Exploring the Interplay of Stakeholder Pressure, Environmental Awareness, and Environmental Ethics on Perceived Environmental Performance: Insights from the Manufacturing Sector

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Article

Exploring the Interplay of Stakeholder Pressure, Environmental Awareness, and Environmental Ethics on Perceived Environmental Performance: Insights from the Manufacturing Sector

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Abstract: This study explores the relations among stakeholder pressure, environmental awareness, leadership commitment, and environmental ethics and their influence on perceived environmental performance in the manufacturing industry. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to examine the quantitative data collected from 386 managers across selected manufacturing firms in Lagos State, Nigeria. The outcome of the study reveals that stakeholder pressure (SP) influences environmental ethics (EE) and perceived environmental performance (PEP) but not leadership commitment while environmental awareness (EA) influences environmental ethics (EE) but not perceived environmental performance (PEP) and leadership commitment (LC) with EE not impacted by LC. Meanwhile, EE mediates the relationship between EA and PEP as well as SP and PEP but not LC and PEP while LC does not mediate any of the relationship and IC does not moderate the relationship between EE and PEP. The study recommends that organizations should focus on enhancing EA and SP to improve environmental ethics and PEP.

Keywords: environmental awareness; environmental ethics; leadership commitment; perceived environmental performance; stakeholder pressure

1. Introduction

Institutional and stakeholder theories are essential considering the efforts of organizations to moderate the effects of their activities on the society. Institutional theory proposes that improving environmental performance requires adopting practices shaped by social, environmental, and organizational factors [1,2]. The growing importance on EE pinpoints the adverse effects of organizational activities, encouraging moral behavior and boosting perceived environmental performance (PEP) as an ethical issue [3]. Frighteningly, over six million people die yearly from air pollution, with more than one million deaths linked to harmful chemicals [4]. The United States, known as one of the top ten nations with pollution-related deaths, sees the EPA urging organizations to account for toxic chemical releases and pollution prevention efforts to enhance PEP [5].

Furthermore, Helliwell *et al.* (2020) highlight the importance of environmental ethics for organizational success. Meanwhile, firms are restructuring to enhance accountability and environmental performance, but existing models fail to address personal adoption [7]. The spurring of this study is as a result of increasing significance of organizational commitment and environmental ethics in attaining sustainable performance is what this study. This study builds on the findings of Tsinopoulos et al. (2018) by proposing that stakeholder pressure and organizational environmental awareness, both of which may be impacted by environmental, which in returns influence how environmental performance is viewed. Additionally, Trizotto et al. (2024) point out that innovation climate awareness is a significant moderating element in the relationship between environmental

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ethics and perceived environmental performance. Therefore, the purpose of this study is to shed light on how these components interact to improve organizational performance and sustainability.

The following are some ways that this study contributes to the existing literature regarding both institutional and stakeholders' theory: First, this study highlights the indirect pathways through which EA and SP influence PEP by means of LC and EE. Secondly, this study focuses on Nigeria's manufacturing industry, which has received little attention in the field of environmental studies. Third, in revealing the innovative climate's negligible function within this framework, which may be ascribed to a number of organizational and environmental contingencies. First, it is possible that in some settings, particularly in developing economies like Nigeria, innovation climate is not sufficiently developed or prioritized in organizational culture. This could be due to a variety of factors, including limited resources, less emphasis on cutting-edge technology, and a lack of strong institutional support for fostering an innovation-driven environment [8].

More so, in such environments, firms may be more focused on meeting immediate operational needs rather than fostering an atmosphere conducive to innovation, which could weaken the moderating effect of IC on the relationship between EE and PEP. Third, the study challenges some existing assumptions and offers new perspectives on the factors that truly drive environmental performance in manufacturing industries. The study challenges some existing assumptions in the literature and offers new perspectives on the factors that genuinely influence environmental performance in manufacturing industries. By highlighting the limited role of innovation climate in this context, it encourages a reevaluation of how environmental performance is driven by organizational factors, particularly in developing economies where innovation may not be as deeply ingrained in business practices.

The succeeding sections are organized as follows: Section II thoroughly assesses pertinent literature. Section III provides a thorough description of the research methodology and data sources. Section IV provides the empirical findings and analysis, while Section V summarizes the study's outcome and offers policy implications and recommendations.

2. Literature Review

In the research framework as shown in Figure 1, stakeholder pressure (SP) and environmental awareness (EA) influence leadership commitment (LC), and together, these three variables impact environmental ethics (EE) as well as perceived environmental performance (PEP) of an organization, with innovative climate (IC) moderating EE on PEP by using stakeholder and institutional theories to understand how firms adopt environmentally friendly practices [3].

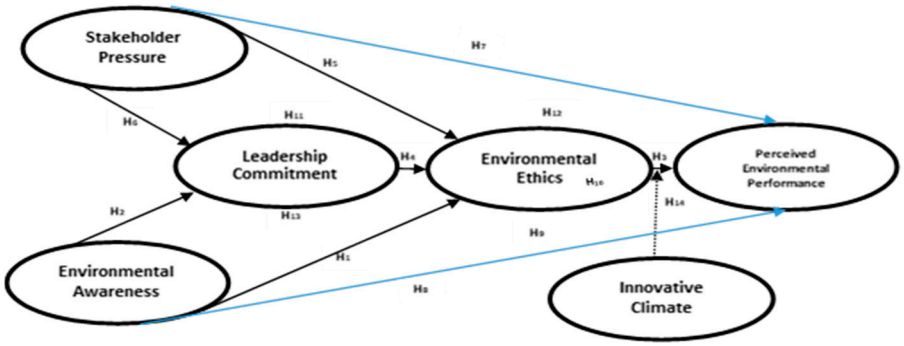

Figure 1. Research Framework.

2.1. Theoretical Framework

Institutional theory illustrates how organizational norms, expectations of the public, and regulatory necessities influence the commitment of the leadership to environmental activities [9,10]. Freeman (2010) affirms that organizations should take stakeholder interest into account in addition

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to their desires when environmental ethics are in line with personal principles which could surge employee happiness as well as engagement.

2.2. Stakeholder Pressure (SP)

Stakeholder theory claims that organizations must satisfy the demands of all parties interested in the success of a business including the sustainable practices used to meet the expectations of various stakeholders and maintain competitiveness [12]. Therefore, stakeholder pressure can be defined as the impact that different stakeholders have on an organization to adopt particular practices or behaviors [13]. Businesses are frequently compelled by stakeholder pressure to address regional environmental concerns [14].

2.3. Environmental Awareness (EA)

EA can be defined as the awareness of a range of environmental challenges, including pollution, resource depletion, and climate change, as well as being dedicated to implementing actions and policies that lessen these problems [15]. Kohler *et al.* (2022) use meta-analysis to evaluate the efficacy of environmental programs. But drawing on UNESCO's 2022 report, Zancajo *et al.* (2021) emphasize the significance of media and education in raising global EA.

2.4. Leadership Commitment (LC)

Leadership commitment to environmental ethics refers to the dedication of organizational leaders to integrate environmental considerations into their strategic decisions, policies, and practices. It entails actively promoting sustainability and moral environmental behavior within the company, going beyond simple adherence to environmental laws (Muttakin and Khan, 2023). Aguinis *et al.*, (2024) investigate how this commitment influences corporate culture and improves CSR outcomes. According to research, a culture of responsibility and better perceived environmental performance are facilitated by leadership commitment [18,19].

2.5. Environmental Ethics (EE)

EE can be described as the study of how human activity affects the environment and what defines moral behavior toward it [20]. It is the study of moral relationships between humans and the natural world. Ferris and Fineman (2024) broaden the scope of ethical considerations by including ecosystems and animals. Robinson *et al.* (2022) include environmental, social, and economic factors into a paradigm for moral sustainability while Schroeder (2023) promotes an ecocentric viewpoint that puts inherent of nature worth ahead of human-centric viewpoints. More so, individual duties in minimizing environmental hazards are evaluated by Keller *et al.* (2023). Thompson (2020) investigates how environmental ethics might be incorporated into the creation of policies. In his analysis of environmental justice, Pellow (2023) focuses on how underprivileged populations are exposed to pollution and how resources are distributed. Above all, these authors highlight how crucial it is to include moral values into sustainable activities in order to create a better future.

2.6. Perceived Environmental Performance (PEP)

PEP is the subjective evaluation of a business's sustainability and environmental effect by internal and external stakeholders [26]. Delmas and Burbano (2011) examine the detrimental impacts of greenwashing and how it skews stakeholders' perceptions of environmental performance. Their research highlights how stakeholder perceptions have a big influence on business reputation and behavior highlighting how crucial it is to match perceived and actual environmental performance in order to preserve trust and reputation.

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2.7. Innovative Climate (IC)

According to Poveda-Pareja *et al.* (2024), IC is one that encourages innovation, experimentation, and fresh concepts, especially in relation to environmental sustainability. According to research by Erkmen *et al.* (2020) IC plays a part in improving environmental performance by fostering leadership commitment and moral behavior, which leads to sustainable results. To tackle difficult problems, this environment encourages critical problem-solving and creative thinking.

2.8. Emipirical Literature Review

Liu *et al.* (2019) and Ak and Kutlu (2017) found out in their study that environmental ethics are positively impacted by more environmental awareness in a range of cultural contexts. In Zibo, China, Wang *et al.* (2016) looked at 972 participants from both urban and rural locations. They found a high correlation between leadership commitment and environmental consciousness. Wu *et al.* (2024) confirmed this in the production of medical equipment. More so, Singh *et al.*, (2019) studied 364 managers in the UAE, using SEM to show that environmental ethics positively influences perceived environmental performance. Xie *et al.* (2024) confirmed this relationship in Chinese manufacturing firms. Also, Mishra and Tikoria (2021) studied 537 doctors in Rajasthan, India, using SEM, finding leadership commitment positively impacts environmental ethics. Zhang and Zhang (2016) confirmed this in 502 insurance agents in China leading to the following hypotheses:

H_1: EA positively influence organizational EE.

H_2: EA positively influence LC as regards environmental sensitivity.

H_3: EE positively influence PEP.

H_4: LC positively influence EE.

Furthermore, Rui & Lu (2021) studied 278 enterprises in the Yangtze River Delta, using regression analysis, revealing stakeholder pressure significantly influences environmental ethics. D'Souza et al. (2022) confirmed this in 286 social businesses in Bangladesh. Tian et al. (2015) conducted two studies in China, finding a positive relationship between stakeholder pressure and leadership commitment. Yong et al. (2022) confirmed this in 112 Malaysian manufacturing firms using PLS modeling. Alt et al. (2015) examined 170 firms across Europe, finding stakeholder pressure positively influences perceived environmental performance. Graham (2020) confirmed this in 149 U.K. food industry companies, using hierarchical regression analysis. Xie et al. (2024) evaluated 410 managers in China and discovered that environmental awareness positively influences perceived environmental performance. Alzghoul et al. (2023) confirmed this by using 287 individuals in Jordanian pharmaceutical companies which led to the following hypotheses:

H_5: SP has significant positive influence on EE.

H_6: SP has significant positive influence on LC.

H_7: SP has significant positive influence on PEP.

H_8: EA has significant positive influence on PEP.

In addition, Saifulina *et al.* (2022) studied 331 bank employees across Kazakhstan, Ecuador, and China, finding EE mediates the relationship between EA and PEP. De Araujo (2014) similarly highlighted this mediating role. Also, Zailani *et al.*, (2014) considered 252 Malaysian transportation companies, using SEM to examine EE as a mediator between LC and PEP, highlighting its significant influence on environmental performance. In the meantime, Mansour *et al.*, (2022) discovered that the relationship between EE and SP is mediated by LC, highlighting the fact that LC guarantees that external pressures result in moral environmental behavior. Using stepwise regression, Rui and Lu (2021) examined 278 businesses in the Yangtze River Delta and discovered that Stakeholder Pressure affects Environmental Ethics, which in turn improves PEP. Furthermore, LC is identified by Wu *et al.* (2024) and Wang (2019) as a critical mediator that converts EA into effective EE. LC integrate sustainability into organizational culture and strategies, which leads to the development of the following hypotheses:

H_9: EE mediate the relationship between EA and PEP.

H_{10}: LC mediate the relationship between SP and EE.

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H_{11}: EE mediate the relationship between LC and PEP.

H_{12}: EE mediate the relationship between SP and PEP.

H_{13}: LC mediate the relationship between EA and organizational EE.

Finally, khtar et al. (2024) and Enbaia et al. (2024) claim that an innovative climate, characterized by a culture fostering creativity and the adoption of new technologies, enhances the effect of environmental ethics on perceived environmental performance.This led to the following hypothesis.

H_{14}: IC moderates the effects of organizational EE on PEP.

3. Materials and Methods

3.1. Research Design

This study employs a total population sampling technique by using structured questionnaires to collect quantitative data from 421 manufacturing companies in Lagos State, Nigeria. The participants of the study comprise managers of those manufacturing companies in Lagos state. Any organization whose managers declined to complete the questionnaire for any reason was excluded from the study. The responses gathered from the questionnaires were collated and analyzed using SPSS version 26 and SmartPLS 4.

There are 421 manufacturing companies in Lagos State, Nigeria[1]. This study focused on the entire population of manufacturing companies in Lagos State, resulting in the distribution of 421 questionnaires. Of these, 386 were returned and deemed usable, yielding a response rate of approximately 91.7%. Participants in this study included managers from manufacturing companies in Lagos State, recognized as the Centre of Excellence.

Due to constraints such as time and cost, the study employed non-probability sampling techniques, specifically convenience sampling, for data collection. Non-probability sampling can effectively estimate population characteristics [44]. This research utilized a quantitative approach, employing structured questionnaires as the primary data collection instrument. The study design aims to objectively examine the formulated hypotheses that elucidate the relationships among the study variables, while also generalizing the findings to a larger population [45].

3.2. Items of Measurements

This study utilizes six constructs, each measured by a different number of items, referred to as indicators. These items were designed using a 5-point Likert scale, ranging from 1 to 5, where "1" represents "strongly disagree" and "5" signifies "strongly agree," as detailed in Appendix 1.

Lee *et al.*, (2018) created four measures (SP1 to SP4) to measure stakeholder pressure. Five items were also used to evaluate environmental awareness (EA1 to EA5) created by Gadenne et al. (2009) with five items used to measure perceived environmental performance (PEP1 to PEP5) adopted from Paillé et al., (2014). Specifically, five items were used to measure environmental ethics (EE1 to EE5), developed by Rui and Lu (2021). Leadership commitment was assessed with three items (LC1 to LC3) created by Banerjee et al. (2003). And, four items (IC1 to IC4) developed by Popa *et al.* (2017) were used to measure innovative climate.

4. Results

Measurement models and structural equation modeling, were examined using SmartPLS 4 alongside with data cleaning and descriptive analysis using SPSS version 26 to examine the developed hypotheses.

4.1. Demographic Study

[1] https://www.dnb.com/business-directory/company-information.manufacturing.ng.na.lagos_state.html?utm_source=chatgpt.com

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The demographic composition of this is based on 386 participants out of 421 questionnaires distributed to the target population which were found valid, yielding a 91.69% rate of return.

Table 1 presents the demographic characteristics of the managers who participated in the survey, representing their respective organizations. The findings indicate that a majority of participants were female, comprising 54.65% of the sample. Additionally, most respondents fell within the age bracket of 25 to 40 years, accounting for 76.2%. The data also reveal that the majority of the companies represented were privately owned, constituting 77.7% of the sample.

Furthermore, nearly half of the managers (47.4%) reported having less than four years of tenure in their positions, and most participants identified as married, representing 53.1% of the respondents.

Table 1. Frequency Distribution of the Demographic Variables.

	Frequency	Percentage
Gender		
Male	176	45.6
Female	210	54.4
Age		
Under 25 years	14	3.6
25 - 40 years	294	76.2
Over 40 years	78	20.2
Ownership		
Government owned	9	2.3
Private owned	291	77.7
Other	86	100.0
Tenure		
Less than 4 years	183	47.4
4 – 6 years	97	25.1
6 – 8 years	61	15.8
8 – 10 years	26	6.7
Over 10 years	19	4.9
Marital Status		
Married	205	53.1
Single	160	41.5
Divorced or widow	21	5.4

Source: Survey Data (2025).

4.2. Measurement Model

The constructs of the study were examined by evaluating the measurement model (Figure 2) to confirm the reliability and validity of the studied variables before proceeding to the structural model.

According to Table 2, all factor loadings exceed 0.7, indicating that each indicator effectively represents its underlying construct (Vinzi et al., 2010). However, the factor loading for environmental awareness (EA4, 0.671) falls below 0.7 but remains above the minimum satisfactory threshold of 0.50 [52]. As noted by Latif et al. (2020), many social science studies report factor loadings below 0.70, suggesting that rather than routinely deleting indicators, it is essential to assess the impact of such actions on composite reliability and convergent validity. Sarstedt et al. (2022) indicate that items with factor loadings between 0.40 and 0.70 may be eliminated only if it enhances these metrics.

In this study, removing EA4, which has an outer loading of 0.671, would likely not have significantly improved average variance extracted or composite reliability, as all other indicators already met acceptable thresholds. Consequently, no observed variables were deleted for further analysis. Additionally, Table 2 shows the consistency of constructs, with reliability tests using Cronbach's alpha, rho_a (average inter-item correlation), and composite reliability (rho_c) all exceeding the acceptable threshold of 0.70 [54].

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Table 2. Validity and Reliability Test.

Construct	Outer loadings	Cronbach's alpha	(rho_a)	CR (rho_c)	AVE	VIF
SP1	0.763	0.813	0.824	0.876	0.640	1.704
SP2	0.836					1.864
SP3	0.796					1.914
SP4	0.802					1.871
EA1	0.799	0.841	0.857	0.886	0.609	2.005
EA2	0.808					2.121
EA3	0.831					2.391
EA4	0.671					1.816
EA5	0.782					2.124
LC1	0.863	0.779	0.830	0.861	0.675	1.636
LC2	0.735					1.686
LC3	0.861					1.534
EE1	0.851	0.897	0.903	0.924	0.707	2.421
EE2	0.871					2.700
EE3	0.859					2.540
EE4	0.783					1.984
EE5	0.838					2.283
IC1	0.901	0.880	0.914	0.913	0.725	3.674
IC2	0.890					2.419
IC3	0.862					2.063
IC4	0.746					2.529
PEP1	0.811	0.896	0.910	0.924	0.708	2.196
PEP2	0.913					4.191
PEP3	0.839					2.915
PEP4	0.872					2.506
PEP5	0.765					1.946

Source: Survey Data (2025).

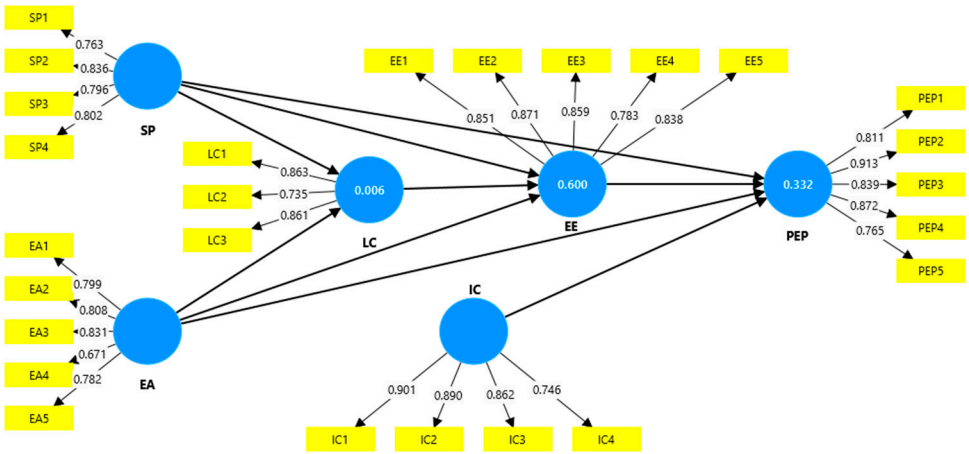

Figure 2. Measurement Model. Source: Survey Data (2025).

To further ensure robust analysis, multicollinearity among variables was assessed using the variance inflation factor (VIF). As shown in Table 2, all VIF values are below 5, indicating no multicollinearity issues (Jr et al., 2018). Furthermore, Table 3 reveals that the Heterotrait-Monotrait ratio of correlations is below the acceptable threshold of 0.85 [56] and below 0.90, thus confirming the establishment of discriminant validity.

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Table 3. Heterotrait-monotrait ratio (HTMT) discriminant validity Result.

	EA	EE	IC	LC	PEP	SP
EA						
EE	0.800					
IC	0.113	0.054				
LC	0.058	0.032	0.305			
PEP	0.539	0.594	0.082	0.052		
SP	0.763	0.792	0.054	0.061	0.560	

Source: Survey Data (2025).

The square root of the average variance extracted (AVE) was assessed against the correlations among the constructs using the Fornell-Larcker criterion, as presented in Table 4. The results indicate that the square root of AVE for each construct is higher than its correlations with other constructs, whether examined vertically or horizontally in the table. This confirms that the constructs in this study exhibit discriminant validity, indicating that each construct is distinct and there is no overlap among them.

Table 4. Fornell-Larcker criterion discriminant validity Result.

	EA	EE	IC	LC	PEP	SP
EA	0.780					
EE	0.719	0.841				
IC	0.089	0.052	0.852			
LC	0.034	0.010	0.231	0.822		
PEP	0.480	0.548	0.080	0.002	0.842	
SP	0.659	0.690	0.030	-0.028	0.490	0.800

Source: Survey Data (2025).

4.3. Structural Model

The hypothesized paths in the theoretical model are illustrated using a structural model, as shown in Figure 2. To assess this model, three key conditions will be evaluated: path significance, R^2, and Q^2. Table 5 demonstrates that all R^2 values exceed this threshold, indicating predictions, except for leadership commitment (LC), which is below 0.1. This indicates that the two independent variables SP and EA do not significantly predict LC. Conversely, the R^2 for EE is 0.600, meaning 60% of the variance in EE is explained by SP and EA. For PEP, the R^2 is 0.332, indicating that 33.2% of the variance in PEP is explained by EE and SP, with their p-values being less than 0.05, as shown in Figure 3.

Furthermore, Q^2 establishes the predictive relevance of the dependent variables. Table 5 shows that Q^2 values are above 0 for most variables, indicating predictive significance, except for leadership commitment (LC), which is below 0. Environmental ethics EE has a Q^2 of 0.598, and perceived environmental performance (PEP) has a Q^2 of 0.265, both demonstrating predictive relevance. Assessing the model's goodness of fit also leads to examining the proposed hypotheses to confirm relationship relevance.

Table 5. Direct relationship Analysis Result.

	Path Coefficients	Standard deviation	T statistics	P values
H_1: EA -> EE	0.479	0.043	11.204	0.000
H_2: EA -> LC	0.093	0.099	0.933	0.176
H_3: EE -> PEP	0.543	0.037	14.586	0.000
H_4: LC -> EE	0.004	0.033	0.126	0.450
H_5: SP -> EE	0.371	0.039	9.396	0.000

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H_6: SP -> LC	-0.090	0.086	1.049	0.147
H_7:SP -> PEP	0.185	0.066	2.784	0.003
H_8:EA -> PEP	0.107	0.084	1.281	0.100
R^2 EE = 0.600	Q^2 EE = 0.594			
R^2 LC = 0.006	Q^2 LC = -0.017			
R^2 PEP = 0.332	Q^2 PEP = 0.271			

Source: Survey Data (2025).

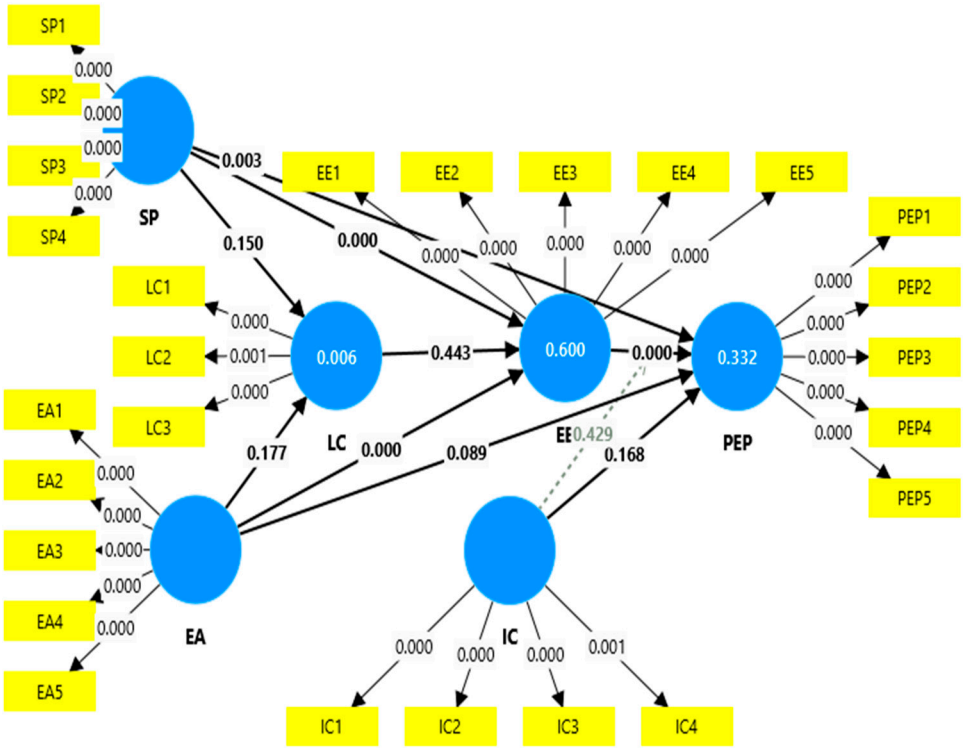

Figure 3. Structural Equation Model. Source: Survey Data (2025).

Hypothesis 1 (H_1) examines whether environmental awareness (EA) positively influences organizational environmental ethics (EE). Table 5 indicates that EA does have a positive effect on EE, with a beta weight of 0.49, exceeding the 0.10 threshold, indicating predictive ability [57]. The t-statistic of 11.204 is greater than 1.645, confirming significance in this one-tailed test, and the p-value is 0.000, which is less than 0.05 [58]. Thus, H_1 is supported.

Similarly, the results show that EE positively influences perceived environmental performance (PEP), with $\beta = 0.543$, $t = 14.586$, and $p = 0.003 < 0.05$, supporting H_3. Additionally, EE is moderately influenced by stakeholder pressure (SP), as indicated by $\beta = 0.371$, $t = 9.396$, and $p = 0.000 < 0.05$, thus supporting H_5. Furthermore, SP has a weak positive influence on PEP ($\beta = 0.185$, $t = 2.784$, $p = 0.000 < 0.05$), supporting H_7.

Conversely, the study reveals that EA does not positively influence leadership commitment (LC), as shown by $\beta = 0.093$, $t = 0.903$, and $p = 0.176$, which is greater than 0.05, indicating that H_2 is not supported. Similarly, LC does not influence EE, with $\beta = 0.004$, $t = 0.126$, and $p = 0.450$, leading to the conclusion that H_4 is not supported. Additionally, LC is not influenced by SP, with $p = 0.147 > 0.05$, meaning H_6 is also unsupported. Lastly, hypothesis eight (H_8), stating that EA has a significant positive influence on PEP, is not supported either ($\beta = 0.107$, $t = 1.281$, $p = 0.100 > 0.05$).

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4.4. Mediation Analysis

To examine the mediating roles of environmental ethics (EE) and leadership commitment (LC), a mediation analysis was conducted. Table 6 shows that EE mediates the relationship between environmental awareness (EA) and perceived environmental performance (PEP) (H_9: $\beta = 0.159$, $t = 4.631$, $p = 0.000$). Since EA does not directly influence PEP (as shown in Table 4.5), EE has a full mediation effect on this relationship, thus supporting H_9.

Additionally, EE also mediates the relationship between sustainability practices (SP) and PEP (H_{12}: $\beta = 0.130$, $t = 4.702$, $p = 0.000$). Since SP directly influences PEP, EE demonstrates a partial mediation effect, supporting H_{12}.

Conversely, LC does not mediate the relationship between SP and EE (H_{10}: $\beta = 0.000$, $t = 0.106$, $p = 0.458$), indicating that H_{10} is not supported. Similarly, LC does not mediate the relationship between EA and EE (H_{13}: $\beta = 0.000$, $t = 0.104$, $p = 0.459$), so H_{13} is also unsupported. Lastly, EE does not mediate the relationship between LC and PEP (H_{11}: $\beta = 0.002$, $t = 0.142$, $p = 0.444$), meaning H_{11} is not supported either.

Table 6. Mediation Analysis Result.

	Path Coefficients	Standard deviation	T statistics	P values
H_9: EA -> EE -> PEP	0.159	0.034	4.631	0.000
H_{10}: SP -> LC -> EE	0.000	0.004	0.106	0.458
H_{11}: LC -> EE -> PEP	0.002	0.012	0.142	0.444
H_{12}: SP -> EE -> PEP	0.130	0.028	4.702	0.000
H_{13}: EA -> LC -> EE	0.000	0.004	0.104	0.459

Source: Survey Data (2025).

4.5. Moderation Analysis

Table 7 indicates that the variable environmental ethics (EE) is not moderated by innovative climate (IC) in its relationship with perceived environmental performance (PEP). This conclusion is based on the p-value of 0.429, which exceeds the threshold of 0.05, and the path coefficient, which is less than 0.1. Additionally, the t-statistic is below 1.645. Consequently, hypothesis H_{14} is not supported.

Table 7. Moderation Analysis Result

	Path Coefficients	Standard deviation	T statistics	P values
H_{14}: IC x EE -> PEP	0.008	0.043	0.179	0.429

Source: Survey Data (2025).

5. Discussion

The results of this study indicate that environmental ethics (EE) and stakeholder pressure (SP) significantly influence perceived environmental performance (PEP), thereby supporting hypotheses three and seven (H_3 and H_7). This aligns with the findings of Xie et al. (2024), who reported that both EE and SP positively impact green product and process innovation, which in turn affects PEP. Conversely, environmental awareness (EA) did not influence PEP, contradicting the claims made by the authors.

While EE enhances PEP, the moderating effect of innovation climate (IC) was not significant, failing to support hypothesis fourteen (H_{14}). In comparison, [29] proposed that IC lessens the effect of EE on PEP which is otherwise in the case of this study where IC does not moderate the impact of EE on PEP. Additionally, the study discovered that EA and SP both predict EE, hence confirming hypotheses 1 and 5 (H_1 and H_5). This supports the claims made by [42] and [59] that SP and EA have a good impact on organizational EE. The rejection of hypothesis four (H_4) and a difference from resulted from the fact that leadership commitment (LC) had no effect on EE.

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Additionally, the study found that neither EA nor SP affected LC, which does not support hypotheses two and six (H_2 and H_6), contradicting Su et al. (2021) and Brown & Treviño, (2006). Furthermore, EE was found to mediate the relationships between both EA and PEP, and SP and PEP, supporting hypotheses nine and twelve (H_9 and H_{12}). This is in line with Gadenne et al. (2009) and Rui & Lu (2021). However, LC did not mediate the relationships between SP and EE, or EA and EE, rejecting hypotheses ten and thirteen (H_{10} and H_{13}). Finally, the study indicated that EE does not mediate the relationship between LC and PEP, failing to support hypothesis eleven (H_{11}) in the context of manufacturing companies in Lagos State, Nigeria.

6. Conclusions

The conclusions drawn from this study have implications for both practitioners and academics. The findings indicate that EA predicts EE but does not predict LC. Additionally, PEP is predicted by EE and SP, while EA does not have a predictive effect on PEP. It is noteworthy that LC does not predict EE, and SP does not predict LC; however, SP does predict EE. The study further establishes that EE mediates the relationship between EA and PEP, as well as the influence of SP on PEP, but does not mediate the relationship between LC and PEP. Moreover, LC does not mediate the relationship between SP and EE, nor between EA and EE. The results also indicate that innovative climate (IC) does not moderate the influence of EE on PEP.

Empirically, previous research in the field of environmental ethics has often proposed a link between these variables but provided limited empirical support. This study contributes evidence regarding the effects of EA on EE and the influence of EE and SP on PEP. Both academics and practitioners are now increasingly aware of the potential consequences of EE.

6.1. Managerial Recommendations

As a result of this study, managers may cultivate a culture that is driven by sustainability and make environmental ethics a fundamental value that is in line with the organization's long-term objectives. Furthermore, by putting sustainability first, businesses may establish a reputation as conscientious citizens and draw in investors and customers who care about the environment and corporate social responsibility (CSR). Managers must make sure that all stakeholders understand the company's commitment to sustainability.

6.2. Practical Policy Recommendations

There should be policies that encourage cooperation across stakeholders, such as communities, suppliers, and consumers. In addition, policies that encourage sustainability in all aspects of an organization's operations should be put in place, with an emphasis on waste reduction, energy conservation, and ethical material procurement.

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Abbreviations

The following abbreviations are used in this manuscript:

AVE	Average Variance Extracted
CSR	Corporate Social Responsibility
EA	Environmental Awareness

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EE	Environmental Ethics
EPA	Environmental Protection Agency
IC	Innovative climate
LC	Leadership Commitment
PEP	Perceived Environmental Performance
PLS-SEM	Partial Least Squares Structural Equation Modeling
SP	Stakeholder Pressure
SPSS	Statistical Package for the Social Sciences
UAE	United Arab Emirates
UNESCO	United Nations Educational, Scientific and Cultural Organization
VIF	Variance Inflation Factor

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