



07th Asia-Pacific International Conference on Quality of Life

Wina Holiday Villa, Kuta, Bali, Indonesia, 30 Sep – 02 Oct 2023

Influence of Environmental Knowledge and Green Trust on Green Purchase Behaviour

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Abstract

This study investigates the influence of environmental knowledge and green trust on green purchase intentions and behavior, and the mediating role of purchase intentions. Through questionnaire surveys and statistical analysis, the research findings reveal that environmental knowledge and green trust significantly influence green purchase intentions and actual green purchasing behaviour. The results of this study hold significant meaning for the formulation of environmental education and environmental advocacy strategies, contributing to enhancing consumers' environmental awareness and promoting green purchasing behaviour.

Keywords: Environmental Knowledge; Green Trust; Green Purchase Behaviour; Mediating Effect

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DOI: <https://doi.org/10.21834/e-bpj.v8i26.5141>*

1.0 Introduction

This study, in response to the growing environmental concerns and the acknowledged impact of traditional purchasing habits, prioritizes understanding the driving forces behind consumers' green purchasing decisions (Kaufmann et al., 2012), given the increasing attention consumers are paying to the environmental footprint of products and services (Nguyen et al., 2023). The research, focusing on the third trimester of 2023, aims to explore the factors influencing Green Purchase Behaviour among the adult population in Malaysia. It is structured around five key research questions that examine the roles of Environmental Knowledge, Green Trust, and Green Purchase Attitude in shaping Green Purchase Behaviour (Hume, 2010).

The objectives are to assess the direct and indirect impacts of these variables on sustainable buying habits, with a specific focus on the mediating effect of green purchase intent between environmental knowledge, green trust, green purchase attitude, and green purchasing behaviour, an area where current research is notably lacking (Amin & Tarun, 2020). By employing a quantitative

methodology, data will be collected through questionnaires and analysed using SMARTPLS 4, concentrating on Partial Least Structural Equation Modelling and mediation effects.

The findings are anticipated to provide a deeper understanding of green purchasing habits and their underlying psychology. This insight is crucial, as sustainable development places a high value on green purchasing for environmental conservation. The study's significance is further underscored by its potential to guide strategies that enhance sustainable consumption and to offer practical insights for various stakeholders—including consumers, companies, government agencies, NGOs, and academics. By filling gaps in existing literature, the research serves a vital role in promoting sustainable development and environmental conservation.

2.0 Literature Review

The burgeoning importance of consumers' environmental consciousness, as evidenced by the growing literature, underscores the urgency to delve deeper into the factors shaping green purchasing decisions. Qi et al. (2020) illuminates the significance of green purchase intention, a manifestation of heightened environmental consciousness. While Percy, D. H. (2010) purports that green purchasing embodies a societal stride towards environmental amelioration, it remains critical to pinpoint its antecedents and moderators. Rooting the discussion in theoretical foundations, the Theory of Planned Behaviour (TPB) offers profound insights. Crafted by Icek Ajzen, TPB is a seminal social psychology framework that unravels the motivations behind individual actions, evolving from the Theory of Reasoned Action (TRA) to possess enhanced predictive prowess (Chang, 1998). The theory, in the realm of green consumption, underscores the alignment between consumers' intentions and their purchasing behaviours.

Delving into the nuances of green purchase behaviour, it signifies an inclination towards eco-friendly alternatives over their conventional counterparts (Jaiswal et al., 2018), epitomizing environmentally judicious decisions (Witek & Kuźniar., 2020). Dangelico et al. (2021) initiated a discourse on the factors moulding green purchasing, yet a discernible gap remains. The literature cries out for a more granular exploration, especially on how constructs like environmental knowledge and green trust intertwine to influence such behaviours, a need emphasized by Sultana et al. (2022).

This investigation places a premium on three pivotal constructs: environmental knowledge, green purchase attitude, and green trust. 'Environmental knowledge', as elucidated by Indriani et al. (2019), dwells on consumers' acumen regarding ecological imperatives. It forms a cornerstone, influencing eco-oriented buying propensities (Vazifehdoust et al., 2013; Groening et al., 2018; Amoako et al., 2020). Concurrently, green trust gauges the veracity consumers attribute to corporate eco-claims (Guerreiro & Pacheco, 2021a). Trust, as conceptualized by De Filippi et al. (2020), is the bedrock of relational dynamics. It augments consumers' affinity towards brands, buttressing their green purchase intention (Nora, L., 2019; Kamaldeep, 2021; Al-Khalaf & Choe, 2020).

Finally, green purchase behaviour remains the lynchpin of this discourse. Articulated by Joshi & Rahman (2015), it mirrors the volition of consumers to gravitate towards ecologically benign products. Such behaviour, fostered by heightened environmental cognizance (Dagher & Itani, 2014) and accentuated social responsibility (Sawant, 2015), validates the compelling imperative to elucidate the synergies between the aforementioned constructs in moulding green purchasing decisions. This trend leads to the development of specific hypotheses.

H1: Environmental knowledge has a positive effect on Green Purchase Behaviour.

H2: Green Trust positively influences Green Purchase Behaviour.

H3: Green Purchase Attitude has a positive impact on Green Purchase Behaviour.

H4: Green Purchase Intention mediates the positive relationship between Environmental Knowledge and Green Purchase Behaviour.

H5: Green Purchase Intention mediates the positive relationship between Green Trust and Green Purchase Behaviour.

H6: Green Purchase Intention mediates the positive relationship between Green Purchase Attitude and Green Purchase Behaviour.

3.0 Methodology

This research meticulously dissects the influences steering consumers' green purchasing decisions, anchoring its analysis on the pivotal roles of environmental knowledge, green purchase attitude, and green trust. Recognising the paramountcy of green purchasing in bolstering sustainable development, this study is instrumental in unfolding the complexities that govern sustainable consumption patterns. By deploying extensive questionnaires and a robust statistical scrutiny, it is discerned that both environmental knowledge and green trust wield considerable sway over green purchasing actions, with green purchase intention mediating this dynamic.

3.1 Research framework

The basis of this research study is the conceptual framework which is deeply rooted in the existing literature, drawing on theories of environmental knowledge, green purchase attitudes, green trust, green purchase intentions, and green purchase behaviours. The two diagrams presented above serve as visual representations of this framework. The initial diagram offers a simplified schematic of the hypothesized relationships between the key constructs. The subsequent, more detailed diagram delineates the specific items (indicators) for each latent variable (construct) and their respective loadings, emphasizing the intricacies and robustness of the SEM-PLS model. Data for this study was amassed through a series of questionnaires, designed meticulously to gauge the respondents' environmental knowledge (EK), green purchase attitude (GPA), green trust (GTR), green purchase intention (GPI), and green purchase behaviour (GPB). Each latent construct comprised multiple items to ensure comprehensive coverage and to mitigate the risk of measurement error.

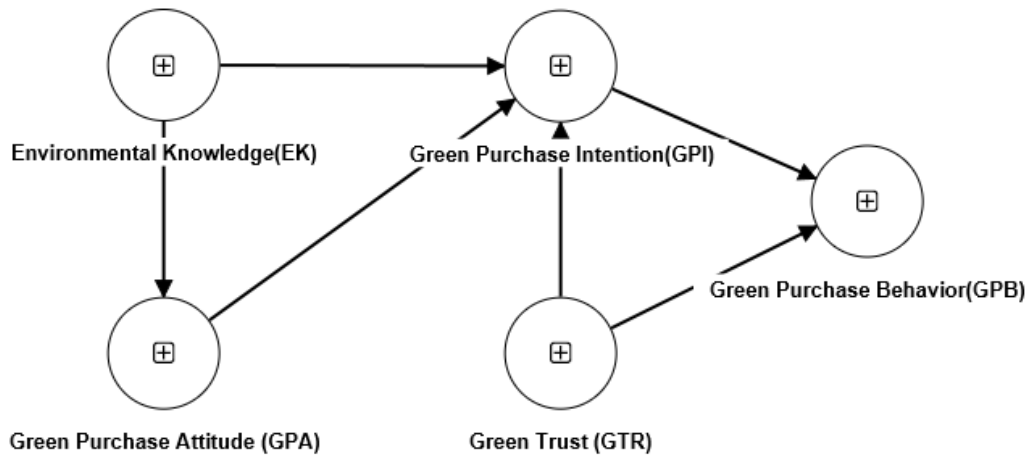


Fig. 1: Proposed Research Framework Based on the TBP.
Source: Ajzen (1991) and Ajzen et al. (2011).

Structural Equation Modelling using Partial Least Squares (SEM-PLS) was the chosen analytical method, given its suitability for this research's objectives and the nature of the data. Measurement Model Assessment: Before delving into the structural model, the measurement model was assessed for validity and reliability. The loadings of individual items on their respective latent constructs (as shown in the detailed diagram) were verified to be above the recommended threshold of 0.7, confirming convergent validity. Composite Reliability (CR) and Average Variance Extracted (AVE) metrics were also computed and met the desired criteria, further establishing the reliability and validity of the measurement model. Structural Model Assessment: With a robust measurement model in place, the focus shifted to the structural model. The relationships between the latent constructs, as hypothesized in the conceptual framework, were evaluated. Bootstrapping with 5000 of resamples was conducted to assess the significance of path coefficients. R² values were computed for endogenous variables to measure the explanatory power of the model. Model Fit and Validation: The goodness of fit of the overall model was determined using standard fit indices. The model was further validated using a holdout sample to ascertain its predictive accuracy.

3.2 Justification of Procedures

The selection of SEM-PLS was strategic, driven by its ability to handle complex models and its leniency towards data distribution assumptions. Additionally, the PLS method is adept at analysing both the measurement and structural models simultaneously, making it an ideal choice for this research. The stratified sampling technique for data collection was crucial to ensure that the dataset captured the nuances and variations within the target population. This, in turn, enhances the generalizability of the findings. The rigorous assessment of both the measurement and structural models, backed by stringent criteria and validation techniques, ensured the credibility and robustness of the findings. In essence, this research, anchored in its conceptual framework and powered by the SEM-PLS analytical technique, offers profound insights into the dynamics of green purchasing, laying the foundation for both theoretical enrichment and pragmatic applications.

4.0 Finding

The current segment delineates the quantitative techniques applied to examine the linkage between sustainable acquisition inclinations and observable conduct via SMARTPLS4. Initially, descriptive statistics will summarise the data, calculating measures like means and standard deviations. Correlation analysis will then assess the link between purchase intention and behaviour. Intermediary probes shall elucidate purchase inclination's intermediating impact between environmental erudition, assurance, and verifiable deeds. Predictive modelling will highlight drivers of purchase intention, knowledge, and trust. Multiple regression will account for confounding factors. The aim is to understand how green knowledge and trust influence purchase behaviour and the mediating role of purchase intention.

The first thing to note in assessing the measurement model is that the SRMR value is 0.072. This result is below the standard threshold of 0.08, suggesting that the model's overall fit meets the requirements. Furthermore, the Cronbach's alpha values for all constructs exceed 0.7, consistent with the standard for internal consistency. At the same time, both the CR and AVE values meet the predetermined standards, exceeding 0.7 and 0.5, respectively, collectively verifying the reliability and convergent validity of the constructs. Additionally, all values in the HTMT ratio matrix are less than 0.85, ensuring good discriminant validity.

Turning to the evaluation of the structural model, the data shows that the path coefficient from EK to GPA is 0.342, while to GPI, it is 0.161, implying that EK has a more significant impact on GPA. Similarly, the path coefficient from GPA to GPI reached 0.526, becoming the primary influencing factor. Moreover, the path coefficients from GPI and GTR to GPB are 0.477 and 0.273, respectively, showing their significant impact on GPB. Regarding f-squared values, the f-squared value of GPA to GPI is the highest, reaching 0.431, while the f-squared values of GPI to GPB and EK to GPA are 0.304 and 0.133, respectively. Lastly, the R-squared values for GPI, GPB, and GPA are 0.502, 0.429, and 0.117, respectively.

Based on the above analysis, the evaluation results of the structural model are consistent with the research hypotheses. Among

them, EK and GPA, as exogenous variables, significantly predict the endogenous variables GPI and GPB.

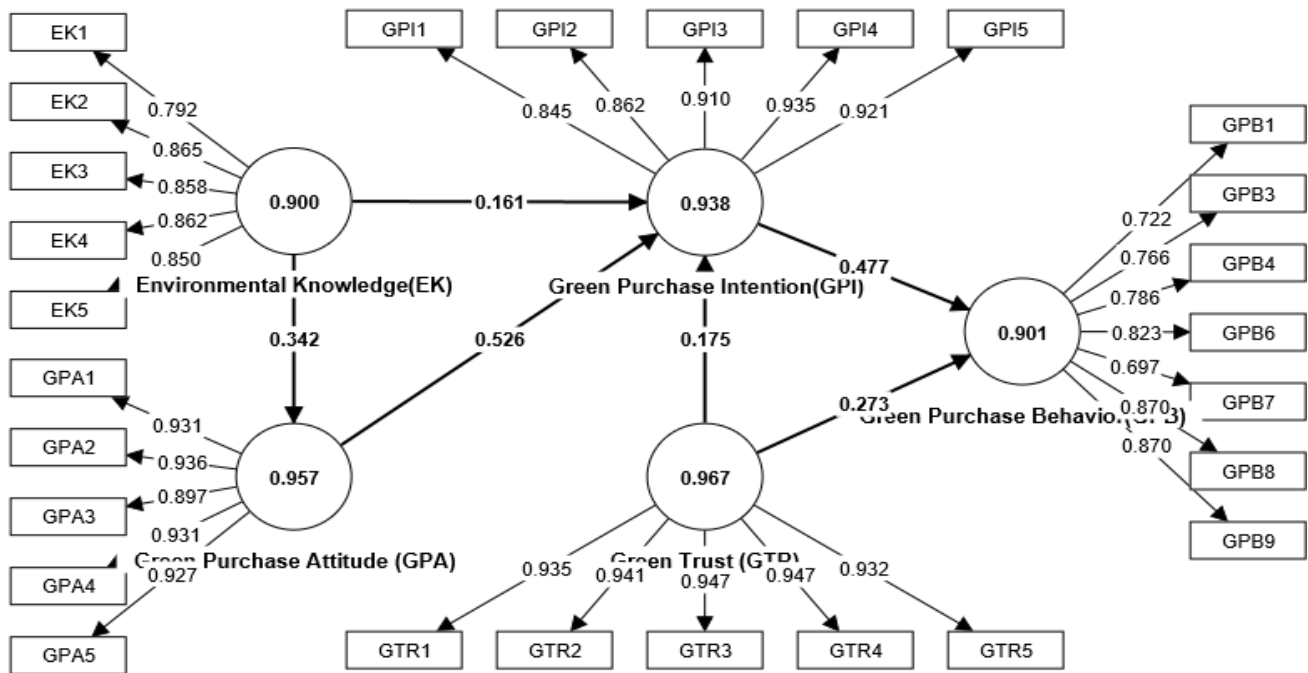


Fig. 2: The Results of the Measurement Model Assessment.

4.2 PLS-SEM

Table 1 Construct Reliability and Validity

	Cronbach's alpha	CR (rho_a)	CR (rho_c)	AVE
EK	0.900	0.902	0.926	0.716
GPA	0.957	0.958	0.967	0.855
GPB	0.901	0.911	0.922	0.629
GPI	0.938	0.940	0.953	0.802
GTR	0.967	0.968	0.975	0.885

Table 2 Discriminant Validity Heterotrait Monotrait Ratio (HTMT)

	EK	GPA	GPB	GPI	GTR
EK					
GPA	0.367				
GPB	0.394	0.391			
GPI	0.460	0.696	0.657		
GTR	0.505	0.468	0.537	0.511	

Table 3 Path Coefficients And F-Square

	Path coefficients	f-square
EK → GPA	0.342	0.133
EK → GPI	0.161	0.040
GPA → GPI	0.526	0.431
GPI → GPB	0.477	0.304
GTR → GPB	0.273	0.099
GTR → GPI	0.175	0.042

Table 4 The R-Square

	R-square	R-square adjusted
GPA	0.117	0.114
GPB	0.429	0.425
GPI	0.502	0.497

4.3 Bootstrapping

Table 5 PIs-Sem Bootstrapping Final Results

	O	M	STDEV	T statistics	P values
Path coefficients					
EK→GPA	0.342	0.345	0.044	7.698	0.000
EK→GPI	0.161	0.162	0.051	3.177	0.001
GPA→GPI	0.526	0.524	0.052	10.098	0.000
GPI→GPB	0.477	0.481	0.074	6.406	0.000
GTR→GPB	0.273	0.271	0.067	4.080	0.000
GTR→GPI	0.175	0.178	0.061	2.875	0.004
Total indirect effects					
EK→GPB	0.163	0.165	0.036	4.506	0.000
EK→GPI	0.180	0.180	0.028	6.358	0.000
GPA→GPB	0.251	0.251	0.040	6.233	0.000
GTR→GPB	0.084	0.086	0.033	2.501	0.012
Specific indirect effects					
EK→GPA→GPI	0.180	0.180	0.028	6.358	0.000
GPA→GPI→GPB	0.251	0.251	0.040	6.233	0.000
EK→GPI→GPB	0.077	0.078	0.028	2.741	0.006
EK→GPA→GPI→GPB	0.086	0.087	0.019	4.591	0.000
GTR→GPI→GPB	0.084	0.086	0.033	2.501	0.012

Initiating with a methodological approach, this study employs a bootstrapping technique augmented by bias-adjusted confidence intervals. This methodology is designed to evaluate the statistical relevance of path coefficients in the structural equation model. Emerging from this methodology, the empirical analysis shows that the coefficient between Environmental Knowledge (EK) and Green Purchase Attitude (GPA) is 0.342. This is accompanied by a T-value of 7.698 and a P-value below 0.001, indicating a level of statistical significance. Following this, the coefficient relating EK to Green Purchase Intention (GPI) is 0.161, supported by a T-value of 3.177 and a P-value below 0.01, further indicating its statistical relevance. Proceeding to another relationship, the coefficient between GPA and GPI is 0.526, with a T-value of 10.098 and a P-value below 0.001. The data suggest that GPA has a positive predictive influence on GPI. Transitioning to subsequent performance metrics, the coefficient linking GPI to Green Purchase Behaviour (GPB) is 0.477. This is supported by a T-value of 6.406 and a P-value below 0.001. Additionally, the coefficients associating Green Trust (GTR) with GPB and GPI—0.273 and 0.175, respectively—exceed the significance threshold of $P < 0.01$.

An examination of total indirect effects shows that EK positively influences GPB and GPI through multiple pathways. Specifically, the total indirect effect of EK on GPI has a path coefficient of 0.180, while that of GPA on GPB is 0.251. Both coefficients have P-values below 0.001. Further analysis focuses on specific indirect effects and reveals that EK influences GPI primarily through the GPA-to-GPI pathway, with a path coefficient of 0.180 ($P < 0.001$). The specific indirect effect of GPA on GPB through GPI has a path coefficient of 0.251, with a P-value below 0.001. The empirical findings validate this study's structural model and theoretical framework, providing statistical evidence supporting the hypotheses. Environmental Knowledge and Green Purchase Behaviour: The empirical analysis supports this hypothesis, indicating a positive coefficient between Environmental Knowledge (EK) and Green Purchase Behaviour (GPB). The path coefficient and statistical significance (P-value below 0.001) validate the positive effect of EK on GPB. Green Trust and Purchase Behaviour: The data supports this hypothesis. The coefficients associating Green Trust (GTR) with GPB exceed the significance threshold of $P < 0.01$, confirming that Green Trust positively influences Green Purchase Behaviour. Green Purchase Attitude and Green Purchase Behaviour: The data supports the hypothesis, which shows a significant positive coefficient between Green Purchase Attitude (GPA) and GPB, further validated by a P-value below 0.001. Mediating Role of Green Purchase Intention between EK and GPB: The study finds that Green Purchase Intention (GPI) does mediate the relationship between EK and GPB. The total indirect effect of EK on GPB through GPI is significant, with a path coefficient of 0.180 and a P-value below 0.001. Mediating Role of Green Purchase Intention between Green Trust and GPB: The data supports this hypothesis. The indirect effect of Green Trust on GPB through GPI is also significant, exceeding the $P < 0.01$ threshold. Mediating Role of Green Purchase Intention between GPA and GPB: The analysis confirms that GPI mediates the positive relationship between GPA and GPB. The specific indirect effect of GPA on GPB through GPI has a path coefficient of 0.251, with a P-value below 0.001.

5.0 Conclusion & Recommendations

This study aims to explore the relationship between green purchase intention and behaviour (Vu et al., 2021). The data was analysed using SMARTPLS 4 software, employing descriptive statistics, correlation, mediation, moderation, and regression to understand this relationship. With the escalation of environmental issues and resource depletion, consumers increasingly prioritise products with lower environmental impact (Nguyen et al., 2023). Driven by the demand for sustainable development, this shift towards green purchasing behaviour necessitates understanding the factors influencing such choices (Kaufmann et al., 2012). This study aimed to examine the relationship between green purchase intention and behaviour. Data analysis using SMARTPLS 4 involved descriptive statistics, correlations, mediation, moderation, and regression methods to comprehend this relationship. In summary, this study investigated green consumer behaviour in-depth, emphasising the roles of environmental knowledge, green trust, and the mediating effect of green purchase intention. Critical implications include: 1. Knowledge and trust drive green purchasing: Individuals with a greater understanding of environmental issues and trust in green products or companies are likelier to purchase green products. 2. Mediating role of purchase intention: Green Purchase Intention bridges environmental knowledge and green trust to actual purchase actions. Environmental knowledge enhances consumers' eco-awareness, promoting positive attitudes towards green products. Trust in the eco-friendly promises of products or companies further amplifies such tendencies. While green purchase intention strongly predicts green purchase behaviour, external factors like product availability and cost influence final decisions. Overall, this study highlighted the intertwining roles of environmental knowledge, green trust, and purchase intention in green consumer behaviour, providing insights to facilitate sustainable consumption and achieve sustainable development goals. In conclusion, by elucidating the factors shaping green purchasing, this research contributes theoretical and empirical evidence to promote environmentally sustainable consumer decisions and lifestyles. The findings provide a valuable reference for diverse stakeholders aiming to encourage green practices. Further research can build on these conclusions to deepen understanding of pro-environmental behaviour.

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