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The Influence of Environmental Education on Consumers' Purchase Intention Toward Organic Agricultural Products

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Abstract

This study applies the Theory of Planned Behavior (TPB) to examine how environmental education affects consumers' willingness to purchase organic agricultural products. A questionnaire survey of 266 participants in Tainan City, Taiwan, provided the data for analysis using structural equation modeling (SEM). The results show that attitude, subjective norms, and perceived behavioral control each have a significant and positive influence on behavioral intention. Among these, attitude has the strongest impact, suggesting that favorable evaluations of organic products and greater environmental awareness are key factors shaping consumers' willingness to buy them. Based on these findings, several practical implications are proposed. Public agencies and schools may strengthen environmental education programs to cultivate sustainable consumption habits. Businesses should emphasize transparent information and credible green marketing to increase consumer trust. In addition, policy support, such as financial incentives or better market access, could reduce barriers to purchasing organic products and promote more sustainable consumer behavior.

JEL classification numbers: Q13, Q56, D12.

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1. Introduction

Concerns over climate change and sustainable development have drawn increasing attention worldwide, prompting scholars and policymakers to seek ways to promote greener patterns of living and consumption (Al-Nuaimi and Al-Ghamdi, 2022). The United Nations Sustainable Development Goals (SDGs)—especially Goal 12, Responsible Consumption and Production—call for the adoption of cleaner production systems and more responsible consumer choices (Sylvester, 2024). These global principles are gradually shaping not only government policy but also the routines and decisions of ordinary people.

Environmental education has become a practical means of strengthening environmental awareness and encouraging individuals to act responsibly. It does more than provide knowledge; it also builds a sense of environmental value and encourages reflection about personal habits (Díaz Horna and Mejía Mejía, 2025). Choosing organic agricultural products is one of the most visible expressions of this awareness. Organic farming reduces chemical inputs, protects ecosystems, and supports consumer health (Magotra et al., 2024). Yet the higher cost and limited availability of these products still discourage many potential buyers (Dangi et al., 2020). Finding ways to increase consumers' willingness to purchase organic goods has therefore become a practical and theoretical issue.

Research has shown that environmental education can deepen consumers' understanding of ecological problems and strengthen their emotional connection to environmental protection, influencing how they evaluate and select products (Li et al., 2023). However, relatively few studies have examined how these educational experiences translate into actual buying intentions. Much of the previous work has emphasized product-related factors—price, quality, and safety—rather than the psychological pathways that education may shape (Kalyan and Metta, 2024; Rana and Paul, 2017; Hsu and Chen, 2014; Azam et al., 2012). To extend this discussion, the present study applies Ajzen's (1991) Theory of Planned Behavior (TPB) to explore how educational influences affect consumers' intentions to buy organic agricultural products.

Within the TPB framework, behavioral intention is guided by three elements: attitude, subjective norms, and perceived behavioral control (PBC). Attitude represents one's personal evaluation of a behavior; subjective norms capture social expectations and the perceived opinions of others; and perceived behavioral control reflects how capable an individual feels of carrying out the behavior.

Applying TPB to this context helps clarify not only whether people are willing to support sustainable products but also the psychological reasons behind their choices. Environmental education can strengthen positive attitudes toward organic food, reinforce social norms through shared environmental values, and increase perceived control by reducing informational and practical barriers.

Building on this reasoning, this study examines how environmental education influences consumers' intentions to purchase organic agricultural products through the mediating roles of attitude, subjective norms, and perceived behavioral control.

Structural equation modeling (SEM) is used to test the proposed framework and assess how well the TPB explains sustainable consumption behavior.

2. Literature Review

2.1 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) was developed by Ajzen (1991) as an extension of the Theory of Reasoned Action (TRA) proposed by Fishbein and Ajzen (1975). TRA suggests that a person's behavioral intention is determined by two principal factors—attitude toward the behavior and subjective norms—which subsequently influence the actual behavior. However, TRA assumes that behavior is completely under volitional control and thus overlooks the potential constraints posed by resources and individual capabilities. To address this limitation, Ajzen (1991) introduced the construct of perceived behavioral control (PBC), forming the TPB framework.

TPB integrates three dimensions—cognitive, social, and control—providing a comprehensive framework that accounts for both internal psychological factors and external social influences. This model has been extensively applied in diverse fields such as health behavior (Godin and Kok, 1996), traffic safety (Dinh and Kubota, 2013), technology adoption (Weigel et al., 2014), sustainable consumption (Chen and Hung, 2016), and environmental behavior (Zhou and Li, 2018). The strength of TPB lies in its ability to bridge individual cognition and social context, effectively explaining and predicting behavioral intention. Accordingly, this study employs TPB as its theoretical foundation to examine how environmental education shapes consumers' attitudes, subjective norms, and perceived behavioral control, which in turn influence their intention to purchase organic agricultural products.

2.2 Relationship between Attitude and Behavioral Intention

Within the TPB framework, attitude serves as a key determinant of behavioral intention. Ajzen (1991) noted that when individuals perceive a behavior as yielding favorable outcomes, their intention to perform that behavior increases accordingly. Environmental education enhances individuals' environmental knowledge and value recognition, thereby fostering positive attitudes toward environmentally responsible behaviors (Gao, 2018). Empirical studies have also demonstrated that attitude is a major psychological driver influencing the intention to purchase organic products and exerts a significant positive effect on consumer behavior (Parashar et al., 2023; Basha et al., 2015). When consumers perceive higher health, safety, and environmental benefits from organic food, their willingness to purchase increases (Tsaknis et al., 2024). Therefore, if environmental education effectively strengthens consumers' positive attitudes, their intention to purchase organic agricultural products is likely to rise significantly. Therefore, this study proposes the following hypotheses:

H1: Attitude has a positive and significant effect on behavioral intention.

2.3 Relationship between Subjective Norms and Behavioral Intention

Subjective norms refer to individuals' perceptions of social expectations and pressures regarding specific behaviors and represent a crucial social determinant of behavioral intention. When consumers perceive that their family, friends, or social circles approve of a particular behavior, they tend to conform to such expectations to maintain interpersonal harmony and group identity (Ajzen, 1991). In the domain of green consumption, subjective norms have been identified as an important social driver promoting environmentally friendly behavior (Chauhan and Bhagat, 2018). Studies indicate that when consumers perceive strong social support for environmental protection, they are more likely to engage in behaviors consistent with social values (Johnstone and Hooper, 2016), and subjective norms play a pivotal role in shaping purchase intentions (Ling et al., 2024). Moreover, when consumers feel that people around them encourage buying organic products, their purchase intention increases significantly (Savi, 2024). Therefore, this study proposes the following hypotheses:

H2: Subjective norms have a positive and significant effect on behavioral intention.

2.4 Relationship between Perceived Behavioral Control and Behavioral Intention

Perceived behavioral control (PBC), the third core component of TPB, refers to individuals' subjective assessment of their ability and control over performing a specific behavior (Ajzen, 1991). When individuals believe they possess sufficient resources, knowledge, and external support, their behavioral intention increases significantly; conversely, when they perceive constraints or difficulties, their intention tends to decline. Prior studies have shown that PBC not only influences behavioral intention but can also directly affect actual behavior (Xie et al., 2022). In the context of green consumption, consumers who perceive that organic products are easily accessible, reasonably priced, and transparently labeled are more likely to intend to purchase them. Conversely, when consumers perceive organic products as expensive or lacking in information, even a positive attitude may not translate into action (Kalyan and Metta, 2024). Environmental education can reduce information asymmetry and uncertainty by providing relevant knowledge and guidance, thereby strengthening consumers' confidence and perceived control (Yuan et al., 2024). Moreover, educational experiences enhance self-efficacy, promoting the actual execution of pro-environmental behaviors (Boyes and Stanisstreet, 2012). Therefore, this study proposes the following hypotheses:

H3: Perceived behavioral control has a positive and significant effect on behavioral intention.

3. Research Methodology

3.1 Research Framework

Based on the preceding literature review, this study adopts the Theory of Planned Behavior (TPB) as the core analytical model. The three psychological constructs—attitude, subjective norms, and perceived behavioral control (PBC)—are regarded as the primary antecedents influencing behavioral intention. Attitude reflects consumers' evaluations and emotional tendencies toward purchasing organic agricultural products; subjective norms capture their perceptions of social expectations and opinions of significant others; and perceived behavioral control refers to individuals' assessments of their own resources, capabilities, and environmental support. Together, these three dimensions jointly determine whether consumers develop the intention to purchase organic agricultural products. Through empirical analysis, this research verifies the applicability of the TPB model in the context of organic consumption and provides both theoretical and managerial implications for environmental education and sustainable consumption strategies. The proposed research framework is illustrated in Figure 1.

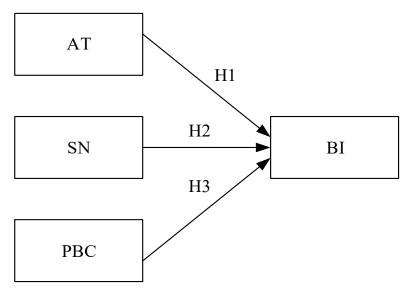


Figure 1: Research framework

3.2 Questionnaire Design

This study employed a questionnaire survey to collect empirical data. The questionnaire was developed based on the theoretical foundation and prior research, and it comprised four main constructs: attitude, subjective norms, perceived behavioral control (PBC), and behavioral intention. All items were measured using a five-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree"), to assess the respondents' level of agreement with each statement. The measurement items for each construct are presented in Table 1.

Table 1: Questionnaire items

Construct/Variable	Measuring Items			
Attitude (AT)	AT1: I believe that purchasing organic agricultural products is a healthy			
	behavior.			
	AT2: I believe that purchasing organic agricultural products helps			
	protect the environment.			
	AT3: I have a positive attitude toward purchasing organic agricultural			
	products.			
	AT4: I believe that organic agricultural products are safer than			
	conventional products.			
	AT5: Purchasing organic agricultural products contributes to sustainable			
	development.			
	AT6: I think purchasing organic agricultural products is a worthwhile			
	behavior.			
	AT7: I feel good when I purchase organic agricultural products.			
	AT8: I am willing to support farmers or enterprises that produce organic			
	products.			
Subjective Norms (SN)	SN1: I value my family's opinions regarding the purchase of organic			
	agricultural products.			
	SN2: My friends support purchasing organic agricultural products.			
	SN3: Most people around me think that buying organic agricultural			
	products is the right thing to do.			
	SN4: I believe that society generally encourages the purchase of organic			
	agricultural products.			
	SN5: I will follow the advice of important others if they suggest I buy			
	organic products.			
Perceived Behavioral	PBC1: I am capable of distinguishing organic agricultural products from			
Control (PBC)	conventional ones.			
	PBC2: I can easily obtain information related to organic agricultural			
	products.			
	PBC3: I have sufficient financial ability to purchase organic agricultural			
	products.			
	PBC4: If I want to buy organic agricultural products, I can easily do so.			
D.1. 11. (777)	PBC5: Purchasing organic agricultural products is not difficult for me.			
Behavioral Intention (BI)	BI1: I am willing to purchase organic agricultural products in the future.			
	BI2: I will give priority to purchasing organic agricultural products.			
	BI3: I will choose organic agricultural products if the price is reasonable.			
	BI4: I will recommend others to purchase organic agricultural. products.			

3.3 Descriptive Statistics and Data Collection

In this study, data were collected through a structured questionnaire survey. The questionnaire, designed based on the research framework and validated through expert review for content validity, was administered in Tainan City, Taiwan, across major retail outlets and organic product sections, including hypermarkets, fresh produce supermarkets, and specialty organic stores. This area was chosen for its consumer diversity and representativeness, enabling a reliable reflection of urban consumers' attitudes and intentions toward organic agricultural products. A convenience sampling approach was employed, with trained research assistants distributing and collecting questionnaires from shoppers on-site.

A total of 300 questionnaires were distributed, and 278 were returned. After eliminating incomplete or inconsistent responses, 266 valid samples were retained, yielding an effective response rate of 88.7%. The final sample size met the minimum requirements for structural equation modeling (SEM), ensuring statistical adequacy and model reliability.

Regarding the sample profile, 48.1% of the respondents were male and 51.9% were female, indicating a balanced gender distribution. The majority of respondents were aged 30–39 years (28%), followed by 20–29 years (25%) and 40–49 years (22%), suggesting that the sample was primarily composed of middle-aged adults. In terms of monthly income, the largest group earned NT\$40,000–60,000 (30%), followed by NT\$60,000–80,000 (25%) and NT\$20,000–40,000 (20%), reflecting a reasonable alignment with the average income levels in Tainan City. With respect to purchasing behavior, respondents reported buying organic agricultural products two to three times per month on average, with a typical monthly expenditure of approximately NT\$700–800, indicating a steady but moderate pattern of organic consumption among urban consumers.

4. Empirical Results

4.1 Reliability and Validity Analysis

The reliability and validity of the measurement model were first examined to ensure the stability and internal consistency of all constructs. Following the criteria proposed by Fornell and Larcker (1981): (1) standardized factor loadings should exceed 0.50, (2) the average variance extracted (AVE) should be greater than 0.50, and (3) the composite reliability (CR) should be above 0.60. As presented in Table 2, all standardized factor loadings ranged from 0.737 to 0.850, satisfying the recommended thresholds, thus indicating good indicator reliability. Furthermore, Cronbach's α values for each construct ranged from 0.828 to 0.901, demonstrating high internal consistency reliability. The AVE values (0.592–0.674) and CR values (0.880–0.921) were all above the recommended standards, confirming both convergent validity and reliability. Overall, the measurement items effectively captured the theoretical meaning of their respective latent constructs, including attitude, subjective norms, perceived behavioral control, and behavioral intention.

Table 2: Results for factor loading, reliability, and validity

Constructs	Items	Factor Loading	Cronbach's α	CR	AVE
Attitude (AT)	AT1	0.766	0.901	0.921	0.592
	AT2	0.769			
	AT3	0.772			
	AT4	0.779			
	AT5	0.767			
	AT6	0.737			
	AT7	0.797			
	AT8	0.770			
Subjective norms (SN)	SN1	0.757	0.828	0.880	0.594
	SN 2	0.802			
	SN 3	0.750			
	SN 4	0.744			
	SN 5	0.798			
Perceived behavioral	PBC1	0.798	0.856	0.897	0.634
control (PBC)	PBC2	0.825			
	PBC3	0.817			
	PBC	0.772			
	PBC5	0.769			
Behavioral intention	BI1	0.807	0.839	0.892	0.674
(BI)	BI2	0.850			
	BI3	0.839			
	BI4	0.786			

Note: CR: Composite reliability; AVE: Average variance extracted.

4.2 Structural Model and Hypothesis Testing

Subsequently, the structural equation model (SEM) was tested to verify the hypothesized relationships. The overall goodness-of-fit indices indicated an acceptable model fit: GFI = 0.85, AGFI = 0.81, RMSEA = 0.08, SRMR = 0.04, NFI = 0.95, CFI = 0.97, and PNFI = 0.84, all meeting or approaching the recommended thresholds, demonstrating that the model adequately fits the observed data. As shown in Table 3 and Figure 2, all hypothesized paths were statistically significant at the p < 0.001 level. Specifically, attitude (β = 0.42, p < 0.001) exerted a positive and significant effect on behavioral intention, supporting H1; subjective norms (β = 0.35, p < 0.001) had a significant positive effect on behavioral intention, supporting H2; and perceived behavioral control (β = 0.32, p < 0.001) also positively influenced behavioral intention, supporting H3.

Table 3: SEM analysis results and hypothesis verification

Hypothesis	Hypothesized Path	Path coefficient	Results
H1	AT→BI	0.42 ***	Supported
H2	SN→BI	0.35 ***	Supported
Н3	PBC→BI	0.32 ***	Supported

Note: *** p < 0.001.

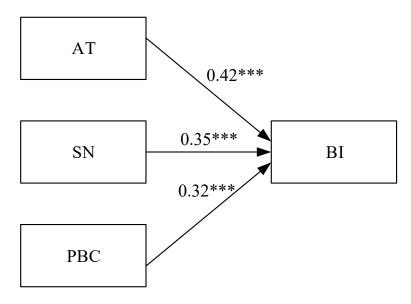


Figure 2: SEM Results

Note: *** p < 0.01

Overall, all three constructs exerted significant positive effects on behavioral intention. Among them, attitude demonstrated the strongest influence, followed by subjective norms and perceived behavioral control. These findings confirm the applicability of the TPB framework in explaining consumers' behavioral intentions toward organic agricultural products, suggesting that consumers' positive evaluations serve as the primary driver of purchase intention, while social influence and self-efficacy further reinforce their intention to act.

5. Conclusion

The present study, grounded in the Theory of Planned Behavior (TPB), investigated how environmental education influences consumers' behavioral intentions toward purchasing organic agricultural products through the mediating roles of attitude, subjective norms, and perceived behavioral control. Using data collected from 266 valid samples in Tainan City, Taiwan, structural equation modeling (SEM) was employed for empirical analysis. The results demonstrated that all three psychological constructs exerted significant positive effects on behavioral intention, confirming the applicability of the TPB model in the context of organic agricultural consumption. Specifically, attitude exerted the strongest influence on behavioral intention, indicating that consumers' positive evaluations and environmental awareness are key drivers of their willingness to purchase organic products. Subjective norms also played a significant role, suggesting that social support and peer influence effectively enhance individual purchasing intentions. Moreover, perceived behavioral control significantly affected behavioral intention, implying that when consumers perceive themselves as having sufficient knowledge,

resources, and capability, they are more likely to engage in sustainable purchasing behaviors.

Based on the findings, several managerial and policy recommendations are proposed. First, governments and educational institutions should actively promote environmental education programs and activities to strengthen public awareness of sustainable consumption and the value of organic products, particularly by fostering green lifestyle consciousness at school and community levels. Second, businesses should employ green marketing strategies and enhance transparency in product information to build consumer trust and positive attitudes toward organic products, thereby stimulating purchase intentions. Third, policymakers should consider offering price subsidies or tax incentives to mitigate consumers' perception of high organic product prices, while improving supply chain accessibility and convenience to enhance purchasing feasibility.

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