

Green Packaging Attributes and their Role in Shaping Eco-Conscious Purchases: A Study of Generation Z Consumers in Kenya

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Abstract:- This study investigates the impact of green packaging attributes on the purchasing behavior of Generation Z consumers in Kenya, a demographic increasingly concerned with environmental sustainability. The research examines the roles of brand visibility, environmental awareness, and engagement in shaping the preferences of young Kenyan consumers toward products with eco-friendly packaging. Using a descriptive research design, the study collected data from 150 Generation Z consumers through an electronic questionnaire. The analysis reveals significant relationships between environmental awareness, brand visibility on green packaging, and purchase behavior, with higher levels of environmental awareness and engagement leading to a greater likelihood of purchasing sustainable products. Regression analysis confirmed the significance of perception regarding packaging sustainability and the role of sustainable packaging materials in influencing purchase behavior. The findings suggest that for brands to resonate with Generation Z in Kenya, integrating green packaging into their product offerings is essential. This research provides valuable insights for companies seeking to align with the growing environmental concerns of Kenyan consumers, offering a pathway to enhance brand loyalty and consumer engagement through sustainable packaging practices.

Keywords:- Green Packaging, Generation Z, Purchase Behavior, Environmental Awareness, Brand Visibility.

I. INTRODUCTION

Environmental sustainability has gained substantial attention among consumers worldwide, driven by heightened awareness of ecological issues such as plastic pollution, climate change, and resource depletion (Shah et al., 2021). In Kenya, a country actively addressing environmental sustainability through policies like the 2017 plastic bag ban, green packaging has emerged as a key area of focus within consumer goods (NEMA, 2020). Among the growing environmentally conscious demographic, Generation Z consumers include individuals born roughly between 1997 and 2012 are recognized for their distinct attitudes toward sustainability and a willingness to prioritize eco-friendly practices in purchasing decisions (Chege et al., 2022). This group, poised to become the dominant consumer segment, holds considerable sway in influencing brand practices, particularly regarding green packaging.

Green packaging, characterized by materials that are biodegradable, recyclable, or reusable, aligns with Kenya's sustainability goals and resonates with the environmental values upheld by Generation Z (Njuguna et al., 2022). As young Kenyan consumers increasingly associate product quality and brand image with sustainable packaging, companies are being pushed to adopt practices that reduce their environmental impact. Generation Z's values indicate a readiness to reward brands that employ eco-conscious packaging and a likelihood to reject those that do not (Mburu & Waiganjo, 2023). Research on green packaging attributes including packaging material, recyclability, and minimalistic design has shown that these elements positively influence purchasing behavior among young consumers, who view eco-friendly brands as socially responsible and forward-thinking (Achieng & Wanjiru, 2021).

However, there is limited empirical evidence specific to Kenya's Generation Z, making it essential to explore how this group's preferences translate into tangible purchasing behavior. Unlike in developed nations, where green consumerism is more established, green packaging initiatives in Kenya are relatively nascent, often constrained by economic and logistical challenges. Despite these obstacles, young Kenyan consumers are actively shaping the market, making them a focal point for businesses aiming to align with their sustainability values (Chege et al., 2022). This study, therefore, seeks to investigate how green packaging attributes impact the purchase behavior of Generation Z consumers in Kenya, with implications for developing strategies that resonate with this eco-conscious generation.

➤ Objectives and Hypotheses

This section outlined the research hypotheses and objectives for examining the factors influencing purchase behavior among Generation Z consumers in Kenya, with a particular focus on sustainable purchasing decisions. The study explored the role of visual appeal on packaging, brand visibility on green packaging, and environmental awareness and engagement in shaping consumer preferences for eco-friendly products. By investigating these factors, the research aimed to provide insights into how businesses could effectively engage this demographic in promoting sustainable purchasing behavior. The hypotheses and objectives set the foundation for understanding the key variables that drove Generation Z's purchasing decisions within the context of green marketing.

➤ Research Hypotheses

- H₁: There is a significant positive relationship between visual appeal on packaging and purchase behavior among Generation Z consumers in Kenya.
- H₂: There is a significant positive relationship between brand visibility on green packaging and purchase behavior among Generation Z consumers in Kenya.
- H₃: There is a significant positive relationship between environmental awareness and engagement and purchase behavior among Generation Z consumers in Kenya.

➤ Research Objectives

- Objective 1: To examine the impact of visual appeal on packaging on purchase behavior among Generation Z consumers in Kenya.
- Objective 2: To assess the influence of brand visibility on green packaging on purchase behavior among Generation Z consumers in Kenya.
- Objective 3: To explore the relationship between environmental awareness and engagement and purchase behavior among Generation Z consumers in Kenya.

II. RESEARCH DESIGN AND METHODOLOGY

The study employed a descriptive research design, which is effective for understanding and describing the characteristics and relationships of variables within a specific population (Creswell & Creswell, 2018). This design was chosen to explore the influence of green packaging attributes such as brand visibility, environmental awareness, and engagement on the purchase behavior of Generation Z consumers in Kenya. Data collection was conducted using a structured Google Form questionnaire, distributed electronically to Generation Z consumers across Kenya. A total of 150 completed questionnaires were obtained, providing a robust sample for analysis. The questionnaire was designed to capture demographic information, perceptions of green packaging, and purchase behaviors. The digital format ensured accessibility and efficiency in reaching this tech-savvy generation, consistent with best practices for data collection in similar demographic groups (Bryman, 2016).

Both descriptive and inferential statistical analyses were employed to analyze the data. Descriptive statistics summarized the data, highlighting trends and general perceptions, while inferential statistics were used to test

hypotheses and explore relationships between variables. This mixed approach allowed for a comprehensive understanding of the factors influencing purchase behavior, aligning with recommendations for combining descriptive and inferential methods in consumer behavior research (Saunders et al., 2019).

III. RESULTS AND DISCUSSION

This section presents both inferential and descriptive statistics to analyze the role of green packaging attributes in influencing eco-conscious purchase behavior among Generation Z consumers in Kenya. The findings aim to provide a comprehensive understanding of how specific green packaging elements such as logos, labels, and sustainability messaging impact purchasing decisions, offering insights into the factors that drive eco-friendly choices in this demographic. Through a combination of statistical analyses, the discussion explores the relationship between green packaging attributes and consumer behavior, highlighting key patterns and implications for marketers.

➤ Demographic Profile of Respondents: Gender, Education, Income, and Age Distribution

This section provides a comprehensive overview of the demographic characteristics of the respondents in the study on the influence of green packaging attributes on the purchasing behavior of Generation Z consumers in Kenya. The analysis covers key factors such as gender, education, income, and age, which play a vital role in understanding consumer behavior, especially in relation to sustainable and eco-friendly packaging. By examining these demographics, we gain insights into how different segments of Generation Z engage with green packaging and how these factors may influence their purchasing decisions.

• Gender Distribution of Respondents

This section provides an overview of the gender distribution among the respondents in the study on the influence of green packaging attributes on the purchasing behavior of Generation Z consumers in Kenya. Understanding the gender composition of the sample is crucial for analyzing any potential variations in consumer behavior and preferences related to sustainable packaging. This demographic breakdown helps ensure that the findings reflect a balanced perspective on how both male and female consumers engage with eco-friendly packaging in the Kenyan market.

Table 1 Gender of the Respondents

		Frequency	Percent
	Male	65	43.3
	Female	85	56.7
	Total	150	100.0

As shown in Table 1, the gender distribution of the respondents in the study on The Influence of Green Packaging Attributes on the Purchase Behavior of Generation Z Consumers in Kenya reveals a slightly higher

representation of females compared to males. Out of the 150 participants, 85 (56.7%) were female, while 65 (43.3%) were male. This indicates a balanced, yet female-leaning, participation, reflecting a diverse perspective within

Generation Z. The gender representation is significant for analyzing consumer behavior, as it provides insights into potential differences in attitudes and purchasing patterns between males and females, particularly in relation to green packaging. Understanding these variations is crucial for developing sustainable marketing strategies that effectively engage both genders within the Kenyan Generation Z demographic.

• *Level of Education of Respondents*

This section presents the distribution of the respondents' educational levels in the study on the influence of green packaging attributes on the purchasing behavior of Generation Z consumers in Kenya. The educational background of participants plays an important role in understanding their awareness, knowledge, and attitudes toward sustainable practices, including green packaging. By examining the educational levels, we can gain insights into how education may influence consumer behavior and decision-making, particularly in relation to eco-friendly products.

Table 2 Level of Education

		Frequency	Percent
	Secondary	24	16.0
	Bachelors	124	82.7
	Masters	2	1.3
	Total	150	100.0

Table 2 presents the distribution of respondents based on their level of education in the study examining the influence of green packaging attributes on the purchase behavior of Generation Z consumers in Kenya. The results highlight a predominantly well-educated sample, with 82.7% (124 respondents) holding a Bachelor's degree. Secondary school graduates constituted 16% (24 respondents), while only 1.3% (2 respondents) reported having a Master's degree.

This distribution suggests that the majority of Generation Z consumers in Kenya who participated in this study are likely in the early stages of their professional careers or are pursuing higher education. Such a demographic is often more exposed to global trends, including environmental sustainability issues, and may possess a heightened awareness of green packaging and its environmental implications (Zhao, 2020).

Additionally, the findings imply that educational background plays a significant role in shaping consumer behavior. Individuals with higher educational attainment may be more likely to prioritize sustainability in their purchasing

decisions, as suggested by Peattie and Crane (2021). This trend aligns with global studies, such as those by Liu et al. (2021), which indicate that well-educated consumers tend to be more informed about sustainability issues and are thus more inclined to choose eco-friendly products.

• *Monthly Income of Respondents*

This section provides an analysis of the monthly income distribution of the respondents involved in the study on the influence of green packaging attributes on the purchasing behavior of Generation Z consumers in Kenya. Understanding the income levels of participants is crucial for evaluating their purchasing power and how it may impact their ability to purchase eco-friendly products. Income can significantly influence consumer behavior, as higher income levels may provide more opportunities for individuals to prioritize sustainability when making purchasing decisions. By examining income levels, this study seeks to explore how economic factors may intersect with environmental consciousness in shaping consumer choices.

Table 3 Monthly Income

		Frequency	Percent	Valid Percent	Cumulative Percent
	less than 10,000 KES	11	7.3	7.3	7.3
	10,000-30,000 KES	23	15.3	15.3	22.7
	30,001 - 50,000 KES	33	22.0	22.0	44.7
	50,001 - 100,000KES	75	50.0	50.0	94.7
	Above 100,000 KES	8	5.3	5.3	100.0
	Total	150	100.0	100.0	

The monthly income distribution of Generation Z consumers in Kenya reveals that a significant portion of the respondents falls within the mid-income range, with 50% earning between KES 50,001 and 100,000. This group represents the largest share of the sample, indicating that many Generation Z consumers in Kenya have a relatively stable financial standing, which could influence their purchasing behavior, including their ability to prioritize green

packaging. The second-largest group (22%) earns between KES 30,001 and 50,000, while smaller segments report earning less than KES 10,000 (7.3%) or more than KES 100,000 (5.3%).

This income distribution suggests that while a majority of Generation Z consumers in Kenya may have enough disposable income to consider products with green

packaging, the price factor remains crucial in influencing their purchase decisions. Higher-income consumers are more likely to prioritize sustainability and environmental concerns, as they can afford premium products with green attributes (Cheng et al., 2022). On the other hand, lower-income consumers might be less inclined to purchase products with green packaging if it comes at a higher cost (Zhao et al., 2020). Understanding this income distribution is important for marketers when targeting Generation Z consumers with green products, as it helps to align pricing strategies with the income levels of this demographic.

• Age of the Respondents

This section presents the age distribution of the respondents who participated in the study on the influence of green packaging attributes on the purchasing behavior of Generation Z consumers in Kenya. Age is a crucial demographic factor in understanding consumer preferences, especially when exploring how different age groups respond to sustainability initiatives such as green packaging. Generation Z, typically defined as individuals born between 1997 and 2012, is increasingly recognized for its environmental awareness and its influence on market trends. By analyzing the age of respondents, this section aims to highlight the preferences and behaviors of this generation, providing insights into their attitudes toward eco-friendly products and sustainable packaging.

Table 4 Age of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
	under 18 years	8	5.3	5.3	5.3
	18-24 years	133	88.7	88.7	94.0
	25-30 years	9	6.0	6.0	100.0
	Total	150	100.0	100.0	

The age distribution of the respondents shows that the majority of the participants, 88.7%, were between the ages of 18 and 24 years, reflecting the typical age range of Generation Z consumers in Kenya. This age group is highly engaged with trends related to sustainability, as young consumers are increasingly conscious of environmental issues (Huang et al., 2021). The younger age demographic's preference for green products is often influenced by their exposure to sustainability-focused campaigns and digital media, which are effective tools for reaching this group (Nguyen & Nguyen, 2022).

A smaller proportion of the sample (6%) was aged between 25 and 30 years, which could reflect the transitioning phase of Generation Z into adulthood, where financial independence and consumer behavior are influenced by different factors, such as family responsibilities and career advancement (Dube et al., 2020). The smallest segment of respondents (5.3%) were under 18 years, indicating that this group may still be in school and have limited purchasing power, although they might still show awareness of sustainable practices and preferences for green products (Alhassan et al., 2021). This distribution highlights that the majority of respondents are in the critical age range for influencing future market trends and purchasing behaviors related to sustainability and green packaging. It also underscores the need for brands targeting Generation Z to focus on the 18-24 age group when designing green packaging strategies that resonate with this environmentally-conscious generation.

IV. DESCRIPTIVE STATISTICS FOR CONSUMER PERCEPTIONS AND PURCHASE BEHAVIOR OF GREEN PACKAGING AMONG GENERATION Z IN KENYA

This section provides an in-depth analysis of Generation Z's perceptions and purchase behavior regarding green packaging. It examines key attributes of eco-friendly packaging, such as material sustainability, recyclability, visual appeal, and environmental awareness, as well as their influence on purchase decisions. The descriptive statistics highlight the importance of sustainability in shaping consumer preferences, alongside factors like brand visibility and packaging aesthetics. Furthermore, the analysis reveals the moderate to high level of engagement Generation Z consumers in Kenya have with products featuring green packaging, demonstrating their growing inclination to support environmentally conscious brands and contribute to a healthier environment through their purchasing choices.

➤ Descriptive Statistics for Green Packaging Attributes

This section presents the descriptive statistics for the key green packaging attributes examined in the study. Green packaging attributes, such as material sustainability, recyclability, and the visual appeal of eco-friendly packaging, play a critical role in shaping consumer perceptions and purchase behavior. Understanding these attributes allows businesses to assess how Generation Z consumers in Kenya respond to various packaging features. The data provides an overview of how these attributes are perceived by the respondents, shedding light on their preferences for sustainable packaging options and their potential impact on purchasing decisions.

Table 5 Descriptive Statistics for Green Packaging Attributes

	N	Mean	Std. Deviation
Perception of Packaging Material Sustainable – Recyclability	150	3.3067	1.03591
Perception of Packaging Material Sustainable – Biodegradability	150	3.2667	1.08477
Perception of Packaging Material Sustainable - Eco-friendliness	150	3.6533	.98299
Visual Appeal of Green Packaging-attractiveness of Packaging	150	3.6267	.95921
Brand Visibility on Green Packaging- logos, labels or messaging	150	3.4867	.92495
Environmental Awareness and Engagement -Level of Involvement	150	3.3800	.97396
Environmental Awareness and Engagement -Awareness on sustainable issues	150	3.3600	1.10082
Environmental Awareness and Engagement -impact in daily life	150	3.7200	.84441
TOTAL	150		

The results, as summarized in Table 5 for green packaging attributes, indicate that Generation Z consumers in Kenya have moderately positive perceptions of green packaging, with average ratings ranging from 3.26 to 3.72 on a 5-point scale. The highest mean score was observed for "Environmental Awareness and Engagement - impact in daily life" ($M = 3.72$), suggesting that sustainability issues notably influence respondents' daily routines (Dube et al., 2020). Eco-friendliness ($M = 3.65$) also received a relatively high rating, aligning with studies indicating that eco-friendly attributes are important to Generation Z's purchasing behavior (Huang et al., 2021).

In contrast, "Perception of Packaging Material Sustainable – Biodegradability" ($M = 3.27$) and "Perception of Packaging Material Sustainable – Recyclability" ($M = 3.31$) were rated lower, suggesting that consumers may prioritize factors other than recyclability and biodegradability when making purchasing decisions (Nguyen & Nguyen, 2022). Brand visibility on green packaging ($M = 3.49$) also had a moderately high score, highlighting the importance of logos, labels, or sustainability messaging in shaping consumer behavior (Alhassan et al., 2021). Furthermore, the

"Visual Appeal of Green Packaging" ($M = 3.63$) indicates that aesthetic factors significantly influence Generation Z's purchasing decisions, with packaging attractiveness playing a key role (Dube et al., 2020). These findings underscore that while environmental concerns are crucial for Generation Z consumers in Kenya, factors such as the visual appeal of packaging and clear sustainability branding are also important elements influencing their purchasing behavior.

➤ Descriptive Statistics for Purchase Behavior of Generation Z

This section presents the descriptive statistics related to the purchase behavior of Generation Z consumers, specifically focusing on their attitudes and actions toward products with green packaging. Understanding these behaviors is crucial for businesses aiming to tailor their marketing strategies to engage this eco-conscious demographic. The data highlights how Generation Z values sustainability, how often they make purchases based on green packaging attributes, and their overall willingness to support brands with environmentally friendly practices. These insights help assess the impact of green packaging on purchasing decisions within this generation.

Table 6 Descriptive Statistics for Purchase Behaviour of Generation Z

Descriptive Statistics			
	N	Mean	Std. Deviation
Purchase Behavior- Actively Seek out products with green packaging when making purchase behavior	150	3.1133	.90884
Purchase Behavior-Willing to pay slightly higher price for products with green packaging	150	3.2000	.93407
Purchase Behavior - Green Packaging influences my decision to purchase	150	3.2867	.93648
Purchase Behavior- I prioritize purchasing products with green packaging	150	3.4733	.88762
Purchase Behavior- I actively recommend products with green packaging to friends and family	150	3.3467	.88224
Purchase Behavior-I have switched brands solely because the new brand offered products with green packaging	150	2.9000	.93227
Purchase Behavior- I feel a sense of satisfaction when purchasing products with green packaging	150	3.6400	.82965
Purchase Behavior - I Believe that purchasing product with green packaging contributes to a healthier environment	150	3.8600	.83570
Purchase Behavior - I actively seek information about environmental impact of packaging before making a purchase	150	3.2667	.91715
Purchase Behavior - I feel more connected to brands that prioritize green packaging	150	3.5133	.78353
TOTAL	150		

The descriptive statistics, as shown in Table 6, reveal that Generation Z consumers in Kenya exhibit a moderate to high level of engagement with green packaging in their purchasing behavior. The highest mean score was recorded

for "I Believe that purchasing products with green packaging contributes to a healthier environment" ($M = 3.86$), indicating that sustainability is an important factor for these consumers (Nguyen & Nguyen, 2022). Additionally, "I feel a sense of

satisfaction when purchasing products with green packaging" ($M = 3.64$) and "I feel more connected to brands that prioritize green packaging" ($M = 3.51$) suggest that consumers experience emotional satisfaction from making environmentally conscious choices, consistent with previous studies highlighting Generation Z's value for environmental impact and brand alignment with sustainability (Dube et al., 2020).

The moderate mean for "Willing to pay slightly higher price for products with green packaging" ($M = 3.20$) reflects a reasonable willingness to prioritize green packaging, although it is not as influential as environmental satisfaction. However, the lower mean for "I have switched brands solely because the new brand offered products with green packaging" ($M = 2.90$) suggests that while green packaging influences purchasing behavior, it is not always the deciding factor in brand switching (Huang et al., 2021). These results, as outlined in reinforce the growing trend of Generation Z's preference for sustainable products, with both environmental concerns and alignment with brands that prioritize sustainability significantly influencing their purchasing decisions (Huang et al., 2021; Dube et al., 2020).

V. REGRESSION ANALYSIS OF GREEN PACKAGING ATTRIBUTES AND THEIR IMPACT ON ECO-CONSCIOUS PURCHASES

This section presents the regression analysis conducted to examine the relationship between key green packaging attributes and the purchasing behavior of Generation Z consumers in Kenya. The analysis aims to identify the extent to which factors such as material sustainability, recyclability, biodegradability, visual appeal, brand visibility, and environmental engagement influence consumers' attitudes and actions toward eco-friendly packaging. By understanding these relationships, businesses can better tailor their marketing strategies to appeal to the eco-conscious preferences of this demographic. The results offer valuable insights into how green packaging attributes can be leveraged to drive sustainable purchasing decisions among Generation Z consumers.

➤ Relationship between environmental awareness and engagement and purchase behavior among Generation Z consumers in Kenya

The following table (Table 7) presents the regression analysis of the relationship between environmental awareness and engagement (predictors) and purchase behavior (dependent variable). This analysis explores how these factors influence consumer decisions to purchase eco-friendly products.

Table 7 Regression Analysis of Environmental Awareness and Engagement on Purchase Behavior

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.420 ^a	.176	.171	.55394	.176	31.700	1	148	.000	2.032
ANOVA ^a										
Model			Sum of Squares	df	Mean Square	F	Sig.			
1	Regression		9.727	1	9.727	31.700	.000 ^b			
	Residual		45.413	148	.307					
	Total		55.140	149						
Coefficients ^a										
Model			Unstandardized Coefficients		Standardized Coefficients		t	Sig.		
			B	Std. Error	Beta					
1	(Constant)		2.145	.220			9.732	.000		
	Environmental awareness and engagement		.348	.062		.420	5.630	.000		
a. Dependent Variable: Purchase behavior										
b. Predictors: (Constant), Environmental awareness and engagement										

Table 10 presents the regression analysis of the relationship between environmental awareness and engagement (predictor variables) and purchase behavior (dependent variable) among Generation Z consumers in Kenya. The regression model shows a positive moderate correlation with an R value of 0.420, indicating a meaningful association between the two variables. This suggests that as environmental awareness and engagement increase, so does the likelihood of consumers engaging in sustainable purchasing behavior.

The R Square value of 0.176 demonstrates that environmental awareness and engagement explain 17.6% of

the variation in purchase behavior. While this percentage may seem modest, it is statistically significant and suggests that environmental factors are a key contributor to consumer decisions regarding eco-friendly products. The Adjusted R Square value of 0.171 accounts for the complexity of the model, further reinforcing the robustness of the findings. Additionally, the standard error of the estimate (0.55394) provides an indication of the precision of the predictions for purchase behavior. The F Change value of 31.700 with a significance level of $p < 0.001$ highlights that the inclusion of environmental awareness and engagement as predictor variables significantly improves the model's ability to explain variations in purchase behavior. This is further

supported by the Durbin-Watson statistic of 2.032, which indicates no significant autocorrelation in the residuals, ensuring the validity of the regression model.

These results align with previous studies that have examined the influence of environmental awareness on consumer behavior. For instance, Mwangi et al. (2023) found that greater environmental consciousness among Generation Z is associated with a higher likelihood of purchasing sustainable products. Similarly, Chege et al. (2022) highlighted that consumer engagement with environmental causes fosters a sense of responsibility, which in turn motivates eco-friendly purchasing decisions. Shah et al. (2021) also observed that heightened environmental awareness enhances perceived value in eco-friendly products, leading to higher purchase intentions. The findings suggest that businesses aiming to engage Generation Z consumers should focus on campaigns and initiatives that promote environmental awareness and encourage active participation in environmental causes. By highlighting sustainable practices and encouraging consumers to engage with eco-friendly initiatives, businesses can effectively drive purchase behaviors that align with sustainability goals.

ANOVA for Environmental Awareness, Engagement, and Purchase Behavior The ANOVA table provides a statistical breakdown of the regression model. The total sum of squares (55.140) represents the total variation in purchase behavior, with the regression sum of squares (9.727) indicating that environmental awareness and engagement explain a significant proportion of this variation. The residual sum of squares (45.413) represents the unexplained variation, which could be due to other factors not considered in the model.

The F-statistic of 31.700, derived from the ratio of the regression mean square to the residual mean square, further supports the model's significance. The p-value of less than 0.001 confirms that the regression model is statistically significant and that environmental awareness and engagement meaningfully predict purchase behavior. These findings are consistent with research emphasizing the impact of environmental awareness on consumer decisions. For example, Shah et al. (2021) found that consumers with heightened environmental awareness are more likely to purchase eco-friendly products, while Mwangi et al. (2023) observed that engagement in environmental initiatives positively impacts purchase intentions, particularly among environmentally conscious Generation Z consumers. The implications of these findings for businesses are clear: marketing strategies should focus on promoting environmental awareness and engagement. By doing so, companies can leverage the positive relationship between these factors and purchase behavior, encouraging sustainable purchasing decisions.

Coefficients Analysis The coefficients table further illuminates the strength and direction of the relationship between environmental awareness and engagement and purchase behavior. The unstandardized coefficient ($B = 0.348$) suggests that for every one-unit increase in

environmental awareness and engagement, purchase behavior increases by 0.348 units, holding all other factors constant. This demonstrates a positive linear relationship, meaning that higher environmental awareness and engagement are associated with more frequent sustainable purchase behavior. The constant ($B = 2.145$) represents the predicted level of purchase behavior when environmental awareness and engagement are at zero, serving as the baseline value. This value is statistically significant ($t = 9.732$, $p < 0.001$), indicating that even without environmental awareness and engagement, there is a baseline level of purchase behavior.

The standardized coefficient ($Beta = 0.420$) provides a unit less measure of the relationship between the predictor and the dependent variable. A Beta value of 0.420 suggests that environmental awareness and engagement have a moderate but meaningful effect on purchase behavior. The t-statistic ($t = 5.630$) and its associated p-value ($p < 0.001$) confirm that this relationship is statistically significant, further solidifying the importance of environmental awareness in driving purchase behavior.

These results align with existing research that underscores the role of environmental awareness in influencing consumer purchase behavior. Chege et al. (2023) found that environmentally conscious consumers are more likely to engage in sustainable purchasing, driven by their values and engagement in environmental causes. Kumar et al. (2022) also observed that environmental awareness serves as a crucial motivator for purchasing green products, particularly among younger generations like Generation Z.

The findings from the regression, ANOVA, and coefficients analyses consistently show that environmental awareness and engagement significantly influence purchase behavior among Generation Z consumers in Kenya. The moderate positive correlation, statistical significance of the model, and the substantial effect size underscore the importance of these factors in shaping sustainable purchasing decisions. Businesses targeting environmentally conscious consumers, especially those within Generation Z, should prioritize campaigns that promote environmental awareness and encourage active participation in eco-friendly initiatives. This approach can lead to increased consumer engagement and higher sales of sustainable products, aligning with broader sustainability goals. These results are in line with existing literature that highlights the growing impact of environmental awareness on consumer decision-making, particularly in the context of green marketing (Chege et al., 2022; Mwangi et al., 2023).

➤ *The impact of visual appeal on packaging on purchase behavior among Generation Z consumers in Kenya.*

This table presents the regression analysis examining the relationship between the visual appeal of green marketing efforts (predictor) and purchase behavior (dependent variable). The analysis provides insights into how the aesthetic aspects of eco-friendly marketing strategies influence consumer purchasing decisions.

Table 8 Regression Analysis of Visual Appeal on Green Marketing and Purchase Behavior

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.389 ^a	.151	.145	.56241	.151	26.325	1	148	.000	1.951
ANOVA ^a										
Model				Sum of Squares	df	Mean Square		F	Sig.	
1	Regression			8.327	1	8.327		26.325	.000 ^b	
	Residual			46.813	148	.316				
	Total			55.140	149					
Coefficients ^a										
Model				Unstandardized Coefficients		Standardized Coefficients		t	Sig.	
				B	Std. Error	Beta				
1	(Constant)			2.277	.216			10.538	.000	
	Visual appeal on green marketing			.305	.059	.389		5.131	.000	
a. Dependent Variable: Purchase behavior										
b. Predictors: (Constant), Visual appeal on green marketing										

a. Dependent Variable: Purchase behavior

b. Predictors: (Constant), Visual appeal on green marketing

Table 8 presents the regression analysis results, which provide insights into the relationship between visual appeal on green marketing and purchase behavior among Generation Z consumers in Kenya. The model shows a moderate positive correlation, with an R value of 0.389, indicating a significant relationship between the predictor variable (visual appeal on green marketing) and the dependent variable (purchase behavior). The R-square value of 0.151 suggests that 15.1% of the variance in purchase behavior can be explained by the visual appeal of green marketing. Although this percentage reflects a relatively small yet meaningful influence, it is statistically significant, as evidenced by the F-change value of 26.325 and a significance level of $p < 0.001$, confirming that visual appeal in green marketing significantly contributes to explaining variations in purchase behavior.

The Adjusted R-square value of 0.145 accounts for potential overfitting, reinforcing the robustness of the model. Furthermore, the standard error of the estimate (0.56241) suggests that the model predicts purchase behavior with a moderate level of precision. The Durbin-Watson statistic of 1.951 indicates no significant autocorrelation in the residuals, supporting the reliability of the results. These findings align with existing literature, which underscores the importance of aesthetic appeal in shaping consumer preferences. Njuguna and Kamau (2021) found that visually appealing green packaging significantly influences consumer purchase decisions by enhancing perceptions of sustainability and brand credibility. Similarly, Chege et al. (2022) highlighted that Generation Z consumers are attracted to eco-friendly products that are both functional and visually appealing, as these products resonate with their values of environmental stewardship and social responsibility.

The significance of visual appeal in green marketing emphasizes its role as a strategic tool for influencing Generation Z purchase behavior. Studies by Mwangi et al. (2023) suggest that visually striking green marketing cues, such as minimalist designs, vibrant eco-friendly logos, and clear labeling, enhance consumer trust and perceived brand authenticity, leading to increased purchase intentions. Moreover, visually appealing packaging serves as a signal of quality and commitment to environmental sustainability,

which resonates strongly with Generation Z consumers who prioritize ethical consumption (Shah et al., 2021). This evidence supports the conclusion that companies aiming to attract environmentally conscious Generation Z consumers should prioritize visually appealing green packaging, strengthening their market position while meeting consumer expectations for sustainability and aesthetic value.

The ANOVA results provides critical statistical insights into the relationship between the visual appeal of green marketing and purchase behavior. The results demonstrate that the model is statistically significant, as indicated by the F-statistic of 26.325 and a p-value of 0.000, confirming that the independent variable, visual appeal in green marketing, significantly predicts the dependent variable, purchase behavior. The regression sum of squares (8.327) reflects the proportion of the variance in purchase behavior explained by visual appeal, while the residual sum of squares (46.813) accounts for the unexplained variance. The total sum of squares (55.140) represents the total variance in purchase behavior within the dataset.

The model's degrees of freedom (df) are split between the regression (df = 1) and residual (df = 148), indicating a simple linear regression analysis with one predictor variable. The mean square for regression (8.327) and residual (0.316) further confirm the explanatory power of the model. The F-statistic, calculated as the ratio of the regression mean square to the residual mean square, underscores the significance of the independent variable in influencing purchase behavior. The significance level ($p < 0.001$) affirms the robustness of the model, making it highly unlikely that the observed relationship occurred by chance. These findings align with previous research emphasizing the importance of visual appeal in influencing consumer behavior. For instance, Mwangi et al. (2023) found that eco-friendly and visually compelling packaging design plays a pivotal role in driving purchase decisions, particularly among environmentally conscious consumers. Similarly, Chege et al. (2022) noted that Generation Z values sustainability attributes in marketing, with visually appealing cues enhancing product credibility and trustworthiness. Furthermore, Shah et al. (2021) highlighted that aesthetically pleasing green

marketing strategies improve brand perceptions and purchase intentions, underscoring the importance of integrating visual appeal into green marketing campaigns.

This analysis underscores the strategic value of visual appeal in green marketing as a means to engage environmentally conscious consumers and drive sustainable purchasing behavior. Businesses targeting Generation Z should leverage visually compelling green marketing strategies to enhance their market competitiveness and resonate with this environmentally aware demographic. The coefficients table provides a detailed understanding of the influence of the visual appeal of green marketing on purchase behavior among Generation Z consumers. The unstandardized coefficient (B) for the constant is 2.277, indicating the baseline value of purchase behavior when the predictor variable, visual appeal of green marketing, is zero. The unstandardized coefficient for visual appeal is 0.305, implying that for every one-unit increase in the visual appeal of green marketing, purchase behavior increases by 0.305 units, holding all other factors constant.

The standardized coefficient (Beta) of 0.389 reflects the strength of the relationship between visual appeal and purchase behavior. This indicates a moderate positive relationship, with visual appeal accounting for a meaningful proportion of variability in purchase behavior. The t-statistic of 5.131 and a p-value of 0.000 confirm the statistical significance of this relationship, meaning the influence of visual appeal on purchase behavior is unlikely to have occurred by chance. The standard error for visual appeal (0.059) is relatively low, indicating a precise estimate of the effect size. The constant's t-statistic (10.538) and significance level ($p < 0.001$) also affirm its robustness in the

model. These results suggest that visual appeal in green marketing significantly influences purchase behavior among Generation Z consumers.

These findings are consistent with prior studies emphasizing the role of visual aesthetics in driving consumer decisions. Mwangi et al. (2023) established that visually appealing eco-friendly marketing strategies enhance consumer perceptions of value, thereby influencing purchase intentions. Chege et al. (2022) similarly found that Generation Z consumers are particularly responsive to visually compelling green marketing that aligns with their environmental values. Additionally, Shah et al. (2021) highlighted the importance of aesthetic design in building trust and authenticity in green branding, further motivating purchase behavior. The implications for marketers are clear: enhancing the visual appeal of green marketing efforts can be a strategic lever for engaging Generation Z consumers and fostering sustainable purchasing habits. Businesses should focus on innovative and aesthetically pleasing designs that communicate eco-friendliness and align with the values of this environmentally conscious demographic.

➤ *Influence of brand visibility on green packaging on purchase behavior among Generation Z consumers in Kenya.*

This regression analysis examines the relationship between brand visibility on green packaging (including logos, labels, or messaging) and consumer purchase behavior. Specifically, it aims to understand how visual elements on eco-friendly packaging influence the purchase intentions of Generation Z consumers. The findings from this analysis will shed light on the impact of these visual cues in shaping consumer decisions regarding green products.

Table 9 Regression Analysis Results for Brand Visibility on Green Packaging and Purchase Behavior.

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.295 ^a	.087	.081	.58325	.087	14.092	1	148	.000	1.940
ANOVA ^a										
Model		Sum of Squares	df	Mean Square	F	Sig.				
1	Regression	4.794	1	4.794	14.092	.000 ^b				
	Residual	50.346	148	.340						
	Total	55.140	149							
Coefficients ^a										
Model			Unstandardized Coefficients		Standardized Coefficients		t	Sig.		
			B	Std. Error	Beta					
1	(Constant)		2.684	.186			14.406	.000		
	Brand Visibility on Green Packaging- logos, labels or messaging		.194	.052	.295		3.754	.000		
a. Dependent Variable: Purchase behavior										
b. Predictors: (Constant) Brand Visibility on Green Packaging- logos, labels or messaging										

a. Dependent Variable: Purchase behavior

b. Predictors: (Constant), Brand Visibility on Green Packaging- logos, labels or messaging

The analysis of the relationship between brand visibility on green packaging and purchase behavior among Generation Z consumers in Kenya, as detailed in Table 9, offers valuable insights into consumer decision-making in the context of green marketing. The correlation coefficient ($R = 0.295$) suggests a weak positive relationship between brand visibility on green packaging and purchase behavior. While this

indicates that brand visibility has some influence, it is not the primary driver of consumer purchasing decisions. The R Square value (0.087) further supports this finding, showing that only 8.7% of the variance in purchase behavior is explained by brand visibility on green packaging. This relatively low percentage implies that other factors, such as

product quality, price, or perceptions of sustainability, likely play a more significant role in shaping consumer behavior.

The Adjusted R Square value (0.081) confirms that, despite the model's small explanatory power, it remains a reasonable fit, accounting for the complexity of the variables involved. The statistical significance of the model is affirmed by the F change value of 14.092, with a p-value of less than 0.001, suggesting that while the influence of brand visibility is weak, it is not due to random chance. The standard error of the estimate (0.58325) indicates a moderate level of prediction accuracy, though there is room for improvement in precision. The Durbin-Watson statistic (1.940) shows no significant autocorrelation in the residuals, confirming that the error terms are independent and the results are reliable. This finding is consistent with previous research, such as that by Chege et al. (2023), which suggests that visible eco-labels and logos may increase consumer awareness but only modestly influence actual purchase behavior. Similarly, Singh et al. (2022) found that the effectiveness of green packaging in influencing consumer purchases depends on the clarity and authenticity of the messaging, emphasizing the need for businesses to align their green marketing strategies with consumer values.

The ANOVA further confirms the importance of brand visibility on green packaging. The Regression Sum of Squares (4.794) highlights the variation in purchase behavior explained by brand visibility, while the Residual Sum of Squares (50.346) shows considerable unexplained variance. Nevertheless, the model explains a meaningful portion of the variation in purchase behavior, suggesting that brand visibility plays a key role in influencing consumer decisions. The F-Statistic (14.092) is statistically significant, and the p-value (0.000) supports the conclusion that the model is significant, reinforcing the role of brand visibility in shaping consumer purchase behavior.

In the Coefficients, the unstandardized coefficient for the intercept (2.684) indicates a baseline level of purchase behavior even without the influence of brand visibility on green packaging, with a t-value of 14.406 and p-value of 0.000 showing statistical significance. The unstandardized coefficient for brand visibility on green packaging (0.194) suggests that for every one-unit increase in brand visibility, purchase behavior is expected to increase by 0.194 units. The standardized coefficient (Beta = 0.295) supports this finding, indicating a moderate positive effect of brand visibility on purchase behavior. The t-value (3.754) and p-value (0.000) confirm the statistical significance of this coefficient, suggesting that visible green packaging elements, such as eco-friendly logos and sustainability messaging, can significantly influence consumer purchase decisions. Overall, while brand visibility on green packaging positively influences purchase behavior, it is not the sole determining factor. Marketers should recognize that although green packaging can enhance consumer awareness and interest, other factors—such as product quality, pricing, and the authenticity of sustainability claims—are likely to play a more significant role in shaping consumer decisions. To effectively engage environmentally conscious consumers,

marketers should integrate green packaging strategies with broader sustainability efforts, ensuring that these initiatives align with the values of Generation Z and other eco-conscious consumers.

VI. CONCLUSION OF THE STUDY

The findings from this study underscore the significant role of visual appeal in green marketing, particularly in shaping the purchase behavior of Generation Z consumers in Kenya. The analysis highlights a moderate positive correlation between the visual aspects of green marketing and consumer purchase decisions. While visual appeal alone does not account for all the factors influencing sustainable purchasing behavior, it is a key driver in engaging this demographic, especially as Generation Z increasingly values environmental sustainability and social responsibility. Visually appealing packaging, logos, and eco-friendly labels contribute to enhancing the perceived value of sustainable products, reinforcing the importance of aligning brand aesthetics with the environmental values of the target audience.

Businesses aiming to capture the attention and loyalty of Generation Z consumers should focus on the design and visual appeal of their green marketing efforts. By incorporating visually attractive and eco-conscious elements into their products, companies can strengthen their brand credibility and consumer trust, which are vital for long-term success in the competitive market.

The growing awareness among consumers about the environmental impact of their purchasing decisions makes it imperative for businesses to integrate appealing visual cues that resonate with sustainability. Ultimately, the study emphasizes the need for businesses to prioritize green marketing strategies that combine both environmental responsibility and visual appeal. By doing so, they can better meet the demands of the modern consumer, boost engagement, and drive sustainable purchasing decisions.

VII. RECOMMENDATIONS OF THE STUDY

Based on the study's findings on Generation Z consumers in Kenya and their impact on sustainable purchasing behavior, particularly regarding green packaging, the following recommendations are proposed for businesses. Brands should focus on enhancing environmental awareness by educating Generation Z about the environmental benefits of sustainable packaging through digital campaigns, social media, and collaborations with environmental organizations. Additionally, sustainable packaging should be visually appealing, aligning with Generation Z's values and preferences, reflecting modern trends and brand identity. Transparency is crucial, so brands must communicate their sustainability efforts clearly through labeling, social media, and in-store promotions, including details about the materials used and the environmental impact of their packaging. While balancing price sensitivity with sustainability, brands should offer competitively priced products and explore cost-

effective packaging strategies. Leveraging social media and influencers will also be essential, as partnering with environmental influencers can help promote sustainable packaging and increase its credibility among Generation Z consumers. To further encourage sustainable purchasing behavior, brands can offer incentives such as discounts for recycling or loyalty programs that reward eco-friendly actions. Regularly gathering feedback from Generation Z will be important to understand their evolving preferences and concerns regarding sustainable packaging. Finally, businesses should invest in research and development, and collaborate with sustainability-focused suppliers to stay ahead of evolving consumer expectations, ensuring they remain competitive in the growing market for sustainable packaging.

VIII. SUGGESTIONS FOR FUTURE RESEARCH

Further research on Generation Z's sustainable purchasing behavior, particularly regarding green packaging, could explore several areas, including the long-term impact of sustainability campaigns on behavior change, cross-cultural differences in sustainable purchasing across regions, and the role of emerging technologies like augmented reality (AR) or block chain in educating consumers and enhancing transparency. Psychological factors such as social responsibility and peer pressure, along with the effectiveness of incentives like discounts or loyalty programs, should also be examined. Additionally, understanding Generation Z's attitudes towards sustainable packaging in e-commerce, brand identity alignment, economic factors influencing price sensitivity, supply chain transparency, and circular economy models, including packaging reuse, could offer valuable insights for businesses aiming to engage this demographic in sustainable practices.

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