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Driving Green Creativity Through Leadership, Green HRM, and Employee Voice: A Study in Automotive Industry

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ABSTRACT

This study aims to analyze the influence of green inclusive leadership (GIL) and green human resources management (GHRM) on green creativity (GC), with green voice behavior (GVB) as a mediating variable. The primary focus is to examine the extent to which GIL and GHRM can foster employees' green creativity through GVB. This research employs a quantitative approach using a survey method distributed to employees in an automotive manufacturing company in Indonesia. The study was conducted on 389 employees of the one of automotive company market leader in Indonesia using a purposive sampling technique. Data processing and analysis are conducted using Covariance-Based Structural Equation Modelling (CB-SEM). The originality of this research lies in the integration of GIL and GHRM, variables that have not been extensively explored within the context of Indonesia's automotive industry, with GVB as a mediator. The findings of this study indicate that GIL has a positive and significant effect on GC through the full mediation of GVB. GHRM has a direct positive and significant effect on GC, as well as an indirect effect through the mediation of GVB.

INTRODUCTION

Climate change has emerged as a critical global issue, marked by rising temperatures, melting polar ice, and more frequent natural disasters. Human activities—particularly fossil fuel combustion and deforestation—are major contributors to greenhouse gas emissions, prompting governments and industries worldwide to adopt sustainable practices. In line with the global sustainability agenda, companies are now under increasing pressure not only from government regulations but also from environmentally conscious stakeholders and consumers (Uwuigbe, 2025; Chen & Chang, 2023). In the automotive sector, which contributes nearly 20% of global CO_2 emissions, leading global manufacturers such as Toyota, Volkswagen, Honda, BYD, and Hyundai have committed to achieving carbon neutrality through strategies like electrification and supply

chain optimization (McKinsey, 2022). Toyota's *Environmental Challenge 2050*, for instance, emphasizes a multi-pathway strategy encompassing BEV, HEV, and FCEV technologies adapted to regional infrastructure readiness. Similar ambitious commitments have been echoed by other industry leaders, reflecting a paradigm shift toward environmentally responsible business models.

In Indonesia, the transportation and industrial sectors are major sources of emissions (UNFCCC, 2022). The government's push toward Net Zero Emission by 2050 is reinforced by regulatory mechanisms such as Ministerial Circular Letter No. 2/2025, mandating emissions reporting through the SIINas platform (CNN Indonesia, 2025). The automotive industry, contributing 1.49% to national GDP and maintaining robust export growth, is both a key economic pillar and a critical target for decarbonization (Ekon, 2024).

Despite strong external and internal pressures for transformation, evidence from internal evaluations at the leading automotive manufacturer with over 30% market share—indicates a persistent deficiency in green creativity initiatives. While the company has formally adopted ESG indicators and integrated environmental KPIs since 2017, employee participation in environmentally driven idea generation remains low. Most contributions still concentrate on operational efficiency or digital transformation, with limited emphasis on ecological innovation.

This discrepancy raises concerns regarding the readiness of organizational culture, particularly within Japanese-affiliated firms, to foster green creativity. Conservative and hierarchical cultural norms—common in Japanese management practices—tend to inhibit experimentation, idea-sharing, and deviation from standardized procedures (Yamao & Sekiguchi, 2024; Powell, 2017). The challenge is further exacerbated by institutional inertia and the lack of psychologically safe environments where employees feel empowered to contribute eco-innovative ideas (Nguyen & Phạm, 2021; Hirose, 2022).

To address these structural and cultural barriers, scholars increasingly emphasize the roles of leadership and human resource management in cultivating pro-environmental behavior. Green inclusive leadership—characterized by accessibility, encouragement of diverse inputs, and recognition of eco-ideas—has been found to enhance green creativity by fostering employee engagement and trust (Khan, 2021; Fawehinmi et al., 2022). Similarly, green human resource management (GHRM) practices such as green training, recruitment, and performance appraisal have a significant impact on green behaviors, including green voice behavior (Aboramadan et al., 2022; Jamal et al., 2021).

Green voice behavior, defined as employees' proactive expression of environmentally related suggestions, serves as a crucial mechanism linking leadership and HRM practices to green creativity. This mediating behavior is essential in hierarchical organizations, where speaking up can be culturally constrained (Wu et al., 2021). Previous studies in various sectors—including education, textiles, and SMEs—have demonstrated the strategic value of green creativity in advancing sustainability and competitive advantage (Muhammad et al., 2023; Pratama et al., 2024).

However, research on green creativity within Indonesia's automotive manufacturing sector remains scarce, despite its substantial emissions footprint and strategic role in national sustainability goals. To fill this gap, the present study investigates the influence of green inclusive leadership and green human resource management on green creativity, with green voice behavior as a mediating variable. Drawing on employee perceptions at one of automotive company market leader in Indonesia, this research aims to advance theoretical understanding while offering practical insights into fostering environmental innovation in traditionally rigid organizational contexts.

LITERATURE REVIEW

Componential Theory of Creativity (CTC)

The Componential Theory of Creativity (Amabile & Pratt, 2016) posits that creativity arises from the dynamic interaction of three core components: domain-relevant skills, creativity-relevant processes, and intrinsic task motivation. These elements synergize to foster an environment conducive to idea generation and innovation. In organizational settings—particularly those prioritizing sustainability—supportive leadership and a psychologically safe climate are essential to activating these components and encouraging green creativity (Karatepe et al., 2021; Nureen et al., 2023).

Social Exchange Theory (SET)

Social Exchange Theory (Blau, 1964; Emerson, 1976) explains workplace behavior as reciprocal interactions based on perceived benefits. In sustainability contexts, when organizations demonstrate environmental responsibility, employees are more likely to respond with loyalty, engagement, and proactive behaviors. This alignment between organizational and personal values strengthens employee commitment and participation in green initiatives (Ogunode & Adegbie, 2022).

Green Inclusive Leadership and Green Creativity

Green Inclusive Leadership (GIL) refers to a leadership style that emphasizes openness, accessibility, and supportiveness in promoting environmental goals within organizations. Leaders with this orientation foster an inclusive environment where employees feel empowered to propose eco-friendly ideas and participate in sustainability-oriented decisions. In such contexts, employees are more motivated to think creatively and contribute innovative ideas related to energy efficiency, waste reduction, and sustainable practices.

According to Asghar et al. (2023), GIL significantly influences green creativity by cultivating a psychologically safe climate that encourages idea expression. When leaders are responsive to green initiatives and acknowledge employee input, it enhances the willingness of employees to experiment and innovate. This leadership approach aligns closely with organizational creativity theory (Amabile & Pratt, 2018), which underscores the importance of intrinsic motivation and a supportive environment in fostering creativity. GIL thus acts as a critical driver of green creativity by strengthening employee motivation and building an organizational culture conducive to sustainable innovation. H1: Green Inclusive Leadership has a positive effect on Green Creativity.

Green Human Resource Management and Green Creativity

Green Human Resource Management (GHRM) involves embedding environmental principles into HR practices, such as green recruitment, environmental training, sustainability-based performance appraisals, and recognition for eco-friendly behaviors. GHRM seeks to cultivate an environmentally conscious workforce equipped with green skills and committed to the organization's sustainability agenda.

GHRM enhances green creativity by providing the necessary skills (through green training), motivation (through incentives), and opportunities (through participative sustainability programs) (Aboramadan 2022 & Karatepe, 2021). Organizations that actively support green behaviors through HR practices create a culture where employees internalize environmental values and demonstrate increased creativity in solving environmental challenges. H2: Green Human Resource Management has a positive effect on Green Creativity.

Green Inclusive Leadership and Green Voice Behavior

Beyond promoting innovation, Green Inclusive Leadership facilitates two-way communication, enabling employees to voice their opinions on environmental matters. Leaders

who are approachable and open to feedback create a psychologically safe environment where employees feel confident to share ideas, concerns, and solutions related to sustainability. As highlighted by Asghar et al. (2023), when leaders consistently show openness to green suggestions, employees are more likely to engage in green voice behavior (GVB). GIL plays a pivotal role in breaking down hierarchical barriers that often inhibit idea sharing, fostering a participatory climate that encourages proactive environmental communication. H3: Green Inclusive Leadership has a positive effect on Green Voice Behavior.

Green Human Resource Management and Green Voice Behavior

GHRM promotes an organizational environment that encourages employees to actively voice their ideas on environmental improvements. Through mechanisms such as green training, sustainability-based performance evaluations, and rewards for eco-conscious actions, employees feel valued and empowered to contribute to environmental betterment. Aboramadan et al. (2022) found that GHRM significantly enhances GVB by increasing perceived green organizational support. When employees perceive alignment between their contributions and the organization's environmental values, they are more motivated to express constructive suggestions. Additionally, consistent and credible HR practices in sustainability build trust, enhancing employee engagement in green initiatives. H4: Green Human Resource Management has a positive effect on Green Voice Behavior.

Green Voice Behavior and Green Creativity

Green Voice Behavior refers to the proactive expression of ideas, feedback, or suggestions by employees concerning environmental issues. It plays a vital role in stimulating green creativity by channeling diverse perspectives and practical solutions from employees across hierarchical levels. As noted by Asghar et al. (2023), GVB contributes significantly to green creativity, offering organizations access to grassroots innovation that supports sustainable development. Furthermore, GVB fosters a collaborative work environment that accelerates eco-innovation and aligns team efforts with sustainability objectives. H5: Green Voice Behavior has a positive effect on Green Creativity.

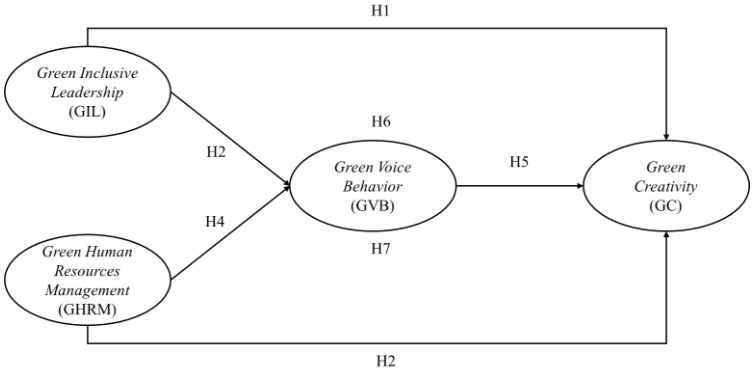
The Mediating Role of Green Voice Behavior

Green Voice Behavior (GVB) serves a critical mediating function in linking Green Inclusive Leadership (GIL) and Green Human Resource Management (GHRM) with Green Creativity (GC). While inclusive leadership and green-oriented HR practices provide the foundational conditions for employee engagement, these influences may not fully translate into creative environmental outcomes without the active expression of employee ideas and suggestions. GVB facilitates this process by enabling employees to articulate eco-innovative ideas, voice concerns, and contribute to green discourse within the organization. Asghar et al. (2023) emphasize the pivotal role of GVB in transforming the effects of GIL into green creative outcomes. Inclusive work environments foster psychological safety, encouraging employees to express green ideas that become vital inputs for sustainable innovation. Similarly, GHRM—through its training programs, performance appraisals, and reward systems focused on environmental contributions—enhances employee motivation to engage in green voice behavior, which subsequently fosters green creativity (Aboramadan et al., 2022). GVB supports the internalization of environmental values by channeling employee engagement into tangible and innovative outcomes. It functions as a conduit through which individual contributions can be captured, refined, and aligned with organizational sustainability strategies. H6: Green Voice Behavior mediates the relationship between Green Inclusive Leadership and Green Creativity. In addition, this study proposes that GVB also mediates the relationship between GHRM and GC. While Aloqaily (2023) does not directly examine green creativity as an outcome, the study identifies a significant mediating role

of GVB in the link between GHRM and green innovation—a construct that is conceptually and empirically aligned with green creativity.

In academic literature, green creativity is often regarded as the precursor to green innovation. While green creativity involves the generation of novel and eco-friendly ideas, green innovation reflects the implementation of these ideas into sustainable products, processes, or systems. Thus, the mediation pathway from GHRM to green innovation through GVB in Aloqaily's study offers theoretical and logical support for a similar mediation model focused on green creativity—particularly in research aimed at exploring employees' contributions to environmental idea generation. H7: Green Voice Behavior positively mediates the relationship between Green Human Resource Management and Green Creativity. Based on the hypothesized relationships formulated above, the conceptual model to be investigated in this study is depicted in Figure 1.

Figure 1 Conceptual Model



METHODS

Research Design

According to Cooper and Schindler (2014), research design is a systematic plan and structure used to guide the processes of data collection, measurement, and analysis. The main objective of this study is to empirically test a conceptual model that examines the influence of green inclusive leadership and green human resource management on green creativity, with green voice behavior acting as a mediating variable.

This study adopts a quantitative research approach utilizing a descriptive survey method. The quantitative approach allows for objective testing of theoretical relationships, particularly in exploring the influence between variables. The research follows a deductive process that begins with the formulation of theories and hypotheses, which are then empirically tested and compared with findings from previous literature (Creswell & Creswell, 2017).

A cross-sectional survey design was used to collect data at a single point in time. The descriptive nature of this survey aims to provide numerical insights into employee perceptions, attitudes, and trends while simultaneously testing the hypothesized relationships through statistical analysis based on the collected sample (Creswell & Creswell, 2017).

Population and Sampling

This study employs a non-probability sampling approach, specifically purposive sampling, which selects participants based on predetermined criteria aligned with the research objectives. According to Cooper and Schindler (2014), purposive sampling allows researchers to focus on individuals who possess characteristics relevant to the study. In this case, the sampling targeted employees of the one of automotive company market leader in Indonesia who met specific inclusion criteria.

Referring to Robbins and Judge (2024), organizational behavior research can be analyzed at three primary levels: individual, group, and organizational system. This study is conducted at the individual level, examining how employees' perceptions of leadership and HRM practices influence their green voice behavior and creative contributions to sustainability initiatives. The study focuses on personal attitudes and behaviors in the workplace, which are foundational to shaping broader organizational dynamics.

The sample includes employees with a minimum tenure of one year, based on the assumption that such individuals have sufficient understanding of their work environment and can provide meaningful responses. As of February 2025, the company employed 7,885 individuals. The required sample size was calculated using Slovin's formula

Measure

This study employed measurement scales that have been previously developed and validated in prior research to assess the constructs under investigation. All items were measured using a seven-point Likert scale, ranging from (1) "Strongly Disagree" to (7) "Strongly Agree."

Green Inclusive Leadership was measured using a seven-item scale developed by Bhutto et al. (2021). A sample item from this scale is: *"My leader is open to hearing new green ideas."* The scale demonstrated strong reliability with a Cronbach's alpha of 0.909.

Green Human Resource Management was measured using a six-item scale adapted from Tabrizi et al. (2023). A representative item includes: *"This company provides adequate training to promote environmental management as a core organizational value."* The reliability of this scale was high, with a Cronbach's alpha of 0.900. Green Voice Behavior was assessed using a six-item scale adapted from Aboramadan et al. (2023). Example items include: *I make recommendations concerning environmental issues which affects my work,"* and "*I speak up and encourage others to get involved in issues that affect the environment."* This scale showed high internal consistency, with a Cronbach's alpha of 0.871. Lastly, Green Creativity was measured using a six-item scale developed by Chen and Chang (2013). One sample item is: "*I suggest new ways to achieve environment goals or objectives"* The scale demonstrated excellent internal consistency, with a Cronbach's alpha of 0.954.

RESULTS

Measurement Model

To assess the reliability and validity of the constructs, a two-stage confirmatory factor analysis (CFA) was conducted using LISREL 8.8. The first stage (first-order CFA) evaluated the standardized loading factor (SLF) of each observed indicator to its latent construct. The second stage (second-order CFA) assessed the relationships between dimensions within each multidimensional construct, particularly for Green Inclusive Leadership.

Table 1 Convergent Validity and Reliability Measurement (First-Order)

Variable	Dimension	Indicator	SLF	t-value	Error	Validity	CR	AVE	Reliability
Green Inductive Leadership	*Openness*	OP GIL1	0.8117	10,9759	0.1322	Valid	0.879	0.708	Reliabel
		OP GIL2	0.8961	19,8885	0.06079	Valid			
		OP GIL3	0.8354	18,7543	0.1050	Valid			
	Availability	AV GIL4	0.8551	9,192	0.1040	Valid	0.863	0.758	Reliabel

		AV GIL5	0.8708	20,5898	0.07741	Valid			
	Accessibility	AC GIL6	0.8845	6,8702	0.1398	Valid	0.855	0.749	Reliabel
		AC GIL7	0.8277	18,7777	0.1734	Valid			
Green Human Resources Mgmt	Unidimensi-onal	GHRM 1	0,6974	15,1402	0,2592	Valid	0,915	0,542	Reliabel
		GHRM 2	0,8916	21,6562	0,197	Valid			
		GHRM 3	0,8547	19,7830	0,2466	Valid			
		GHRM 4	0,8397	19,3864	0,3749	Valid			
		GHRM 5	0,7849	17,8319	0,2965	Valid			
		GHRM 6	0,6279	12,0746	0,2954	Valid			
Green Voice Behavior	Unidimensi-onal	GVB1	0,8165	19,0608	0,2899	Valid	0,915	0,542	Reliabel
		GVB2	0,8638	20,7402	0,1579	Valid			
		GVB3	0,8632	20,2713	0,1886	Valid			
		GVB4	0,8444	19,8248	0,1818	Valid			
		GVB5	0,7274	15,957	0,3731	Valid			
		GVB6	0,6674	14,1917	0,4564	Valid			
Green Creativity	Unidimensi-onel	GC1	0,8509	20,3002	0,2215	Valid	0,943	0,768	Reliabel
		GC2	0,7857	18,1308	0,2584	Valid			
		GC3	0,7957	17,3095	0,3078	Valid			
		GC4	0,9649	24,4194	0,05676	Valid			
		GC5	0,9247	22,4647	0,1159	Valid			
		GC6	0,9335	21,6931	0,1075	Valid			

Each measurement model was tested against recommended goodness-of-fit indices. The measurement model for *Green Inclusive Leadership* demonstrated good fit (e.g., GFI = 0.991, RMSEA = 0.037, CFI = 0.9986), despite a slightly high chi-square statistic (12.41). Similarly, *Green Human Resources Management*, *Green Voice Behavior*, and *Green Creativity* also displayed acceptable model fit, with most indices exceeding threshold benchmarks (e.g., GFI > 0.9, RMSEA ≤ 0.08, NNFI ≥ 0.9), indicating satisfactory model adequacy.

All constructs surpassed the minimum threshold of 0.5 for SLF, signifying adequate convergent validity. Composite Reliability (CR) values ranged from 0.855 to 0.943, confirming

good internal consistency. Average Variance Extracted (AVE) values exceeded 0.5 for all constructs, indicating acceptable convergent validity. No CR value exceeded 0.95, which mitigates the concern of indicator redundancy. Second-order analysis of Green Inclusive Leadership further validated its dimensionality, with all three subdimensions—Openness, Availability, and Accessibility—showing SLF > 0.8, CR > 0.75, and AVE > 0.69.

Table 2 Convergent Validity and Reliability Measurement (Second-Order)

Variable	Dimension	SLF	t-value	Error	Validity	CR	AVE	Reliability
Green Inlcusive Leadership	Openness	0.8262	15.0186	0.2991	valid	0.8031	0.6953	reliabel
	Avail-ability	0.9877	18.4705	0.03165	valid	0.7583	0.9686	reliabel
	Accessibi-lity	0.8779	17.0746	0.2259	valid	0.7823	0.7733	reliabel

Structural Model

The structural model was tested to evaluate the hypothesized relationships among latent constructs. Initial goodness-of-fit indices indicated poor model fit (e.g., Chi-square = 1998.47, GFI = 0.71, RMSEA = 0.13). To improve model fit, modification indices were applied, allowing error covariances within dimensions of the same construct (e.g., GIL1–GIL2, GHRM5–GHRM6, GC5–GC6), based on guidelines from Wijanto (2008).

The re-specified model exhibited substantial improvement. Key indices included GFI = 0.95, RMSEA = 0.024, and Normed Chi-Square = 1.86, all within acceptable ranges. Incremental fit indices such as CFI, IFI, and NNFI reached 0.99, further supporting model adequacy. Despite a still significant chi-square value, this measure is known to be sensitive to large sample sizes and model complexity (Hair et al., 2019). Therefore, greater emphasis was placed on alternative indices. Overall, the re-specified structural model demonstrates sufficient goodness-of-fit and is considered acceptable for hypothesis testing and further analysis.

Table 3 Goodness of Fit Measurement of Structural Model

Goodness of Fit Measurement	Benchmark	Structural Model	
		Result	Remarks
Absolute Fit Measure			
Statistic Chi Square	Semakin kecil semakin baik (Mendekati nol)	302.51	*Poor fit*
Goodness-of-Fit Index (GFI)	0 ≤ GFI ≤ 1, GFI ≥ 0.9 = Good Fit, 0.8 ≤ GFI < 0.9 = Marginal Fit	0.95	*Good fit*
Root Mean Square Residual (RMR)	RMR ≤ 0.05 = Good Fit	0.024	*Good fit*
Root Mean Square Error of Approximation (RMSEA)	RMSEA ≤ 0.08 = Good Fit, RMSEA ≤ 0.05 = Close Fit	0.024	*Marginal fit*
Expected Cross-Validation (ECVI)	ECVI mendekati Saturated ECVI = Good Fit	1.56	*Good fit*
ECVI for Saturated Model		1.68	
ECVI for Independence Model		68.93	
Normed Chi Square	Chi Square / df, 1 < rasio < 3 = Good Fit	1.86	*Good fit*
Incremental Fit Measure			
Non-Normed Fit Index (NNFI)	0 ≤ NNFI ≤ 1, NNFI ≥ 0.9 = Good Fit, 0.8 ≤ NNFI < 0.9 = Marginal Fit	0.99	*Good fit*
Normed Fix Index (NFI)	0 ≤ NFI ≤ 1, NFI ≥ 0.9 = Good Fit, 0.8 ≤ NFI < 0.9 =	0.99	*Good fit*

	Marginal Fit		
Relative Fit Index (RFI)	0 ≤ RFI ≤ 1, RFI ≥ 0.9 = Good Fit, 0.8 ≤ RFI < 0.9 = Marginal Fit	0.98	*Good fit*
Incremental Fit Index (IFI)	0 ≤ IFI ≤ 1, IFI ≥ 0.9 = Good Fit, 0.8 ≤ IFI < 0.9 = Marginal Fit	0.99	*Good fit*
Comparative Fit Index (CFI)	0 ≤ CFI ≤ 1, CFI ≥ 0.9 = Good Fit, 0.8 ≤ CFI < 0.9 = Marginal Fit	0.99	*Good fit*
Parsimonious Fit Measures			
Parsimony Normed Fix Index (PNFI)	> 0.5 = Good Fit (Dash & Paul, 2021)	0.53	*Good fit*
Parsimony Goodness of Fit Index (PGFI)	> 0.5 = Good Fit (Dash & Paul, 2021)	0.47	*Poor fit*
Adjusted Goodness of Fit Index (AGFI)	0 ≤ AGFI ≤ 1, AGFI ≥ 0.9 = Good Fit, 0.8 ≤ AGFI < 0.9 = Marginal Fit	0.89	*Marginal fit*

Following the assessment of model fit, the next step involved analyzing the causal relationships among constructs to test the proposed hypotheses. The evaluation was conducted by examining the path coefficients (standardized loading factors), t-values, and p-values derived from structural equation modeling using LISREL 8.8. Given the directional nature of the hypotheses, a one-tailed test was employed, with statistical significance determined by a t-value threshold of ≥ 1.645 (Malhotra, 2010).

The analysis revealed that Green Human Resource Management (GHRM) exerted a positive and significant direct effect on both Green Voice Behavior (GVB) and Green Creativity (GC). Additionally, Green Voice Behavior had a strong and statistically significant effect on Green Creativity. These findings are supported by standardized coefficients and t-values exceeding the critical threshold.

Conversely, Green Inclusive Leadership (GIL) demonstrated a positive but non-significant direct effect on Green Creativity, as the associated t-value did not surpass the significance level, despite a positive coefficient. However, GIL showed a significant positive effect on Green Voice Behavior, indicating its important role in facilitating employee engagement in pro-environmental expression.

Table 4 Direct Effect Measurement

Hypothesis	Hypothesis Statement	*Path Coefficient*	T stat
H1	GIL → GC	0.045	1,33
H2	GHRM → GC	0.10	2,97
H3	GIL → GVB	0.40	9,05
H4	GHRM → GVB	0.037	8,15
H5	GVB → GC	0.84	15,42

This study further examined the mediating role of Green Voice Behavior in the relationships between both Green Inclusive Leadership and Green Human Resource Management with Green Creativity. The significance of indirect effects was assessed by comparing the direct and indirect paths using one-tailed significance tests, with a critical t-value of ≥ 1.645.

The indirect effect of GIL on GC through GVB was found to be statistically significant, as was the mediating path from GHRM to GC through GVB. The indirect path coefficients were computed as the product of the SLFs along the mediated paths. These results suggest that Green Voice Behavior serves as a crucial mechanism through which leadership and HRM practices influence environmental creativity.

Table 5 Indirect Effect Measurement

Hypothesis	Hypothesis Statement	*Path Coefficient*	T stat
H6	GIL → *GVB* → *GC*	0,336	7,85
H7	*GHRM)* → *GVB* → *GC*	0,3108	7,14

DISCUSSION

This study examined the direct and indirect effects of green inclusive leadership (GIL) and green human resources management (GHRM) on green creativity (GC), with green voice behavior (GVB) serving as a potential mediator. The findings offer both theoretical and practical insights into how leadership and HR practices can foster environmental innovation within organizational settings.

The results reveal a nuanced relationship between green inclusive leadership and green creativity. Contrary to initial expectations, the direct effect of GIL on GC was found to be positive but not statistically significant. This suggests that inclusive leadership—characterized by openness, availability, and accessibility—may not, in isolation, be sufficient to trigger green creativity among employees.

This finding contradicts prior studies such as those by Asghar et al. (2023) and Danibutun (2024), which reported a significant direct relationship. A possible explanation may lie in the paradox identified by Zhu et al. (2020), who argued that while inclusive leadership increases psychological safety, it may simultaneously reduce challenge-related stress, which is a known driver of creative performance.

Conversely, green human resources management demonstrated a significant and positive direct impact on green creativity. This supports previous findings (e.g., Abualigah et al., 2023) that underscore the importance of environmentally oriented HR practices in fostering innovation. Practices such as green training, performance appraisals incorporating sustainability metrics, and employee empowerment in environmental initiatives appear to create a fertile ground for idea generation and creative engagement with sustainability goals.

One of the central contributions of this study lies in its confirmation of the mediating role of green voice behavior. While GIL did not directly affect green creativity, it significantly influenced GVB, which in turn had a strong positive effect on GC. This indicates a full mediation effect and highlights the pivotal role of employee voice as a mechanism through which inclusive leadership translates into green innovation. This is aligned with the work of Asghar et al. (2023), who emphasized the importance of creating psychologically safe environments where employees feel empowered to speak up about environmental concerns.

For GHRM, both direct and indirect effects on green creativity were significant, indicating partial mediation by GVB. This finding reinforces the Social Exchange Theory (SET), which posits that when organizations support pro-environmental behaviors through HR policies, employees reciprocate through positive discretionary behaviors such as green voice and creativity. The indirect path suggests that GHRM not only equips employees with the skills and motivation to act sustainably but also encourages them to express ideas and collaborate on environmental issues—thereby reinforcing a culture of green innovation.

CONCLUSION

The findings demonstrate that while GHRM has a significant direct effect on GC, GIL only exerts an indirect influence through GVB. Furthermore, GVB was found to play a critical role both as a full mediator in the relationship between GIL and GC, and as a partial mediator between GHRM and GC. These findings highlight the central role of GVB in bridging structural dimensions (leadership and HR practices) with organizational creativity in support of environmental sustainability.

This study underscores the central role of green voice behavior as a pivotal mechanism linking organizational drivers—specifically green inclusive leadership and green human resource management (GHRM)—to enhanced green creativity among employees. When leaders demonstrate openness to environmental feedback and HR policies formally reward pro-environmental performance, employees are more likely to voice sustainable ideas and collaboratively inspire others to engage in green initiatives. The data suggest that an inclusive and sustainability-oriented organizational climate fosters the conditions necessary for transforming green voice into structured, actionable creative output.

Green voice behavior is not merely an individual proactive act, but a collective expression that creates momentum for sustainability initiatives across the organization. It mediates the effects of both leadership and HR systems, enabling a psychological and structural environment conducive to innovation.

These findings align with Aboramadan et al. (2023) and Ahmed et al. (2024), who emphasize that inclusive leadership enhances psychological safety and trust, encouraging employees to express creative environmental ideas. Simultaneously, GHRM practices—such as green recruitment, sustainability training, and environmental performance appraisals—cultivate a collective responsibility toward sustainability goals (Jnaneswar, 2023; Aboramadan, 2020). Theoretically, the results integrate the Componential Theory of Creativity (CTC) and Social Exchange Theory (SET). According to CTC (Amabile, 1988), creativity results from domain-relevant skills, creativity-relevant processes, and intrinsic motivation. GHRM contributes by developing green competencies (skills), while inclusive leadership nurtures psychological safety that enables creative thinking processes.

Green voice behavior, then, reflects the intrinsic motivation of employees to innovate for sustainability, linking all three components of CTC into a functional whole. Meanwhile, SET (Blau, 1964) explains this behavior as a form of reciprocal commitment—employees who perceive organizational support through inclusive leadership and GHRM practices feel morally compelled to reciprocate with constructive, green-oriented contributions.

Practically, green voice behavior was observed to manifest through structured dialogues within regular communication forums such as morning briefings, team meetings, and cross-functional discussions. These forums allowed employees to raise concerns and propose ideas, particularly regarding recurring environmental issues like energy inefficiencies. The transformation of such forums into platforms for green creativity would not be possible without inclusive leaders who actively listen and respond constructively to environmental input.

In conclusion, the study highlights that to foster green creativity, organizations must go beyond policy and leadership rhetoric. They must actively create enabling conditions—rooted in inclusive leadership, robust GHRM practices, and empowered employee voice—to catalyse sustainable innovation from within.

This study contributes to the refinement of the Componential Theory of Creativity (CTC), emphasizing the importance of integrating contextual support mechanisms—such as inclusive leadership and environmentally oriented HRM practices—to stimulate domain-relevant skills, creativity-relevant processes, and intrinsic motivation. The findings also reaffirm the relevance of Social Exchange Theory (SET), suggesting that when employees perceive a supportive, fair, and sustainability-oriented organizational environment, they are more likely to reciprocate through proactive, innovative behaviors that align with environmental goals.

The study provides actionable insights for leadership development and HR policy design. First, inclusive leadership must be complemented by mechanisms that empower employee voice to foster green creativity effectively. Structured leadership development programs focused on green competencies and psychological safety are vital to sustain this culture. Second, HRM practices should embed environmental criteria into performance evaluation, training, and communication strategies, enhancing employee understanding of the organization's sustainability goals. Finally, structured feedback systems that incorporate green innovation as part of performance monitoring can further stimulate employee contributions toward sustainability-driven creativity.

In alignment with the Sustainable Development Goals (SDGs)—particularly SDG 13 (Climate Action), SDG 12 (Responsible Consumption and Production), and SDG 11 (Sustainable Cities and Communities)—the study underlines the broader societal value of internal green creativity. Green ideas initiated at the workplace level, such as reducing waste or energy optimization, can catalyze collective environmental impact and promote low-carbon transitions in line with national climate commitments.

This research underscores that fostering green creativity is not merely a strategic or compliance-driven endeavor but reflects a deeper ethical commitment to environmental stewardship. Inclusive leadership and environmentally conscious HR practices serve as enablers of organizational justice and respect for employee agency, encouraging morally driven participation in sustainability efforts. Ethical leadership, therefore, must extend beyond policy rhetoric to create psychologically safe and socially just conditions that empower employee contributions to environmental well-being.

SUGGESTIONS

While this study offers valuable insights into the role of green inclusive leadership (GIL), green human resource management (GHRM), and green voice behavior (GVB) in fostering green creativity (GC) in the automotive sector, there are several avenues for future research to build upon and enhance the current findings.

First, future research should extend the scope beyond a single organizational setting. This study was limited to PT CarAuto, a market leader in Indonesia's automotive industry, which may limit generalizability. Comparative studies involving multiple organizations across sectors—such as manufacturing, energy, or logistics—would help determine whether the observed relationships hold in different industrial and cultural contexts.

Second, a longitudinal research design is recommended to better capture the temporal dynamics of employee behavior and creativity. While the current cross-sectional approach provided useful associations, it cannot fully assess causality or the evolution of green creativity over time. Longitudinal tracking would allow researchers to observe the sustainability of behavioral changes and the maturation of green initiatives.

Third, future studies could reduce the potential for social desirability bias—especially in self-reported assessments of GHRM practices—by triangulating data collection methods. Combining quantitative surveys with qualitative approaches such as in-depth interviews, direct observations, or policy audits could yield a more nuanced understanding of actual HR practices and employee perceptions.

Fourth, a multilevel approach is suggested to capture green creativity not only at the individual level but also at the team and organizational levels. Green innovation may emerge from collective decision-making and cross-functional collaboration. Therefore, analyzing how team dynamics, leadership structures, and organizational culture interact to influence GC could enrich the theoretical framework.

Finally, the model in this study explains 75% of the variance in green creativity, leaving 25% unexplained. Future research should consider additional antecedents, such as environmental self-efficacy, green psychological climate, organizational citizenship behavior for the environment (OCBE), or sustainability-oriented employee engagement. Integrating these factors may provide a more comprehensive picture of what drives creative environmental behaviors in the workplace.

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