table 3 and Table 4 show discriminant validity with Fornell-Larcker criterion and Heterotrait-Monotrait (HTMT) Ratio. In the HTMT matrix, the correlation of each pair of factors must be below the minimum benchmark of 0.85 (Henseler et al., 2015). In Fornell-Larcker criterion, the square root of the AVE of each construct on the diagonal side is greater than the correlation between the constructs (Hair et al., 2015). Hence, the presence of adequate discriminant validity is confirmed.

Given the adequacy of reliability, convergent validity, and discriminant validity of the reflective model, we proceed to evaluate the structural model.

Testing Structural Model

Concerning Wetzels et al. (2009), the quality of the structural model is classified based on R-squared values (i.e., small: 0.02; medium: 0.13; large: 0.26). In the model, implementation intention and green purchase behavior had R-squared values of 0.42 and 0.55, respectively. Hence, the predictive accuracy of the structural model was supported (see Table 2).

Hypotheses Analysis

Green purchase intention had a significantly positive impact on implementation intention (p-value ≤ 0.001, supporting H1). Implementation intention had a significantly positive impact on green purchase behavior (p-value ≤ 0.001, supporting H2). Green purchase intention had a significantly positive impact on green purchase behavior (p-value ≤ 0.001, supporting H3) (see Table 5).

Moderation Effect Analysis

It revealed all insignificant moderating effects. In Table 6, action self-efficacy insignificantly moderated the causal relationship between green purchase intention and implementation intention, although both green purchase intention and action self-efficacy had significantly positive effects on implementation intention (H1a was rejected). Similarly, in Table 7, coping self-efficacy insignificantly moderated the causal relationship between implementation intention and green purchase behavior, although both implementation intention and coping self-efficacy had significantly positive effects on green purchase behavior (H2a was rejected). In Table 8, action self-efficacy insignificantly moderated the causal relationship between green purchase intention and green purchase behavior. only green purchase intention had a significantly positive effect on green purchase behavior, whereas action self-efficacy had an insignificant effect on green purchase behavior (H3a was rejected). Lastly, Table 9 shows that coping self-efficacy insignificantly moderated the causal relationship between green purchase intention and green purchase behavior. While both green purchase intention and coping self-efficacy had significantly positive effects on green purchase behavior (H3b was rejected).

Discussion

Based on the integrated framework of SOR-IRT-MOA (Tawde et al., 2023), this study investigates the sequencing relationship of green purchase intention-behavior and Implementation intention, along with the moderating role of Action self-efficacy and coping self-efficacy to bridge the green gap.

This study proved significant sequencing casual relationships from GPI, II to GPB with absolute positive impacts. It is consistent to previous findings, regarding the simple yet effective role of implementation intention to convert green purchase intention into actual behavior (Dholakia et al., 2007; Gollwitzer & Sheeran, 2006; Webb & Sheeran, 2006); unfortunately, it is inconsistent to the extant literature of Green gap (Duong, 2022; ElHaffar et al., 2020; Johnstone & Tan, 2015b; H. V. Nguyen et al., 2019). There are two possible approaches to justify the disparity. First, this research is aimed at university students, young and highly educated citizens, who are aware of sustainability issues, and willing to take initiatives and live green (Chan, 2001). Therefore, it is logical that these individuals can easily enact their intention and perform green purchasing. Second, with the support of Implementation intention, the customer no longer struggles to realize the green shopping, or in other words, Green gap may only occur in the absence of plans.

On the other hand, contrary to the expectation, ASE and CSE do not facilitate the causal relationship of GPI and GPB, leading to the rejection of moderation hypotheses H1a, H2b, H3a, and H3b. The findings do not align with the exant behavioral studies (Di Maio et al., 2021; Tawde et al., 2023), thus, calling for further research to examine the inconsistency, or to propose other internal attributes as moderators to intervene in the Green gap.

Theoretical Implication

Instead of the common theory of planned behavior, this research applies and tests a new framework of Stimuli-Organism-Response with image research theory and motivation-opportunity-ability theory as underpinning theories. Additionally, this study emphasises the direct correlation between GPI, Implementation intention, and GPB, which is in line with the findings in existing green psychology literature. Last but not least, the outcomes expand the empirical evidence of green consumerism in the context of Vietnam.

Practical Implication

For educators, marketers, and policymakers, this study provides significant insights into students, the young, and future sustainable customers. First, if their green belief matches their actual behavior, the focus should be on establishing the green intention and factors that motivate it: more green knowledge in lectures, pro-environmental issues in advertisements, sustainable lifestyles in media, reasonable price of green products due to the limited budget of students, green products availability, etc. Second, the advice is to target customers with implementation intention. Although it is challenging to influence one's internal traits, convenient conditions can be created to encourage plan creation, so that the students who want to realize their Green purchase intention can practice the habit of planning and perform the green buying decisions.

It informs policymakers and strategies for marketers about the key predictors of consumers' green purchase behavior. Marketers would do well to understand the drivers and barriers to the green purchase behavior of students. This understanding will enable them to tailor their product offerings and formulate marketing strategies to encourage green buying behavior.

Policymakers must communicate the importance of environmental protection to customers and, more importantly, demonstrate how natural resources are being destroyed. To effectively convey this message, businesses should use specific figures and images to highlight the environmental impacts of consuming harmful products. This awareness can be raised through seminars or environmental protection campaigns.

Marketers should strengthen their online sales channels and home delivery services to increase the number of green products. In addition, offering promotions and discounts can help increase purchase intentions of students. Companies selling green products can incentivize recycling or reuse by providing discounts to customers who bring in old products for recycling. This strategy not only encourages the green purchase behaviour but also promotes positive environmental impacts. Marketers should focus on building sustainable relationships with customers to enhance satisfaction and trust. Strengthening customer relationships can be achieved by organizing or participating in community activities and supporting environmental protection programs.

Conclusion

In conclusion, the current study examines the gap between green purchase intention and green purchase behavior among the students of VNU-HCM. The results show that there is no such green gap, green purchase behavior can be created from green purchase intention and Implementation intention. With a simple plan in advance, one can be prepared, ready to seize the opportunity, and confident to translate the intention into actual behavior. The moderating role of action self-efficacy and coping self-efficacy to narrow the intention-behavior gap are also proposed, but not supported by the data.

There are certain limitations to this study. First, the product mentioned is green products in general. Second, only a few variables have been added to the model as it is a newly adopted framework of SOR - IRT - MOA from Tawde et al. (2023). Third, the sample size of 233 is relatively small compared to the capacity of nearly 100,000 students of VNU-HCM. Fourth, the responses are self-reported, rather than the actual purchase at a real shopping situation.

Future research can investigate green gap with a specific type of product, conduct in a different context or extend the sample size to observe the variation of the outcome. In terms of research design, incorporating other self-driven psyche variables or elaborating on the mediating effect of Implementation intention are also potential research directions.

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APPENDIX

Table 1: Respondent Demographics

Categories	Outcomes	Respondents	Percentage (%)
Gender	Male	106	45.49
	Female	127	54.51
Age	From 18 to 23 years old	217	93.13
	From 24 to 29 years old	14	6.01
	From 30 years old and above	2	0.86
University	University of Technology (VNU-HCM)	27	11.59
	University of Information Technology (VNU-HCM)	32	13.73
	University of Science (VNU-HCM)	29	12.45
	University of Social Sciences and Humanities (VNU-HCM)	35	15.02
	University of Economics and Law (VNU-HCM)	31	13.30
	International University (VNU-HCM)	79	33.91
School year	Bachelor_1st year	18	7.73
	Bachelor_2nd year	35	15.02
	Bachelor_3rd year	34	14.59
	Bachelor_4th year	126	54.08
	Above Bachelor_4th year	20	8.58
Total		**233**	**100.00**

Source: The Authors.

Table 2: Reliability and Convergent Validity of Latent Cconstructs

Constructs Thresholds	Code	Factor loading ≥ 0.708	Cronbach's alpha	rho_A	CR [0.7;0.95]	AVE ≥ 0.5	R-squared
Action self-efficacy			0.69	0.71	0.86	0.76	
	ASE1	0.90					
	ASE2	0.84					
Coping self-efficacy			0.7	0.75	0.87	0.77	
	CSE1	0.92					
	CSE2	0.83					
Green purchase behavior			0.78	0.79	0.87	0.7	0.55
	GPB5	0.84					
	GPB7	0.82					
	GPB8	0.84					
Green purchase intention			0.71	0.74	0.83	0.62	
	GPI1	0.72					
	GPI2	0.82					
	GPI3	0.82					
Implementation intention			0.91	0.91	0.93	0.68	0.42
	II1	0.84					
	II2	0.83					
	II3	0.82					
	II4	0.79					
	II5	0.82					
	II6	0.85					

Notes: CR = Composite reliability, AVE = Average variance extracted.
Source: The Authors.

Table 3: Discriminant Validity (Fornell-Larcker Criterion)

Constructs		Fornell-Larcker Criterion				
		1	2	3	4	5
1	Action self-efficacy	0.87				
2	Coping self-efficacy	0.59	0.88			
3	Green purchase behavior	0.49	0.55	0.83		
4	Green purchase intention	0.36	0.37	0.57	0.79	
5	Implementation intention	0.53	0.52	0.66	0.53	0.83

Source: The Authors.

Table 4: Discriminant validity (Heterotrait-Monotrait Ratio)

Constructs		Heterotrait-Monotrait Ratio (HTMT)				
		1	2	3	4	5
1	Action self-efficacy	Criteria ≤ 0.85				
2	Coping self-efficacy	0.83	0.72	0.72	0.63	
3	Green purchase behavior	0.65	0.51	0.78		
4	Green purchase intention	0.52	0.64			
5	Implementation intention	0.67				

Source: The Authors.

Table 5: Results of Hypothesis Testing

Hypothesis	Relationship	Estimate	Effect size (f2)	Supported
H1	Green purchase intention -> Implementation intention	0.37***	0.183 (medium)	Yes
H2	Implementation intention -> Green purchase behavior	0.37***	0.17 (medium)	Yes
H3	Green purchase intention -> Green purchase behavior	0.26***	0.093 (small)	Yes

Note: *** *p*-value ≤ 0.001; ** *p*-value ≤ 0.01; * *p*-value ≤ 0.05.

Source: The Authors

Table 6: Result of Moderation Effect H1a

Hypothesis	Relationship	Estimate	Effect size (f^2)	Moderating effect
H1a	Green purchase intention -> Implementation intention	0.37***	0.183 (medium)	No
	Action self-efficacy -> Implementation intention	0.38***	0.217 (medium)	
	Moderation effect -> Implementation intention	-0.04	0.004 (no effect)	

Note 1: Moderating effect = (Green purchase intention) x (Action self-efficacy)

Note 2: *** *p*-value ≤ 0.001; ** *p*-value ≤ 0.01; * *p*-value ≤ 0.05.

Source: The Authors.

Table 7: Result of Moderation Effect H2a

Hypothesis	Relationship	Estimate	Effect size (f^2)	Moderating effect
H2a	Implementation intention -> Green purchase behavior	0.37***	0.17 (medium)	No
	Coping self-efficacy -> Green purchase behavior	0.23***	0.067 (small)	
	Moderation effect -> Green purchase behavior	-0.06	0.005 (no effect)	

Note 1: Moderating effect = (Implementation intention) x (Coping self-efficacy)

Note 2: *** p-value ≤ 0.001; ** p-value ≤ 0.01; * p-value ≤ 0.05.

Source: The Authors.

Table 8: Result of Moderation Effect H3a

Hypothesis	Relationship	Estimate	Effect size (f^2)	Moderating effect
H3a	Green purchase intention -> Green purchase behavior	0.26***	0.093 (small)	No
	Action self-efficacy -> Green purchase behavior	0.06	0.004 (no effect)	
	Moderation effect -> Green purchase behavior	0.07	0.009 (no effect)	

Note 1: Moderating effect = (Green purchase intention) x (Action self-efficacy)

Note 2: *** p-value ≤ 0.001; ** p-value ≤ 0.01; * p-value ≤ 0.05.

Source: The Authors.

Table 9: Result of Moderation Effect H3b

Hypothesis	Relationship	Estimate	Effect size (f2)	Moderating effect
H3b	Green purchase intention -> Green purchase behavior	0.26***	0.093 (small)	No
	Coping self-efficacy -> Green purchase behavior	0.23***	0.067 (small)	
	Moderating effect -> Green purchase behavior	-0.04	0.002 (no effect)	

Note 1: Moderating effect = (Green purchase intention) x (Coping self-efficacy)

Note 2: *** *p*-value ≤ 0.001; ** *p*-value ≤ 0.01; * *p*-value ≤ 0.05.

Source: The Author.

Measurement Scale

CONSTRUCT	VARCODE	ITEM
Green Purchase Intention (Chan, 2001; Chekima et al., 2015; Tawde et al., 2023)	GPI1	I will consider buying green products because they are less polluting.
	GPI2	If I ever need to switch from the existing products' type/ brand to another format, I would switch for ecological reasons.
	GPI3	For my next purchase, I plan to switch to a green version available.
Green Purchase Behavior (Sudbury-Riley & Kohlbacher, 2016; Tawde et al., 2023)	GPB1	Whenever there is a choice and information available, I would select a green product that contributes to the least amount of environmental damage.
	GPB2	I don't mind switching to green products due to environmental reasons.
	GPB3	If I understand the potential damage the products can cause to the environment, I would consider not purchasing them.
	GPB4	If I understand that products are harmful to the environment, I won't buy them.
	GPB5	I don't mind paying a slight premium for green products even when regular-priced products are available for buying.
	GPB6	I do not buy a product if I understand that the company selling it is environmentally irresponsible.
	GPB7	I purchase green products if I know they are less damaging to the environment, regardless of their price.
	GPB8	I make every possible effort to purchase ecologically safe products.

Measurement Scale

CONSTRUCT	VARCODE	ITEM
Implementation Intention (Dholakia et al., 2007; Gollwitzer, 1999; Tawde et al., 2023)	II1	I have a plan in mind for the next visit to the store to buy green products
	II2	When I next go for a product purchase, I will pursue my plan to buy green products
	II3	The strength of my actual plan to buy green products is strong
	II4	My actual intention to rigorously search and buy green products is strong
	II5	I have a plan of action to buy green products on my next visit
	II6	The plan I have made to buy green products can be considered to be complete
Action Self-efficacy (Schwarzer & Renner, 2000; Tawde et al., 2023)	ASE1	I can manage to stick to my aim to buy green products even if I have to make a well-charted detailed plan
	ASE2	I can manage to stick to my aim to buy green products even if I have to rethink my way of buying and procuring 'green products' decision
Coping Self-efficacy (Schwarzer & Renner, 2000; Tawde et al., 2023)	CSE1	I can manage to stick to the intention of buying green products even if I have to persevere and try several ways until it works
	CSE2	I can manage to stick to the intention of buying green products even if I need a long time to develop the necessary routines that would contribute to supporting actions for buying green products.
	CSE3	I can manage to stick to the intention of buying green products even if I do not receive a great deal of support from others when making my first attempts.