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## INFLUENCE OF GREEN INNOVATION ON CONSUMER PURCHASE INTENTIONS FOR ECO-FRIENDLY PRODUCTS

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### ARTICLE INFO

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### ABSTRACT

This research investigates the impact of green innovation on green purchase intentions for environmentally friendly products, with environmental concerns as a mediating variable. A survey was employed to gather data from consumers familiar with eco-friendly straw products. Structural equation modeling (SEM) via AMOS software was utilized for data analysis. Primary data was collected through questionnaires distributed to consumers knowledgeable about environmentally friendly straw products. Purposive sampling was employed, resulting in a sample size of 385 respondents. Findings indicate a significant positive relationship between green innovation and environmental concerns. Furthermore, environmental concerns positively influence green purchase intentions, suggesting that higher environmental concerns correlate with a greater likelihood of purchasing environmentally friendly products. However, no significant influence of green innovation on purchase intentions was observed. Future research should investigate the relationship between green innovation, environmental concerns, and purchase intentions. The insights gained from this study can offer valuable recommendations for individuals interested in using environmentally friendly products, enabling them to enhance their green purchase intentions effectively.

**Keywords:** Green Innovation, Environmental Concerns, Green Purchase Intention

## INTRODUCTION

The impact of environmental damage continues to worsen worldwide, becoming an essential factor for the sustainability and quality of human life. Economic growth and construction are often associated with adverse environmental impacts, causing environmental pollution and accumulation of waste. The amount of plastic produced globally continues to increase from year to year. In the context of Indonesia, as a developing country, development projects to meet people's needs and aspirations are growing over time. However, this growth also causes environmental problems such as pollution and the use of single-use plastics, especially plastic straws. This product is complex and can decompose by nature and pollute the land and sea environment (Viera et al., 2020).

Green innovation serves as the primary catalyst for attaining sustainable development, aiming to mitigate the adverse impact of each stage of product recycling on the natural environment (Khan et al., 2021). It encompasses technological advancements, product enhancements, service innovations, organizational restructuring, and management paradigm shifts businesses undertake to realize sustainable development goals (Awan, 2021). Sahoo et al. (2023) articulated that green innovation constitutes a multifaceted strategy encompassing product development, strategic planning, manufacturing processes, novel business frameworks, and managerial approaches to mitigate environmental hazards such as pollution and ecological degradation. Shahzad et al. (2021) present a conceptualization of green innovation as a pivotal tool in facilitating the development and enhancement of products or processes. They emphasize that green innovation involves integrating technological advancements to improve energy efficiency and prevent pollution. In their conceptualization, green innovation serves as a means to introduce novel approaches and techniques that contribute to sustainable practices, thereby addressing environmental concerns and fostering ecological sustainability. By harnessing technological breakthroughs, green innovation aims to propel the transition towards more environmentally friendly solutions across various industries and sectors.

Green innovation underscores the importance of innovative practices geared towards sustainability, thereby contributing to endeavors to mitigate environmental burdens (Awan, 2021). Green innovation in processes and products encompasses addressing environmental imperatives, resource scarcities, compliance with new environmental regulations, societal pressures, and responding to customer demands and competitive actions (Shahzad et al., 2021). It encompasses adopting novel or adapted methodologies, organizational frameworks, and product designs to minimize environmental footprints and ensure long-term environmental sustainability (Awan, 2021). It involves initiatives for environmental conservation such as designing products with reduced pollution and employing eco-friendly materials, developing sustainable materials, creating products conducive to recycling or biodegradability, and affixing eco-labels to products (Han & Xu, 2021).

Chen et al. (2006) present additional categorizations, such as green innovation, aimed at aiding companies in incorporating environmental practices and goals into their overall corporate strategies. As a result, three facets of green innovation are identified: (i) innovation in green products, (ii) innovation in green processes, and (iii) innovation in green management. A new categorization of green technology innovation has been proposed, covering emerging technologies and sophisticated green manufacturing

methods that contribute to creating environmentally friendly products and services (Trapp & Kanbach, 2021). The role of green innovation is pivotal in achieving sustainability objectives. With escalating environmental concerns, green innovation and total quality management have gained increasing importance in securing competitive edges and advancing sustainability efforts (Abid et al., 2022).

According to Wang et al. (2021), green innovation can be categorized into two primary classifications: green technology innovation and green management innovation. Green technology innovation involves advancements in environmental preservation, leveraging scientific and environmental knowledge to foster balanced economic and environmental progress in production processes. These endeavors encompass the development of technologies and products aimed at conserving energy and raw materials while enhancing energy efficiency (Trapp & Kanbach, 2021). On the other hand, green management innovation entails adopting novel organizational structures or management systems to enhance production and management processes, thereby mitigating adverse environmental impacts. Such innovations may include implementing comprehensive environmental management systems and strategies for energy conservation (Abid et al., 2022). Zameer & Yasmeeen (2022) elaborate that indicators of green innovation encompass utilizing environmental technologies to ensure the sustainable utilization of resources, recycling waste generated during production, introducing energy-efficient products to the market, and promoting environmentally friendly products.

Green innovation has been proposed as a solution to these environmental problems. An example is the innovation of eco-friendly straws made from environmentally friendly materials such as stainless steel, paper, bamboo, and glass. However, several obstacles still hinder the adoption of this innovation, such as a lack of public awareness about green innovation and a lack of environmental concern. It is necessary to study how environmental knowledge, concern, and green innovation influence consumers' intentions to purchase environmentally friendly products. Thus, environmental concerns become a substantial key. Environmental concern is when individuals care about environmental problems, support existing environmental policy policies, and are willing to implement policies to overcome environmental problems (Foster, 2020). Public awareness of the environment still needs to be increased.

Environmental concern is when individuals care about environmental problems, support existing environmental policy policies, and are willing to implement policies to overcome environmental problems. Environmental concern can also be interpreted as an evaluation of facts or events based on the resulting consequences for the environment. The concern is considered an attitude that reflects concern for environmental damage and the lack of public attention to environmental preservation. Environmental concern refers to the level of awareness, interest, and care individuals or groups demonstrate towards environmental issues, such as pollution, climate change, habitat destruction, and resource depletion. It reflects a sense of responsibility and willingness to take action to address environmental problems and promote sustainability. Environmental concern can manifest in various forms, including personal behaviors, advocacy for environmental policies, support for conservation efforts, and engagement in environmental activism.

Moreover, environmental concern is considered an evaluation or viewpoint concerning facts, personal actions, or the actions of others with implications for the environment. It encompasses particular attitudes that directly impact intentions or, on a broader scale, overall attitudes or value orientations. The rise in environmental concerns

has driven greater consumer interest in environmentally sustainable products. This shift has fostered a fresh environmental ethos, heightened individual consciousness, and substantially transformed consumption patterns.

Zameer & Yasmeen (2022) elaborate on environmental concerns by identifying three leading indicators. Firstly, individuals express concern about the present state of the environment, indicating worries regarding its current condition. Secondly, there is an emphasis on living in symbiosis with nature, suggesting a desire to preserve and protect the natural world. Lastly, recognizing that human activities contribute to environmental degradation is highlighted, acknowledging humans' role in causing environmental harm.

Increasing knowledge about green innovation and environmental awareness will likely increase the intention to purchase environmentally friendly products. Increasing the adoption of eco-friendly straw innovations can help reduce the use of single-use plastics and help protect the environment from pollution. This research contributes to understanding consumers' intentions to purchase environmentally friendly products. Implementing green innovation in everyday life is the key to reducing environmental damage and maintaining the planet's sustainability. With awareness and concern for the environment, society can make positive changes in facing the growing environmental crisis.

Green purchase intention refers to the willingness or inclination of consumers to buy products or services that are environmentally friendly or sustainable (Costa et al., 2021). It reflects the consumer's intention or desire to choose products that have minimal negative impact on the environment throughout their lifecycle, from production to disposal. Various factors, including environmental awareness, ethical considerations, concern for sustainability, and personal values, drive green purchase intention. Consumers with green purchase intentions typically prioritize products produced using eco-friendly practices, have minimal carbon footprints, use renewable resources, are recyclable or biodegradable and contribute positively to environmental conservation efforts.

The concept of eco-friendly purchase intent has garnered substantial attention recently as consumers exhibit an increasing awareness of environmental issues and aim to adopt more sustainable consumption habits. Essentially, eco-friendly purchase intent denotes consumers' readiness to favor products and services with minimal environmental adverse effects. This inclination is motivated by various factors, encompassing mounting apprehensions regarding climate change, pollution, and the depletion of natural resources. Consumers inclined towards eco-friendly purchasing often evaluate the environmental sustainability of products across their entire lifecycle, from production to disposal (Chang & Hung, 2022).

One key driver of green purchase intention is environmental awareness. As individuals become more informed about the environmental consequences of their consumption habits, they are more likely to seek out eco-friendly alternatives. This awareness may be fostered through education, media coverage of environmental issues, or advocacy campaigns by environmental organizations additionally, societal norms and cultural shifts toward sustainability shape consumers' attitudes and intentions toward green purchasing.

Ethical considerations influence green purchase intention (Liu et al., 2020). Many consumers desire to align their purchasing decisions with their values and beliefs,

including social justice and environmental responsibility concerns. They may support companies that demonstrate ethical business practices, such as using sustainable sourcing methods, minimizing waste, and investing in renewable energy.

Furthermore, concern for sustainability drives green purchase intention. With increasing recognition of the finite nature of natural resources and the urgent need to mitigate climate change, consumers are more inclined to choose products that promote long-term environmental sustainability. It includes favoring products made from recycled materials, reducing energy consumption, and supporting brands that prioritize environmental stewardship in their operations.

Lastly, personal values and lifestyle choices also shape green purchase intention. Many consumers view sustainability as a core aspect of their identity and seek to reflect these values in their purchasing decisions. For some, adopting green purchasing habits is a way to express their commitment to environmental conservation and contribute to positive social change. Overall, green purchase intention reflects a growing movement towards more sustainable consumption patterns and a desire to impact the planet positively.

Zameer & Yasmeen (2022) provide insight into the multifaceted nature of green purchase intention, delineating three key indicators that elucidate consumers' environmentally conscious buying behavior. Firstly, individuals tend to acquire environmentally friendly products, showcasing a forward-looking mindset toward sustainability. This forward-looking approach underscores a strategic shift in consumer behavior, indicating a growing awareness and concern for environmental preservation. Secondly, consumers actively contemplate the purchase of eco-friendly goods, reflecting a deliberate effort to align their buying decisions with environmental values and principles. This deliberation underscores a conscientious approach to consumption, where individuals seek to minimize their ecological footprint through mindful purchasing choices. Lastly, there exists a readiness among consumers to allocate a higher portion of their budget towards environmentally friendly products, signaling a tangible commitment to supporting sustainable practices through financial investment. This willingness to invest in eco-friendly alternatives underscores a shift towards prioritizing environmental considerations in consumer decision-making processes.

Despite green innovation being touted as a solution to environmental issues, there remains a need for more public awareness and concern regarding environmental issues and green innovation. It indicates the need for research that understands how to enhance environmental knowledge, concern, and acceptance of green innovations among the general populace. Additionally, there are barriers to adopting green innovation, such as eco-friendly straw alternatives. These barriers, like the need for more environmental awareness and concern, suggest a void in understanding how to overcome impediments to adopting environmentally friendly practices and products. Furthermore, there is a call to study how environmental knowledge, concern, and green innovation influence consumers' intentions to purchase environmentally friendly products. It underscores the necessity to comprehend the factors driving consumer behavior toward sustainable consumption and how to promote eco-friendly purchasing habits effectively.

Additionally, practical strategies must be explored to raise public awareness of environmental issues and foster a sense of responsibility toward environmental preservation among the general population. Furthermore, while green purchase intention is discussed, there remains a need for a deeper understanding of the factors driving it,

including environmental awareness, ethical considerations, sustainability concerns, and personal values. Further research is needed to explore how these factors influence consumer behavior and decision-making regarding environmentally friendly products.

Based on the background description, the research hypotheses are as follows:

- H<sub>1</sub> : Green innovation significantly affects environmental concerns
- H<sub>2</sub> : Environmental concerns significantly affect green purchase intention
- H<sub>3</sub> : Green innovation significantly affects green purchase intention
- H<sub>4</sub> : Green innovation significantly affects green purchase intention through environmental concerns.

## RESEARCH METHODS

This study belongs to the quantitative research category based on the nature of the data collected. Regarding the analytical approach, it falls under associative research. The participants in this study are individuals who possess an awareness of environmentally friendly products, specifically eco-friendly straws. The research focused on the Bogor region between October 2022 and March 2023. The target population consists of individuals knowledgeable about eco-friendly straw products, with the exact number of respondents unknown and the population being unrestricted. The sample size was determined using the Cochran formula for an infinite population, resulting in a sample of 385 individuals selected through non-probability sampling employing a purposive sampling technique. The specified criteria for the sample include awareness of green innovation products, environmental consciousness, intention to purchase green products, and a minimum age of 18.

Data was analyzed using Structural Equation Modeling (SEM) with Amos software. Before SEM analysis, the collected data underwent pre-test validation, reliability assessment, and normality testing using SPSS version 23 software. The subsequent step involved a confirmatory factor analysis test to ascertain construct validity and reliability. Construct validity was evaluated based on the correlation of indicators with the construct, with a minimum loading factor of 0.50 considered acceptable. Meanwhile, construct reliability was assessed by computing the Construct Reliability (CR) and Average Variance Extracted (AVE) values. CR values  $\geq 0.60$  and AVE  $\geq 0.50$  indicate the reliability of indicators and variables.

Subsequently, the collected data underwent rigorous examination to assess the model's accuracy, as indicated by the goodness of fit index. Hypothesis validation entailed the application of both the t-test and the Sobel test. The acceptance of a hypothesis hinged on the calculated t-value or Critical Ratio (CR) surpassing 1.96 or the p-value falling below 0.05. Additionally, the Sobel test was employed to ascertain the significance of the mediation effect in this study. It quantifies the extent to which the indirect effect is statistically significant, thereby aiding in interpreting complex relationships within a theoretical model. The Sobel test is valuable for establishing causal pathways and elucidating the underlying processes involved in the relationship between variables. A Z value exceeding 1.96 signifies that the intervening variable significantly influences the relationship between the independent and dependent variables.

## RESULTS AND DISCUSSION

A comprehensive depiction of the research respondents, detailing their gender, age categories, educational levels, and professional backgrounds, is thoroughly presented in Table 1, offering an in-depth overview of the demographic composition of the study participants.

**Table 1. Respondents Profile**

Category	N	%
<b>Gender</b>		
Male	101	26.200%
Female	284	73.800%
<b>Age (years old)</b>		
18 – 23	218	56.600%
24 – 29	101	26.200%
30 – 36	32	8.300%
37 – 49	14	3.600%
> 40	28	7.000%
<b>Formal education</b>		
High school	220	57.100%
Diploma Degree	31	8.100%
Bachelor's Degree	110	28.600%
Master's Degree	13	3.400%
Doctorate Degree	11	2.900%
<b>Profession</b>		
Student	225	58.400%
Private team member	85	21.600%
Entrepreneur	35	9.100%
Others	42	10.900%
<b>Income</b>		
< IDR 3,500,000	232	60.200%
IDR 3,500,000 – 5,000,000	61	15.800%
IDR 5,000,000 – 10,000,000	73	19.000%
> IDR 10,000,000	19	4.900%

Source: Primary Data, 2023

Upon carefully examining Table 1, it becomes apparent that most research participants identified as female, falling within the age bracket of 18 to 23. Moreover, many respondents reported attaining a high school diploma or equivalent in formal education. Professionally, many were engaged in student roles, while their income predominantly fell below the threshold of IDR.3,500,000.

The outcomes of the data validity examination for every variable are meticulously illustrated and detailed in the subsequent tables, providing a comprehensive overview of the validation process.

**Table 2. Validity Test Results of The Green Innovation Variable**

<b>Id</b>	<b>Item</b>	<b>r-product Moment value</b>	<b>r-product Moment table n=30 , α=5%</b>
1	GI1	0.811	0.361
2	GI2	0.799	0.361
3	GI3	0.753	0.361
4	GI4	0.809	0.361

Source: Data Processed, 2023

The significance test results show that all significance values of the correlation are below the p-value of 0.050. Thus, all items in the green innovation variable are valid and can be used as good variable measurement items.

**Table 3. Validity Test Results of The Environmental Concerns Variable**

<b>Id</b>	<b>Item</b>	<b>r-product Moment value</b>	<b>r-product Moment table n=30 , α=5%</b>
1	EC1	0.890	0.361
2	EC2	0.940	0.361
3	EC3	0.850	0.361

Source: Data Processed, 2023

The significance test results show that all significance values of the correlation are below the p-value of 0.050. Thus, all items in the environmental concerns variable are valid and can be used as good variable measurement items.

**Table 4. Validity Test Results of The Green Purchase Intention Variable**

<b>Id</b>	<b>Item</b>	<b>r-product Moment value</b>	<b>r-product Moment table n=30 , α=5%</b>
1	GPI1	0.825	0.361
2	GPI2	0.871	0.361
3	GPI3	0.774	0.361

Source: Data Processed, 2023

The significance test results show that all significance values of the correlation are below the p-value of 0.050. Thus, all items in the green purchase intention variable are valid and can be used as good variable measurement items.

A reliability test is a statistical assessment used to determine the consistency and dependability of measurements obtained from a particular assessment tool or instrument. Essentially, it evaluates whether the instrument produces consistent results when applied repeatedly to the same group or individual under similar conditions. The outcomes of the data reliability test for each variable are delineated in the subsequent table.

**Table 5. Reliability Test Results**

<b>Variable</b>	<b>Cronbach's Alpha</b>	<b>N of items</b>
GI	0.802	4
EC	0.870	3
GPC	0.754	3

Source: Data Processed, 2023



Based on the results listed in Table 5, it is known that the Cronbach's Alpha value for each research variable is more significant than 0.600. Thus, all variables in this study are reliable.

The results of the data normality test are presented in Table 6.

**Table 6. Data Normality Test Results**

	<b>Green Innovation (GI)</b>	<b>Environmental Concerns (EC)</b>	<b>Green Purchase Intention (GPI)</b>
Skewness	-0.194	0.073	-0.111
Std. Error of Skewness	0.124	0.123	0.124
Skewness ratio	-1.559	0.588	-0.893
Kurtosis	-0.443	- 0.277	0.136
Std. Error of Kurtosis	0.248	0.248	0.248
Kurtosis ratio	-1.785	-1.118	0.546

Source: Data Processed

Based on the information in Table 6, it is known that the skewness ratio and kurtosis ratio values are in the range of -2 to 2. Thus, all variables in this study are stated to meet the standard distribution assumption and can be continued to the following analysis stage.

### Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) is a statistical method for validating the measurement model of a collection of observed variables by scrutinizing their alignment with the latent constructs or factors outlined in a theoretical framework. Its objective is to corroborate the associations between the observed variables and their respective latent constructs, consequently appraising the suitability of the presumed measurement model. CFA gauges the congruence between the observed data and the proposed model, furnishing insights into the credibility and consistency of the measurement instrument. The findings of the CFA examination conducted in this study are detailed in Table 7.

**Table 7. Results of The Confirmatory Factor Analysis Test**

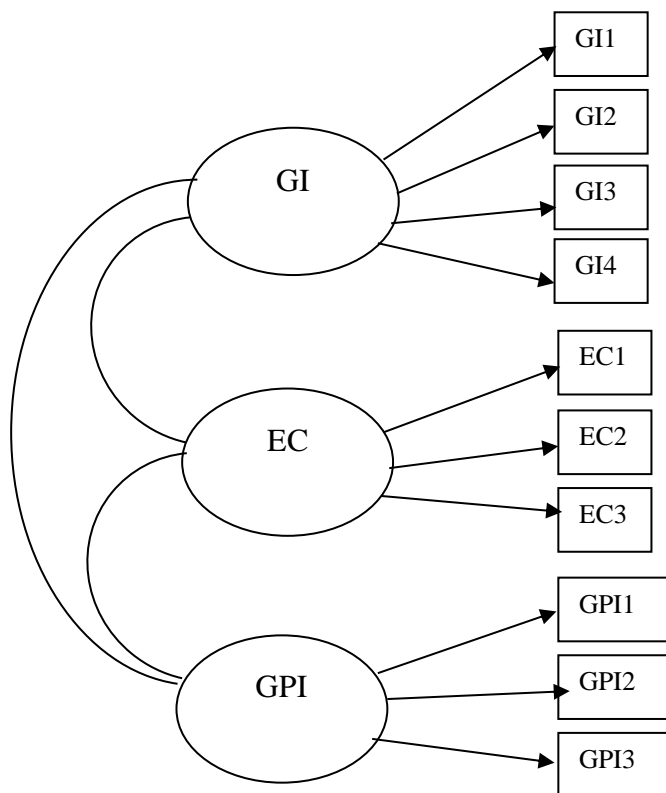
<b>Item</b>	<b>Standardized Loading Factor &gt; 0.50</b>	<b>Standard Errors</b>	<b>Reliability</b>	
			<b>CR &gt; 0.70</b>	<b>AVE &gt; 0.50</b>
GI1	0.731	0.466		
GI2	0.744	0.446		
GI3	0.658	0.567	0.805	0.508
GI4	0.716	0.487		
EC1	0.741	0.451		
EC2	0.954	0.090	0.868	0.689
EC3	0.779	0.393		

**Table 7. Results of The Confirmatory Factor Analysis Test (Continuous)**

Item	Standardized Loading Factor > 0.500	Standard Errors	Reliability CR > 0.700 AVE > 0.500	
GPI1	0.626	0.608		
GPI2	0.953	0.092	0.786	0.561
GPI3	0.619	0.617		

Source: Data Processed, 2023

In Table 7, all standardized loading factor values for the instruments of each research variable have values above the specified minimum limit, namely 0.500. Therefore, all instruments in this research have demonstrable validity. Each variable's CR and AVE coefficients also meet the specified minimum limits:  $CR \geq 0.600$  and  $AVE \geq 0.500$ . Thus, it can be concluded that all research variables are considered reliable and can be used for the next testing stage. The conceptual diagram of the CFA test is illustrated in Figure 1 below.



**Figure 1. CFA Model**

Source: Primary Data

### The Goodness of Fit Test

The Structural Equation Modeling (SEM) Goodness of Fit (Gof) assessment evaluates the compatibility between the proposed model and the observed data, gauging the dissimilarity between the data and the model's predictions. This examination offers insights into whether the model effectively captures the interrelationships among the variables. Various indices, including the chi-square test, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR), are commonly utilized to evaluate

model fit. A satisfactory fit indicates that the model accurately portrays the underlying data relationships, while an inadequate fit suggests that potential revisions to the model may be warranted.

**Table 8. Initial Results of The Goodness of Fit Test**

<b>Id</b>	<b>Goodness of Fit Indices</b>	<b>Results</b>
1	RMSEA	0.085
2	GFI	0.940
3	AGFI	0.898
4	CMIN/DF	3.787
5	TLI	0.916
6	CFI	0.940
7	NFI	0.921

Source: Data Processed, 2023

Table 8 shows various goodness of fit criteria that meet the regulatory requirements, namely GFI, TLI, CFI, and NFI, are obtained. Meanwhile, RMSEA and AGFI are classified as marginal fit. Some criteria that do not meet the terms and conditions, namely CMIN/DF, are classified as Poor Fit. Therefore, further testing will be carried out again with efforts to modify the index.

**Table 9. Goodness of Fit After Modification**

<b>Id</b>	<b>Goodness of Fit Indices</b>	<b>Results</b>
1	RMSEA	0.061
2	GFI	0.965
3	AGFI	0.933
4	CMIN/DF	2.429
5	TLI	0.957
6	CFI	0.972
7	NFI	0.954

Source: Data Processed, 2023

Based on Table 9 above, after re-specification was carried out four times, the results showed that the overall goodness of fit met the requirements. Thus, overall, the goodness of fit of the research model is declared a fit model and acceptable.

### **Hypothesis testing**

Hypothesis testing in Structural Equation Modeling (SEM) involves assessing the statistical significance of relationships between variables proposed in the model. This process determines whether the hypothesized relationships exist in the population based on the sample data. The alternative hypothesis is accepted when the statistical tests indicate that the relationships between variables in the model are significant. These tests assess the model's fit to the observed data and the significance of individual parameter estimates. Suppose the CR or t-values associated with individual parameter estimates exceed the critical value (usually 1.960 for a two-tailed test). In that case, it suggests that the relationships between variables are statistically significant, supporting the alternative hypothesis.

**Table 10. Hypothesis Testing**

<i>Path</i>	<i>Direct effect</i>	<i>Indirect effect</i>	<i>Total effect</i>	<i>p-value</i>	<i>C.R</i>	<i>Conclusion</i>
H <sub>1</sub> GI → EC	0.354	-	-	0.000	5.071	Supported
H <sub>2</sub> EC → GPI	0.149	-	-	0.021	2,307	Supported
H <sub>3</sub> GI → GPI	-0.086	-	-	0.177	-1.349	Not Supported
H <sub>4</sub> GI → EC → GPI	-	0.053	-0.033	0.080	1.404	Not Supported

Source: Data Processed, 2023

### **Sobel Test**

The Sobel test, a statistical technique commonly employed in Structural Equation Modeling (SEM), is a pivotal tool for assessing the significance of indirect effects within mediation analyses. In SEM, mediation analysis aims to scrutinize the mechanisms underlying the relationship between an independent and dependent variable by introducing a proposed mediator variable. The Sobel test evaluates explicitly the extent to which this mediator variable mediates the influence of the independent variable on the dependent variable. The indirect effect, representing the impact transmitted through the mediator, is computed based on path coefficients derived from the mediation model. Subsequently, the standard error of this indirect effect is determined using the delta method, facilitating the calculation of the Z-statistic, often referred to as the Sobel statistic. This statistic is then juxtaposed against a critical value from the standard normal distribution to discern whether the indirect effect is statistically significant. If the absolute value of the Z-statistic surpasses the critical threshold, typically 1.960 for a two-tailed test at the 0.050 significance level, the mediation effect is deemed significant. Consequently, the Sobel test furnishes researchers with a rigorous means of gauging the potency of mediating pathways in elucidating the interplay among variables within SEM frameworks.

Based on the outcomes obtained from the Sobel test conducted using the online Calculate Sobel tool, it was determined that the Sobel test statistic yielded a value of 1.404, which falls below the critical threshold of 1.960. Additionally, the P-value associated with this test was observed to be 0.080, surpassing the conventional significance level of 0.050. Consequently, the alternative hypothesis was rejected, which posited a significant mediating effect of Green Innovation on the relationship between environmental concerns and green purchase intention regarding eco-friendly straw products. It implies that Green Innovation does not exert a statistically significant influence as a mediator in this context.

Based on the results of statistical tests on the first hypothesis, it is known that the t-value or CR amounting to 5.071 > 1.960, and the probability value < 0.050. Therefore, H<sub>1</sub> is accepted, meaning Green Innovation has a positive and significant effect on Environmental Concerns about eco-friendly straw products. These results align with previous research conducted by Zameer & Yasmeen (2022), which also found that Green Innovation has a positive and significant influence on Environmental Concerns. This research also shows that Green Innovation is essential in increasing consumer awareness of the environment.

Based on the results of statistical tests on the second hypothesis, statistical tests show a t-value or CR of  $2.307 > 1.960$  and a P-value of  $0.021 < 0.050$ . Therefore,  $H_2$  is accepted: environmental concerns positively and significantly affect Green Purchase Intention for eco-friendly straw products. These results align with previous research conducted by Zameer & Yasmeeen (2022), which also found that Environmental Concerns positively and significantly influenced Green Purchase Intention. In this research, testing shows that the impact of Environmental Concerns on Green Purchase Intention is positive and significant at the significance level.

Based on the statistical test results on the third hypothesis, the t-value or CR value is  $0.177 < 1.960$ , and a P-value of  $-0.349$ . Therefore,  $H_3$  is rejected, which means that green innovation does not significantly influence green purchase intention or green purchase intention for eco-friendly straw products. From these results, green innovation does not significantly affect green purchase intention. This means there is no direct relationship between green innovation and green purchase intention in the context of this research. Therefore, this research suggests that a mediation or intermediary variable influences the relationship between green innovation and green purchase intention, making it significant.

Based on the statistical test results of the fourth hypothesis, the t-value or CR is  $1.404 < 1.960$ , and the P-value is  $0.080 > 0.050$ . Therefore,  $H_4$  is rejected, which means that Green Innovation has no significant effect in mediating the influence of environmental concerns on Green Purchase intention in Eco-Friendly straw products. These results indicate that Green Innovation has no significant effect in mediating the relationship between Environmental Concerns and Green Purchase intention. It differs from previous studies conducted by Zameer & Yasmeeen (2022), which found that Environmental Concerns significantly mediated the relationship between Green Innovation and Green Purchase intention. This study concluded that other factors might affect the intention to purchase environmentally friendly products, and these aspects need further investigation to understand how the relationship occurs.

## **CONCLUSION**

This study revealed that green innovation positively and significantly affected environmental concerns. This finding shows that environmentally friendly innovation is essential in increasing consumer environmental awareness. In addition, environmental concerns also have a positive and significant influence on green purchase intention. The higher the level of consumer environmental concern, the more likely they are to buy environmentally friendly products. However, this research needs adequate data support related to the significant direct influence of green innovation on green purchase intention. Other factors can mediate the possibility of this relationship, so further research is needed to understand the role of this mediation and other factors that influence it. This study also found that green innovation did not significantly mediate the relationship between environmental concerns and green purchase intention.

Research suggestions arise from identified literature gaps and research limitations. Suggestions for further research can include several aspects. First, it is essential to continue more in-depth research to understand other factors mediating the relationship between green innovation and purchase intention. It can involve testing the role of other

mediation variables not explored in previous studies. In addition, further research can explore the role of contextual factors, such as culture and social environment, in moderating the relationship between green innovation, environmental concerns, and green purchase intention. Second, further research can investigate ways to increase the effectiveness of green innovation in increasing green purchase intention. It can involve broader empirical studies to evaluate different innovation strategies and their impact on consumer behavior. In addition, experimental research can be done to test the effectiveness of various marketing and education campaigns that aim to increase awareness and interest in purchasing environmentally friendly products.

Third, further research can expand the scope of samples and the context of research to validate existing findings and identify more common patterns. It can involve cross-cultural studies or longitudinal research that follows consumer behavior over time. Finally, to answer the mismatch between the current research findings and the proposed hypothesis, further research can expand its conceptual framework by considering new factors that might affect the relationship between green innovation and green purchase intention. It can involve the integration of more comprehensive psychological or social theories to enrich our understanding of consumer behavior in the context of environmental sustainability. Thus, further research is expected to provide more profound and sustainable insights about the factors influencing consumer interest in environmentally friendly products.

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