WHY YOUNG CONSUMERS SWITCH TO BIODEGRADABLE PLASTIC CONSUMPTION? THE MODERATING EFFECT OF ENVIRONMENTAL CONCERN

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Abstract. Plastic is one of the materials that we can find in almost every item. Plastic can take hundreds of years to decompose, causing widespread, long-lasting damage to ecosystems through plastic pollution. The effectiveness of biodegradable plastics as a key innovation in the global effort to curb plastic pollution and avoid resource waste has not yet reached its optimal level. The purpose of this study is to examine the influence of attitude, environmental knowledge, and perceived value on the switching intention of synthetic to biodegradable plastic among the young consumers in Negeri Sembilan. The second objective is to examine the moderating effect of environmental concern on the proposed relationships. The researchers distributed the questionnaire to 384 respondents. The sample was selected using two sampling techniques: cluster sampling and purposive sampling. The final data of 250 surveys were analysed using the SEM-CB method. The findings reveal significant relationships between attitude, environmental knowledge, perceived value, and switching intention. Next, environmental concerns significantly moderate the relationships between the independent variables and the dependent variable. Therefore, public awareness is essential, and schools and educational institutions can play a role in teaching the younger generation about environmental values and steps to preserve nature.
Keywords: *attitude, environmental knowledge, perceived value, environmental concern, switching intention*

Introduction

Plastic materials are widely used in a range of products, from food and beverage packaging to shopping bags and household appliances (Kumar et al., 2023). When no longer used, products made from these plastic materials can accumulate and become garbage everywhere. The widespread use of plastic in Malaysia has raised concerns from various parties. Malaysia is the second-largest contributor to plastic pollution in Asia (Kumar et al., 2025). Society often uses plastic when shopping for kitchen goods and when dining out, including straws and plastic packaging. Even more regrettable, these plastics are then thrown into the wrong channels, polluting the environment and disrupting habitats on land and in the ocean (Moshood et al., 2022). When consumed by sea animals, this poison can also enter the human body when the sea animals are processed and consumed. Another impact of plastic waste is soil pollution (Afshar et al., 2024). Microplastic particles, heavy metals, and chemical substances produced during plastic decomposition can enter the soil layer and adhere to plants growing in it, such as vegetables and fruits (Kumar et al., 2023). When these vegetables and fruits are consumed by humans, the risk of various types of diseases can increase (Moshood et al., 2022). The open burning of plastic waste can cause air pollution (Afshar et al., 2024). This is due to the presence of microplastic particles, heavy metals such as cadmium and

lead, and polychlorinated biphenyls that escape into the air and pollute it (Haq et al., 2025).

To overcome this challenge, biodegradable plastics have been introduced as a more environmentally friendly option. This type of plastic differs from conventional plastics because it can be broken down by microorganisms into simple compounds that can be absorbed or reintegrated into the natural environment without polluting the ecosystem (Mangal et al., 2023). Biodegradable plastics are produced from various polymers and can be categorized into three main groups: natural, semi-synthetic, and synthetic (Moshood et al., 2023). Natural polymers are obtained directly from nature, such as cellulose and starch from plants, as well as chitosan (Kumar et al., 2023). Semi-synthetic polymers are produced from natural raw materials that are chemically processed. Synthetic polymers, on the other hand, use raw materials derived from petroleum, such as poly(butylene succinate) (PBS) and polycaprolactone (PCL) (Haq et al., 2025). Malaysia has made strides in implementing biodegradable plastics. However, implementation is still limited due to a lack of facilities, weak enforcement policies, and consumer confusion (Sulaiman et al., 2025). Most biodegradable plastics require aerobic composting conditions to decompose effectively, yet Malaysia still lacks large-scale industrial composting facilities (Abu Bakar et al., 2025). In fact, biodegradable plastic waste is often mixed with conventional waste. Among the strategies that can be implemented are the expansion of composting facilities in major cities and industrial zones, QR code labelling on biodegradable plastics that can be scanned to indicate the correct disposal method (e.g., compost, soil, or not recycled), and collaboration between local authorities, waste management companies, and mills to establish a special collection system for biodegradable products (Mangal et al., 2023; Moshood et al., 2022).

To date, Malaysia does not have a national standard to regulate the “biodegradable” label. This has led to products that are only partially biodegradable being labelled as biodegradable, causing confusion among consumers (Abu Bakar et al., 2025). From the perspective of education and consumer awareness, many consumers remain confused about the terms “biodegradable”, “biobased”, and “compostable”, leading them to misuse or improperly dispose of biodegradable plastics (Narayan, 2017). The price of biodegradable plastic remains higher than that of conventional plastic, limiting its adoption in industry (Kumar et al., 2023). This is because the raw materials and production processes of biodegradable plastics are more complex than those of conventional plastics, creating an obstacle for small- and medium-sized producers (Moshood et al., 2022). However, with increased regulation and greater awareness of sustainability, the prospects for biodegradable plastics are growing brighter. Some countries have implemented strict policies against single-use plastics and encourage the use of biodegradable alternatives. This trend is supported by increased research and innovation in the manufacture of more efficient, affordable biodegradable plastics. In addition, the circular economy concept is increasingly applied, with biodegradable plastic designed not only to decompose but also to be recycled and reused in various forms (Mangal et al., 2023).

Therefore, the purpose of this study is to examine the influence of attitude, environmental knowledge, and perceived value on the switching intention of synthetic to biodegradable plastic among the young consumers in Negeri Sembilan. The second objective is to examine the moderating effect of environmental concern on the proposed relationships. Despite the literature having been reviewed to investigate the utilisation of

green purchasing behaviour in Malaysia, lack of research has been conducted to determine the determinants of switching intention between synthetic and biodegradable plastics among young consumers in Negeri Sembilan. The differences in regional levels of awareness, access, and institutional facilitation can also shape young consumer behaviour, and there is a demand for location-specific empirical data. Gen Z are very concerned about climate change and the environment. Many of them admit to choosing brands that are committed to sustainability, even willing to pay more for environmentally friendly products (Gomes et al., 2023). Despite the high level of awareness, its implementation in real life still faces challenges. Many young people voice environmental issues on social media but are not entirely consistent in their daily practices (Ghouse et al., 2025). For example, they claim to be anti-plastic, but still order food with disposable packaging, and claim to support clean energy, but still prefer private transportation over public transportation. This is what is called green hypocrisy, where concern for the environment is limited to symbols, without real action. The young generation is the main key to saving the Earth. They not only inherited the climate crisis but also have the power to change the direction of the future (Ghouse et al., 2025). The right support from the surrounding environment, the education system, and access to practical solutions will speed up this transition. This aims to provide new insights for future policies, plans, and campaigns to increase people's awareness and concern about plastic issues. It should be noted that combating plastic pollution is the responsibility of all citizens, together with the government.

Literature review

An overview of biodegradable plastic

The Ministry of Natural Resources and Environmental Sustainability (NRES) has made the Malaysia Roadmap Towards Zero Single-Use Plastics 2018-2030 as the country's strategic guide in gradually reducing plastic pollution through various initiatives (Kumar et al., 2025). This effort can be achieved through public education, enforcement of existing laws, as well as support for plastic reduction and recycling initiatives at all levels of society. In addition, through the e-waste circular economy approach, the government is encouraging the recovery and recycling of valuable components such as copper, gold, and silver from used electrical appliances (Kumar et al., 2023). Plastic has become an integral part of modern life. From food packaging to industrial components, the use of plastic continues to increase as technology advances. The high demand for plastics motivates the plastics industry to continue developing its products, including technological innovations that offer environmentally friendly solutions (Narayan, 2017). One example of the solution is biodegradable plastic, which is designed to decompose naturally in certain environments. Biodegradable plastic is a type of plastic that can be naturally decomposed by microorganisms such as bacteria and fungi (Afshar et al., 2024). Unlike conventional plastics, which take hundreds of years to decompose, biodegradable plastics can decompose in months to several years, depending on environmental conditions and the materials used (Mangal et al., 2023). Biodegradable plastics are generally made from natural materials such as corn starch, sugar cane, or cassava (Abu Bakar et al., 2025). This plastic can decompose faster than ordinary plastic, reducing the accumulation of plastic waste in the ocean and on land (Moshood et al., 2022). Several factors affect plastic's biodegradability. One of the most important is the chemical structure of the plasticizer. Plastics with ester bonds are

known to be more readily broken down by microorganisms, so they degrade more easily (Abu Bakar et al., 2025). In addition, plastic crystallinity is also one of the factors. The higher the level of crystallinity, the more difficult it is for plastic to decompose. And the last is environmental factors, such as temperature, humidity, and the presence of microorganisms that play a role in plastic degradation (Moshood et al., 2022). The production process of biodegradable plastics tends to emit fewer carbon emissions than that of conventional plastics, because they are made from natural materials (Noor et al., 2023a). Biodegradable plastics can be combined with recycling and composting to create a more sustainable system (Sulaiman et al., 2025).

Value-Belief-Norm Theory (VBN)

Value-belief-norm (VBN) theory is one of the latest theories in environmental psychology to have received significant attention in the last decade. The theory has successfully described the dimensions of pro-environmental behaviour (Al Mamun et al., 2022). This theory has been used to model, explain, predict, and describe pro-environmental behaviour, as well as to determine sustainable behaviour (Chen, 2015). Value is a perceptual expression of consumers' most basic desires and goals and serves as an evaluation criterion when consumers decide on certain behaviors (Lee et al., 2023). People who adopt an ecocentric philosophy believe in the importance of ecosystems. They assess the importance of living and non-living components of ecosystems when making decisions about how to treat the environment. Individuals are seen as able to change outcomes through behaviour, and value is important for predicting environmentally friendly behaviour (Nguyen et al., 2026). Thus, this study predicts that environmental concern could strengthen the relationships between attitude, environmental knowledge, perceived value, and switching intention (*Figure 1*).

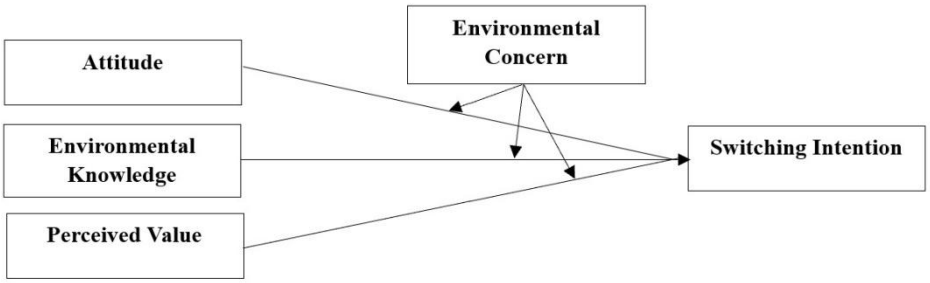

Figure 1. *Research model.*

Attitude and switching intention

Attitude refers to a person's view, feelings, and reactions towards a particular object, individual, or situation (Rozenkowska, 2023). This term is often used to describe the way a person sees and interacts with the world around them. Attitude can be positive or negative, and it is often influenced by experience, education, and social environment. An individual with a green attitude will pay closer attention to the sustainability of the natural environment (Moshood et al., 2023). Green attitudes are also related with environmentally responsible behaviours, environmental sustainability behaviours, environmentally friendly behaviours, and ecological behaviours. Nguyen and Hoa (2024) support the idea that environmental attitudes play an important role in forming the intention to purchase environmentally friendly products. Sinaga and Sitorus (2023)

also identified that environmental attitude is one of the antecedents formed by consumer evaluation of the salient results of the attitude. Filho et al. (2022) also revealed that environmental attitude, one of the specific pro-environmental factors, positively influences consumer purchase intentions. They are aware of the environment by minimizing the use of natural resources and personal property to reduce pollution and the volume of garbage generated. Thus, a green attitude will shift from using synthetic to biodegradable plastic (Mhaddolkar et al., 2024; Noor et al., 2023b). Based on the above discussion, the following hypothesis is posited:

H1: Attitude significantly influences young consumers to switch intention from synthetic plastics to biodegradable plastic consumption.

Knowledge and switching intention

The selection of biodegradable plastic packaging requires greater consumer understanding and awareness of proper waste disposal and management (Miguel et al., 2024; Farrukh et al., 2022). If consumers do not know how to dispose of biodegradable plastic correctly, then the environmental benefits of this product can be lost (Nazareth et al., 2022). Moreover, knowledge on the negative effects of synthetic plastics such as Bisphenol A (BPA), a chemical found in plastic bottles, has been linked to a variety of health problems, including cancer, neurological problems, female fertility problems, premature births, and birth defects could create public awareness to switch to biodegradable plastic packaging (Afshar et al., 2024). Therefore, educating consumers is crucial. The public needs to be made aware of the dangers of using common petroleum-derived plastics, which produce toxic substances when burned (Miguel et al., 2024). La Fuente et al. (2022) found that a lack of knowledge and awareness of the importance of biodegradable plastic can hinder the intention to use it. Various stakeholders have suggested that the government offers initiatives to make biodegradable materials more affordable, as people often evaluate the price of biodegradable plastic without clear knowledge of its long-term benefits (Nazareth et al., 2022). As a result, the campaign does not achieve its real goal. Therefore, continuous promotion and encouragement should be given to the community to raise awareness of the need to choose environmentally friendly products, in addition to the government immediately halting the production of petroleum-based plastic materials (Van De Wetering et al., 2022). Thus, the following hypothesis is posited:

H2: Environmental knowledge significantly influences young consumers to switch their intention from synthetic plastics to biodegradable plastic consumption.

Perceived value and switching intention

Perceived value refers to the value and benefits provided by a product (Salsabila and Hartono, 2023). Everyone has different needs, and to fulfill those needs, they will go through several stages before making a purchasing decision. Starting with identifying needs, searching for information, evaluating alternatives, making a purchasing decision, and finally evaluating satisfaction after purchase, all these steps are important in determining a product's success in the market. In the context of environmentally friendly products, Koval et al. (2024) and Moshood et al. (2023) found that consumers' overall assessments of products or services influence their environmental preferences,

sustainable aspirations, and green needs. Studies conducted by Nguyen and Hoa (2024), Zaman et al. (2023) as well as Notaro et al. (2022) found that when customers have a positive perceived value towards biodegradable plastics, such as reducing carbon emissions and not producing toxic gases or contributing to the greenhouse effect, this will affect the switching intention. The advantages of using biodegradable plastic for the environment include that it decomposes quickly, is easier to recycle, can be renewed, is non-toxic, and does not contain pollutants that can naturally decompose (Mangal et al., 2023), thereby benefiting the environment. Conventional plastic takes a very long time to decompose, contaminating the soil, water, and marine ecosystems (Moshood et al., 2022). Biodegradable plastic packaging is made from natural or other raw materials that are more environmentally friendly than petroleum-based plastics. By relying on natural materials such as corn starch, potatoes, or cellulose, this plastic is not only safer for the environment but can also be composted if disposed of properly (Haq et al., 2025). Thus, the following hypothesis is proposed:

H3: Perceived value significantly influences young consumers' switch intention from synthetic plastics to biodegradable plastic consumption.

Moderating role of environmental concern

The moderator plays a role that determines the relationship between variables. A moderator variable is a variable that affects the strength and direction of the relationship between independent and dependent variables. In this study, the researchers have proposed environmental concern as a moderator. Environmental care and sustainability require changes in attitudes, thinking, views of nature, and ways of life, which necessarily include debates of a metaphysical, moral, and legal nature (Arısal and Atalar, 2016). Environmental concerns are an essential foundation that ensures effective action to prevent environmental degradation, thereby preventing the end of life on Earth (Durmaz and Akdoğan, 2024). Acquiring and promoting environmental concern is the starting point for changing attitudes towards the environment. Individuals with environmental concerns treat nature not only as an economic resource but also as a complex, interconnected life system (Miguel et al., 2024). By internalizing environmental concerns, we can create a better, more sustainable life for future generations. Past studies have found that environmental concern leads to behaviour such as reducing the use of fossil energy by switching to renewable energy sources such as the sun or wind, reducing the use of single-use plastic by using items that can be used repeatedly, good waste management, by sorting and processing waste according to its type, and conserving and maintaining biodiversity, such as by planting trees and supporting the preservation of wildlife habitats (Maduku, 2024; Moshood et al., 2023; 2022). Zaman et al. (2023) found that environmental concerns, such as maximizing resource use and reducing waste, increase the intention to switch to biodegradable plastic. Based on the above discussions, this study proposed the following hypotheses:

H4: Environmental concern moderates the relationships between (a) attitude, (b) environmental knowledge, and (c) perceived value and young consumers' switch intention from synthetic plastics to biodegradable plastic consumption.

Materials and Methods

This research is quantitative and uses the SEM-CB method. The Minister of Youth and Sports has announced that the implementation of the 30-year-old youth age limit will commence on 1 January 2026. Thus, in this study, youth are defined as those aged 18 to 30. The study has focused on collecting survey data from Malaysian youths in Negeri Sembilan, which encompasses two main districts: Seremban and Port Dickson. According to data from the DOSM (2024), the total youth population in both areas is 212,000. According to Krejcie and Morgan (1970), the minimum recommended sample size for a population of more than 100,000 is 384 respondents at a 95% confidence level and a 5% margin of error. Thus, the sample size for this study is 384. The sample was selected using two sampling techniques: cluster sampling and purposive sampling. The cluster sampling technique was used to randomly select youths from two locations: Seremban and Port Dickson.

Purposive sampling was used because the study focused on the youth group that met the researchers' criteria. This study employed both face-to-face and online surveys for data collection. The instrument in this research is a Google Form questionnaire distributed via social media by the researchers. Questionnaire in the form of a statement using the Likert scale, where the measurement items are adapted from the studies conducted by Moshood et al. (2023) and Maichum et al. (2017). After the questionnaire was distributed from November to December 2025, the researchers obtained 250 final respondents. The analysis method used is Structural Equation Modeling (SEM) with the AMOS program. SEM is a quantitative model that quantifies the causal relationships between dependent and independent factors through its indicators. SEM analysis combines Confirmatory Factor Analysis, path analysis, and regression analysis. Based on *Table 1* shows the measurement items used in this study.

Table 1. *Measurement of variables.*

Variables	Items	
Attitude	1.	Using biodegradable products is a good idea.
	2.	Biodegradable products are beneficial for the environment.
	3.	I feel good when I use biodegradable products instead of plastic.
	4.	Using biodegradable products is a responsible action.
Environmental Knowledge	1.	I know the difference between plastic and biodegradable materials.
	2.	I am aware of the negative effects of plastic on the environment.
	3.	I can identify biodegradable products when I see them.
	4.	I know where to buy biodegradable products.
Perceived Value	1.	Biodegradable products offer good value for money.
	2.	Biodegradable products are of high quality.
	3.	Using biodegradable products gives me satisfaction.
	4.	I believe biodegradable products are worth their price.
Environmental Concern	1.	I am concerned about environmental problems in Malaysia.
	2.	I feel personally responsible for helping to reduce pollution.
	3.	I am willing to make lifestyle changes to protect the environment.
	4.	Protecting the environment is more important than convenience.
Switching Intention	1.	I intend to switch from plastic products to biodegradable alternatives.
	2.	I plan to buy biodegradable products soon.
	3.	I will recommend biodegradable products to my friends.
	4.	I am willing to pay slightly more for biodegradable products.
	5.	I will avoid plastic products whenever possible.

Results and Discussion

Demographic profiles

Initially, the questionnaires were distributed to 384 respondents, and the final sample comprised 250 respondents, yielding a response rate of 65.1%. In survey methodology, a response rate of around 60% is considered a satisfactory level (Dillman et al., 2014). As shown in *Table 2*, of the 250 respondents, most are female (n=200, 80.0%) and the rest are male (n=50, 20.0%). Next, for the age group, most respondents are in the 18-20-year-old age group, with 180 respondents (72.0%). This followed with 21-23 years (n=53, 21.1%) and 24-30 years (n=17, 6.8%). Next, most respondents have Diploma qualifications with 169 respondents (67.6%). This was followed by a bachelor's degree (n=66, 26.4%), SPM (n=14, 5.6%), and a master's degree (n=1, 0.4%).

***Table 2**. Demographic profiles.*

Profile		Frequency (N)	Percentage (%)
Gender	Male	50	20.0
	Female	200	80.0
Age group	18-20 years old	180	72.0
	21-23 years old	53	21.2
	24-30 years old	17	6.8
Highest academic qualification	SPM	14	5.6
	Diploma	169	67.6
	Bachelor's degree	66	26.4
	Master's degree	1	0.4

Confirmatory Factor Analysis (CFA)

Model goodness is tested using IBM AMOS tools. *Figure 2* shows that the overall Goodness of Fit model results are good. The Goodness-of-Fit Index (GFI) is 0.943, which exceeds 0.90, indicating a good level of model fit (Hair Jr et al., 2010; Bentler, 1990). The RMSEA value of 0.034 shows a good level of fitness (<0.08). The TLI shows a good fit, with a value of 0.986. The CFI value of 0.975 indicates a good fit for this model (Hair Jr et al., 2010; Bentler, 1990). The CMIN/DF value for this model is 1.178, indicating a good fit (<5.0).

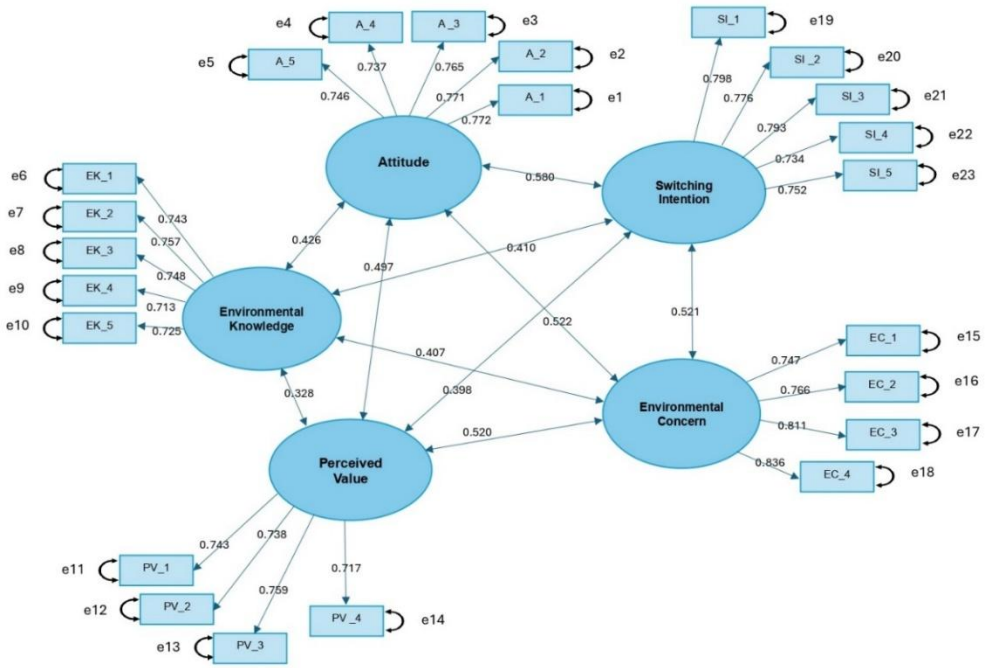

***Figure 2.** CFA Model.*

Reliability and validity assessment

Validity and reliability testing are done with the results. If testing shows the instrument is valid and reliable, the data can be used for the next stage. But if the instrument is not valid and reliable, then the questionnaire was revised, and repeated questionnaires were distributed. Validity testing consists of two stages, namely convergent validity and discriminant validity. Convergent validity is measured by looking at the value of average variance extracted (AVE) > 0.50 (Fornell and Larcker, 1981). Variable declared reliable with the stipulation that the composite reliability (CR) value > 0.70 (Hair Jr et al., 2010). Table 3 lists the standardized factor loadings, CR, and AVE values. The indicator is considered reliable if its value is above 0.70. However, in research at the scale development level, loadings of 0.50-0.60 can be explained. As shown in *Table 3*, the study met the assumptions of validity and reliability.

***Table 3**. Items loading, Composite Reliability (CR), and Average Variance Extracted (AVE).*

Variable	Items	Item Loadings	AVE	CR
Attitude	A1	0.772	0.575	0.871
	A2	0.771		
	A3	0.765		
	A4	0.737		
	A5	0.746		
Environmental Knowledge	EK1	0.743	0.544	0.856
	EK2	0.757		
	EK3	0.748		
	EK4	0.713		
	EK5	0.725		
Perceived Value	PV1	0.743	0.547	0.828
	PV2	0.738		
	PV3	0.759		
	PV4	0.717		
Environmental Concern	EC1	0.747	0.626	0.870
	EC2	0.766		
	EC3	0.811		
	EC4	0.836		
Switching Intention	SI1	0.798	0.595	0.880
	SI2	0.776		
	SI3	0.793		
	SI4	0.734		
	SI5	0.752		

Discriminant validity assessment

Discriminant validity can be assessed by cross-loadings. The correlation value of the indicator to the construct must be greater than the correlation value between the indicator and other constructs. Next is by comparing the root value of the Average Variance Extracted (AVE) of each construct with the correlation between constructs and other constructs (Fornell and Larcker, 1981). It is recommended that the AVE value be greater than 0.50. Table 4 shows that the root value of the AVE of each construct is greater when there is a correlation between constructs and other constructs. So, it has good discriminant validity (*Table 4*).

***Table 4**. Discriminant Validity Results.*

No	Variable	1	2	3	4	5
1	Attitude	0.758				
2	Environmental Knowledge	0.426	0.738			
3	Perceived Value	0.497	0.328	0.740		
4	Environmental Concern	0.522	0.407	0.520	0.791	
5	Switching Intention	0.580	0.410	0.398	0.521	0.771

Note: Values in the diagonal show the square root of AVE.

Moderation analyses

As shown in *Table 5*, there are significant relationships between attitude (β =0.390, p=0.000, p < 0.001), environmental knowledge (β =0.230, p=0.000, p < 0.001), and perceived value (β = 0.289, p=0.000, p < 0.001) and switching intention. Therefore, Hypotheses 1,2, and 3 are accepted. The interaction paths between attitude and environmental concern (β = 0.137, p = 0.004, p < 0.01), environmental knowledge and environmental concern (β = 0.011, p = 0.005, p < 0.01), and perceived value and environmental concern (β = 0.015, p = 0.023, p < 0.05) were statistically significant. Thus, Hypotheses 4(a), 4(b), and 4(c) are accepted. As shown in *Figure 3*, the interaction effect of attitude and environmental concern is significant. At a high level of environmental norm, attitude has a substantial effect on switching intention. In a similar vein, the same effect has also been found in the interaction effect between environmental knowledge and environmental concern and between perceived value and environmental concern (*Figure 4 and Figure 5*).

***Table 5**. Moderation analyses.*

Direct effect	β	t-value	p-value
Attitude→ DV	0.390***	5.900	0.000
Environmental Knowledge→ DV	0.230***	3.456	0.000
Perceived Value→ DV	0.289***	4.765	0.000
Interactive effect			
Attitude*Environmental Concern → DV	0.137**	2.468	0.008
Environmental Knowledge*Environmental Concern→ DV	0.011*	2.042	0.032
Perceived Value*Environmental Concern→ DV	0.015*	2.987	0.027

*Note: Significance level: ***p < 0.001; *p <0 .01; *p <0 .05; DV= Switching Intention.*

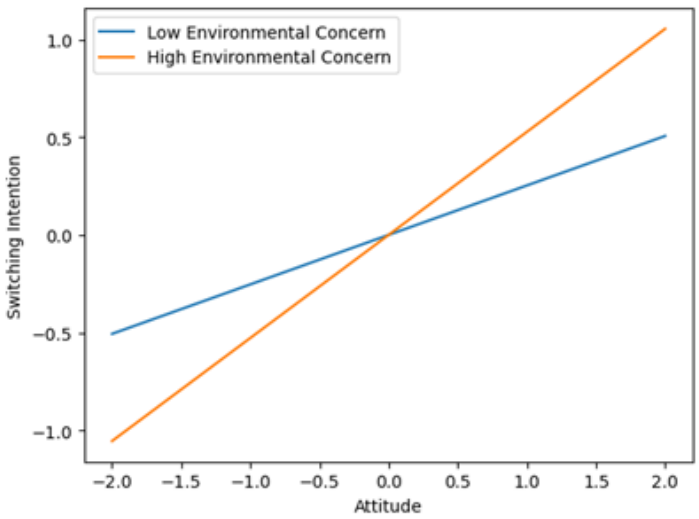

***Figure 3.** Moderation slope graph: Attitude*Environmental Concern → DV.*

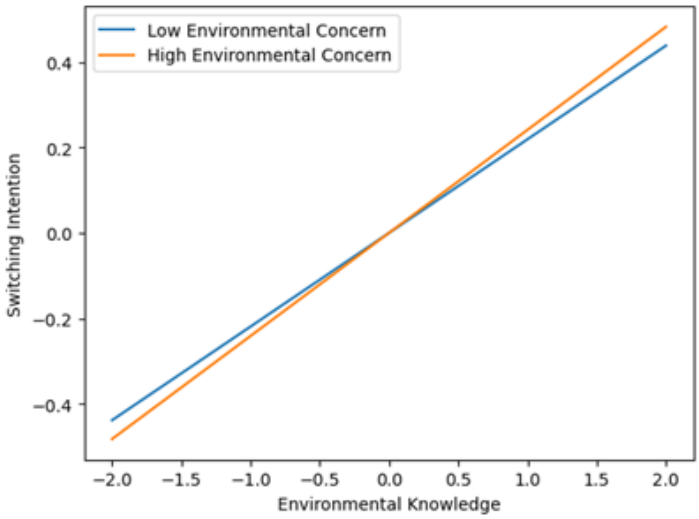

Figure 4. *Moderation slope graph: Environmental Knowledge*Environmental Concern→ DV.*

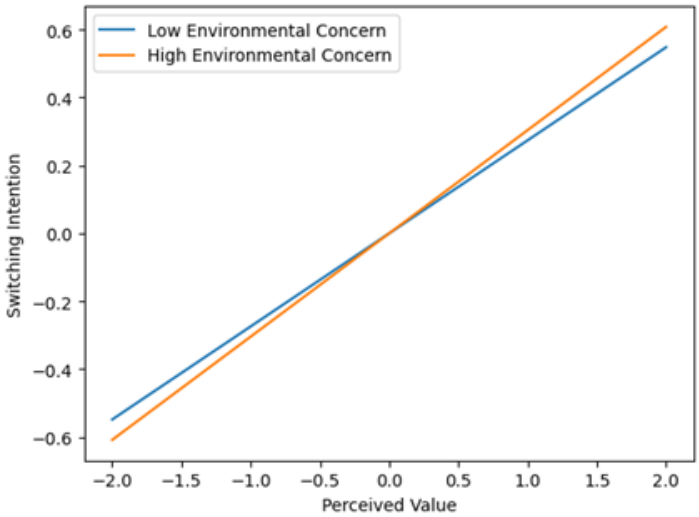

Figure 5. *Moderation slope graph: Perceived Value*Environmental Concern→ DV.*

In Malaysia, the use of biodegradable plastics is still in its early stages but shows good growth potential. Several efforts have been made by the government through the Roadmap towards Zero Single-Use Plastics 2018-2030, which outlines a phased reduction of single-use plastics and a transition to alternative materials such as biodegradable plastics. Biodegradable plastic applications can also be seen across several key sectors, including retail, food services, manufacturing, and local government. Thus, the purpose of the study is to examine the determinants of young consumers' switching intention from synthetic to biodegradable plastic in Negeri Sembilan. The first findings reveal significant relationships between attitude, environmental knowledge, perceived value, and switching intention. These findings are consistent with the previous studies such as Abu Bakar et al. (2025), Zaman et al. (2023) and Farrukh et al. (2022). Nguyen and Hoa (2024) found that environmental attitudes shape green behaviour and decisions.

Environmental attitudes reflect individuals' confidence in the importance of environmental sustainability and their tendency to act in accordance with those values

(Mhaddolkar et al., 2024; Filho et al., 2022). On the other hand, research by Miguel et al. (2024) and Nazareth et al. (2022) indicates that environmental knowledge, including awareness of environmental impacts and understanding how to reduce negative effects, can contribute to reduced plastic use. Then, value perception is the overall evaluation of a product or service by consumers, based on what they receive and what they give (Koval et al., 2024). Value perception is also defined as the difference or trade-off between the benefits of the product or service provided and the total cost of obtaining it (Salsabila and Hartono, 2023). Zaman et al. (2023) and Notaro et al. (2022) found that perceived value, such as helping break down organic waste, reducing the amount of waste in landfills, and playing an important role in recycling nutrients back into the environment, will influence customer purchasing decisions towards biodegradable products, which ultimately can create brand loyalty. Next, the second finding found that environmental concerns significantly moderate the relationships between independent and dependent variables. A person with environmental values considers the responsibility as an inhabitant of the planet, complies with environmental norms, and supports causes that are beneficial to the environment (Durmaz and Akdoğan, 2024; Mohd Noor and Nordin, 2023; Arısal and Atalar, 2016). In the same way, it will consider it a fault if it fails to comply with environmental standards or if it inadvertently harms the environment (Miguel et al., 2024). Understanding that commitment is demonstrated by concrete actions in day-to-day life related to the environment (Moshood et al., 2023; Zaman et al., 2023). This is a key value for all aspects of life, including the environment.

As implications, change starts with awareness. For families, making recycling a shared responsibility can help children understand the importance of caring for the environment (Mohd Noor et al., 2022). The marketers also need to take proactive action. Several Nestlé product ranges are now offered in paper-based or recyclable packaging as part of their global sustainability commitment. For brand owners, the purpose of green marketing is to increase consumers' perceptions that the brand will have a positive environmental impact. Supporting brands that prioritize environmentally friendly packaging helps advance the industry and encourages other companies to do the same. One example is The Body Shop products. In its application, The Body Shop pursues many strategic initiatives with a sustainable focus. The Body Shop involves consumers in various programs, such as inviting consumers to exchange bottles of former The Body Shop packaging at every official outlet. This encourages consumers to shop and collect packaging or refill the products they usually buy. To maximize customer trust, clear, simple information should be available on the website or on corporate social media (Noor et al., 2023a). Comprehensive information, with logical explanations, should be given to customers. This is the company's effort to build customer trust by providing certain testimony that ultimately influences customer purchase decisions (Hajam et al., 2023).

The government is working to phase out non-biodegradable single-use plastics in stages, promoting alternatives and sustainable materials for plastic production in line with the Malaysian Plastic Sustainability Roadmap 2021-2030. The government needs to encourage informal-sector entrepreneurs, such as small stall operators, who play a significant role in the community, to replace single-use plastics with biodegradable alternatives. The eco label also ensures that products in the market are not fake and misleading consumers. The SIRIM Eco Label is Malaysia's National Eco Labelling Program, which provides a competitive advantage over similar products in the

environmentally friendly market. The Negeri Sembilan Government has implemented a ban on single-use plastic bags, polystyrene, and straws throughout Negeri Sembilan, upon request, since 5 October 2022. This step was taken as a serious effort by the State Government to reduce environmental pollution caused by difficult-to-dispose-of plastics. However, traders' awareness of the ban on plastic bags remains low. But many still prefer to pay 20 cents per plastic bag. Of course, this goes against the original goal of reducing the use of plastic bags. Perhaps every supermarket should provide biodegradable plastic bags to customers for free. Campaigns regarding the importance of using biodegradable products need to be increased. The polluter-pays principle can raise awareness and change the mindset of all Malaysians regarding plastic waste pollution (Noor and Nordin, 2023). In addition, this approach was taken to raise awareness of green initiatives and to ensure environmental sustainability. Environmental care practices implemented through educational methods are also expected to be adopted by society and sustained in the long term (Mohd Noor et al., 2022).

Conclusion

Biodegradable plastic is an innovative solution to overcome the growing problem of plastic waste. Although it still faces challenges in terms of costs and processing infrastructure, technological development and stricter regulations will encourage its wider use. With the right adoption, biodegradable plastics can be a big step towards a more sustainable future (Noor et al., 2023a). Therefore, support from various parties, including the government, industry, and society, is urgently needed to accelerate the transition to more environmentally friendly plastics. The findings reveal significant relationships between attitude, environmental knowledge, perceived value, and switching intention. Next, environmental concerns significantly moderate the relationships between attitude, environmental knowledge, perceived value, and switching intention. This research has several limitations. First, the data collection process in this research uses the cross-sectional method. Because of that, future research is advised to use the longitudinal method. This study focuses only on youths in Seremban and Port Dickson; its findings cannot be generalized to youths in other states. In the future, this study can be extended to other states or groups. Other studies, such as comparative studies, can also be conducted to determine whether there are significant differences across groups of respondents.

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Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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