Eco-Labels and Green Purchasing Behaviors: The Mediating Role of Environmental Knowledge and Trust

Sinan Cavusoglu[1]* (ID)

[1]Bingol University, Finance Banking and Insurance Department, Bingol, 12000, Turkey

*Correspondence to: Sinan Çavuşoğlu, Bingöl University, Finance Banking and Insurance Department, Bingöl, 12000, Türkiye.
E-mail: sinankys42@gmail.com

Abstract: This study examines how eco-labels shape green purchasing behavior by focusing on two key mechanisms: consumers' general environmental knowledge and their trust in eco-labels. Survey data were collected from 390 volunteer consumers who self-identified as eco-consumers, and the proposed relationships were tested in SmartPLS using a partial least squares structural equation modeling approach. The results indicate that eco-labels are positively related to both general environmental knowledge and trust in eco-labels. Mediation tests further show that these two variables jointly provide a positive partial pathway through which eco-labels translate into stronger green purchasing behavior, rather than operating as simple on-pack cues. Practically, the findings suggest that brands should treat eco-labels as part of their broader branding strategy: labels need to communicate clear, specific, and verifiable sustainability claims, supported by recognizable certification information and consistent messaging across touchpoints. When eco-labels rest on credible, transparent, and easy-to-check standards, government agencies and certification bodies can also strengthen consumer confidence and reduce skepticism, which in turn can improve the effectiveness of policy initiatives aimed at increasing green purchasing. In addition, improving consumers' baseline environmental knowledge through public information campaigns, retailer education, or brand-led content can amplify the impact of trustworthy labels by helping shoppers interpret certification cues and compare products more confidently. Overall, the study highlights that well-designed eco-label systems can build trust, inform consumers, and encourage meaningful shifts toward greener purchasing decisions.

Keywords: Eco-labels, general environmental knowledge, green purchasing behaviors, trust in eco-labels, eco-consumers, certification, sustainable consumption, green marketing, SmartPLS.

INTRODUCTION

People's efforts to protect the world for a sustainable environment have accelerated in recent years, influencing purchasing behavior. Consumers, especially regarding environmental considerations, take into account the environmental consequences of their purchases (Taufique, Vocino, & Polonsky, 2017). Thus, consumers are more willing to select environmentally friendly products and/or organic products (Nosi, Zollo,

Rialti, & Ciappei, 2020). The purchase of green products increases consumer awareness and knowledge about environmental issues. Green purchasing is the process of making environmentally friendly purchases, a behavior which consumers promote as they exhibit concern for the environment and are further used by companies in developing strategies to encourage their consumers to consume eco-friendly products through EL (Carrión-Bósquez, Ortiz-Regalado, Veas-González, Naranjo-Armijo, & Guerra-Regalado, 2025). EL represents a marketing instrument for brands; they are, in fact, tools used by brands to encourage the purchase of products (Riskos, Dekoulou, Mylonas, & Tsourvakas, 2021).

It is increasingly recognized as a relevant topic in this domain, considering the role played by EL and their effectiveness on consumer purchasing (Testa, Iraldo, Vaccari, & Ferrari, 2015; Yang, Xue, & Qiao, 2024). As a communication tool for companies, eco-labeling provides information on the environmental friendliness of their products to consumers (Nguyen-Viet, 2022). Given the interrelation between EL and awareness of environmental issues, an effect on purchasing behavior can be expected. As defined above, GEK is the accumulation of knowledge and awareness of the environmental problems facing us today, as well as solutions to these problems (Fryxell & Lo, 2003). By assuring that the manufacturer follows specific environmental practices, eco-labeling provides clear examples of the standardized criteria set by the authority issuing the label. This helps build trust between the manufacturer and the consumer, encouraging environmentally conscious buying habits (Lee, Lee, & Gunarathne, 2018). Furthermore, research indicates that as consumer awareness and understanding of environmental protection increase in developing markets, more people will opt for green products. This shift is mainly driven by their environmental concerns and the potential effects of green purchasing on the environment (Yin, Li, Li, Ding, & Zhang, 2022).

To promote green consumerism in developing nations, EL plays a key role in facilitating the widespread adoption of sustainable consumption practices. Thus, marketers and policymakers should look toward using EL as a vehicle for implementing new business strategies to promote the continued growth of green businesses (Kumar & Basu, 2023). The Environmental Labeling System was introduced by Turkey in 2018 and was based on the Environmental Labeling Regulation (EC) No. 66 of 2010, which was introduced to Turkey from the EU Eco-labeling Regulation No. 66 (see Figure 1). The Environmental Labeling Regulation established environmental labeling criteria for product categories including Tourist Accommodation Services, Cleaning Paper, Textiles, Ceramic Coatings, Hand Washing, Dish Washing, Detergent, Personal Care, Cosmetics, Glass, Laundry Detergents, and Dishwasher Detergents. Seven categories received environmental labels from Turkey. In 2021, the Turkish Environmental Label, a national eco-labeling system, was implemented (see Figure 2), was introduced (Birpınar, Atay, & Yetiş, 2023).

Although previous research has explained green purchasing intention/behavior through various variables (Amalia, Sosianika, & Suhartanto, 2020; Song, Qin, & Yuan, 2019), the specific psychological/perceptual mechanisms by which EL influence GPB are not sufficiently clear, particularly in emerging markets (Agarwal & Kumar, 2021; Riskos et al., 2021). A significant portion of current studies considers either GEK or TEL in isolation, failing to comprehensively examine the simultaneous mediating role of these two variables within the same model (i.e., how they "carry" the effect of the eco-label). However, in emerging markets, where heterogeneity in knowledge levels and TEL can be more pronounced, the transformation of EL into behavior largely depends on these two mechanisms.

Figure 1: Turkish Environment Label

Figure 2: EU Ecolabel

This study aims to fill a gap in the literature by testing the impact of EL on GPB in the Turkish context, through the partial mediation of GEK and TEL, and to reveal how EL "works" through a more explanatory mechanism. Within this framework, the study focuses on explaining under what conditions and through what mechanisms the impact of EL on GPB is strengthened; thus, it provides a mechanism-based contribution to the consumer behavior literature and generates implications for brands and policymakers to increase the effectiveness of eco-label applications.

LITERATURE REVIEW

Consumers' preference for products bearing ecological certifications and EL has increased in recent years; this increase has become more visible with the strengthening of environmental concerns and sustainable consumption norms (Hazaea et al., 2022). However, the fundamental problem in green product markets is that consumers cannot fully verify the environmental claims of a product before purchasing it. Therefore, the risk of "greenwashing" coexists with "truly environmentally friendly" products in the same market. That being said, EL is an informational heuristic and assurance device that consumers rely on to mitigate uncertainty (Hwang, Park, & Kim, 2016; Thøgersen, Haugaard, & Olesen, 2010). The purpose of this research is to explore the effects that ecological labels have on pro-environmental purchase behavior, under the aegis of two congruent theoretical frameworks: Signal Theory and Planned Behavior (PB) perspective. Signal Theory suggests that firms will give signals to consumers about product quality when there is market information asymmetry; customers base their decisions on the degree of trust in these signals. Under this scheme, EL is a "certifiable" signal regarding the quality of a product's environmental attributes and its purpose is to lower consumers' search costs and increase the credibility of environmental claims (Lee et al., 2018; Thøgersen et al., 2010). Consequently, the existence of EL can enhance an individual's propensity and willingness to buy green products (Panopoulos, Poulis, Theodoridis, & Kalampakas, 2023; Waris, Dad, & Hameed, 2021). Based on this:

H_1*: EL is positively associated with GPB.*

The Theory of Planned Behavior emphasizes that behavior (purchasing) is shaped not only by external stimuli but also by an individual's knowledge-based evaluations. In this context, although an eco-label is a signal, the consumer's ability to read and interpret this signal is closely related to their GEK. Environmental knowledge reflects the level of awareness regarding environmental problems, cause-and-effect relationships, and solutions, and forms the cognitive infrastructure that supports green consumption decisions (Fryxell & Lo, 2003; Yuriev, Dahmen, Paillé, Boiral, & Guillaumie, 2020). EL reduces the consumer's cost of information searching by providing product-specific environmental information at the point of purchase; in this process, exposure to EL and the label content can interact with the consumer's GEK, strengthening their knowledge level (Taufique, Siwar, Chamhuri, & Sarah, 2016; Težak, Pičuljan, & Goreta Ban, 2023). Therefore:

H₂: EL is positively associated with GEK.

Signal theory also argues that for a signal to translate into behavior, the consumer must find the signal trustworthy. EL only gains a "guarantee" function when they are perceived as accurate/verifiable by the consumer; otherwise, the label may become ineffective or create doubt in the decision-making process. Therefore, the comprehensibility of the eco-labeling system and its support by standards strengthen the formation of trust in the consumer (Gorton, Tocco, Yeh, & Hartmann, 2021; Thøgersen, 2000). Thus:

H₃: EL is positively associated with TEL.

From a TPB perspective, environmental knowledge supports environmentally friendly behaviors by increasing the consumer's capacity to evaluate environmental consequences. The literature shows that as environmental knowledge increases, environmental concern and awareness increase; this strengthens the likelihood of choosing environmentally friendly products (Carducci et al., 2021; Hansmann, Laurenti, Mehdi, & Binder, 2020; Yuriev et al., 2020). In this context:

H₄: GEK is positively associated with GPB.

EL functions as a "certificate seal/proof" for consumers (Alamsyah, Mulyani, Othman, & Ibrahim, 2020); however, consumers only use this information to the extent that they believe it Oates et al. (2008). Trust facilitates GPB by reducing perceived risk and doubt; as TEL increases, consumers may prefer eco-labeled products more consistently (Case, 2004; Galati, Miret-Pastor, Siggia, Crescimanno, & Fiore, 2022; Nguyen & Le, 2020). Therefore:

H₅: TEL is positively associated with GPB.

The main theoretical claim of this study is that EL directly influences GPB and generates a mechanism that explains "how it works" through information and trust channels. EL can strengthen GEK by increasing consumer exposure to environmental content and reducing the cost of information seeking; increased knowledge can be reflected in behavior by supporting environmentally friendly choices (Polonsky, Vocino, Grau, Garma, & Ferdous, 2012; Taufique et al., 2016). Similarly, EL increases TEL when they make the environmental claims of a product more credible; increased trust facilitates GPB (Carrión-Bósquez et al., 2025; Kumar & Basu, 2023). Therefore, the following mediation hypotheses have been established.

H₆: GEK mediates the relationship between EL and GPB.

H₇: TEL mediates the relationship between EL and GPB.

METHODOLOGY

This study aims to investigate the mediating role of GEK and TEL on the effect of eco-labels on GPB. The study population consisted of voluntary individuals who identified themselves as eco-product consumers. Data were collected in the last quarter of 2024. Due to the impossibility of accessing all eco-product users, a convenience sampling method was used. In this context, data collection targeted a sample size of 384 in populations larger than 100,000 (Ural & Kilic, 2006), and data were obtained from 390 participants. However, the fact that the sample was based on voluntarism and that participants self-declared as "eco-product consumers" might lead to a risk of self-selection bias. This situation may increase the likelihood of environmentally conscious individuals participating, thus limiting the sample's ability to fully represent the general consumer base. Therefore, the findings may be more strongly observed, especially for consumers already interested in eco-products. Caution should be exercised in generalizing the results to the entire consumer population. This issue has been considered within the scope of the study's limitations.

The survey conducted on individuals comprises two parts. The first part includes questions aimed at determining the demographic characteristics of the participants. The second section measured the eco-label variable using four items: "I think EL displayed-on products are a good way to inform consumers," "I believe that eco-labeled products meet reliable environmental quality standards," "The presence of certified organic labels increases my trust in a product," and "I believe that eco-labeled products are genuinely committed to protecting the environment" (Carrión-Bósquez et al., 2025). The GEK variable was also assessed in the second section with four items: "I am very familiar with the term global warming," "I am very familiar with the term

organic product," "I am very familiar with the term climate change," and "I am very familiar with the term greenhouse gas" (Taufique et al., 2016). Figure 3 presents the proposed research model.
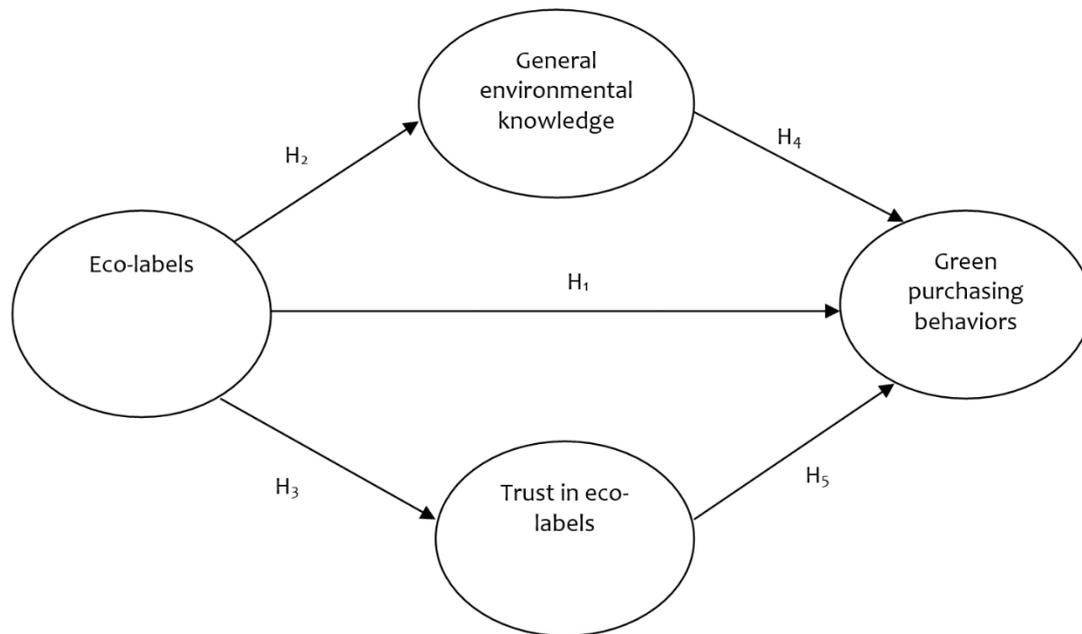

Figure 3: Proposed Research Model

Another variable in the second section was TEL, which was measured using three items: "The labels are genuinely dedicated to environmental protection," "Most of what the labels say about their products is true," and "If a label makes a claim or promise about a product, it is likely true"(Taufique et al., 2017). The final variable, GPB, was assessed with four items: "I regularly purchase organic products," "I buy organic products for my daily needs," "I have purchased organic products in recent months," and "I purchase organic products, but there were also conventional alternatives available"(Carrión-Bósquez et al., 2025). The scales in the second section of the survey were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). To make the scales usable in the Turkish context, the items were adapted into Turkish using the back-translation method. In the first stage, the items were translated from English to Turkish, and then translated back into English by two competent academics to verify semantic equivalence. In the second stage, opinions were sought from academics specializing in marketing/consumer behavior regarding the cultural appropriateness and comprehensibility of the expressions; minor linguistic adjustments were made to the items as deemed necessary. Finally, the survey form was subjected to a pilot application with a small group of participants to verify the comprehensibility of the items.

In the analysis of data, the PLS method in the SmartPLS program, which can process all data simultaneously, was used (Ali, Rasoolimanesh, Sarstedt, Ringle, & Ryu, 2018). At this stage, the measurement model, structural model evaluation, and structural equation model (SEM) were analyzed. In the measurement model evaluation, Cronbach's alpha (α) and the validity of the external model (rho_a, rho_c, AVE, external loadings, Fornell-Larcker Criterion, HTMT) were calculated. In the structural model evaluation, the internal model (InnerVIF, R^2, f^2) was analyzed. Finally, SEM was used to test the hypotheses.

FINDINGS

This study first identified the demographic characteristics of the participants who completed the survey form. The results obtained in this context are presented in detail in Table 1.

Table 1: Demographics of the Participants

Demographic Characteristics		n	%
Age	18-24	62	15.9
	25-34	103	26.4
	35-44	92	23.6
	45-54	68	17.5
	55-64	47	12.0
	65 ≤	18	4.6
Gender	Male	209	53.6
	Female	181	46.4
Marital status	Married	262	67.2
	Singles	128	32.8
Education	Primary education	23	5.9
	High School	71	18.2
	Associate degree	84	21.5
	Bachelor's degree	201	51.5
	Master's degree/Ph.D.	11	2.9
Perception of income status	Very low	103	26.4
	Low	147	37.7
	Average	76	19.5
	High	52	13.3
	Very high	12	3.1

The findings showed that 26.4% of the participants were aged 25-34, with 53.6% male and 46.4% female. Regarding marital status, 67.2% were married, and 51.5% held a bachelor's degree. Concerning their perception of income level, 37.7% stated they belonged to a low-income group.

In the measurement model analysis phase of those scales, the factor loadings, reliability coefficients, internal consistency, convergent validity, discriminant validity, and statistics related to model fit were considered. External indicator loadings were checked to discuss factor loadings, and results for all scales used come out above 0.50 (Kaiser, 1974) (See Figure 4).

The Cronbach alpha values were calculated so that the reliability coefficients of those scales might be discussed. It was found that all scales' Cronbach alpha values were above 0.70 (Hair, Risher, Sarstedt, & Ringle, 2019). Therefore, at this stage, it meets the requirements of scale items' reliabilities.
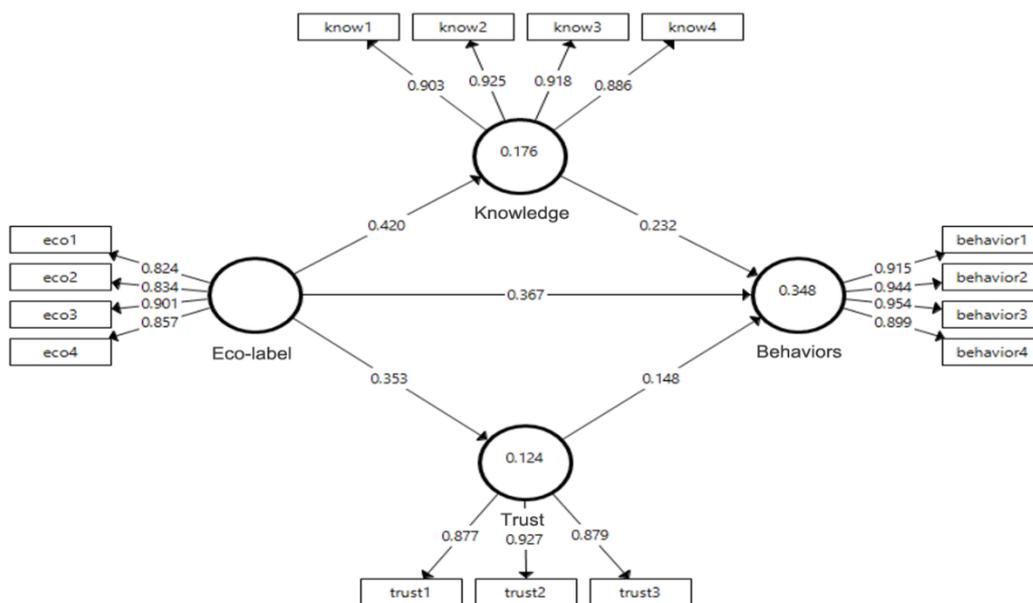

Figure 4: Factor Loadings and R² Results

Integrated reliability criteria (rho_a and rho_c) were employed to test the combined reliability measures of the scale statements. First, Dijkstra and Henseler (2015) determined the rho_a value for each of the scale items, and all scale item values were found to be greater than 0.70. A second calculation of rho_c was then performed for each scale item, and all values were found to be greater than 0.60 (Bagozzi & Yi, 1988). The combination of the two values indicates that all scale items are internally consistent. The fourth step in developing the scales was to calculate the average variance extracted (AVE) for each scale item to confirm convergent validity. It was found that all scale item loadings were greater than 0.50. As a result, convergent validity exists across the scales as defined by Fornell and Larcker (1981). An overview of both the integrated reliability and average variance extracted for the various scales can be found in Table 2.

Table 2: Results of Internal Consistency and Convergent Validity Analysis

Variables	α	Rho_a	Rho_c	AVE
EL	0.877	0.884	0.915	0.730
GEK	0.929	0.929	0.950	0.825
TEL	0.875	0.882	0.923	0.800
GPB	0.946	0.946	0.961	0.861

The discriminant validity of the scales was assessed using the Heterotrait-Monotrait Ratio (HTMT) and the Fornell-Larcker criterion. HTMT results are shown in Table 3. The analysis showed that all values were below the 0.9 threshold (Henseler, Ringle, & Sinkovics, 2009).

Table 3: Discriminant Validity Analysis Results (HTMT)

Variables	1	2	3	4
EL				
GEK	0.460			
TEL	0.400	0.442		
GPB	0.565	0.475	0.405	

The Fornell-Larcker criterion assesses discriminant validity by comparing the square root of the mean variance extracted (AVE) for all discriminant variables with their correlation loadings, using AVE values. The main criterion is that the square root of the AVE exceeds the correlation coefficients (Fornell & Larcker, 1981).

Based on the results presented in Table 4, it can be concluded that the scales possess discriminant validity. Consequently, these evaluations confirmed that the scales demonstrate discriminant validity.

Table 4: Discriminant Validity Analysis Results (Fornell-Larcker Criterion)

Variables	1	2	3	4
EL	**0.855**			
GEK	0.420	**0.908**		
TEL	0.353	0.400	**0.895**	
GPB	0.517	0.446	0.371	**0.928**

To conduct a structural assessment of the research model, results for InnerVIF, the coefficient of determination (R^2), and effect size f^2 were examined. Becker, Ringle, Sarstedt, and Völckner (2015) define that if the InnerVIF values of the scales used in this study are less than 5.00, then there is no multicollinearity problem among these scales. The detailed results can be seen in Table 5. Structural model analysis calculated explanatory ratios for the dependent variables over the independent variables; that is, R^2 values were considered for this purpose. In R^2 calculation, a value above 0.10 is already considered sufficient (Yıldız, 2021). Thus, GEK had an explanatory ratio of 0.17, TEL a ratio of 0.12, and GPB an accounting ratio of 0.34.

Effect size values were examined in the analysis of the structural model. An effect size coefficient of 0.02-0.15 is considered low; 0.15-0.35 is medium, while above 0.35 is high (Çavuşoğlu, 2021). Results review indicates that effect sizes are generally moderate. Based on f^2 values, H_4 and H_5 have small effect sizes; thus, they may contribute minimally to this model. Effect size results are presented in Table 5.

When the measurement and structural model analysis results became available, they were used to test hypotheses in this study through a structural equation modeling approach. Details are presented in Table 5.

Table 5: Structural Equation Model Results

Hypotheses		ß	SM	SD	T Statistics	P Values	InnerVIF	f^2	Results
H_1	EL ->GPB	0.368	0.367	0.048	7.643	0.000***	1.277	0.162	Supported
H_2	EL ->GEK	0.420	0.422	0.050	8.375	0.000***	1.000	0.214	Supported
H_3	EL ->TEL	0.353	0.356	0.057	6.225	0.000***	1.000	0.142	Supported
H_4	GEK -> GPB	0.232	0.232	0.054	4.257	0.000***	1.331	0.062	Supported
H_5	TEL -> GPB	0.148	0.147	0.042	3.497	0.000***	1.252	0.027	Supported

Note: $p=<0.001$***.

From the results of the structural equation modeling analysis, it was observed that EL had a positive influence on GPB, GEK, and trust in them. Therefore, H_1, H_2, and H_3 are valid. This also indicates that GEK positively influences GPB, making H_4 valid. Furthermore, the study examined the effect of TEL on GPB. The results showed that TEL positively influences GPB; therefore, hypothesis H_5 was accepted. The beta coefficients, significance levels, and coefficients of determination for the research results are presented in Figure 5.
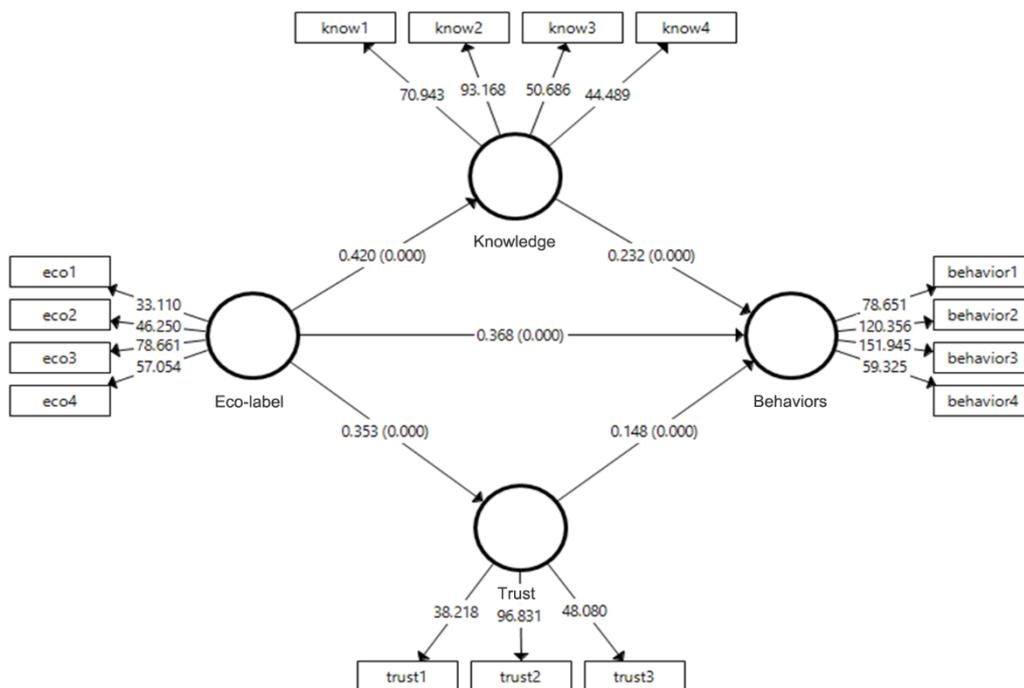

Figure 5: Results of Structural Equation Model Analysis

Within the scope of this research, the mediating roles of GEK and TEL between EL and GPB were examined. Details regarding all these assessments are shown in Table 6.

Table 6: Mediation Effect Analysis Results

Hypotheses		β	SM	SD	T Statistics	P Values	Results
H_6	EL -> GEK ->GPB	0.097	0.099	0.028	3.452	0.001**	*Supported*
H_7	EL ->TEL ->GPB	0.052	0.053	0.019	2.820	0.005**	*Supported*

Note: ** $p < 0.01$.

The mediation analysis revealed that GEK and TEL positively mediate between eco-labeling and GPB. Therefore, hypotheses H_6 and H_7 were accepted. Since the direct effect of the independent variables on the dependent variables was significant when all mediation effects were examined, the type of mediation effect was determined to be partial mediation (Zhao, Lynch, & Chen, 2010).

RESULTS

Research on the consumption of eco-labeled products maintains its importance in an academic context. Since there is little proof regarding the purchase of eco-labeled products in Turkey, this study validates the effect of EL on GPB and highlights how GEK and TEL influence this relationship. All proposed hypotheses are fully supported.

The results showed a positive relationship between EL and GPB. This finding is consistent with the literature (Carrión-Bósquez et al., 2025; Kumar & Basu, 2023; Lee et al., 2018). Other results show that EL has a positive relationship with GEK (Taufique et al., 2016; Težak et al., 2023) and EL has a positive relationship with TEL (Gorton et al., 2021; Thøgersen, 2000). Such findings indicate that EL is an operative instrument in building trust in perception among consumers and supporting the level of knowledge/awareness about environmental issues. The findings show that GEK has a positive relationship with GPB (Bougherara & Combris, 2009; Polonsky et al., 2012; Yin et al., 2022) and TEL has a positive relationship with GPB (Galati et al., 2022; Oates et al., 2008) are also consistent with the literature. In the end, the mediation analysis validated that GEK and TEL are partial mediators of the EL-GPB nexus (Göçer & Sevil Oflaç, 2017; Hameed & Waris, 2018; Hossain, Nekmahmud, & Fekete-Farkas, 2022; Polonsky et al., 2012).

CONCLUSION

It establishes the influence of EL on GPB in Turkey, both direct and indirect, through GEK and TEL. This means that EL, as a mechanism, can be placed within the framework more strongly to support green purchasing compared to what product information labels are used for when considered at the level of environmental knowledge and trust toward labels. Consequently, this study provides a mechanism-based contribution as an explanatory framework in response to the question raised of "How do eco-labels work?" The partial mediating impacts of GEK and TEL show that there cannot be one single factor that explains GPB. Psychological processes such as knowledge and trust are important, though complementary. Therefore, in practices aimed at increasing the visibility of EL when considering green purchasing, it is essential to strengthen information strategies that support consumers' levels of environmental knowledge as well as the content comprehensibility, verifiability, and reliability of labels. This study improves the fit for mechanism-based explanations in the literature on green consumption by demonstrating that GEK and TEL mediate rather than communicate more directly between EL and GPB. Upon immediate simultaneous testing of these two mechanisms, it is found that the "information" and "assurance" functions of EL happen to work together in the consumer decision process; hence, extending the explanatory power under an expanded version of baseline models. The results obtained from Turkey, being a developing market context, advocate that the impact assessment for EL should be contextualized with dynamics related to such a level of knowledge and trust. To business entities, the EL marks their value communication tool apart from mere labels added to their packaging and products. Brands must strongly advocate for transparent sustainability claims, verifiable certification information, and consistent green communication to support the use of EL. Short descriptions that make the understandability of labels more comprehensible, applications such as QR code verification/traceability, and messages describing "what makes

something environmentally friendly" will build up trust, further supporting GPB. In general, any informative content that raises awareness campaigns in-store directions, web/social media statements, or supporting statements that enhance consumers' environmental awareness levels will likely turn EL into action. For brands, communicating the eco-label should be managed not as a singular packaging message but instead as a system part of the whole company's corporate sustainability strategy and reporting. High-level eco-label claims should be connected with (i) product/supply chain objectives (energy, water, waste, and emissions), (ii) measurable indicators presented in the sustainability report, and (iii) independent verification/certification outputs. The matching of the promises made on the label with reported performance e.g., traceability, audit results, certification scope will build trust and also support green purchasing. For policymakers and certification authorities, it is a critical finding that eco-label systems should be standardized, made auditable, and easy for consumers to understand. Simplified labeling criteria, transparent audit processes, and sanctions against inappropriate/misleading environmental claims (greenwashing), along with public awareness campaigns, would increase TEL. Furthermore, education and training awareness programs directed toward GEK would strengthen the role of EL in the market by supporting the effectiveness of sustainable consumption policies.

LIMITATIONS AND RECOMMENDATIONS FOR FURTHER STUDIES

The fact that this study's data was obtained from volunteer individuals in Türkiye who identified themselves as eco-product consumers can be considered a limiting factor in the generalizability of the findings. Therefore, it is considered that the results of data collected in different regions and countries may differ. Another limitation of this study is that it is limited to the determined model variables. It is thought that future research, which will be conducted by including different variables and a diversified sample, may provide significant opportunities for enhancing the results. In addition, representativeness can be increased in future studies using probabilistic sampling, quota sampling, or panel data, and the status of being an eco-product consumer can be verified with measures, such as purchase frequency/spending.

REFERENCES

Agarwal, N. D., & Kumar, V. V. R. (2021). Three decades of green advertising–a review of literature and bibliometric analysis. *Benchmarking: An International Journal, 28*(6), 1934-1958. https://doi.org/10.1108/BIJ-07-2020-0380

Alamsyah, D. P., Mulyani, Y. U., Othman, N. A., & Ibrahim, N. R. W. (2020). Green customer behavior: Mediation model of green purchase. *International Journal of Psychosocial Rehabilitation, 24*(5), 2568-2577.

Ali, F., Rasoolimanesh, S. M., Sarstedt, M., Ringle, C. M., & Ryu, K. (2018). An assessment of the use of partial least squares structural equation modeling (PLS-SEM) in hospitality research. *International Journal of Contemporary Hospitality Management, 30*(1), 514-538. https://doi.org/10.1108/IJCHM-10-2016-0568

Amalia, F. A., Sosianika, A., & Suhartanto, D. (2020). Indonesian millennials' Halal food purchasing: Merely a habit? *British Food Journal, 122*(4), 1185-1198. https://doi.org/10.1108/BFJ-10-2019-0748

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 16*(1), 74-94. https://doi.org/10.1007/BF02723327

Becker, J.-M., Ringle, C. M., Sarstedt, M., & Völckner, F. (2015). How collinearity affects mixture regression results. *Marketing Letters, 26*(4), 643-659. https://doi.org/10.1007/s11002-014-9299-9

Birpınar, M. E., Atay, S., & Yetiş, Ü. (2023). The importance of eco-labels in sustainable production and consumption: Türkiye's environmental labeling system. *Environment, City and Climate Magazine, 2*(3), 60-81.

Bougherara, D., & Combris, P. (2009). Eco-labelled food products: What are consumers paying for? *European Review of Agricultural Economics*, *36*(3), 321-341. https://doi.org/10.1093/erae/jbp023

Carducci, A., Fiore, M., Azara, A., Bonaccorsi, G., Bortoletto, M., Caggiano, G., . . . Nicolosi, L. K. (2021). Pro-environmental behaviors: Determinants and obstacles among Italian university students. *International Journal of Environmental Research and Public Health*, *18*(6), 3306. https://doi.org/10.3390/ijerph18063306

Carrión-Bósquez, N. G., Ortiz-Regalado, O., Veas-González, I., Naranjo-Armijo, F. G., & Guerra-Regalado, W. F. (2025). The mediating role of attitude and environmental awareness in the influence of green advertising and eco-labels on green purchasing behaviors. *Spanish Journal of Marketing-ESIC*, *29*(3), 330-350. https://doi.org/10.1108/SJME-08-2023-0217

Case, S. (2004). Eco-labels: Making environmental purchasing easier. *Government Procurement*, *12*(3), 32-35.

Çavuşoğlu, S. (2021). The impact of green advertising and green brand awareness on green customer satisfaction: The mediating role of green purchasing behavior. *Gaziantep University Journal of Social Sciences*, *20*(3), 1355-1374. https://doi.org/10.21547/jss.893209

Dijkstra, T. K., & Henseler, J. (2015). Consistent and asymptotically normal PLS estimators for linear structural equations. *Computational Statistics & Data Analysis*, *81*, 10-23. https://doi.org/10.1016/j.csda.2014.07.008

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50.

Fryxell, G. E., & Lo, C. W. H. (2003). The influence of environmental knowledge and values on managerial behaviours on behalf of the environment: An empirical examination of managers in China. *Journal of Business Ethics*, *46*(1), 45-69. https://doi.org/10.1023/A:1024773012398

Galati, A., Miret-Pastor, L., Siggia, D., Crescimanno, M., & Fiore, M. (2022). Determinants affecting consumers' attention to fish eco-labels in purchase decisions: A cross-country study. *British Food Journal*, *124*(10), 2993-3013. https://doi.org/10.1108/BFJ-05-2021-0498

Göçer, A., & Sevil Oflaç, B. (2017). Understanding young consumers' tendencies regarding eco-labelled products. *Asia Pacific Journal of Marketing and Logistics*, *29*(1), 80-97. https://doi.org/10.1108/APJML-03-2016-0036

Gorton, M., Tocco, B., Yeh, C.-H., & Hartmann, M. (2021). What determines consumers' use of eco-labels? Taking a close look at label trust. *Ecological Economics*, *189*, 107173. https://doi.org/10.1016/j.ecolecon.2021.107173

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hameed, I., & Waris, I. (2018). Eco labels and eco conscious consumer behavior: The mediating effect of green trust and environmental concern. *Journal of Management Sciences*, *5*(2), 86-105.

Hansmann, R., Laurenti, R., Mehdi, T., & Binder, C. R. (2020). Determinants of pro-environmental behavior: A comparison of university students and staff from diverse faculties at a Swiss university. *Journal of Cleaner Production*, *268*, 121864. https://doi.org/10.1016/j.jclepro.2020.121864

Hazaea, S. A., Al-Matari, E. M., Zedan, K., Khatib, S. F. A., Zhu, J., & Al Amosh, H. (2022). Green purchasing: Past, present and future. *Sustainability*, *14*(9), 5008. https://doi.org/10.3390/su14095008

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing, New challenges to international marketing. In (pp. 277-319). Bingley, United Kingdom: Emerald Group Publishing Limited.

Hossain, I., Nekmahmud, M., & Fekete-Farkas, M. (2022). How do environmental knowledge, eco-label knowledge, and green trust impact consumers' pro-environmental behaviour for energy-efficient household appliances? *Sustainability*, *14*(11), 6513. https://doi.org/10.3390/su14116513

Hwang, J. A., Park, Y., & Kim, Y. (2016). Why do consumers respond to eco-labels? The case of Korea. *SpringerPlus*, 5, 1-13.

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, *39*(1), 31-36. https://doi.org/10.1007/BF02291575

Kumar, A., & Basu, R. (2023). Do eco-labels trigger green product purchase intention among emerging market consumers? *Journal of Indian Business Research*, *15*(3), 466-492. https://doi.org/10.1108/JIBR-09-2022-0248

Lee, K.-H., Lee, M., & Gunarathne, N. (2018). Do green awards and certifications matter? Consumers' perceptions, green behavioral intentions, and economic implications for the hotel industry: A Sri Lankan perspective. *Tourism Economics*, *25*(4), 593-612. https://doi.org/10.1177/1354816618810563

Nguyen-Viet, B. (2022). Understanding the influence of eco-label, and green advertising on green purchase intention: The mediating role of green brand equity. *Journal of Food Products Marketing*, *28*(2), 87-103. https://doi.org/10.1080/10454446.2022.2043212

Nguyen, H. T., & Le, H. T. (2020). The effect of agricultural product eco-labelling on green purchase intention. *Management Science Letters*, *10*(12), 2813-2820. https://doi.org/10.5267/j.msl.2020.4.028

Nosi, C., Zollo, L., Rialti, R., & Ciappei, C. (2020). Sustainable consumption in organic food buying behavior: The case of quinoa. *British Food Journal*, *122*(3), 976-994. https://doi.org/10.1108/BFJ-09-2019-0745

Oates, C., McDonald, S., Alevizou, P., Hwang, K., Young, W., & McMorland, L.-A. (2008). Marketing sustainability: Use of information sources and degrees of voluntary simplicity. *Journal of Marketing Communications*, *14*(5), 351-365. https://doi.org/10.1080/13527260701869148

Panopoulos, A., Poulis, A., Theodoridis, P., & Kalampakas, A. (2023). Influencing green purchase intention through eco labels and user-generated content. *Sustainability*, *15*(1), 764. https://doi.org/10.3390/su15010764

Polonsky, M. J., Vocino, A., Grau, S. L., Garma, R., & Ferdous, A. S. (2012). The impact of general and carbon-related environmental knowledge on attitudes and behaviour of US consumers. *Journal of Marketing Management*, *28*(3-4), 238-263. https://doi.org/10.1080/0267257X.2012.659279

Riskos, K., Dekoulou, P., Mylonas, N., & Tsourvakas, G. (2021). Ecolabels and the attitude–behavior relationship towards green product purchase: A multiple mediation model. *Sustainability*, *13*(12), 6867. https://doi.org/10.3390/su13126867

Song, Y., Qin, Z., & Yuan, Q. (2019). The impact of eco-label on the young Chinese generation: The mediation role of environmental awareness and product attributes in green purchase. *Sustainability*, *11*(4), 973. https://doi.org/10.3390/su11040973

Taufique, K. M. R., Siwar, C., Chamhuri, N., & Sarah, F. H. (2016). Integrating general environmental knowledge and eco-label knowledge in understanding ecologically conscious consumer behavior. *Procedia Economics and Finance*, *37*, 39-45. https://doi.org/10.1016/S2212-5671(16)30090-9

Taufique, K. M. R., Vocino, A., & Polonsky, M. J. (2017). The influence of eco-label knowledge and trust on pro-environmental consumer behaviour in an emerging market. *Journal of Strategic Marketing*, *25*(7), 511-529. https://doi.org/10.1080/0965254X.2016.1240219

Testa, F., Iraldo, F., Vaccari, A., & Ferrari, E. (2015). Why eco-labels can be effective marketing tools: Evidence from a study on Italian consumers. *Business Strategy and the Environment*, *24*(4), 252-265. https://doi.org/10.1002/bse.1821

Težak, D. A., Pičuljan, M., & Goreta Ban, S. (2023). The role of pro-environmental behavior, environmental knowledge, and eco-labeling perception in relation to travel intention in the hotel industry. *Sustainability*, *15*(13), 10103. https://doi.org/10.3390/su151310103

Thøgersen, J. (2000). Psychological determinants of paying attention to eco-labels in purchase decisions: Model development and multinational validation. *Journal of Consumer Policy*, *23*(3), 285-313. https://doi.org/10.1023/A:1007122319675

Thøgersen, J., Haugaard, P., & Olesen, A. (2010). Consumer responses to ecolabels. *European Journal of Marketing*, *44*(11-12), 1787-1810. https://doi.org/10.1108/03090561011079882

Ural, A., & Kilic, I. (2006). *Scientific research process and data analysis with SPSS*. Ankara, Türkiye: Detay Publishing.

Waris, I., Dad, M., & Hameed, I. (2021). Promoting environmental sustainability: The influence of knowledge of eco-labels and altruism in the purchase of energy-efficient appliances. *Management of Environmental Quality: An International Journal*, *32*(5), 989-1006. https://doi.org/10.1108/MEQ-11-2020-0272

Yang, Y., Xue, F., & Qiao, G. (2024). The impact of information acquisition ability on consumers' trust in eco-labels in China: Insight of food sustainability. *Frontiers in Sustainable Food Systems*, *8*, 1449848. https://doi.org/10.3389/fsufs.2024.1449848

Yıldız, E. (2021). *Structural equation modeling with SmartPLS: Reflective and formative structures*. Ankara: Seçkin Yayıncılık.

Yin, Z., Li, B., Li, S., Ding, J., & Zhang, L. (2022). Key influencing factors of green vegetable consumption in Beijing, China. *Journal of Retailing and Consumer Services*, *66*, 102907. https://doi.org/10.1016/j.jretconser.2021.102907

Yuriev, A., Dahmen, M., Paillé, P., Boiral, O., & Guillaumie, L. (2020). Pro-environmental behaviors through the lens of the theory of planned behavior: A scoping review. *Resources, Conservation and Recycling*, *155*, 104660. https://doi.org/10.1016/j.resconrec.2019.104660

Zhao, X., Lynch, J. J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, *37*(2), 197-206. https://doi.org/10.1086/651257