



RECEIVED 11 March 2026
ACCEPTED 21 May 2026
PUBLISHED 31 July 2026

CITATION

Fasha A, Hasan G, Kavitan V, Zabri SM, (2026). What Drives Eco-Friendly Toy Purchases? The Mediating Role of Consumer Attitude. *Ijomata International Journal of Management*. 7 (3), 1060-1068.
doi: 10.61194/ijim.v7i3.2285

TYPE Original Research

PUBLISHED 31 July 2026
DOI 10.61194/ijim.v7i3.2285
VOL 7 Issue 3 July 2026

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What Drives Eco-Friendly Toy Purchases? The Mediating Role of Consumer Attitude

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Abstract

This study investigates consumers' purchase intention toward eco-friendly toys in Batam, Indonesia. In this context, product safety and environmental considerations intersect in parental decision-making yet remain underexplored in green marketing research. Drawing on the Stimulus–Organism–Response (SOR) framework, the study examines how key external stimuli shape internal evaluations and subsequent behavioral intentions. A quantitative cross-sectional survey was conducted with 499 parents who had purchased or considered purchasing toys for their children, and the data were analyzed using PLS-SEM. The findings reveal that consumer attitude plays a central mediating role, translating external cues into purchase intention, with health-related considerations emerging as the most influential driver of attitudes relative to other factors. This highlights the distinctiveness of eco-friendly toys as a product category in which perceived safety and health benefits outweigh purely environmental motives. The study contributes theoretically by extending the SOR framework into a child-related consumption context in an emerging market, demonstrating that attitudinal formation is primarily anchored in protective and trust-based evaluations. Empirically, the results underscore that, in Batam, purchase intention toward eco-friendly toys is driven more by health-oriented concerns than by environmental considerations alone, offering a more context-specific understanding of green consumer behaviour.

KEYWORDS

brand trust; consumer attitude; environmental concern; health concern; purchase intention.

Introduction

Toys play a crucial role in children's growth and development. During play activities, toys contribute to the enhancement of both motor skills and social development in children (Zhou et al., 2022). As the number of child births increases, so does the toy demand. However, this growing number of toys contributes to severe environmental pollution due to the widespread use of plastic as the primary material in toy production. According to a report by the United Nations Environment Program (UNEP), approximately 90% of children's toys available globally are made of plastic, most of which are single-use and environmentally unfriendly. The toy industry generates over 6 million tons of plastic waste globally each year, making it a major contributor to plastic waste in the consumer sector, especially in households (Khayyam et al., 2021). In the United States, data from the (United States Environmental Protection Agency, 2024) shows that less than 10% of plastic waste, including plastics from toys, is successfully recycled. Most end up in landfills, polluting the oceans, or breaking down into microplastics that eventually enter the food chain (Urbaniec & Zur, 2021).

The extensive use of plastic materials in toy production poses significant environmental challenges due to their low biodegradability, resulting in the accumulation of billions of tons of waste, environmental pollution, and the depletion of natural resources (Hoai et al., 2022). Plastic toys also contain harmful chemicals, such as phthalates and lead, which are used to maintain specific plastic properties, including

flexibility and transparency. These chemicals pose substantial risks to both children's health and the environment (Aurisano et al., 2021). Although society has increasingly recognized the growing problem of plastic waste, the issue of plastic usage in the toy industry has not yet received sufficient public attention.

In response to the growing problem of plastic pollution, companies in the children's toy industry have begun implementing innovations by replacing plastic-based materials with biodegradable alternatives that are safe for both children's health and the environment (Kamil & Shaukat, 2023). Biodegradable materials are those that can break down quickly without polluting the environment. These materials are derived from natural raw ingredients and undergo a complex production process. Toy companies are taking concrete steps toward positive change, not only for the environment and children's health but also for the sustainability of their businesses. Several brands, such as Plan Toys, Tender Leaf Toys, Grimm's, Ostheimer, Senger Naturwelt, and Eco-bricks, serve as real-world examples of manufacturers that use biodegradable materials like certified wood, water-based dyes, organic fabrics, and other natural components that are safe and easily decomposable. Using biodegradable materials is not merely a trend but a sustainable practice that contributes to environmental preservation, safety, and health.

Companies in the children's toy industry are also pursuing sustainability by developing fun and engaging toys, free from harmful chemicals, durable, and affordable for consumers. This global trend underscores the need to transition to more sustainable alternative materials. Based on data from LEGO, a leading toy company, they previously used fossil fuel-based plastic as their primary material. However, the company has begun investing in alternative raw materials, including recycled plastics. LEGO has started incorporating renewable materials into some of its products, including sugarcane, recycled kitchen countertops, and discarded fishing nets. The company aims to use 100 per cent renewable or recycled materials by 2032, supported by a mass balance strategy to drive this transition. In 2024, LEGO's spending on environmental initiatives increased by 68 per cent compared to the previous year, nearly tripling since 2022, with a total investment projected to reach \$ 1.4 billion over the next three years (Türk, 2023).

To enhance trust and ensure safety in children's toys, companies in the toy industry are also required to implement safety labeling on their products by established safety and durability standards (Karpudewan, 2024). This approach ensures that toys can continue to support children's development without compromising their health or environmental sustainability (Karpudewan, 2024).

The intention to purchase eco-friendly toys is driven by various factors, such as brand trust, health concern, knowledge, and environmental concern. Brand trust, which refers to consumers' confidence of a brand, has a significant influence in establishing an emotional connection between consumers and the brand (Kara et al., 2023). Health concern reflects an individual's perception of direct personal benefits, such as improved physical well-being and a better quality of life. This is consistent with the concept of self-interest, in which consumption decisions are motivated by personal benefits, such as the preference for ethical or organic products (Chwiałkowska et al., 2024). Knowledge encompasses psychological and social factors that influence environmentally conscious behavior, including attitudes, awareness of environmental issues, and norms shaped by the surrounding environment and individual values. This knowledge is shaped through daily experiences and social environments. Environmental concern assesses the level of awareness and commitment a person has toward addressing

environmental issues.

Brand loyalty typically develops when consumers experience satisfaction with the products they purchase. Such satisfaction fosters emotional attachment and strengthens consumers' intention to continue purchasing from the brand, thus encouraging repeat purchases and positive word-of-mouth (Macheka et al., 2024). According to Lopez-Sintas et al. (2024), such knowledge can encourage individuals to act more responsibly when choosing products, ultimately leading to more environmentally conscious behavior.

Research on environmentally friendly products has been widely conducted (Jasfar & Hasan, 2025). Although green consumption has been widely examined, prior studies have predominantly focused on general eco-friendly products, while product-specific evidence on eco-friendly toys remains limited (Aurisano et al., 2021). One gap that remains insufficiently addressed concerns the role of health concern as a distinct driver of eco-consumption. Although health-related motives have been examined in some green product categories, they have received less explicit attention than environmental concern, trust, and knowledge, especially in the context of eco-friendly toys (Hasan, 2025). Existing research frequently subsumes health considerations within broader environmental or ethical frameworks rather than examining them as an independent construct (Hoang & Tung, 2025). This study addresses that gap by examining eco-friendly toys as a theoretically relevant context in which environmental motives may intersect with parental concerns about safety, harmful substances, and children's well-being. The study is further situated in Batam, Indonesia, an emerging-market setting that remains underrepresented in prior research and may reflect a different pattern of consumer motivations than those commonly reported in developed-country contexts. For example, in the European market, the study found that subjective norms were a significant factor, with a moderate influence on the purchase intention for wooden toys, compared to perceived behavioral control and attitude factors (Prabodhi & Wijewantha, 2024). Therefore, the contribution of this study is primarily contextual and model-based, as it applies the SOR framework to clarify how brand trust, health concern, knowledge, and environmental concern shape consumer attitude and purchase intention in the eco-friendly toy market.

Theoretical Research Model-Stimulus-Organism-Response (SOR)

This study adopts the Stimulus–Organism–Response (SOR) theoretical framework, which describes consumer decision-making's psychological processes. The theory consists of three main components: stimulus (external stimuli), organism (internal processes within the individual), and response (behavioral reaction). Stimulus refers to external elements such as products, brands, or information that trigger individual reactions. An organism represents the consumer's psychological and emotional processes in responding to a stimulus, while a response is the actual behavior resulting from these processes, such as purchase intention (Klein et al., 2021).

In the Stimulus–Organism–Response (SOR) framework, stimuli refer to external or informational cues that shape consumers' internal evaluations, the organism reflects consumers' psychological processing, and the response refers to the resulting behavioral intention or action (Klein et al., 2021). In this study, brand trust, health concern, knowledge, and environmental concern are positioned as stimulus variables because they provide evaluative cues that influence how consumers interpret eco-friendly toys. Consumer attitude is conceptualized as the organism because it captures the internal cognitive and affective evaluation formed in response to those cues, while purchase intention represents the response as the behavioral outcome of that evaluation (Maziriri

et al., 2024). This mapping is theoretically appropriate because prior studies have shown that trust-related perceptions, health-related motives, product knowledge, and environmental concern can shape consumers' internal judgments, which in turn influence their intention to purchase sustainable products (Laheri et al., 2024).

The Influence of Brand Trust on Consumer Attitude

The relationship between sellers and buyers is crucial in the marketplace. Therefore, building trust between both parties is a key factor in fostering positive attitudes. Trust is conceptualized as "the willingness to rely on another party based on the belief that the other party is experienced, professional, reliable, honest, and acts with sincerity" (Abitbol et al., 2022).

Trust is a crucial element that influences consumers' purchasing intentions (Ercantan & Eyupoglu, 2022). Consumers expect trust from various parties, including in products and brands, manufacturers, retailers, certification bodies, and government institutions. In direct human interactions, the importance of trust is evident through subtle social exchanges and positive responses. This process of trust-building also applies to indirect interactions. Consumers rely on information from multiple sources to form trust, and the quality of information received from these agents serves as an important determinant of their evaluation of trustworthiness (van der Lugt, 2024).

Trust in eco-labels on products plays a vital role, as it can determine whether consumers believe the sustainability claims of an eco-label or view them as merely a "greenwashing" strategy. When consumers feel confident and trust the accuracy, independence, and sustainability of an eco-labeling program, they have a greater tendency to support certified eco-friendly products (Noor et al., 2023).

Environmental trust can influence consumers' attitudes and purchase intentions toward eco-friendly products, which may lead to actual behavior or a change in perspective. Previous studies have found that environmental belief as a significant determinant to motivate consumers' intention to purchase eco-friendly products (Setyaningrum & Muafi, 2023). Therefore, the following hypothesis is proposed:

H1. Brand Trust has a positive effect on Customer Attitude

The Influence of Health Concern on Consumer Attitude

Over time, plastic-based products can undergo degradation, increasing the risk of microplastic formation that can contaminate the environment. When microplastics enter the ecosystem, they pose threats to both public health and environmental sustainability (De Cicco et al., 2020). Previous studies indicate that consumers often hold negative perceptions toward recycled plastic used in regenerative production, primarily due to concerns about potential contamination and uncertainty surrounding the recycling process. These issues act as barriers to the acceptance and use of recycled products (Hoang Yen & Hoang, 2023). The findings also suggest that many plastic toys contain chemical substances that may pose health risks to children. This highlights the need for more thorough and detailed research on safer and more environmentally friendly alternatives (Aurisano et al., 2021).

On the other hand, eco-friendly toys are made from environmentally safe materials that do not contain harmful chemicals. The impact of using these eco-friendly materials is negligible, posing no health risks to the public and causing minimal negative effects on the environment (Karpudewan, 2024). This aligns with a growing public awareness that prioritizes health, which encourages pro-environmental actions. This argument is also reflected in various ethical, green, and organic consumption studies. For example, previous research has shown that health concerns can

significantly influence public attitudes toward eco-friendly products (Wang et al., 2022). Therefore, the second hypothesis is proposed:

H2. Health Concern has a positive effect on Customer Attitude

The Influence of Knowledge on Consumer Attitude

Environmental knowledge refers to as an individual's comprehension of facts, concepts, and interrelationships associated with the natural environment and ecological systems, indicating their level of awareness regarding environmental issues (Laheri et al., 2024). When someone have a strong understanding of environmental issues, their attitude tends to reflect concern for the environment and support for eco-friendly purchasing behavior. The level of consumer knowledge about environmental issues significantly influences their intention and attitude toward purchasing eco-friendly products.

Several studies have documented that consumers with environmental knowledge show a higher propensity to engage in pro-environmental behavior and have explored the favorable relationship between knowledge and environmental actions (Kopplin & Rausch, 2022). Consumers with a strong concern for the environment tend to seek information about environmental issues and eco-labels, reinforcing their environmentally conscious attitudes and behaviors. This dynamic relationship underscores the possibility of eco-labels to foster and sustain positive consumer attitudes and environmentally responsible behaviors (Dwivedi et al., 2022).

Eco-brand knowledge can be defined as consumers' understanding of the environmental characteristics of eco-friendly products. Green brand knowledge focuses on how such products can influence consumer behavior. A greater understanding of eco-friendly products has been shown to increase the likelihood of purchase (Gazi et al., 2024). Therefore, the third hypothesis is proposed:

H3. Knowledge has a positive effect on Customer Attitude

The Influence of Environmental Concern on Consumer Attitude

Eco-friendly products are generally considered a suitable solution to environmental problems, as they can be recycled and help reduce waste pollution. People who exhibit a high level of environmental concern are typically more interested in eco-friendly products because they believe that purchasing and consuming environmentally friendly products helps protect the environment for future generations (Hoang Yen & Hoang, 2023).

Environmental concern involves public awareness of environmental problems and the intention to minimize their impact (Laheri et al., 2024). This concern is closely related to an individual's ecological values, which significantly influence their tendency to engage in environmental preservation. Such concern stems from one's self-view, encompassing personal values and beliefs that shape attitudes toward specific eco-friendly products (Nuryakin et al., 2024).

Increasing public concern about environmental issues and plastic pollution fosters the development of stronger pro-environmental beliefs and attitudes (Dwivedi et al., 2022). As a personal value, environmental concern can directly influence consumer attitudes (Handayani et al., 2025). Based on the discussion above, the fourth hypothesis is proposed:

H4. Environmental Concern has a positive effect on Customer Attitude

The Influence of Consumer Attitude on Purchase Intention

Attitude plays a fundamental role in influencing individuals' thoughts, emotions, and decision-making process (Bilal et al., 2023). Perceived values, emotional influence, and brand attitudes serve as an important role of actual actions and purchase intention across various market segments (Bilal et al., 2023). has a significant positive influence on eco-friendly

purchase intentions (Hasan, 2025). Consumers who purchase environmentally friendly products typically do so based on internal intentions (Kamboj et al., 2023). Furthermore, a positive consumer attitude toward a product can significantly enhance purchase intention. Individuals with favourable perceptions of a brand are more likely to purchase and use it (Cabeza-Ramírez et al., 2022).

The intention to buy eco-friendly products comes from personal beliefs and attitudes and external social and cultural factors. The primary goal of understanding purchase intention is to predict and influence consumer buying behavior (Lim & Kesumahati, 2022). Moreover, consumers with strong intentions to buy eco-friendly products are more likely to maintain this behavior in the future. Environmentally driven purchase have a substantial influence on future consumer behaviour and decision-making (Handayani et al., 2025). Furthermore, the fifth hypothesis is proposed:

H5. Consumer Attitude has a positive effect on Purchase Intention

The Mediating Role of Consumer Attitude

Brand trust has a significant influence in forming consumer attitudes, particularly in terms of halal products. Prior studies have demonstrated that brand trust significantly affects purchase intention by strengthening consumers' confidence in the quality and authenticity of the product (Akam et al., 2023). Additionally, brand trust contributes to developing a positive attitude toward halal products, which strengthens consumer loyalty and preference. In the broader context of health concerns, awareness of a healthy lifestyle functions as a key motivator. Consumers are showing a growing preference for eco-friendly toys due to their perceived health benefits and alignment with a sustainable lifestyle, as noted by (Soni et al., 2021). This interaction between brand trust, health concerns, and lifestyle reflects the growing consumer demand for authentic, health-focused products.

Similarly, environmental concerns act as a crucial role in driving consumer preferences toward eco-friendly products. Green brand knowledge—consumers' understanding of a product's environmental attributes have been shown to influence attitudes and partially determine purchase intention (Akam et al., 2023). Consumers with a positive attitude toward eco-friendly products often stem from higher levels of environmental concern and a desire to contribute to sustainability. Furthermore, environmental concern is consistently linked to consumer behaviour and attitudes toward eco-friendly products. Previous studies also emphasise that such concerns shape individual attitudes and drive more environmentally conscious purchase intentions (Yunita et al., 2025). Based on the discussion above, the following mediation hypotheses are proposed:

H6. Attitude mediates the effect of Brand Trust on Purchase Intention

H7. Attitude mediates the effect of Health Concern on Purchase Intention

H8. Attitude mediates the effect of Knowledge on Purchase Intention

H9. Attitude mediates the effect of Environmental Concern on Purchase Intention

Methods

Research Type

This study employed a quantitative approach with a cross-sectional survey design to examine the relationships among brand trust, health concern, knowledge, environmental concern, consumer attitude, and purchase intention toward eco-friendly toys (Turnip et al., 2026). The unit of analysis was parents residing in Batam City who had

children under five years old, as this group was considered highly relevant to decisions regarding toy safety and suitability. Data were collected at the end of 2025 using a structured online questionnaire and were analyzed using PLS-SEM to assess both direct and mediating effects (Hair et al., 2021).

Population and Sample/Informants

Batam's designation as a Free Trade Zone (FTZ) creates a distinctive socio-economic environment that directly shapes consumer behavior (Fasha et al., 2026). The target population consisted of parents aged 25–40 years in Batam City who were familiar with or concerned about eco-friendly products for children. Respondents were included only if they met the screening criteria of being parents of children under five years old and residing in Batam (see table 1). A convenience sampling technique was used because the study specifically targeted accessible respondents within this consumer segment. A total of 499 valid responses were obtained. This sample size exceeded the minimum requirement recommended for PLS-SEM, namely ten times the largest number of indicators used to measure the most complex construct in the model (Hair et al., 2021). The respondent profile shows that 54.7% were female, most were aged 25–30 years (46.1%), and the largest income group reported monthly earnings of IDR 5,000,000–7,000,000 (38.9%). Although this sampling approach enabled efficient access to the target population, it may limit representativeness and should therefore be interpreted with caution when generalizing the findings beyond the sampled respondents.

Research Location

The study took place in Batam City, as a region experiencing rapid industrialization and urbanization, Batam faces various environmental challenges, which have led to a growing public awareness of eco-friendly products (Purwianti et al., 2025). This makes the area a relevant setting for such a study (Dwivedi et al., 2022). Therefore, environmentally conscious residents of Batam are considered an appropriate population for addressing the research objectives.

Table 1. Respondent Demographics

Gender	Female	273	54.7%
	Male	226	45.3%
Total		499	100%
Age	25-30 years	230	46.1%
	31-35 years	190	38.1%
	36-40 years	79	15.8%
Total		499	100%
Education Level	Primary School	0	0.0
	Junior High School	4	0.8
	High School	228	45.7
	Diploma	103	20.6
	Bachelor's Degree	164	32.9
Total		499	100
Monthly Income	< IDR 5.000.000	191	38.3
	IDR 5.000.000 – 7.000.000	194	38.9
	IDR 7.000.000 – 10.000.000	77	15.4
	> 10.000.000 IDR	37	7.4
Total		499	100
Awareness of Eco-Friendly Toys	Yes	496	99.4
	No	3	0.6
Total		499	100

Source: Data Processed by the Author (2025)

Instrumentation or Tools

The scale used in the questionnaire serves as a tool to collect data from respondents. This study employed a 5-point Likert scale ranging from 1-5 (Strongly Disagree-Strongly Agree) because it effectively measures the degree of respondent agreement with specific statements in a systematic and easily analysable manner (Jasin et al., 2024). The research instrument was developed through adaptations of previous studies. The 3 indicators of Brand Trust and 5 indicators of Purchase Intention were adapted from (Kamboj et al., 2023), 3 indicators of Health Concern were adapted from (Thu Nguyen, 2024), 4 indicators of Knowledge from (Witek & Kuźniar, 2024), 4 Environmental Concern from (De Canio et al., 2020), and 4 indicators Consumer Attitude from (Witek & Kuźniar, 2024).

Before the main data collection process, a pre-test was conducted involving several respondents who met the research criteria to evaluate the clarity, readability, and relevance of the questionnaire items. Feedback from the pre-test was used to improve wording and ensure that all statements were easy for respondents to understand. Furthermore, content validity and reliability were further assessed using outer loading, Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach's Alpha within the PLS-SEM analysis procedure Hair et al. (2021).

Data Collection Procedures

This study applied a convenience sampling technique, a form of non-probability sampling, to recruit respondents who were readily accessible and met the predefined inclusion criteria. The questionnaire was distributed online via Google Forms to parents residing in Batam City, and respondents were included only if they were parents of children under five years old and had familiarity with or concern about eco-friendly products for children. Using this procedure, a total of 499 valid responses were obtained. This sampling approach was selected for its practical efficiency in reaching the target respondent group; however, it may also introduce self-selection bias and limit the sample's representativeness. According to Hair et al. (2021), the minimum sample size in PLS-SEM should be at least ten times the largest number of indicators associated with the most complex construct, and

thus the sample size used in this study was considered adequate for the subsequent analysis.

Data Analysis

This research was analyzed quantitatively through PLS-SEM version 3 to investigate the relationships among the variables. Respondents' demographic characteristics were summarized using descriptive statistics. The analysis of the data consisted of two stages. Initially, the measurement model (outer model) was assessed by examining standardized factor loadings to evaluate indicator reliability. Construct reliability and convergent validity were further assessed using Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE), based on the recommended thresholds of CR ≥ 0.70 and AVE ≥ 0.50 (Hair et al., 2021b). The Fornell-Larcker criterion was used to test discriminant validity and to ensure that each construct was distinct from the others. Next, the structural model was evaluated by analyzing standardized path coefficients, T-statistics, and p-values to test the proposed hypotheses. A relationship was considered significant when the T-statistic exceeded 1.96, and the p-value was less than 0.05. Additionally, mediation effects were analyzed by examining the indirect effect between the independent variables and purchase intention via consumer attitude.

Result and Discussion

The results indicate that most indicators exhibit outer loadings above 0.70, demonstrating that they reliably measure their respective constructs (Hair, 2021), with several others still considered acceptable. Internal consistency was evaluated using Cronbach's Alpha and Composite Reliability (CR), both of which exceeded the minimum acceptable threshold of 0.60 and surpassed the recommended benchmark of 0.70 (see table 2). Furthermore, all constructs exhibited AVE values exceeding 0.50, confirming that the model satisfies the criteria for convergent validity. The VIF values are all below 3.3, suggesting that there are no multicollinearity issues or indicators that are excessively similar to one another (Hair et al., 2021b).

The findings reveal that most indicators have outer loadings

Table 2. Reliability and Convergent Validity

Variable	Item	Outer Loading	Cronbach's α	CR	AVE	R2	VIF
BT	BT1	0.771	0.616	0.794	0.562		1.158
	BT2	0.745					1.270
	BT3	0.733					1.273
HC	HC1	0.762	0.652	0.811	0.589		1.287
	HC2	0.773					1.298
	HC3	0.768					1.238
K	K1	0.816	0.778	0.857	0.600		1.606
	K2	0.780					1.593
	K3	0.717					1.388
	K4	0.782					1.525
EC	EC1	0.697	0.687	0.81	0.516		1.317
	EC2	0.706					1.282
	EC3	0.683					1.213
	EC4	0.783					1.404
CA	CA1	0.705	0.684	0.808	0.513	0.513	1.279
	CA2	0.691					1.254
	CA3	0.732					1.304
	CA4	0.737					1.308
PI	PI1	0.667	0.670	0.801	0.501	0.394	1.221
	PI2	0.710					1.289
	PI3	0.708					1.331
	PI4	0.745					1.250

Source: Primary Data

greater than 0.70, suggesting they robustly capture their respective constructs (Hair, 2021), with several others still considered acceptable. The reliability of the constructs was assessed using Cronbach's Alpha and Composite Reliability (CR), both of which exceeded the minimum acceptable threshold of 0.60 and the recommended value of 0.70. Furthermore, the Average Variance Extracted (AVE) values for all constructs were above 0.50, indicating that the model satisfied the criteria for convergent validity. The VIF values are all below 3.3, suggesting that there are no multicollinearity issues or indicators that are excessively similar to one another (Hair et al., 2021b).

As shown in Table 3, all diagonal values exceed the associations between the respective constructs and other constructs. This indicates that each construct demonstrates satisfactory discriminant validity, as it shares greater variance with its own indicators than with the indicators of other constructs.

Table 4, the results of hypothesis testing indicate that all proposed hypotheses are supported. In the structural model, Brand Trust ($\beta = 0.184$; $t = 3.432$; $p = 0.001$), Health Concern ($\beta = 0.308$; $t = 6.538$; $p < 0.001$), Knowledge ($\beta = 0.249$; $t = 4.410$; $p < 0.001$), and Environmental Concern ($\beta = 0.217$; $t = 3.873$; $p < 0.001$) each had a positive and significant direct effect on Consumer Attitude, supporting H1–H4. Consumer Attitude also had a positive and significant direct effect on Purchase Intention ($\beta = 0.629$; $t = 12.920$; $p < 0.001$), supporting H5.

The mediation analysis further reveals that Consumer Attitude significantly mediates the relationship between the independent variables and Purchase Intention. The indirect effect of Brand Trust on Purchase Intention through Consumer Attitude is significant with a T-statistic value of 3.198 and a p-value of 0.001. Likewise, Knowledge indirectly affects Purchase Intention through Consumer Attitude, with a T-statistic value of 3.850 and a p-value of 0.000. Health Consciousness exhibits the strongest indirect effect on Purchase Intention through Consumer Attitude, with a T-statistic value of 5.769 and a p-value of 0.000. In addition, Environmental Concern significantly influences Purchase Intention through Consumer Attitude with a T-statistic value of 3.698 and a p-value of 0.000. Thereby supporting H6–H9.

Overall, these findings confirm the important role of Consumer Attitude as a mediating variable in explaining the influence of Brand Trust, Health Consciousness, Knowledge,

and Environmental Concern on Purchase Intention. The study demonstrates that strengthening consumer trust, increasing health awareness, enhancing consumer knowledge, and promoting environmental concern are essential factors in developing positive consumer attitudes and increasing purchase intention.

Comparison with Previous Studies

Brand Trust has a positive effect on Consumer Attitude

The study results indicate that Brand Trust has a significant positive influence on Consumer Attitude ($\beta = 0.184$; $t = 3.432$; $p = 0.001$); thus, H1 is accepted. This finding not only confirms prior evidence that brand trust fosters favorable attitudes toward sustainable products (Abitbol et al., 2022), but also extends the discussion to the eco-friendly toy context, where trust appears to function as a key mechanism for reducing parental uncertainty about product safety and environmental claims. In this respect, brand trust is not merely a reputational asset, as commonly reported in earlier studies, but also a decision-enabling cue that helps consumers evaluate whether eco-friendly toys are both credible and suitable for children (De Cicco et al., 2020).

Health Concern has a positive effect on Consumer Attitude

Health Concern was found to exert a positive and significant effect on Consumer Attitude ($\beta = 0.308$; $t = 6.538$; $p < 0.05$), thus supporting H2. More importantly, this result suggests that health concern should be understood as a distinct self-protective motivation rather than as a mere extension of environmental concern. Whereas environmental concern reflects a broader orientation toward ecological preservation, health concern is more directly related to consumers' desire to avoid harmful substances and protect children from potential risks associated with plastic materials, microplastics, and toxic chemicals (De Canio et al., 2020). In the context of eco-friendly toys, this distinction is especially important because parents may evaluate such products not only in terms of environmental responsibility but also in terms of immediate safety and bodily well-being, making health concerns a conceptually separate driver of positive consumer attitudes (Karpudewan, 2024).

Knowledge has a positive effect on Consumer Attitude

The study results show that Knowledge has a positive and significant effect on Consumer Attitude ($\beta = 0.249$; $t = 4.410$;

Table 3. Discriminant Validity

	BT	CA	EC	HC	K	PI
BT	0.750					
CA	0.524	0.716				
EC	0.465	0.538	0.718			
HC	0.363	0.561	0.489	0.768		
K	0.519	0.517	0.344	0.322	0.775	
PI	0.498	0.627	0.439	0.435	0.557	0.708

Source: Data Processed by the Author (2025)

Table 4. Hypothesis Testing Results

Hypothesis	Sample mean (M)	T Statistics	P values	Result
BT -> CA	0.184	3.432	0.001	Supported
HC -> CA	0.308	6.538	0.000	Supported
K -> CA	0.249	4.410	0.000	Supported
EC -> CA	0.217	3.873	0.000	Supported
CA -> PI	0.629	12.920	0.000	Supported
BT -> CA -> PI	0.116	3.198	0.001	Supported
K -> CA -> PI	0.157	3.850	0.000	Supported
HC -> CA -> PI	0.194	5.769	0.000	Supported
EC -> CA -> PI	0.136	3.698	0.000	Supported

Source: Data Processed by the Author (2025)

$p < 0.05$), thereby supporting H3. Beyond confirming prior research, this finding suggests that knowledge plays a nuanced role in the Batam context, where consumers may rely on product-related understanding not only to appreciate environmental benefits but also to interpret safety, material quality, and the credibility of eco-friendly claims. In this sense, knowledge does not operate merely as general environmental awareness, as often emphasized in previous studies, but as a practical evaluative resource that helps consumers in an emerging market make sense of sustainable products under conditions of varying information quality and market trust (Gazi et al., 2024).

Environmental Concern has a positive effect on Consumer Attitude

Environmental Concern was found to exert a positive and statistically significant influence on Consumer Attitude ($\beta = 0.217$; $t = 3.873$; $p < 0.05$), thereby supporting H4. Consumers with greater environmental concern tend to have more favorable attitudes toward eco-friendly products, including toys. Individuals who recognize the adverse effects of plastic waste and the importance of environmental conservation tend to value products that support sustainability. A sense of environmental responsibility encourages consumers to be more open to products that are recyclable, non-polluting, and safe to use. This outcome connects with previous studies, which emphasize that ecological values and environmental awareness play a critical role in shaping attitudes toward sustainable products (Laheri et al., 2024).

Consumer Attitude has a positive effect on Purchase Intention

The findings indicate that Consumer Attitude has a strong and significant positive effect on Purchase Intention ($\beta = 0.629$; $t = 12.920$; $p < 0.05$), thereby supporting H5. This result is consistent with prior studies showing that consumer attitude is a key predictor of purchase intention for products associated with ethical and sustainability values (Bilal et al., 2023). In this study, however, the strength of the relationship further indicates that attitude serves as a central mechanism by which evaluations of safety, trustworthiness, and environmental responsibility translate into actual purchase willingness in the context of eco-friendly toys.

Attitude mediates the effect of Brand Trust on Purchase Intention

The results show that Consumer Attitude significantly mediates the effect of Brand Trust on Purchase Intention, with a coefficient of $\beta = 0.116$ ($t = 3.198$, $p < 0.05$). Brand trust appears to influence purchase intention through the mediating effect of a positive consumer attitude. Consumers with high brand trust are more likely to perceive the product as high-quality, safe, and aligned with their personal values, particularly regarding sustainability and health. This belief leads to a supportive attitude that encourages actual purchase intention. The result supports previous research indicating that consumer attitude serves as a crucial bridge between brand perception and actual buying intention, especially for value-based products such as eco-friendly toys (Kopplin & Rausch, 2022).

Attitude mediates the effect of Health Concern on Purchase Intention

Based on the analysis results, Consumer Attitude significantly mediates the relationship between Health Concern and Purchase Intention for eco-friendly toys ($\beta = 0.194$; $t = 5.769$; $p < 0.05$), thus H7 is accepted. This suggests that Health Concern does not directly influence purchasing decisions but shapes a positive attitude toward environmentally friendly products. Consumers concerned

about the risks posed by chemical substances and microplastics in toys tend to adopt a more selective approach, choosing safer, less harmful products. These results reinforce previous findings that perceptions of personal health benefits serve as a key motivator in forming positive attitudes, influencing the intention to purchase products categorized as green, organic, or ethical (Hoang Yen & Hoang, 2023).

Attitude mediates the effect of Knowledge on Purchase Intention

The study also reveals that Consumer Attitude significantly mediates the relationship between Knowledge and Purchase Intention for eco-friendly toys ($\beta = 0.157$; $t = 3.850$; $p < 0.05$), thus supporting H8. Consumers who know about environmental issues and the advantages of sustainable products are more likely to form positive attitudes, influencing their buying decisions. Awareness of the dangers of plastic waste and the importance of adopting a sustainable lifestyle lead consumers to evaluate eco-friendly toys more favorably, encouraging them to purchase such products. In this case, attitude is the intermediary that translates knowledge into actual behavior. This outcome aligns with previous studies, which assert that environmental understanding has a strong influence on consumer attitudes, ultimately affecting purchasing decisions for green products (Gazi et al., 2024).

Attitude mediates the effect of Environmental Concern on Purchase Intention

The analysis confirms that Consumer Attitude is a significant mediator in the relationship between Environmental Concern and Purchase Intention toward eco-friendly products ($\beta = 0.136$; $t = 3.698$; $p < 0.05$), thereby supporting H9. Consumers aware of the importance of environmental preservation tend to embrace sustainability values, which foster a more positive and open attitude toward eco-friendly products. This attitude stems from the belief that purchasing environmentally friendly products is a meaningful way to contribute to environmental protection and the well-being of future generations. These outcomes corroborate earlier studies indicating that consumers' intentions to buy eco-friendly products are strongly shaped by their sustainability values and environmental attitudes (Kamil & Shaukat, 2023).

Limitations and Cautions

While this research delivers meaningful contributions into the influence of brand trust, health concern, knowledge, and environmental concern on consumers' purchase intentions toward eco-friendly toys, several limitations should be noted. First, the study is limited to respondents from Batam City, Indonesia, and the findings may not fully reflect consumer behavior in other regions with varying levels of environmental awareness, cultural contexts, or economic conditions. Future research is recommended to incorporate participants from multiple regions or countries to improve the generalizability of the outcome.

Second, this research applies a convenience sampling technique and collects data through an online questionnaire. This approach may limit the representativeness of the sample and could introduce response bias, as respondents may complete the survey under uncontrolled conditions. Future studies could implement sampling techniques based on probability principles or combine survey data with other research methods to strengthen the reliability of the results.

Lastly, this research focuses primarily on psychological and environmental awareness variables and does not consider other potential factors such as price sensitivity, social influence, or product availability. These factors may also influence consumers' purchase intentions toward eco-friendly toys. Accordingly, subsequent studies are encouraged to integrate further variables to better capture the complexity of

sustainable consumer behavior.

Recommendations for Future Research

Further research should enhance the study's scope by examining different demographic groups and geographical areas to better understand variations in consumer behavior toward eco-friendly products. Comparative studies across cities or countries may provide deeper insights into how cultural and environmental awareness differences influence sustainable purchasing decisions.

Moreover, future research should investigate additional variables that could affect eco-friendly purchase intentions, such as social norms, perceived price value, or green lifestyle orientation. Incorporating moderating or mediating variables may help explain more complex relationships in sustainable consumer behavior.

Finally, future research could utilize qualitative approaches, such as interviews or group discussions, to obtain deeper insights into consumers' motivations, perceptions, and barriers when purchasing eco-friendly toys. This methodology would complement quantitative findings and offer more comprehensive insights for both academic research and managerial practice.

Conclusion

This study applies the Stimulus–Organism–Response (SOR) framework to examine how brand trust, health concern, knowledge, and environmental concern influence purchase intention toward eco-friendly toys through consumer attitude among respondents in Batam, Indonesia. The findings show that all four antecedents significantly affect consumer attitude, and that consumer attitude, in turn, significantly influences purchase intention. Among these predictors, health concern showed the strongest effect on consumer attitude, indicating that safety- and health-related considerations are particularly salient in this product category. Accordingly, the study's main contribution is empirical and contextual, as it demonstrates the relevance of these relationships in the eco-friendly toy market within an emerging-market setting. From a managerial perspective, the findings suggest that firms targeting this segment should prioritize credible product information, emphasize safety and health benefits, and strengthen consumer knowledge about eco-friendly materials and product claims. These implications should, however, be interpreted within the scope of the sampled respondents and the Batam context.

While providing important contributions, this study has several limitations. First, convenience sampling restricts the generalizability of results to the broader Indonesian

population. Future studies should adopt probability sampling or comparative approaches across regions or countries to enhance external validity. Second, the research focuses only on individual-level variables, without considering external factors such as social norms, cultural influences, or price sensitivity, which could also affect purchase intentions. Third, the study is limited to Batam City, which may have unique demographic and environmental awareness characteristics. Future research should incorporate cross-regional data or longitudinal designs to explore behavioral consistency over time. Qualitative approaches, such as interviews or focus groups, could provide more detailed insights into consumer motivations and challenges in purchasing eco-friendly toys. Moreover, future studies could explore moderating factors like income, family size, or green lifestyle orientation to better understand the eco-friendly buying process.

Author contributions

Author 1 contributed to conceptualization, methodology development, formal analysis, investigation, theoretical positioning, and drafting of the original manuscript. Author 2 was involved in data handling, formal analysis, and manuscript review and editing. Author 3 contributed to formal analysis, supervision, and refinement of the study's theoretical contribution and manuscript revision. Author 4 contributed to supervision, validation of the results, and critical review and revision of the manuscript, particularly by strengthening the study's intellectual contribution.

Funding

This research was financially supported by Universitas Internasional Batam through the Collaborative Research Grant Scheme under contract number 020/LPPM/KP-UIB/III/2026. The authors also acknowledge the support from Universiti Tun Hussein Onn Malaysia in facilitating this joint research collaboration. The funding agency had no role in the preparation of the manuscript.

Acknowledgements

The authors would like to express their sincere gratitude to Universitas Internasional Batam for providing financial support through the Collaborative Research Grant Scheme under contract number 020/LPPM/KP-UIB/III/2026. The authors also extend their appreciation to Universiti Tun Hussein Onn Malaysia for supporting this collaborative research. In addition, the authors would like to thank all respondents who participated in this study and contributed valuable data.

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