

Planned Purchasing Behavior Toward Eco-friendly Food Products among Millennials in Baguio City, Philippines

Rashid B. Lokines

Graduate School Student, Tarlac State University, Philippines

Abstract

This study investigated the factors influencing eco-friendly food purchase behavior among 580 millennial working professionals in Baguio City, Philippines, using the Theory of Planned Behavior, with the addition of willingness to pay a premium price to enhance understanding. Employing consistent Partial Least Squares Structural Equation Modeling (PLSc-SEM), the results revealed that while positive attitudes and subjective norms significantly influenced purchase intentions, their effects were relatively weak. On the other hand, perceived behavioral control and willingness to pay a premium price strongly influenced purchase intentions. Notably, purchase intention strongly predicted actual purchase behavior. Furthermore, the analysis confirmed that purchase intention significantly mediated the relationships between all four predictors and purchase behavior, with the willingness to pay a premium exhibiting the most substantial mediation effect.

Keywords: Theory of Planned Behavior, Eco-friendly Food Products, Structural Equation Modeling

1. Introduction

As Native American Proverbs state, "When the last tree is cut down, the last fish eaten, and the last stream poisoned, you will realize that you cannot eat money." This phrase emphasizes the vital role of sustainability. Sustainable development, which involves meeting present needs without jeopardizing future generations' ability to meet their own (United Nations Brundtland Commission, 1987), is both a moral duty and a practical necessity for enterprises and consumers alike.

Nowadays, consumer preferences for food have significantly changed for sustainable choices because of developing concerns about global climate change. Consumers are more mindful of the impact they have on the environment and favor businesses that promote environmentally friendly business practices. In line with this trend, organizations and policymakers are under increasing pressure to satisfy the developing need for eco-friendly goods.

With the increasing attention to ecological issues and trends toward sustainability, many firms have started to develop products following green marketing strategies. Many terminologies are used to refer to eco-friendly products. For instance, based on Kim et al. (2013), the concept of eco-friendly products is also known as green, environmentally friendly, ecological, pro-environmental, and sustainable. Ultimately, the goal is to encourage sustainable consumption that aims to minimize the degradation of natural resources, minimize waste generation, and limit the use of environmentally damaging substances.

In this study, eco-friendly food products are described as any eco-friendly and sustainably produced and minimally processed and packaged food products that minimize its impact on the environment over its life cycle. These products include but not limited to organic vegetables and fruits, organic meat and dairy products, organic beverages, heirloom crops, eco-friendly sourced seafood and other food products that are produce in a sustainable farming and processing practices. It should be noted that both the food product and the packaging must be sustainable.

The theory of planned behavior is the widely adopted model used in investigating consumers intentions and behaviors towards the acceptability of green products and green services. Maichum et al. (2016) stated that: the theory of planned behavior (TPB) is the widely adopted model to understand the determinants and antecedents of purchase intention. According to Habiba (2020), Several scholars provide several theoretical perspectives like-theory of reasoned action, Engel, Kollet, Blackwell model, Hawkins Stern Impulse Buying are used to support research on green buying motives and green consuming behavior. Despite this, the Theory of Planned Behavior (Ajzen, 1991) can cover all of the variables in this research. Although the Theory of Planned Behavior has been useful in predicting consumer behavior, its efficacy in Asian emerging economies remains unclear (Bhutto et al., 2019). Consequently, further study is warranted. According to Garcia and Campos (2022), the literature reveals that studies on green consumer behavior in the Philippines are relatively new and scarce. In reality, consumer studies on green behavior in the Philippines are inadequate. Considering cultural and economic disparities between countries, generalizing results from one to the other may be inappropriate (Alam et al., 2020). Therefore, this study addresses the gap by investigating consumers' intentions and behavior toward eco-friendly food products in the Philippine context.

2. Research Objectives

The objectives of the study are the following:

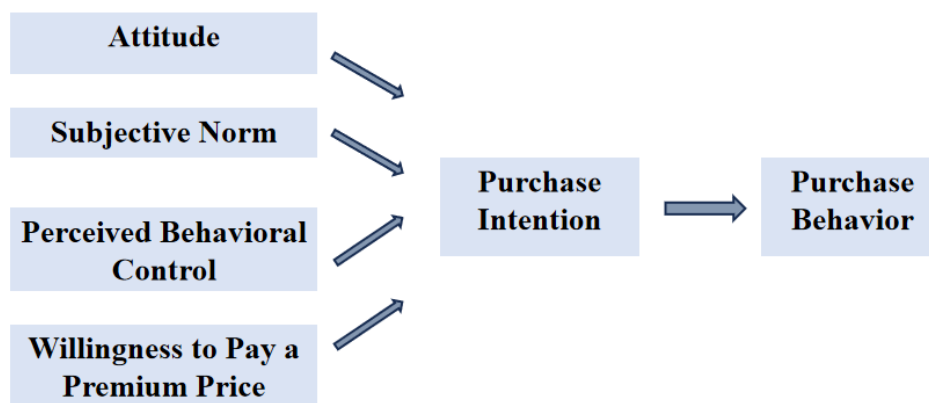
1. To determine whether millennials' purchase intention towards eco-friendly food products was influenced by attitudes towards eco-friendly products, subjective norms, perceived behavioral control and willingness to pay a premium price.
2. To determine whether there is a relationship between millennials' purchase intention towards eco-friendly food products and their purchase behavior towards eco-friendly food products.
3. To determine whether millennials' purchase intention played a mediating role in the relationship between attitudes towards eco-friendly products, subjective norms, perceived behavioral control, willingness to pay a premium price and their purchase behavior towards eco-friendly food products.

Conceptual Framework

According to the Theory of Planned Behavior, these three components—attitude, subjective norms, and perceived behavioral control—are important for forming behavioral intention, which affects human behavior (Ajzen, 1991). Attitudes towards a particular behavior relate to the person's favorable or unfavorable evaluation of performing that specific behavior (Graham-Rowe, 2015; Ajzen, 1991). Screen et al. (2018) define subjective norms as social pressures or influences to engage in the behavior. Perceived behavioral control refers to the perceived ease or difficulty of performing a task (Hameed et al., 2019), influencing one's ability to carry out a behavior. On the other hand, what drives and encourages someone to try to support specific actions are their intentions (Ajzen, 1991). Moreover, Lin and Niu (2018) describe purchasing behavior as a consumer's search or patronage of items, services, or ideas to meet certain needs.

Mostafa (2007) explains green or environmentally friendly purchasing behavior as the utilization of ecologically friendly products that are sensitive, recyclable, and generally good for the environment. As illustrated in Figure 1, this study used the original predictors from the Theory of Planned Behavior and including willingness to pay a premium price. Theoretically, attitude toward behavior, subjective norm, and perceived behavioral control are important aspects that influence customers' intentions and, as a result, affect consumer purchasing behavior (Yadav and Pathak 2017; Wan et al., 2012; Ramayah et al., 2012).

Figure 1: Paradigm of the Study



Literature teaches us that the predictive power of the theory of planned behavior can be strengthened through its flexibility to integrate additional variables, thereby enhancing the model's robustness in explaining behavioral intentions and behavior (Ahmmadi et al., 2021; Conner & Armitage, 1998; Ajzen, 1991). D'Souza et al. (2022) further elaborate that this adaptability makes the theory suitable for empirical testing and analysis.

One factor that has been identified as an additional obstacle to sustainable consumption behavior is the price of goods (Nasir and Karakaya, 2014; Gleim et al., 2013). Hence, willingness to pay a premium price to explain eco-friendly food product purchase intention and behavior is included with the idea of making this model more robust in explaining an individual's behavior.

4. Research Methodology

4.1 Locale of the Study. The data collection was conducted in Baguio City, Philippines, one of the most urbanized and culturally diverse places in the country. The researcher finds Baguio City to be an ideal location for studying consumer intentions and behaviors, given its reputation for metropolitan ambiance and diverse demographics.

4.2 Respondents of the Study. The survey included 580 millennial respondents employed as working professionals. Kvintova and Cakirpaloglu (2019) added that millennials are known for being the highly educated generation since they are grown up in a technology age. The choice of millennials as respondents in this study is supported by the rationale advanced by Kim et al. (2013). Respondents were selected based on the following inclusion criteria: (a) being a millennial or those born between 1981 and 1996 (Gumasing and Niro, 2023); (b) current employment as a working professional, including business owners engaged in office work and private practitioners; (c) residence or employment in Baguio City at the time of the study; and (d) possession of at least a college degree. Individuals not meeting all of these criteria were excluded from the study.

4.3 Research Instruments. A structured online and paper-based survey questionnaire was utilized to collect the data required for the study. The variables used in this study were developed or modified from well-cited existing literature. To assess attitudes toward eco-friendly food products, the researcher adapted the scales created by Muraguri et al. (2020). The subjective norms are based on Vermier and Verbeke's (2008) research instrument. Items measuring perceived behavioral control and intentions, adapted from Paul et al. (2016). The researcher adopted the Kang et al. (2012) and Auliandri et al. (2018) questionnaires to assess willingness to pay premiums. Lee's (2008) research instrument was adapted to measure purchase behavior.

Content validity relates to whether the instrument is adequate for measuring the variables under consideration (Nunnally, 1978). In this study, eleven (11) subject matter experts were consulted to evaluate each item whether essential or not essential to ensure that the instrument effectively measures the content area it is meant to measure. The Content Validity Ratio (CVR) proposed by Lawshe (1975) were computed to determine the items that are mostly agreed by subject matter experts. As illustrated by Ayre and Scally (2014), for items to be retained and considered for pilot testing of inter-item reliability, the Content Validity Ratio (CVR) should be no lower than 0.636 for a panel of eleven subject matter experts. Therefore, all items were retained, as their Content Validity Ratios met this criterion.

A pilot test was done with 30 respondents to ensure the survey questionnaire's reliability. Using JAMOVI 2.6.24, Cronbach's alpha was calculated to assess the inter-item reliability of the validated items designed to measure the pre-determined factors. The values of Cronbach's alpha are 0.840 to 0.942; these values are greater than the 0.70 thresholds recommended by (Taber 2018), indicating that the measures for all the factors used in this study exceed the acceptable internal consistency for an instrument.

4.4 Data Analysis. The Consistent Partial Least Squares Structural Equation Modeling (PLSc-SEM) was carried out to test the study's hypotheses using SmartPLS 4 Trial Version. A causal-predictive method called Partial Least Squares Structural Equation Modeling (PLS-SEM) emphasizes establishing the predictive ability of a model that has been theoretically and logically developed. It balances factor-based SEM's confirmatory capabilities and contemporary machine learning techniques' emphasis on prediction (Hair & Sarstedt, 2021). In comparison, the consistent partial least squares structural equation modeling (PLSc-SEM) algorithm permits researchers to emulate the results of factor-based SEM, while still maintaining the original PLS-SEM approach's flexibility relative to model specification (Sarstedt et al., 2021)

4.4.1 Measurement Model Assessment. As recommended by Sarstedt et al (2021), in structural equations modelling employing Partial Least Squares (PLS-SEM), the analysis began with an examination of indicator loadings. Using the actual data of the sample respondents, estimation of the outer model was conducted on the actual data collected to quantify the loadings of the factors to the individual items. Four indicators (Items for Perceived Behavioral Control 5, 6, and 7, and Purchase Behavior item number 1) with loadings lower than 0.708 were excluded from the final measurement model to refine it and improve the structural model's predictive power. The loadings exceeding 0.708 suggest that the construct accounts for more than 50% of the indicator's variance, thus demonstrating satisfactory degree of item reliability (Sarstedt et al, 2021).

Prior to analyzing the structural model and relationships, the six constructs were assessed for reliability and validity, as detailed in Table 1. Cronbach's alpha is another indicator of internal consistency reliability that assumes the same thresholds but results in lower values compared to the composite reliability (Sarstedt

et al, 2021). The values of the various constructs in this study were above the 0.70 thresholds suggested by Taber (2018). Furthermore, Composite Reliability (CR) values were above the 0.70 threshold (Hair et al, 1995) which indicates a strongly reliable internal consistency to the constructs indicating the reliability of the constructs. Moreover, Average Variance Extracted (AVE) were higher than 0.5 in every case (ranging from 0.665 to 0.775), providing strong evidence of the convergent validity of all the constructs, which means that the items sufficiently capture the constructs (Fornell & Larcker, 1981).

Table 1: Validity and Reliability

Constructs	Cronbach's α	CR	AVE
Attitude	0.893	0.893	0.676
Subjective Norm	0.918	0.920	0.694
Perceived Behavioral Control	0.890	0.892	0.665
Willingness to pay a premium price	0.933	0.934	0.775
Purchase Intention	0.925	0.925	0.713
Purchase Behavior	0.857	0.861	0.668

Note: All values are significant at p-value < 0.05

Discriminant validity was established, following Lim (2024), when measures of different constructs were not empirically related with each other and this indicated that the constructs were unique and measuring different dimensions. Table 2 shows the discriminant validity of the measures using Henseler et al.'s Henseler et al.'s (2015) more stringent heterotrait–monotrait ratio of correlations (HTMT) measure. The HTMT scores are below the more conservative threshold of 0.85 (Hu and Bentler, 1999). Hence, supporting the discriminant validity of the measures. This means that each construct is different and varies from other constructs in the model.

Table 2. Discriminant Validity using Heterotrait-Monotrait Ratio of Correlations (HTMT)

Constructs	<i>Att</i>	<i>Int</i>	<i>PBC</i>	<i>PBe</i>	<i>SN</i>
Purchase Intention (<i>Int</i>)	0.674				
Perceived Behavioral Control (<i>PBC</i>)	0.702	0.707			
Purchase Behavior (<i>PBe</i>)	0.708	0.842	0.737		
Subjective Norm (<i>SN</i>)	0.631	0.588	0.636	0.645	
Willingness to Pay a Premium Price	0.573	0.704	0.654	0.761	0.529

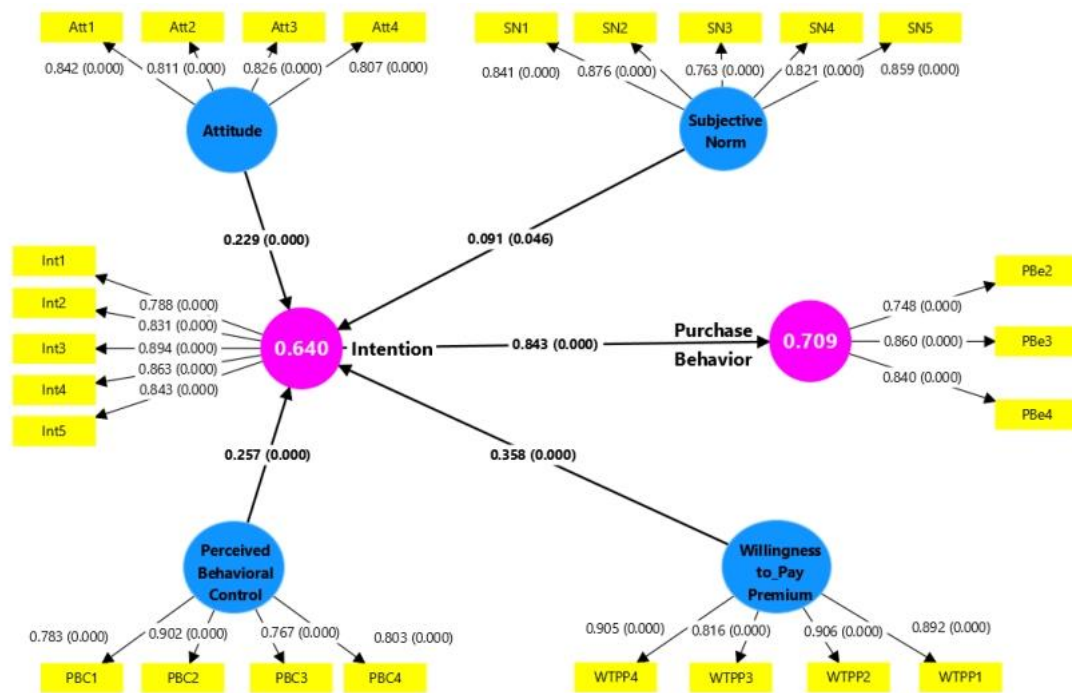
4.4.2 Model Fit. Following Hu and Bentler (1999), the standardized root mean square residual (SRMR) has been used to measure approximate model fit in PLS path modeling. The estimated model showed a SRMR value of 0.056. The value is below the recommended threshold of 0.08 (Hu and Bentler, 1999), which indicates a good approximate fit of the hypothesized model in this research with the data. This good model fit according to SRMR supports the interpretation of the structural model paths that follow.

5. Results and Discussion

5.1 Influence of Attitude toward a behavior on intentions. Attitudes toward a specific behavior reflect the individual's favorable or unfavorable assessment of engaging in that certain behavior (Graham-Rowe, 2015; Azjen, 1991). As shown in Figure 2, the analysis revealed a statistically significant positive

relationship between attitude and intention ($\beta = 0.229, p < .0001$). This finding suggests that individuals with more favorable attitudes toward the behavior are more likely to form intentions to engage in that behavior. The path coefficient of 0.229 indicates a relatively weak, yet significant, positive effect. This result is consistent with earlier studies demonstrating the significant role of attitudes in shaping intentions related to sustainable consumption. For example, studies have shown a positive relationship between attitude and purchase intention in various contexts, including among Indian consumers in metropolitan cities (Khare, 2015), and Thai consumers (Maichum et al., 2016).

Figure 2: Structural Equation Model using SmartPLS 4 (Trial Version)



5.2 Influence of Subjective Norms on Intentions. Subjective norms, defined as perceived social pressures to perform or not perform a behavior (Ajzen, 1991; Sreen et al., 2018), play a role in shaping intentions, particularly within the realm of sustainable consumption. As shown in Figure 2, the relationship between subjective norm and intention was positive and statistically significant ($\beta = 0.091, p = .046$), albeit weaker than the effects of attitude and perceived behavioral control. This indicates that subjective norm had a small but significant direct effect on intention.

This result supports prior findings that subjective norm significantly influences sustainable purchase intentions. For instance, subjective norm was seen to have a significant positive relationship with sustainable purchase intention (Cammarelle et al., 2021). Among different kinds of sustainable purchase intentions, subjective norm may impact eco-friendly food purchase intentions in particular. Wongsachia et al. (2022) found that subjective norm had a positive effect on purchase intentions for green foods in Thailand. Furthermore, (Garcia & Campos, 2022) highlights the importance of social influence in purchasing decisions. Filipino consumers are aware of how their actions—particularly those that affect the environment—are seen by people close to them and/or by society at large. In Philippine society, it is considered significant to follow the majority's lead and conform to social norms. This cultural context may explain the significant, albeit smaller, effect of subjective norms observed in our study.

5.3 Influence of Perceived Behavioral Control on Intentions. Perceived behavioral control (PBC) refers to an individual's perception of the ease or difficulty of performing a given behavior (Ajzen, 1991). According to Hameed et al. (2019), perceived behavioral control "refers to the one's perceived easiness or difficulty to perform a certain task". Figure 3 shows that perceived behavioral control also had a statistically significant positive effect on intention ($\beta = 0.257, p < .001$). This suggests that people who have more perceived control over engaging in eco-friendly behavior are more likely to have the intention to do so. This is quite similar to Bhutto et al.'s (2019) suggestion that perceived behavioral control had a positive effect on green purchase intention among consumers suggesting that they have strong self-control over selecting green products. Interestingly, though, the magnitude of this effect was slightly larger than that of attitude, implying that perceived behavioral control may be a slightly stronger indicator of intention in this setting.

5.4 Influence of Willingness to pay a premium on intentions. Willingness to pay a premium for the said product plays an important role in shaping purchase intentions. Figure 2 highlights that willingness to pay a premium had a statistically significant direct positive influence on intention to purchase towards eco-friendly food product ($\beta = 0.358, p < .001$). This implies that those who willing to pay premium for eco-friendly food products had higher intention to purchase eco-friendly food products.

This is in line with much of the existing literature which suggests that willingness to pay a premium price positively influences the intentions of sustainable consumption; for instance, Ateş (2021) also found that willingness to pay was positively related to purchase intention in Turkey. Similarly, Mahmoud et al. (2022) reported that willingness to pay for green products strongly and positively affected purchasing decisions in Ghana. Furthermore, Prakash and Pathak (2017) found that willingness to pay had a significant effect on Indian consumer purchasing behavior, with younger consumers showing a particular inclination to pay a premium for such products.

5.5 Influence of Intentions on Purchase Behavior. As shown in Figure 2, intention was a strong predictor of purchase behavior ($\beta = 0.843, p < .001$), supporting the theory of planned behavior's central tenet. This robust effect suggests that individuals who intend to purchase eco-friendly food products are highly likely to actually engage in it. Similarly, in a study done in Portugal, Fontes et al. (2021) found a significant link between green buying intention and actual purchasing behavior. Jaiswal and Kant (2018) discovered that the significant relationship between the green purchasing behavior and purchasing intention among consumers. Moreover, Palmero and Montemayor (2020), found that among young consumers in the Philippine BPO industry, purchasing intention is an important factor in green purchasing.

Furthermore, the model also provided a large portion of the variance explained for purchasing behavior. The adjusted R-squared value is .709, which shows that 70.9% of the variance for purchasing behavior is accounted for by five predictors in the model. This suggests that intention, as well as attitude, subjective norm, perceived behavioral control and willingness to pay premium price are important factors that should be considered when predicting purchasing behavior.

5.6 The Mediating Role of Purchase Intention on the Identified Factors and Planned Purchase Behavior. One of the central research questions guiding this study was whether purchase intention mediates the relationship between purchase behavior and the following factors: attitude, subjective norm, perceived behavioral control, and willingness to pay premium. To address this, the mediating effects of these factors on purchase behavior through purchase intention were examined. Table 3 presents the estimates, their corresponding t-statistics, and p-values.

Table 3: The Mediating Role of Purchase Intention on the Identified Factors and Planned Purchase Behavior

Variables	Estimate	t	p
Attitude -> Intention -> Purchase Behavior	0.193	4.053	0.000
Perceived Behavioral Control -> Intention -> Purchase Behavior	0.216	4.280	0.000
Subjective Norm -> Intention -> Purchase Behavior	0.077	2.010	0.045
Willingness to Pay Premium -> Intention -> Purchase Behavior	0.302	6.069	0.000

The results, presented in Table 3, reveal statistically significant indirect effects for all four predictors on purchase behavior through purchase intention. Specifically, the indirect effect of attitude on purchase behavior through purchase intention was significant ($\beta = .193, p < .001$), indicating that positive attitudes toward eco-friendly products influence purchase behavior by increasing purchase intention.

Similarly, the indirect effect of perceived behavioral control on purchase behavior via purchase intention was also significant ($\beta = .216, p < .001$), suggesting that consumers who perceive greater control over purchasing eco-friendly products are more likely to do so because they are more likely to intend to purchase. Moreover, the indirect effect of subjective norm on purchase behavior through purchase intention was also significant ($\beta = .077, p = .045$), demonstrating that the social pressure to purchase eco-friendly products influences purchase behavior by shaping purchase intention.

Finally, the indirect effect of willingness to pay a premium on purchase behavior through purchase intention was significant and the strongest among the four ($\beta = .302, p < .001$). This finding suggests that consumers willing to pay a premium for eco-friendly products are more likely to purchase them because their willingness to pay increases their intention to purchase. These findings provide strong support for the mediating role of purchase intention in the relationships between the four predictors and purchase behavior.

This finding indicates that purchase intention mediates the effect of willingness to pay a premium price for the said product on purchase behavior. Willingness to pay a premium price can lead to greater purchase intention, which in turn results in greater purchase behavior.

In sum, these findings provide strong support for the mediating role of purchase intention in the relationships between the four predictors and purchase behavior. Consistent with the Theory of Planned Behavior, Yuan et al. (2023) also found that green purchasing intention mediated the relationship between green purchasing attitudes, subjective norms, perceived behavioral control, and green purchase behavior, albeit within a sample of educated Malaysian consumers.

This is consistent with the findings of Yuan et al. (2023), who used a sample of educated Malaysian consumers and found that green purchasing intention mediated the relationship between purchasing attitudes, subjective norms, perceived behavioral control, and green purchase behavior.

6. Conclusions

Based on the study results, the following conclusions are drawn:

1. Positive attitudes and subjective norms had significant but weak influence with purchase intentions. On the contrary, perceived behavioral control and willingness to pay the premium price had a strong influence with purchase intentions.

2. Purchase intention strongly predicted actual purchase behavior. This implies that a high intention to purchase directly translates to a high possibility of actual purchase.
3. Purchase intention significantly mediated the relationships between all predictors and purchase behavior, with willingness to pay the premium price having the strongest such mediating effect.

7. Recommendations

The following recommendations are made:

1. To promote eco-friendly food consumption among millennials, initiatives should focus on enhancing accessibility and ease of purchase, while educational campaigns can strengthen positive attitudes by highlighting environmental and personal benefits. Social media strategies should leverage peer influence, particularly from family and friends, to reinforce social norms. Finally, targeted promotions can effectively translate strong purchase intentions into actual purchasing behavior.
2. Future researchers may use this study as a basis for further academic exploration in consumer behavior and sustainability. They can expand upon this work by investigating additional factors influencing purchase intentions and behavior, replicating the study in different geographical settings, or exploring the perspectives of other generations.

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