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Green Experience and Digital Engagement as Drivers of Generation Z Consumer Loyalty in Coffee Shops: A Mediation Model of Perceived Value and Brand Attachment

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Abstract

The increasing adoption of sustainable practices and digital technologies has reshaped consumer behavior, particularly among Generation Z coffee shop customers. This study examines the effects of green experience and digital engagement on Generation Z consumer loyalty through the mediating roles of perceived value and brand attachment. A quantitative survey was conducted among 300 Generation Z coffee shop customers in Pontianak, Indonesia. Data were collected using a structured questionnaire and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that green experience significantly enhances perceived value ($\beta = 0.728$, $p < 0.001$), while digital engagement positively influences brand attachment ($\beta = 0.799$, $p < 0.001$). Perceived value emerged as the strongest predictor of consumer loyalty ($\beta = 1.491$, $p < 0.001$), followed by brand attachment ($\beta = 0.089$, $p < 0.001$). Furthermore, perceived value and brand attachment significantly mediate the relationships between green experience, digital engagement, and consumer loyalty. These findings demonstrate that Generation Z consumer loyalty is primarily developed through cognitive evaluations and emotional attachment. The study provides theoretical insights into sustainable consumer behavior and offers practical guidance for coffee shop managers in developing sustainability-oriented and digitally engaging strategies to strengthen long-term consumer loyalty.

Keywords:
Green experience; Digital engagement; Perceived value; Brand attachment; Consumer loyalty.

1. INTRODUCTION

The coffee shop industry in Pontianak City has experienced substantial growth in recent years, emerging as a prominent component of both the creative economy and contemporary urban culture, especially among Generation Z. Official records from the Pontianak City Regional Revenue Agency indicate that, by August 2025, more than one thousand coffee stalls and coffee shops were actively operating throughout the city. This remarkable increase not only underscores the expanding market demand for coffee-related products and services but also reflects the intensifying competitive dynamics within the local coffee business sector (Dedi, 2025). This situation has encouraged coffee business operators to focus not only on product quality but also on creating consumption experiences that are valuable, relevant, and sustainable for consumers.

In line with the global green economy agenda, environmentally friendly practices, often referred to as green experiences, are increasingly recognized as important factors shaping the perceptions and attitudes of young consumers (García-Salirrosas & Rondon-Eusebio, 2022; Jeong et al., 2014; Judijanto et al., 2025). Generation Z, in particular, demonstrates a strong concern for environmental sustainability, as evidenced by

their participation in global climate protests on September 20, 2019, which aimed to urge governments to take immediate action to protect the planet (Borah et al., 2024a). Previous studies have shown that green experience exerts an indirect influence on Generation Z consumers' loyalty through perceived value. Specifically, perceived value has been found to mediate the relationship between green experience and customer loyalty in the coffee shop context. These findings suggest that Generation Z consumers who perceive environmentally friendly practices as valuable are more likely to develop stronger loyalty toward a coffee shop (Daniar et al., 2023; Ko & Jeon, 2024). Furthermore, other studies have revealed that sustainable business practices enhance brand attachment, which subsequently contributes to brand loyalty among Generation Z consumers in the coffee shop industry (Ko & Jeon, 2024). Similar evidence has also demonstrated both direct and indirect effects of green perceived value on customer loyalty through brand attachment, highlighting the critical roles of perceived value and emotional attachment in fostering consumer loyalty. Meanwhile, as digital-native consumers, Generation Z is highly influenced by digital engagement through social media platforms. Digital engagement plays a pivotal role in establishing interactive relationships between consumers and brands, while simultaneously reinforcing a consistent and favorable brand image. Consequently, coffee shops are increasingly required to integrate sustainable practices with effective digital engagement strategies to strengthen consumer loyalty in an increasingly competitive market environment.

With the growing environmental awareness among young consumers, particularly Generation Z, coffee shops play a strategic role in integrating environmentally sustainable practices into everyday consumption experiences. Research by Yun and Kim demonstrated that environmentally friendly practices implemented in coffee shops can enhance consumers' pro-environmental behavioral intentions (Yun & Kim, 2019). Similarly, studies by Han et al. highlighted that the adoption of sustainable restaurant practices positively influences customer loyalty through perceived value and environmental concern (Kim & Hall, 2020).

Generation Z consumers tend to favor brands that reflect sustainability values and social responsibility. Consequently, the implementation of green experiences not only strengthens perceived value and brand attachment but also fosters long-term customer loyalty. Practices such as the use of eco-friendly materials, efficient waste management systems, the provision of organic products, and environmental awareness campaigns can serve as both competitive differentiators and educational tools for young consumers. By consistently implementing sustainability-oriented strategies, coffee shops can establish stronger relationships with Generation Z customers, influence their purchasing decisions, and encourage broader pro-environmental behaviors within consumer communities (Borah et al., 2024; Shaheen Hosany & Serdiuk, 2025).

Despite increasing interest in sustainability and consumer behavior, empirical studies examining the combined effects of green experience and digital engagement on Generation Z consumer loyalty, with perceived value and brand attachment as mediating variables, remain limited. This gap is particularly evident in the context of coffee shops in medium-sized cities such as Pontianak. Therefore, this study aimed to address this research gap while contributing to the literature on sustainable business practices and providing practical insights for local coffee shop operators. The research questions are as follows:

a. Does green experience influence Generation Z consumer loyalty?
b. Does digital engagement influence Generation Z consumer loyalty?
c. Does green experience influence perceived value?
d. Does digital engagement influence brand attachment?
e. Does perceived value influence consumer loyalty?
f. Does brand attachment influence consumer loyalty?
g. Does perceived value mediate the relationship between green experience and consumer loyalty?
h. Does brand attachment mediate the relationship between digital engagement and consumer loyalty?

To address these research questions, this present study examined the effects of green experience and digital engagement on Generation Z consumer loyalty through perceived value and brand attachment in the coffee shop industry.

2. RESEARCH METHOD

This study employed a quantitative survey method to examine the effects of green experience and digital engagement on Generation Z consumers' loyalty toward coffee shops in Pontianak, with perceived value and brand attachment serving as mediating variables. The target population comprised Generation Z coffee shop customers aged 18–25 years in Pontianak City. Given the presence of more than 1,000 coffee shops in the city, the study focused specifically on modern and contemporary coffee shops that are popular among Generation Z consumers, while traditional coffee stalls were excluded from the sampling frame. A total of 300 respondents were selected, which is considered an adequate sample size for conducting Structural Equation Modeling (SEM) using the Partial Least Squares (PLS-SEM) approach.

The research instrument consisted of a structured questionnaire employing a five-point Likert scale. The measurement constructs were adapted from established and recent literature, including green experience (Chen et al., 2024; Hameed et al., 2021), digital engagement (Brodie et al., 2013; Hollebeek et al., 2014), perceived

value (Netemeyer et al., 2004; Sweeney & Soutar, 2001), brand attachment and consumer loyalty (Chaudhuri & Holbrook, 2001; Oliver, 1999), as illustrated in the conceptual model (Figure 1). The collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine both direct and indirect relationships among the study variables, including the mediating roles of perceived value and brand attachment. The PLS-SEM approach was selected due to its suitability for analyzing complex conceptual models, handling relatively large sample sizes, and simultaneously assessing mediation effects as well as direct and indirect structural relationships (Hair et al., 2017; Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, 2017).

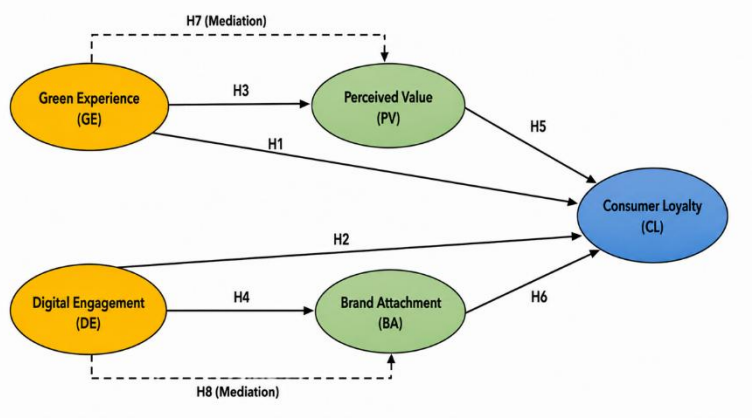

Figure 1. Proposed Model

Following the proposed conceptual model, the latent constructs were operationalized using validated measurement scales adapted from previous studies. Table 1 presents the research constructs and their measurement items.

Table 1. Research Instrument Constructs

Variable	Construct	Indicator	Underpinned Theories
Green Experience Experience of environmental sustainability practices	GE1 GE2 GE3 GE4 GE5	Eco-Friendly Practices Environmental Comfort Sustainability Concept Environmental Comfort	Chen et al., 2024; Hameed et al., 2021
Digital Engagement Interaction through digital platforms	DE1 DE2 DE3 DE4	Digital Interest Social Media Engagement	Brodie et al., 2013; Hollebeek et al., 2014
Perceived Value Evaluation of benefits received	PV1 PV2 PV3 PV4 PV5	Perceived Quality Perceived Benefits Perceived Quality Perceived Benefits Overall Value Assessment	Netemeyer et al., 2004; Sweeney & Soutar, 2001
Brand Attachment Emotional connection to the brand	BA1 BA2 BA3	Emotional Closeness Emotional Closeness Positive Emotional Connection	Chaudhuri & Holbrook, 2001; Oliver, 1999
Consumer Loyalty Intention to revisit and recommend	CL1 CL2 CL3	Revisit Intention Brand Preference Recommendation Intention	Chaudhuri & Holbrook, 2001; Oliver, 1999

3. RESULTS AND DISCUSSION

3.1. Sample Characteristics

The analysis was conducted using 300 responses. The respondents' demographic profile, coffee shop visitation behavior, and social media usage are presented in Table 2.

Table 2. Sample Characteristics

Characteristic	Category	n	%
Gender	Male	112	37.3
	Female	188	62.7
Age (years)	17–23	287	95.7
	24–29	13	4.3
Occupation	Student	293	97.7
	Employee	4	1.3
	Entrepreneur	3	1.0
Coffee shop visits/month	1–2	83	27.7
	3–5	118	39.3
	6–8	31	10.3
	>8	68	22.7
Most-used social media	TikTok	165	55.0
	Instagram	130	43.3
	Others	5	1.7
Main source of coffee shop information	TikTok	179	59.7
	Instagram	92	30.7
	Friend recommendations	23	7.7
	Google Maps	6	2.0

As presented in Table 2, the respondents were predominantly female (62.7%), aged 17–23 years (95.7%), and students (97.7%). Most respondents visited coffee shops 3–5 times per month (39.3%). Regarding digital behavior, TikTok was the most frequently used social media platform (55.0%) and the primary source of coffee shop information (59.7%), followed by Instagram. These characteristics indicate that the sample appropriately represents Generation Z consumers who actively engage with coffee shop brands through social media.

3.2. Measurement Model Assessment

The measurement model was subsequently evaluated to examine the validity and reliability of the constructs. This stage involved examining the outer loadings of each indicator to determine the extent to which the indicators adequately represented their respective latent constructs. The results of the outer loading assessment are presented in Figure 2.

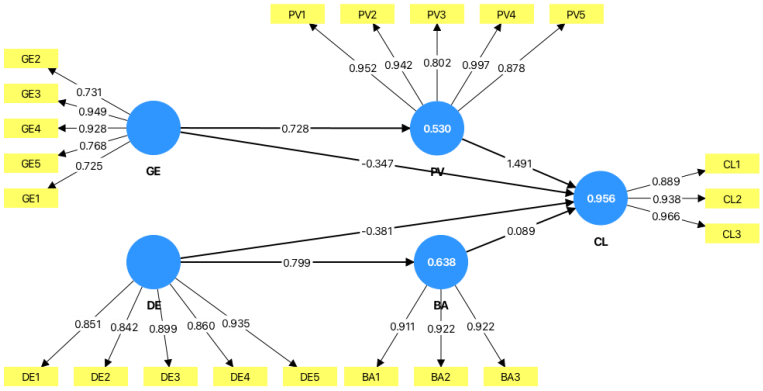

Figure 2. Outer loadings

The evaluation of indicator loadings showed that all measurement items for green experience, digital engagement, perceived value, brand attachment, and consumer loyalty exceeded the recommended cutoff value of 0.70. This outcome confirms that the indicators adequately reflect their underlying constructs and contribute substantially to construct measurement. Accordingly, the indicators demonstrate satisfactory convergent validity and were considered suitable for subsequent structural model assessment.

Table 3. Reliability and Convergent Validity Assessment

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
BA	0.907	0.908	0.942	0.844
CL	0.923	0.929	0.952	0.868
DE	0.925	0.936	0.944	0.771
GE	0.887	1.075	0.914	0.682
PV	0.951	0.956	0.963	0.841

In addition to the outer loading assessment, the reliability and convergent validity of the constructs were evaluated using Cronbach's alpha, composite reliability (rho_a and rho_c), and average variance extracted (AVE). As presented in Table 2, all constructs demonstrated Cronbach's alpha values above the recommended threshold of 0.70, indicating satisfactory internal consistency. Similarly, the composite reliability values (rho_a and rho_c) exceeded 0.70 for all constructs, confirming the reliability of the measurement model. Furthermore, the AVE values ranged from 0.682 to 0.868, surpassing the minimum criterion of 0.50, which indicates that each construct explains more than half of the variance of its indicators. Overall, these results provide strong evidence of construct reliability and convergent validity, supporting the adequacy of the measurement model for further structural analysis.

Table 4. Discriminant Validity Fornell-Larcker Criterion

	BA	CL	DE	GE	PV
BA	0.918				
CL	0.827	0.931			
DE	0.799	0.895	0.878		
GE	0.305	0.544	0.580	0.826	
PV	0.771	0.947	0.943	0.728	0.917

The Fornell–Larcker criterion was used to assess discriminant validity. As shown in Table 4, the square root of the AVE for each construct is higher than its correlations with other constructs. This result demonstrates that each construct is empirically distinct and measures a unique concept. Hence, the discriminant validity of the measurement model is supported.

3.3. Structural Model Assessment

Following the measurement model assessment, the structural model was evaluated to test the proposed hypotheses and assess the model's explanatory power. The results are presented in Tables 5–9 and Figure 3.

Table 5. R Square

	R-square	R-square adjusted
BA	0.638	0.637
CL	0.956	0.955
PV	0.530	0.528

The R^2 values indicate that green experience explains 53.0% of the variance in perceived value, while digital engagement accounts for 63.8% of the variance in brand attachment. Furthermore, green experience, digital engagement, perceived value, and brand attachment jointly explain 95.6% of the variance in consumer loyalty. These findings suggest that the proposed model has strong explanatory power, particularly in predicting consumer loyalty among Generation Z coffee shop customers.

Table 6. Path Coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
BA -> CL	0.089	0.090	0.020	4.391	0.000
DE -> BA	0.799	0.800	0.015	51.600	0.000
DE -> CL	-0.381	-0.383	0.046	8.350	0.000
GE -> CL	-0.347	-0.348	0.018	19.305	0.000
GE -> PV	0.728	0.730	0.012	59.097	0.000
PV -> CL	1.491	1.493	0.052	28.831	0.000

The structural model was tested using bootstrapping to examine the relationships among green experience (GE), digital engagement (DE), perceived value (PV), brand attachment (BA), and customer loyalty (CL). The results show that all hypothesized paths are significant at $p < 0.001$. Green experience has a significant positive effect on perceived value ($\beta = 0.728$, $t = 59.097$), while digital engagement strongly influences brand attachment ($\beta = 0.799$, $t = 51.600$). Perceived value has the strongest positive effect on customer loyalty ($\beta = 1.491$, $t = 28.831$), followed by brand attachment ($\beta = 0.089$, $t = 4.391$). Interestingly, both green experience and digital engagement show significant negative direct effects on customer loyalty ($\beta = -0.347$ and $\beta = -0.381$), indicating that their influence on loyalty is mainly indirect through mediation effects. Overall, customer loyalty is primarily driven by perceived value and brand attachment, while green experience and digital engagement act as antecedents that shape loyalty through mediating variables.

Table 7. Specific Indirect Effects

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
DE -> BA -> CL	0.071	0.072	0.016	4.400	0.000
GE -> PV -> CL	1.085	1.090	0.044	24.436	0.000

The specific indirect effects show that both mediation pathways are statistically significant at $p < 0.001$. The indirect effect of digital engagement on customer loyalty through brand attachment is positive and significant ($\beta = 0.071$, $t = 4.400$), indicating that digital interactions contribute to loyalty by strengthening emotional bonds with the brand. Similarly, green experience exhibits a strong and significant indirect effect on customer loyalty through perceived value ($\beta = 1.085$, $t = 24.436$), suggesting that sustainability-related experiences enhance loyalty by increasing consumers' perceived value. Overall, these findings indicate that customer loyalty is primarily shaped through indirect mechanisms, where digital engagement operates via an emotional pathway (brand attachment), while green experience operates through a cognitive pathway (perceived value).

Table 8. Total Effects

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
BA -> CL	0.089	0.090	0.020	4.391	0.000
DE -> BA	0.799	0.800	0.015	51.600	0.000
DE -> CL	-0.310	-0.311	0.047	6.646	0.000
GE -> CL	0.738	0.742	0.039	18.912	0.000
GE -> PV	0.728	0.730	0.012	59.097	0.000
PV -> CL	1.491	1.493	0.052	28.831	0.000

The total effects indicate the combined influence of direct and indirect relationships among the variables in the model. The results show that green experience has a strong positive total effect on customer loyalty ($\beta = 0.738$), suggesting that environmentally based experiences significantly enhance loyalty among Generation Z consumers, primarily through both direct and indirect pathways. Digital Engagement also demonstrates a meaningful total effect on customer loyalty, although the direct effect is negative ($\beta = -0.310$). This implies that digital engagement does not directly enhance loyalty; however, its overall influence is partially transmitted through brand attachment, indicating a mixed but significant impact on loyalty formation. perceived value emerges as the strongest determinant of customer loyalty ($\beta = 1.491$), confirming its central role in driving loyalty behavior. This highlights that consumers' cognitive evaluation of value is the most influential factor in shaping loyalty outcomes. Brand attachment contributes positively to customer loyalty ($\beta = 0.089$), although its effect is relatively weak compared to perceived value, indicating that emotional attachment plays a supporting rather than dominant role in loyalty formation. Overall, the total effect results confirm that customer loyalty is primarily driven by perceived value, followed by green experience, while digital engagement influences loyalty indirectly through brand attachment.

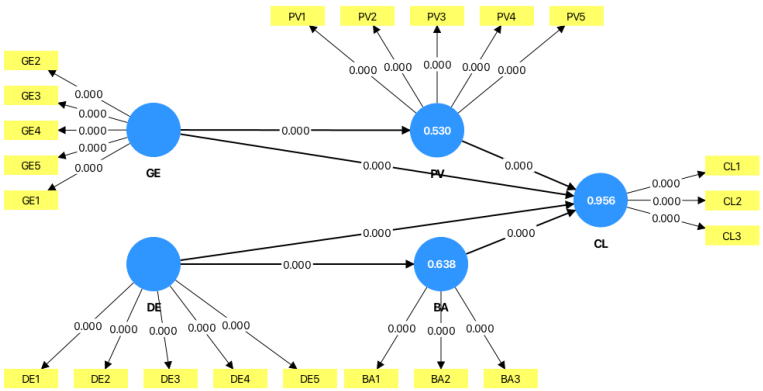

Figure 3. Structural Model Bootstrapping Results

Following the bootstrapping analysis presented in Figure 3, the overall adequacy of the structural model was assessed using model fit indices. The results are reported in Table 9.

Table 9. Model Fit

	Saturated model	Estimated model
SRMR	0.082	0.095
d_ULS	1.80	2.40
d_G	1.10	1.30
Chi-square	0.82	0.85

The model fit results show that the SRMR values for the saturated model (0.082) and estimated model (0.095) are within the acceptable threshold (< 0.10), indicating an adequate model fit. The d_ULS and d_G values indicate a moderate level of discrepancy between the saturated and estimated models, but remain acceptable in the context of PLS-SEM. The Chi-square values are not emphasized in PLS-SEM, and NFI is not available due to model specification. Overall, the results indicate that the model demonstrates an acceptable fit.

This study examined the relationships among green experience, digital engagement, perceived value, brand attachment, and customer loyalty among Generation Z coffee shop consumers. The findings provide a comprehensive explanation of how loyalty is formed through both cognitive and affective mechanisms in a sustainability-oriented and digitally driven consumption context. The results reveal that green experience has a negative direct effect on customer loyalty. This finding suggests that environmentally friendly initiatives alone do not automatically translate into loyalty behavior among Generation Z consumers. Although consumers may appreciate sustainability practices, they tend to critically evaluate whether such initiatives provide meaningful benefits before developing loyalty. This finding is consistent with Stimulus–Organism–Response (S-O-R) theory, which suggests that environmental stimuli first influence consumers' internal evaluations before generating behavioral responses. In the context of Generation Z, sustainability claims appear to require further cognitive processing before affecting loyalty outcomes (Dragolea et al., 2023; Shih et al., 2024).

Similarly, digital engagement exhibits a negative direct effect on customer loyalty. This result indicates that digital interactions alone are insufficient to directly foster loyalty. While digital platforms enhance brand visibility and facilitate communication with consumers, they may simultaneously increase consumer expectations. When these expectations are not fully met, digital engagement may not directly translate into loyalty behavior. This finding supports previous studies suggesting that digital engagement functions more effectively as a relational mechanism rather than as a direct determinant of loyalty, particularly in highly competitive digital environments. Turning to the indirect pathway proposed in the model, the findings further indicate that green experience has a strong and significant positive effect on perceived value. The findings further indicate that green experience has a strong and significant positive effect on perceived value. This suggests that environmentally friendly experiences significantly enhance consumers' cognitive evaluation of value. Sustainability-oriented experiences are not only perceived as ethical contributions but also as meaningful value-added experiences that enrich consumers' overall consumption experience. Previous studies support this finding. (Lin et al., 2017) demonstrated that consumers perceived green benefits, including utilitarian environmental benefits and warm-glow benefits, significantly enhance green perceived value. Similarly, (Lee & Peng, 2021) found that green experiential marketing positively influences experiential value, reflecting consumers' overall evaluation of their consumption experiences. These findings collectively suggest that green experiences contribute to higher perceived value by enhancing both functional and experiential benefits.

The results also show that digital engagement has a strong positive effect on brand attachment. This finding highlights the importance of digital interactions in developing emotional bonds between consumers and brands. As digital natives, Generation Z consumers frequently engage with brands through social media platforms, mobile applications, and online communities. These interactions facilitate emotional connections and strengthen consumers' attachment to brands (Wang et al., 2024). This finding is consistent with previous research indicating that digital engagement included social media marketing plays a crucial role in building brand relationships and emotional attachment in online environments (Gede et al., 2024; Thanasi-Boçe et al., 2024).

Furthermore, perceived value emerges as the strongest predictor of customer loyalty. This finding indicates that consumers' cognitive evaluation of benefits plays a central role in shaping loyalty behavior. Even within sustainability-oriented and digitally mediated consumption contexts, rational assessments of value remain the most influential determinant of loyalty. Previous studies consistently demonstrate that perceived value is one of the strongest predictors of customer loyalty across service industries, as consumers who perceive greater value are more likely to strengthen their relationships with service providers and exhibit favorable loyalty behaviors, including repurchase intentions and positive word-of-mouth recommendations (Liu et al., 2026; Paulose & Shakeel, 2022). Consistent with these findings, research in coffee shop contexts has also shown that perceived value positively contributes to customer loyalty by enhancing consumers' overall evaluation of the benefits derived from their consumption experiences (Virginia Balqqis Zacqualine et al., 2025).

Beyond the cognitive evaluation reflected in perceived value, the findings also highlight the role of affective mechanisms in shaping customer loyalty. Brand attachment also has a positive effect on customer loyalty, although its influence is relatively weaker than that of perceived value. This finding suggests that

emotional bonds contribute to loyalty formation but are not sufficient on their own to sustain long-term loyalty. Consumers may develop affection and emotional connections toward a brand; however, loyalty is strengthened when such emotional attachment is accompanied by strong value perceptions. This finding is consistent with (Ko & Jeon, 2024b), who found that eco-friendly practices implemented by Starbucks positively influence brand attachment, which subsequently strengthens brand loyalty among Generation Z consumers. While their study focused on a globally recognized coffee shop brand with established sustainability practices, the present study demonstrates that similar mechanisms can also operate within contemporary local coffee shop contexts.

The mediation analysis further reveals that green experience significantly influences customer loyalty through perceived value. This finding confirms that perceived value serves as an important cognitive mechanism linking sustainability experiences to loyalty behavior. In other words, green experiences increase consumers' perceptions of value, which subsequently encourage loyalty. The significant indirect effect, combined with the negative direct effect, suggests that sustainability initiatives influence loyalty primarily through consumers' cognitive evaluations rather than through direct behavioral responses. This finding is consistent with S-O-R-based sustainability studies, which suggest that sustainability-related stimuli influence behavioral outcomes through internal psychological and cognitive evaluations rather than through direct effects (Baber, 2026). In the present study, perceived value represents this cognitive mechanism through which green experience contributes to customer loyalty.

In addition, digital engagement significantly influences customer loyalty through brand attachment. This finding confirms the existence of an affective pathway through which digital interactions strengthen emotional bonds that subsequently foster loyalty behavior. Although the magnitude of this mediating effect is smaller than that of the cognitive pathway through perceived value, the result highlights the importance of emotional mechanisms in loyalty formation. Digital engagement contributes to loyalty not because consumers simply interact with brands online, but because those interactions cultivate emotional attachment toward the brand (Ghorbani et al., 2022; Terason et al., 2025).

Overall, the findings demonstrate that customer loyalty among Generation Z coffee shop consumers is primarily shaped through indirect mechanisms rather than direct effects. Perceived Value represents the dominant cognitive pathway through which green experience influences loyalty, whereas brand attachment serves as a complementary affective pathway linking digital engagement to loyalty. These findings support dual-process perspectives in consumer behavior, which suggest that loyalty is formed through both rational and emotional mechanisms operating simultaneously. This study extends the existing literature by demonstrating that in Generation Z consumption contexts, sustainability experiences and digital engagement do not directly create loyalty but instead operate through psychological mediators, particularly perceived value and brand attachment.

4. CONCLUSION

This study examined the effects of green experience and digital engagement on Generation Z consumer loyalty through the mediating roles of perceived value and brand attachment in the coffee shop context. The findings demonstrate that green experience enhances consumer loyalty by increasing perceived value, while digital engagement strengthens loyalty by fostering brand attachment. Perceived value emerged as the strongest determinant of consumer loyalty, highlighting the importance of consumers' cognitive evaluations in shaping loyalty behavior. Although brand attachment also contributes positively to loyalty, its influence is relatively weaker, suggesting that emotional connections complement rather than replace the role of perceived value. Furthermore, the significant indirect effects indicate that sustainability initiatives and digital engagement are more effective when they create meaningful value and emotional attachment for consumers instead of relying solely on their direct influence.

These findings contribute to the growing literature on sustainable consumer behavior by providing empirical evidence that customer loyalty among Generation Z is driven by the interaction between cognitive and emotional mechanisms. From a managerial perspective, coffee shop operators should integrate environmentally sustainable practices with interactive digital engagement strategies to enhance consumers' perceived value and strengthen brand attachment. Such an integrated approach is expected to foster long-term customer loyalty and improve competitive advantage in an increasingly dynamic market. Nevertheless, this study is limited to Generation Z consumers in coffee shops located in Pontianak, which may restrict the generalizability of the findings to other geographical and cultural contexts. Future research is encouraged to examine this model across different cultural settings and service industries and to incorporate additional variables, such as customer satisfaction, green trust, or purchase intention, to further enrich the understanding of sustainable consumer loyalty.

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