



Effects of Drivers and Barriers to Switching Behavioral Intention of Young People in using Bioplastic in Ho Chi Minh City.

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Abstract. The study investigates the factors that influence consumer bioplastic consumption behavior. The authors collected data through online survey (N=220). Smart PLS 4.0.9.2 was used to evaluate the measurement model and linear structural model. The research findings reveal that barrier factors, such as price consciousness and Perceived risk, have a negative impact on consumer attitude towards bioplastic. This indicates that consumers are aware of the cost barriers associated with using bioplastic. Drivers' factors include perceived value, green perceived value, creativity, and electronic word-of-mouth (eWOM), have a positive impact on attitude. Consumers will be more interested and willing to use bioplastic products as new, unique, and environmental friendliness. It can lead to an intention to switch from conventional plastics to eco-friendly bioplastic.

Keywords: Barriers, Bioplastic, Drivers, Switching Behavioral Intention.

1 Introduction

1.1 Research Context

Humans are having to deal with issues related to environmental pollution and its serious consequences for life. Compared to traditional plastics made from fossil fuels, bioplastic are an environmentally friendly alternative. They can biodegrade or decompose without harming the environment. The widespread use of social media leads to a wider spread of the usefulness and diversity of bioplastic, thereby generating interest in products with bioplastic origins, attracting attention and creating positive changes in awareness and behavior towards the environment.

There have been many studies on consumers, especially in the field of Green and sustainable consumption. However, there have not been many in-depth studies on consumer reactions to bioplastic products. Specifically, research on barriers and drivers has not been extensively studied. Barriers are mentioned but their impact has not been deeply explored (Edina Findrik and colleagues, 2023). In addition, there is still a

lack of research exploring specific factors explaining the attitude-behavior gap leading to green purchasing behavior (Kumar et al., 2019; Panda et al., 2020; Prakash and Pathak, 2017).

According to the study by H Pang (2020), attitude and satisfaction play a moderating role in the relationships between perceived value and electronic Word of Mouth (eWOM) participation. Cantalops et al. (2014) mentioned the influence of electronic Word of Mouth (eWOM) on the hotel industry. The studies by Z Khan et al. (2023) and M. Albayrak et al. (2021) show that electronic Word of Mouth (eWOM) influences purchase intention and brand value, while also examining the mediating role of brand value between eWOM and consumer purchase intention. However, most of these studies do not address the relationship between electronic Word of Mouth and attitude, intention to change customer behavior. Therefore, to promote research in Vietnam and specifically in Ho Chi Minh City, and to gain a deeper understanding of bioplastic products, the authors have chosen the topic: "EFFECTS OF DRIVERS AND BARRIERS TO SWITCHING BEHAVIORAL INTENTION OF YOUNG PEOPLE IN USING BIOPLASTIC IN HO CHI MINH CITY.". The research aims to overcome barriers and enhance driver for the widespread use of bioplastic among young people in particular and all generations in general in restoring the environment and building a healthy living environment.

1.2 Research Subject and Research Scope

1.2.1. Research Subject

Barriers, drivers, and intentions to change the behavior of using bioplastic products among young people in Ho Chi Minh City.

1.2.2. Scope of Research

The topic was carried out through practical research in the area of Ho Chi Minh City.

1.3 Research Objective

Objective 1: Determine the relationship between drivers factors, barriers to attitude, electronic word-of-mouth behavior, and intention to change behavior in using bioplastic products among young people in Ho Chi Minh City.

Objective 2: Verify the relationship and evaluate the level of influence of drivers factors, barriers to attitude, electronic word-of-mouth behavior, and intention to change behavior in using bioplastic products among young people in Ho Chi Minh City.

Objective 3: Provide management implications for manufacturers of bioplastic products in particular and environmentally friendly products in general, in renewing Green management strategies, strengthening supply chains, promoting the intention to change consumer behavior towards green products, and aiming for sustainable development.

2 Literature review and Research model

2.1 Basic Concepts

2.1.1. Bioplastic

Products made from bioplastic are described as green products, providing alternatives to products made from non-recyclable raw materials (Reinders, Onwezen, and Meeusen, 2017). Research by Jenkins et al. (2016), Russo et al. (2019) indicates that bioplastic are a green innovation because they are biodegradable or even compostable in a rational environment. Products made from bioplastic are described as green products, providing alternatives to products made from non-recyclable raw materials (Reinders, Onwezen, and Meeusen, 2017). Research by Jenkins et al. (2016), Russo et al. (2019) indicates that bioplastic are a green innovation because they are biodegradable or even compostable in a rational environment.

2.1.2. Barriers

In the context in Vietnam and Ho Chi Minh City in particular, the research team identified two main barrier variables: risk perception and price awareness. Firstly, according to research by Atiwesh et al. (2021), bioplastic is known as a new alternative material to conventional plastics. However, this means that consumers' knowledge of bioplastic can also be limited and potentially pose a level of risk when used. As Chen and Kuo (2017) define: the level of uncertainty and unpredictability associated with innovation is called the risk barrier. Secondly, consumers are not only worried about the safety and quality of products, they are also concerned about the price of bioplastic products. It is a fact that perceived price can greatly influence the perception of service quality and satisfaction (Zeithaml, Bitner, 1988). There have been many studies that have found that higher prices of green products (eco-friendly bioplastic products) act as a major purchasing barrier (Barber, Bishop, and Gruen, 2014; Liobikienė et al. (2017)). Research by Jessica Aschemann-Witzel and Stephan Zielke (2015) also shows that price is the main barrier to purchase.

2.1.3. Drivers

In this paper, driver is the positive factors driving consumer behavior of using bioplastic products. Specifically, the perception of green value about the environment, the creativity of products and the value consumers receive. First, for the perceived factor, green values demonstrate concern for the environment. Antonetti and Maklan (2014); Leary et al. (2014), consumers are more likely to engage in a particular behavior if they believe it will make a difference and contribute to environmental sustainability. In addition to green motivation, a study by Gupta and Ogden (2009) showed that consumers' interest in finding new products contributes to buying green products because customers perceive green products as distinct from non-green products. This supports creativity that is involved in factors influencing consumer behavior. Following on from earlier views, consumers' drivers to seek novel products may

be a key factor in predicting environmentally sustainable product buying behavior, as stated in a study by Choi and Johnson (2019).

2.1.4. Switching Behavioral Intension

Intention is said to acquire aspects that influence behavior and actions (Ajzen, 1991). Following the theory of self-homogeneity (Ajzen, I., 1985) and the theory of consumer value (Sheth et al, 1991) translated into the context of green products and bioplastic allows us to visualize how consumer behavior towards bioplastic is influenced by factors related to the consumer's self-image. Based on a general rule, the greater the intention to engage in a behavior, the higher the likelihood of engaging in that behavior (Confente et al., 2020). In a study by Ilenia Confente et al. (2020), it was hypothesized that when consumers feel a stronger sense of green identity, they will feel positive value from bioplastic products and vice versa. This leads to the intention to switch to using them in the future.

2.1.5. Perceived value

Each person will have different opinions about the importance and evaluation of the value of a product or service. Therefore, when it comes to perceived value, this also implies that it is perceived value. Perceived value is a consumer's overall assessment of the benefits of a product or service based on what they receive and what they pay (Zeithaml, 1988). For the field of using green products, there exist many different analytical angles on perceived value factors. Perceived value is the main factor influencing users' preferences about green products more than traditional products (Lin and Huang, 2012). Khan and Mohsin argue that the value received has an impact on consumer behavior towards green products. For the research topic on the behavior of using bioplastic products, the perceived value becomes one of the factors that have a positive influence on attitudes, thereby leading to consumer buying behavior. Therefore, we hypothesize as follows:

H1: Perceived value has a positive influence on attitude

2.1.6. Creativity

Consumer creativity is an important factor driving the adoption of environmentally friendly innovative products (Tellis et al., 2009; Englis and Phillips, 2013). In addition, Scherer et al. (2017) also found that ecologically sensitive consumers tend to be more creative than conventional plastic consumers. Therefore, it seems that individual interest in innovation has a positive influence on attitudes about shopping behavior for green products. We assume that this may also be the case for bioplastic products.

H2: Creativity has a positive influence on attitude

2.1.7. Green Perceived Value

Haws et al. (2014) found evidence for a correlation between the values of green consumers and participants' intentions to procure ecological products. Through the development of research scales for environmental attitudes and values. In particular, bio-

plastic have two advantages: reducing carbon emissions during production and increasing resource efficiency with continuous decomposition of microorganisms (Rahman and Bhoi, 2021). This means that increasing consumer awareness of the environmental benefits of biodegradable bioplastic compared to conventional petroleum-based plastics is of fundamental importance to increase the market for these products (Morone et al., 2021). Therefore, the assumption is that the value of green consumers will also influence attitudes towards biological products.

H3: Green perceived value has a positive influence on attitude

2.1.8. Price consciousness

Price is an important criterion that affects green shopping behavior. During the transition, switching cost is one of the factors influencing conversion intent (G. Ahmetoglu, A. Furnham and P. Fagan, 2014; Kmar and Sathish., 2011). A sense of price negatively affects purchasing green products (Van Doorn and Verhoef., 2015). Benzawada and Pauwels (2013) also show that green products are often more expensive than traditional ones. As the green consumption trend is growing strongly, consumers have gradually changed their mind about choosing environmentally friendly products, especially products made from bioplastic —common household items. However, large price differences can create many obstacles for users to change their usage behavior.

H4: Price consciousness has a negative influence on attitude

2.1.9. Perceived risk

Perceived risk is associated with negative attitudes and high levels of uncertainty. Therefore, risk perceptions often negatively influence purchasing decisions (Mitchell, 1992; Peter and Ryan, 1976; Stone and Gronhaug, 1993). For products which are reproduced and/or process-derived, improved materials such as bioplastic suggest that consumers tend not to accept them because they perceive the level of risk inherent in purchasing for themselves (Chen and Chang, 2012; Wang and Hazen, 2016). Risk can arise for a variety of reasons, including safety, quality and performance risks. Consumers still have many barriers in choosing to use bioplastic compared to other conventional products. This is demonstrated by Wang and Hazen (2016) for products of friendly, sustainable origin, including bioplastic.

H5: Perceived risk has a negative influence on attitude

2.1.10. Electronic word-of-mouth (eWOM)

According to Nuria Hue-Alcocer (2017), electronic word of mouth (eWOM) is an online form of evaluation and comment, capable of spreading if the message is convincing enough. Electronic word of mouth can influence a customer's attitude to a product or service. (Wang, 2015 and Camilleri et al, 2022). Social networks are growing strongly and have an impact on consumer decisions and intention to change their behavior using a product or service. A study by A. Banterle et al. (2012) shows that consumers are concerned about the need for information about sustainability, recyclability and reusability of packaging. Moreover, they are also interested in more information about products, especially green, environmentally friendly products. bioplastic

are not such a new product, but they are not very popular to consumers, so it is reasonable that electronic word of mouth (eWOM) can influence attitudes based on an individual's trust in a certain source of information (Yang and Yoo, 2004). Through the media, electronic word of mouth will have a positive impact on attitudes and intentions to switch usage behavior from conventional plastic to bioplastic.

H6: eWOM has a positive influence on attitude

2.1.11. Attitude

Attitude is the amount of emotion of a person to an object (Thurstone, 1931), a state of mental readiness to respond, shape and shape through experience, which has a direct effect on behavior. Positive attitudes will have a positive impact on environmental protection (Hirsh, 2010) and the intention of using bioplastic. (Kainz, 2016; Scherer et al., 2018). According to Casaló et al (2011), attitudes are the basis for predicting or explaining different behaviors about consumer choices. There are many studies on consumer behavior, including purchasing intention (Cheung and Thadani., 2012; Wang et al., 2012), searching intention (Lee Qu and Kim., 2007), using intention (Munoz - Levia, Hernandez - Mendez and Sanchez-Fernandez, 2012) and switching intention to use bioplastic. (Taofeeq D. Moshood et al, 2022). The relationship between a sense of quality of service affects a customer's attitude to satisfaction and this attitude affects the intention to change a consumer's usage behavior to a specific product or service. (Cronin, J. and Taylor, S., 1992).

H7: Attitude has a positive influence on switching behavioral intention

2.2 Research Model

The Hierarchy of Effects Theory (HET) from Lavidge and Steiner (1961) describes a model in which consumer decisions are influenced by drivers or barriers to a particular product or service. According to Lavidge and Steiner (1961), "consumer reactions" include perception, knowledge, preference, persuasion, and purchasing decisions. The theory of planned behavior (TPB) is a cognitive theory by Ajzen (1991). It is an extension of the theory of reasoned action - TRA (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975). TPB is a popular theory for explaining human behavior, with three central components, including attitude, subjective norms, and perceptual behavioral control. In environmental issues, interest in TPB Theory has increased (Grilli and Notaro, 2019), as it has proven sufficient for the interpretation of environmentally friendly behaviour (Kaiser and Scheuthle 2003; López-Mosquera and Sánchez 2012). On that basis, the authors proposed a research model consisting of seven independent variables, one intermediate variable and one dependent variable as follows:

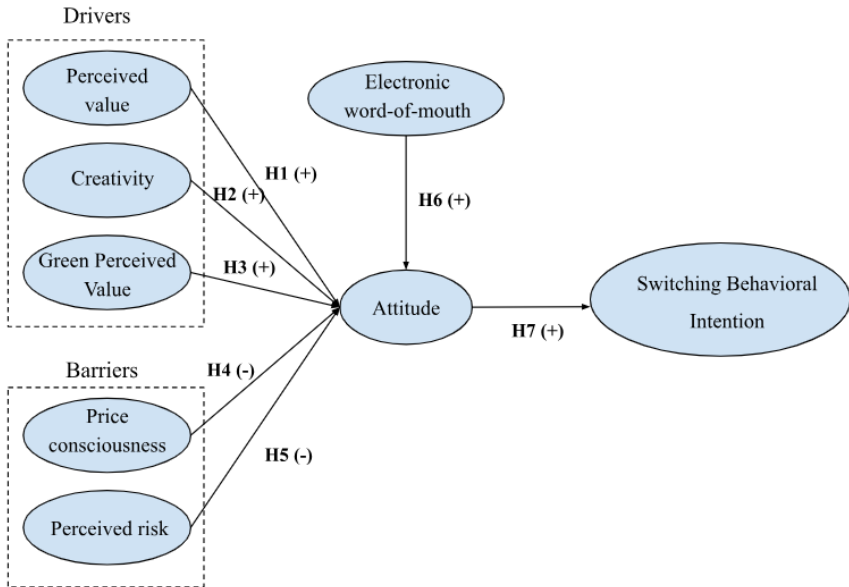


Fig. 1. Research model

3 Research method

3.1 Preliminary Research Aims to Build a Scale to Measure Concepts in Research

The research was conducted in two main stages: preliminary research (including preliminary qualitative research and preliminary quantitative research) and formal quantitative research. The preliminary qualitative research was carried out by designing a draft questionnaire and consulting with lecturers to refine it. Subsequently, five bioplastic consumers who had made at least one purchase were directly interviewed to supplement and adjust the measurement variables. The preliminary quantitative research was conducted by directly interviewing 100 bioplastic consumers to evaluate the quality of the scale, ensure the coherence and consistency of the questionnaire, and adjust the question content. Quantitative method is the primary research method employed in this study. The scales were adapted from relevant previous studies. The target respondents are young people residing and working in Ho Chi Minh City, aged 15-30, who are aware of and intend to use or change their behavior toward using bioplastic products in Ho Chi Minh City.

The survey will be administered in the form of Google Forms to ensure convenience, accessibility, and reach a wider audience. Additionally, the survey will be distributed through various social media channels such as Facebook, Zalo, Messenger, Email,

Instagram, and soon. The questionnaire was designed on a 5-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree for the statements.

3.2 Sampling

Formal data collection was achieved solely through a survey sample distributed via Google Forms. This method ensured convenience and accessibility for the target respondents, who were students and working professionals residing in Ho Chi Minh City. To maximize reach, the survey was disseminated through various popular applications, including Facebook, Zalo, Messenger, Email and Instagram. A detailed description of the research sample characteristics follows:

Table 1. Statistical results of the study sample

GENDER	n	%	AGE	n	%
Male	137	55,4	15-17	54	24.5
Female	83	44,6	18-22	73	33.2
			23-30	93	42.3
EDUCATION LEVEL	n	%	BUDGET	n	%
High school	15	6.8	Under 3 millions	39	17.7
University/College	58	26.4	3-5 millions	53	24.1
Graduated	15	6.8	5-10 millions	80	36.4
Working	86	39.1	Above 10 million	48	21.8

(Source: Compiled by the authors)

4 Results and Discussions

4.1 Formal Research Using Quantitative Methods

4.1.1. Evaluate the Measurement Scales

4.1.1.1. Evaluate Reliability

The results of evaluating the scale quality using SPSS 26 software with Cronbach's Alpha, the authors removed the observed variables CN3 "I am afraid that the quality and performance of remanufactured product would cause indirect economic loss", GT1 "This chair appears to have consistent quality", CP4 "I generally strive to buy products at the lowest price", and IN3 "I am determined to switch to a bioplastic chair" from the model because Cronbach's Alpha if item deleted indices were higher than the Cronbach's Alpha of the latent variable. Additionally, the Corrected Item-Total Correlation indices of these observed variables were all greater than the required threshold of 0.3. Notably, the variable Creativity (ST) had a Cronbach's Alpha coefficient of 0.331, which did not meet the required threshold of 0.7 (Trong et al., 2008). Therefore, the authors excluded the ST variable from the research model.

Analysis with SMART PLS4 software showed that all observable variables had loadings above 0.7, with NT4 having the smallest loading of 0.709 and IN2 the largest at 0.925. This confirmed that the observable variables were of high quality and connected well with the latent variables, justifying the retention of NT4 and IN2.

The composite reliability of the scale was then assessed using the CR coefficient. According to Chin (1998), CR should be 0.6 or higher. However, Henseler and Sarstedt (2013) suggest that a threshold of 0.7 is the appropriate level for the CR index. with the lowest being 0.646 for the "eWOM" variable (TM) and the highest being 0.845 for the "Price Consciousness" variable (CP).

4.1.1.2. Evaluate Convergent Validity.

Convergent validity is assessed through the Average Variance Extracted (AVE) index. According to Hock and Ringle (2010), a scale is considered convergent when the AVE value is greater than 0.5. The 0.5 threshold indicates that the latent variable will explain at least 50% of the variance of the observed variables. The total AVE values are approximately or greater than 0.5 (Fornell and Larcker, 1981). Specifically, two factors with the smallest indices are green perceived value and electronic word-of-mouth, with AVE values of approximately 0.5, at 0.498 and 0.478, respectively. Therefore, the scale from the observed variables still meets the requirements for reliability and convergent validity.

4.1.1.3. Evaluate Discriminant Value

Regarding the HTMT index, Garson (2016) suggests that the relationship between two latent variables is ensured when the HTMT index is less than 1. Clark and Watson (1995) and Kline (2015) use a stricter threshold of 0.85. If the HTMT is greater than 0.9, it does not achieve discriminant validity. Most of the observed variables have HTMT indices smaller than 0.9. Although the impact of the NT (Green Perceived Value) variable on GT (Received Value) is greater than 0.9, it is still within the acceptable range. Therefore, the authors decided to retain the variable and continue to include it in the next step of the analysis.

4.1.1.4. Testing Research Hypotheses

The results of the SEM structural model are described in Table 2, where the path

coefficients and the explanatory power of the constructs were examined. The authors assessed the significance of all paths through bootstrapping 5000 times. Among all the structural paths, Table 2 shows that all hypotheses H1, H3, H4, H5, H6, and H7 are statistically significant with a p-value < 0.05.

Table 2. Results of multivariate regression bootstrapping with 5000 samples

	Standardized coefficients beta	Standard deviation	T statistics	Sig	Result
CN -> TD	-0.207	0.067	3.097	0.002	Agree
CP -> TD	-0.103	0.047	2.192	0.028	Agree
GT -> TD	0.187	0.066	2.814	0.005	Agree
NT -> TD	0.369	0.082	4.481	0.000	Agree
TD -> IN	0.578	0.057	10.102	0.000	Agree
TM -> TD	0.524	0.076	6.859	0.000	Agree

(Result from Smart PLS Software)

CN: Perceived risk; CP: Price consciousness; GT: Perceived value; NT: Green Perceived Value; TD: Attitude; TM: eWOM; IN: Switching Behavioral Intention.

Table 3 shows the results of the total effect evaluation of the research model. Out of the 11 total effects, 8 were accepted at a 1% statistical significance level. Among these, 3 total effects were accepted at a 10% statistical significance level.

Table 3. Result of the total effect evaluation

	Standardized coefficients beta	Standard deviation	T statistics	Sig	Result
CN -> IN	-0.120	0.037	3.205	0.001	Agree

CN -> TD	-0.207	0.067	3.097	0.002	Agree
CP -> IN	-0.060	0.027	2.191	0.028	Agree
CP -> TD	-0.103	0.047	2.192	0.028	Agree
GT -> IN	0.108	0.042	2.578	0.010	Agree
GT -> TD	0.187	0.066	2.814	0.005	Agree
NT -> IN	0.213	0.051	4.185	0.000	Agree
NT -> TD	0.369	0.082	4.481	0.000	Agree
TD -> IN	0.578	0.057	10.102	0.000	Agree
TM -> IN	0.303	0.049	6.144	0.000	Agree
TM -> TD	0.524	0.076	6.859	0.000	Agree

(Result from SmartPLS Software)

CN: Perceived risk; CP: Price consciousness; GT: Perceived value; NT: Green Perceived Value; TD: Attitude; TM: eWOM; IN: Switching Behavioral Intention.

The path coefficients are illustrated in the structural model through Figure 2. The variables GT1: "bioplastic appears to have consistent quality" CN3: I am afraid that the quality and performance of bioplastic product would cause indirect economic loss." CP4: "I am concerned that the after-sales service and quality are not as good as conventional plastic products, causing me to lose time dealing with repairs, exchanges, or refunds," and IN3: "I am determined to switch to a bioplastic chair" along with the Creativity (ST) variable, were removed to ensure the reliability and validity of the model.

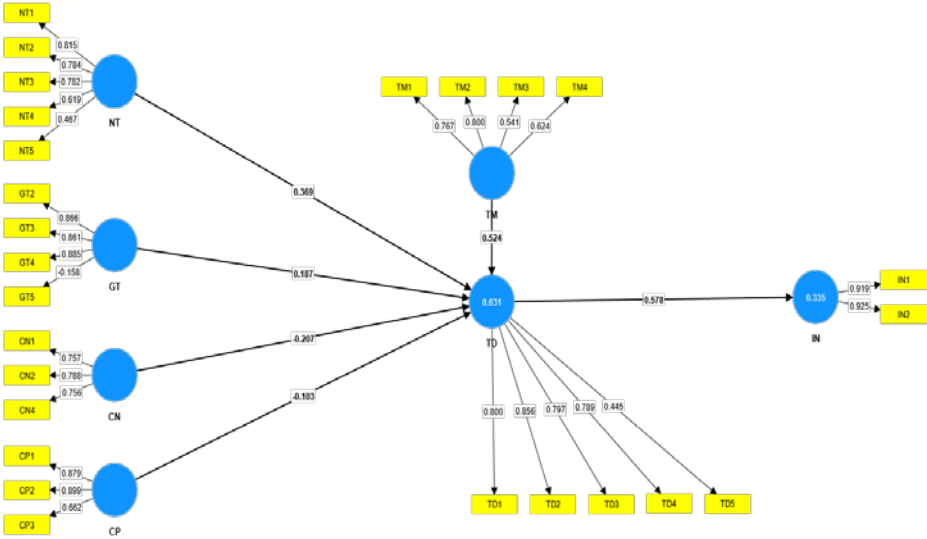


Fig. 2. The research model after validation with SmartPLS.

5 Conclusion

5.1 Conclusion

Empirical findings of this study align with previous research regarding the hypotheses in the research model. The analysis reveals a negative influence of Risk Perception on Attitude. This implies that when consumers perceive the potential risks associated with bioplastic, such as safety concerns, quality issues, or performance limitations, their attitude towards bioplastic becomes unfavorable. Similarly, Price Perception exerts a negative influence on Attitude. Conversely, Perceived Value demonstrates a positive influence on Attitude. In line with Morone et al. (2021), Scherer et al. (2017), the study results further indicate a positive impact of Green Consumer Value on Attitude towards bioplastic. This suggests that promoting and raising consumer awareness about the environmental benefits of bioplastic can attract interest and drive wider adoption in daily life. Consistent with previous studies (Kainz, 2016; Scherer et al., 2018; Taofeeq D. Moshood et al., 2022), Attitude exerts a direct and positive influence on Intention to Change Bioplastic Usage Behavior. Finally, the study findings support the hypotheses regarding the role of Electronic Word-of-Mouth (eWOM). This suggests that positive information about the environmental aspects of bioplastic disseminated through social media and online forums can shape consumer perceptions and influence their intention to adopt bioplastic over conventional plastics.

5.2 Recommendation

From an academic perspective, numerous studies have examined the intention to use environmentally friendly products (Nguyen Han Khanh and Nguyen Thi Thanh Nhung, 2023; Pham Thu Huong and Tran Minh Thu, 2019; Doan Thi Thu Trang et al., 2023) or the intention to purchase bioplastic products (Edina Findrik and Oliver Meixner, 2023; Henia Confentea and Daniele Scarpi and Ivan Russo, 2020; Florian Klein et al., 2019). However, research on the barriers and drivers influencing young consumers' intention to change bioplastic usage behavior through electronic word-of-mouth (eWOM) in Ho Chi Minh City has been relatively limited. This study contributes to the generalizability of theories related to consumer intention - consumer behavior - intention to change consumer behavior (TPB, HET) when applied in the context of Vietnam, a developing country with a low income compared to the world, and more specifically in Ho Chi Minh City. The study demonstrates that the proposed model is applicable to both developed and developing countries, as well as countries with high and low-middle incomes. Therefore, in theoretical terms, the study provides new research references and directions for future studies in Vietnam and Ho Chi Minh City, particularly in the area of green growth and green consumption, which are global trends.

In practical terms, the data-driven conclusions reveal the relationships between barriers, drivers, eWOM, attitude, and intention to change behavior among young consumers in Ho Chi Minh City. The study aims to provide managers with appropriate recommendations and suggestions to address the limitations and barriers that hinder consumer intention to use bioplastic, while also leveraging the advantages and drivers that promote a change in consumer usage behavior. This can be achieved through concrete actions such as: innovating green management strategies and supply chains related to bioplastic product consumption in Ho Chi Minh City and neighboring areas, enhancing green perceived value, and promoting green consumption. Ultimately, these efforts contribute to sustainable development, ensuring social responsibility and responsibility to consumers.

5.3 Limitations

This study was conducted in Ho Chi Minh City (HCMC) using a convenience sampling method. However, due to resource constraints, the survey was only administered within the central districts of HCMC. Therefore, the research findings may not be generalizable to other contexts.

Moreover, the study focused exclusively on young consumers aged 15-30 residing, studying, and working in HCMC. Consequently, the data sample can only represent a typical region and a typical consumer group, not the intention to change bioplastic usage behavior of all consumers in HCMC, Vietnam, or the world.

Numerous factors influence behavioral change intentions in general, and the intention to purchase bioplastic products specifically (according to the Theory of Planned Behavior (TPB) and the Hierarchy of Effects Model (HET)). This research only selected a limited set of factors that were of interest to the authors for investigation. Hence, the

research findings are somewhat limited and do not fully represent all potential influencing factors. Notably, young consumers' intention to change their bioplastic usage behavior may be influenced by additional factors such as decision-making time, personal image, and product design diversity.

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