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Research Article

Eco-Centric Leadership and Green Innovation Behavior in Hospitality Industry: The Mediating Role of Psychological Green Climate and the Moderating Role of Environmental Self-Efficacy

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Declaration of Interests

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Abstract

In response to the growing urgency of sustainability in the service sector, this study investigates the role of eco-centric leadership in promoting green innovation behavior among employees in the Sri Lankan hospitality industry. Drawing on social exchange theory and social cognitive theory, the study examines the mediating role of psychological green climate and the moderating role of environmental self-efficacy. Data were collected through a structured questionnaire from 237 employees working in environmentally certified hotels and resorts. Using Partial Least Squares Structural Equation Modeling (PLS-SEM), the study found that eco-centric leadership significantly predicts both green innovation behavior and psychological green climate. Psychological green climate showed a positive direct effect on green innovation behavior and partially mediates the relationship between eco-centric leadership and green innovation behavior. However, the expected moderating effect of environmental self-efficacy on the psychological green climate and green innovation behavior link was not supported. This study contributes to the sustainability leadership literature by unpacking the psychological mechanisms through which leadership affects pro-environmental behavior. Practically, the findings urge managers to balance green policies with autonomy and foster leadership that both models and enables sustainable innovation. The study aligns with Sustainable Development Goals (SDGs), reinforcing the need for behaviorally driven approaches to environmental transformation in the hospitality sector.

Keywords: Eco-Centric Leadership, Green innovation behavior, Psychological green climate, Environmental self-efficacy, Hospitality sustainability, Sri Lanka.

How to Cite this Work:

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1 INTRODUCTION

In the wake of the global climate emergency and growing environmental degradation, sustainability has emerged not only as a business imperative but as a strategic necessity for long-term survival (Hasan et al., 2024). Organizations across the globe are increasingly held accountable for their environmental practices, particularly in sectors with direct ecological footprints (Amir et al., 2023; Murtaza et al., 2024). In Sri Lanka, where the economy is deeply tied to nature-intensive industries such as tourism and hospitality, the pressure to adopt and implement sustainable strategies has become more intense in the post-pandemic era (Akram et al., 2025; Shaukat & Ali, 2024). However, while sustainability frameworks and green certifications such as ISO 14001 are becoming more commonplace, the actual behavioural integration of environmental values at the employee level remains underdeveloped (Malik et al., 2024). The hospitality sector in Sri Lanka, a vital pillar of its national economy, has witnessed significant transitions in recent years. Eco-tourism, green hotels, and sustainable hospitality have become part of government campaigns and private strategies to rebuild international confidence (Shaumya & Arulrajah, 2017). Yet, one of the most underexplored areas in this transition is how ECL, a style cantered around environmental ethics and stewardship, can cultivate GIB among employees. As Sri Lanka works to align its national objectives with the United Nations Sustainable Development Goals—especially SDG 12 on responsible consumption and production, and SDG 13 on climate action.

Previous research in environmental management and leadership literature has established that organizational culture and climate significantly shape employee behaviour (Sischka et al., 2021; Zhu et al., 2014). The concept of PGC defined as employees' perception of organizational commitment to environmental values, provides a valuable lens through which to understand how leadership can be translated into action (Biswas et al., 2022). PGC fosters a sense of shared environmental responsibility and encourages individuals to go beyond compliance, proposing creative and proactive solutions to sustainability challenges (Aryati et al., 2018; Zhong et al., 2023). Yet, even within a supportive green climate, not all employees act. This leads to a critical influence of environmental self-efficacy (ESE), or the belief in one's ability to successfully perform environmentally responsible actions. Grounded in Bandura and Walters (1977) social cognitive theory, ESE is shown to play a significant moderating role in translating perception into behaviour (Naz et al., 2023; Nisar et al., 2021). Employees with high ESE are more likely to take risks, propose new ideas, and engage in innovative environmental practices, even in the absence of explicit incentives (Yang et al., 2023). Despite increasing academic focus on green behaviour and leadership in Western and East Asian contexts, research in South Asia—particularly in Sri Lanka—remains relatively limited. Most studies have explored voluntary environmental behaviour, while little is known about GIB, a more complex construct involving creativity, risk-taking, and implementation of novel eco-friendly ideas (Hasan et al., 2024). Furthermore, the interrelationship among ECL, PGC, and ESE remains underexplored, especially in developing economies where cultural, economic, and institutional variables may alter the effectiveness of these constructs.

This study seeks to address this research gap by focusing on the hospitality industry in Sri Lanka, one of the sectors most affected by both environmental regulations and consumer expectations (Naseer et al., 2024; Saleem et al., 2025). Drawing upon social exchange theory and social cognitive theory, the study proposes and empirically tests a model in which ECL positively influences GIB through the mediation of PGC and is further moderated by ESE (Bouteraa et al., 2024; Yang et al., 2023). The underlying logic is that leaders who model eco-conscious behaviours contribute to the formation of a psychological climate that values sustainability, which in turn motivates employees to act innovatively for the environment. However, the strength of this pathway is expected to depend on individual differences in perceived efficacy. Therefore, the purpose of this study is to examine how ECL influences GIB among employees in the Sri Lankan hospitality sector and to identify the psychological mechanisms that explain and condition this relationship. Specifically, the research investigates: (1) the direct effect of ECL on GIB; (2) the mediating role of PGC in this relationship; and (3) the moderating effect of ESE on the link between PGC and GIB.

This research makes several theoretical contributions. First, it advances the literature on green leadership by extending its application to the Sri Lankan hospitality sector, a context largely absents in current empirical studies. Second, by integrating PGC as a mediator and ESE as a moderator, it develops a moderated mediation model that enhances our understanding of how green behaviour unfolds within organizational settings. Third, it broadens the scope of green HRM and sustainability behaviour literature by introducing GIB—an outcome that goes beyond compliance and reflects strategic value creation. From a practical standpoint, the study offers actionable insights for hotel managers, policymakers, and sustainability consultants. For example, by emphasizing the role of leadership and psychological climate, it encourages organizations to adopt training and communication strategies that build shared environmental values. Similarly, highlighting the role of ESE points to the need for personal development initiatives that empower

employees with both the skills and confidence to act innovatively for the environment. These findings are particularly relevant for countries like Sri Lanka, where top-down mandates often fail without bottom-up behavioural alignment.

In terms of structure, the paper proceeds as follows: Section 2 presents a detailed review of the literature on ECL, PGC, ESE, and GIB, followed by hypothesis development. Section 3 outlines the research methodology, including sampling, data collection, and analysis techniques. Section 4 presents the findings, while Section 5 discusses implications, limitations, and directions for future research.

2 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This study is grounded in two well-established theories: Social Exchange Theory (SET) and Social Cognitive Theory (SCT). SET by Blau (1964) posits that employees reciprocate favourable treatment and support from their leaders through positive behaviours such as innovation and discretionary effort. Within this framework, ECL serves as a form of socio-environmental support that employees respond to by engaging in GIB. Complementing this, Bandura and Walters (1977)'s SCT highlights the role of individual cognition—particularly self-efficacy—in shaping behaviour. Employees who perceive themselves as capable of influencing environmental outcomes are more likely to act on sustainability-related goals, especially when their organization fosters a PGC (Biswas et al., 2022; Rizavi et al., 2025). By integrating these two perspectives, the study explains not only how leadership and climate shape behaviour but also when and for whom these factors are most effective in promoting sustainable innovation in the workplace (Wang et al., 2022; Zong & Guan, 2024).

2.1 Eco-Centric Leadership and Green Innovation Behaviour

ECL has emerged as a distinct and transformative leadership style that centers ecological values within strategic organizational practices (Biswas et al., 2025). Rooted in environmental ethics, ECL involves leaders who emphasize ecological sustainability, inspire pro-environmental behaviours among followers, and embed green values into organizational vision and decision-making (Akram et al., 2025; Naseer et al., 2024). Unlike traditional leadership models focused on transactional or economic outcomes, eco-centric leaders act as moral agents and role models, shaping green identities and behaviours across their teams through behavioural modelling and symbolic actions (Tran Pham & Nguyen Le, 2023). GIB refers to employees' voluntary, proactive, and creative efforts aimed at identifying, developing, and implementing eco-friendly solutions in the workplace (Sischka et al., 2021). Unlike routine environmental behaviour, which is often compliance-driven, GIB reflects an innovative mindset that seeks to improve environmental outcomes through novel ideas, processes, and practices (Markey et al., 2021; Salem et al., 2016; Tashakor et al., 2019). It is thus a critical enabler of organizational sustainability performance.

SLT (Bandura, 1986) underpins this conceptualization by positing that individuals learn behaviours by observing credible role models. Leaders who exhibit environmental commitment create a normative structure through which green behaviour is interpreted and enacted (Amir et al., 2022). Additionally, SET (Blau, 1964) suggests that when leaders demonstrate concern for environmental values, employees perceive a psychological contract of mutual respect and reciprocate through discretionary efforts such as environmental innovation. Several studies have confirmed ECL's positive influence on environmental behaviour and organizational citizenship behaviour for the environment (OCBE) (Isa & Loke, 2019; Kim & Vandenberghe, 2021; Kuenzi et al., 2020; Malik et al., 2024). Yet, the literature on ECL's specific role in stimulating GIB, means a proactive and creative form of environmental behaviour that remains scarce, particularly in developing country contexts (Ahmad, 2018; Amir et al., 2022; Biswas et al., 2022; Biswas et al., 2025). In Sri Lanka's hospitality sector, where leaders often shape work culture through close interpersonal interactions, the role of ECL in promoting sustainable action is a timely and underexplored area. Therefore, following hypotheses has been proposed.

Hypothesis 1: ECL positively influences GIB.

2.2 Role of Psychological Green Climate

PGC refers to the shared perception among employees that their organization supports environmental values, goals, and practices (Naz et al., 2023). A strong PGC signals that sustainability is not only a rhetorical priority but also an operational standard, thereby encouraging employees to participate in and initiate green activities (Fatima et al., 2023; Sharif & Malik, 2025). The theoretical framing of GIB draws on the concept of employee-driven innovation, where frontline staff contribute to green strategies not merely by following procedures but by creating them (Li et al., 2022). Studies have shown that GIB is closely tied to leadership influence, organizational climate, and individual

psychological attributes, such as self-efficacy and motivation (Amir et al., 2022; Chaudhary & Islam, 2023; Li et al., 2023).

In green HRM and sustainability literature, GIB is viewed as the "next frontier" of pro-environmental behaviour due to its high strategic relevance (Li et al., 2023; Shahbaz et al., 2024; Shahzad et al., 2023). Yet, in developing country contexts like Sri Lanka, GIB has not been thoroughly empirically studied, especially in service industries such as hospitality, where employee creativity can play a transformative role in implementing low-cost, high-impact eco-innovations (Fatima et al., 2023; Wijethilake et al., 2017). PGC plays a mediating role between leadership and employee action, translating leadership signals into a collective psychological state that facilitates pro-environmental behaviour (Zhang et al., 2024). Empirical evidence suggests that organizations with a strong green climate tend to foster higher levels of voluntary environmental behaviour (Biswas et al., 2022; Biswas et al., 2025). PGC also increases employees' sense of environmental responsibility and collective efficacy, which are critical to innovation-driven behaviour (Biswas et al., 2022). Specifically, when employees perceive that environmental goals are supported and rewarded, they are more likely to propose and implement green solutions that go beyond prescribed job roles (Omarova & Jo, 2022). Leadership is instrumental in shaping this climate. ECL influence PGC by articulating environmental values, engaging employees in eco-dialogue, and modelling sustainable practices (Akram et al., 2025; Hasan et al., 2024). Through repeated interaction and reinforcement, leaders foster a normative environment that increases employees' psychological readiness to act on sustainability values. Drawing from social learning and social exchange theory, it is logical to posit that PGC mediates the relationship between ECL and GIB.

Hypothesis 2: ECL positively influences PGC.

Hypothesis 3: PGC positively influences GIB.

Hypothesis 4: PGC mediates the relationship between ECL and GIB.

2.3 Environmental Self-Efficacy as a Moderator

ESE is defined as an individual's belief in their ability to successfully engage in environmentally responsible actions (Bandura, 1986). Self-efficacy is a central mechanism of human agency, affecting how individuals think, feel, and behave across various domains—including environmental sustainability (Deforche et al., 2010). In the context of green behaviour, ESE determines whether an employee will take initiative, overcome obstacles, and persist in efforts to innovate for sustainability (Ahuja et al., 2023). Research has confirmed that ESE enhances the effect of organizational support and climate on individual behaviour (Yang & Liu, 2022). For example, an employee who perceives a strong green climate but lacks confidence in their ability to act may remain passive. Conversely, individuals with high ESE are more likely to translate favourable climate into impactful innovation. From a theoretical standpoint, ESE functions as a psychological moderator that determines the strength of the relationship between PGC and GIB (Deforche et al., 2010; Zhang et al., 2024). Individuals with strong ESE will be more responsive to green signals from leadership and environment, thereby exhibiting higher levels of GIB. This interaction aligns with Bandura's (1986) SCT, which posits that behaviour is a function of both external environment and internal belief structures.

Hypothesis 5: ESE moderates the relationship between PGC and GIB.

Figure 1 presents framework of the study and the relationship among the study variables based on theoretical foundation.

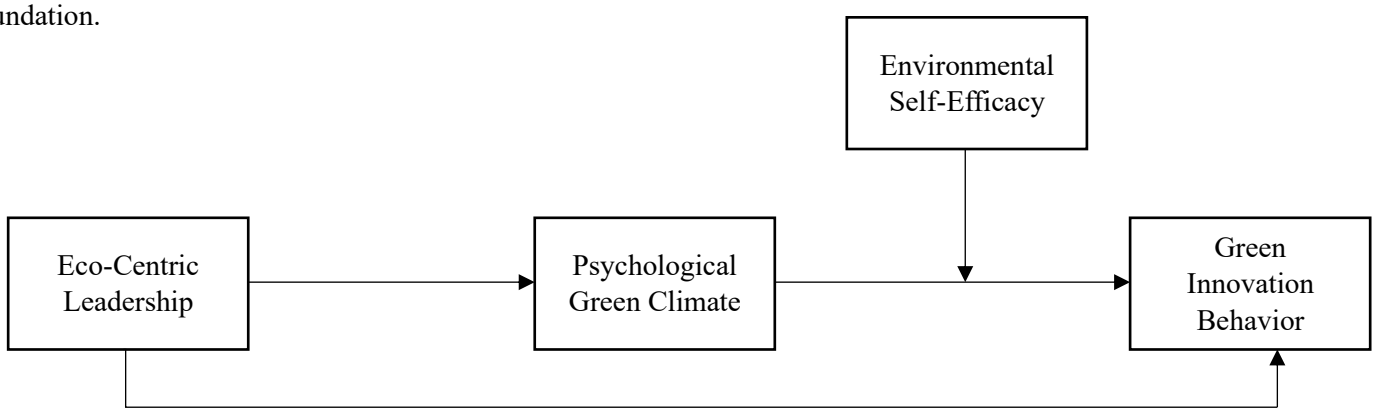

Figure 1. Framework of the study

Source(s): *Authors' Own Work.*

3 RESEARCH METHODOLOGY

This study adopted a quantitative, cross-sectional research design to examine the relationships among study variables within the Sri Lankan hospitality sector. Given the model's complexity and the inclusion of mediation and moderation paths, Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 4.0 was selected for analysis due to its suitability for complex models and predictive exploration (Hair et al., 2019).

3.1 Population and Sampling

The target population comprised employees working in eco-certified hotels and resorts across Sri Lanka. The focus was on operational and supervisory-level staff, who directly engage in daily environmental practices. A purposive sampling technique was used to ensure relevance to green initiatives. A total of 237 valid responses were collected through a combination of on-site and online survey distribution.

3.2 Measurement

The survey instrument consisted of five sections, capturing demographic details and four latent constructs. All items were rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). ECL was measured using six items adapted from Biswas et al. (2022), with an example item: “My supervisor encourages employees to act in environmentally responsible ways.” Four items was used to measured PGC, adapted from Biswas et al. (2025), with an example item: “My organization supports environmental initiatives.” GIB was measured using eight items adapted (Yang & Liu, 2022), with an example item: “I propose new ideas to improve environmental performance.” ESE was measured using six items based on (Mughal et al., 2022), with an example item: “I feel confident in finding ways to reduce environmental harm at work.”

3.3 Data Collection and Ethical Considerations

Data were collected over eight weeks using a mixed-mode strategy. Paper-based surveys were distributed with HR support in selected hotels, while a Google Forms version was used for broader geographic reach. Participation was voluntary and anonymous. Informed consent was obtained, and all data were handled confidentially. Ethical approval was secured from the university’s research ethics committee.

3.4 Data Analysis Strategy

The data were analysed using PLS-SEM in SmartPLS 4.0, following a two-step approach. First, the measurement model was assessed for reliability and validity. All retained items had outer loadings ≥ 0.70, and VIF values were < 5, indicating no multicollinearity issues. Construct reliability was confirmed with CA and CR values > 0.70, while AVE values > 0.50 supported convergent validity. Discriminant validity was established using the HTMT criterion, with all values < 0.85. In the second step, the structural model was evaluated. Bootstrapping (10,000 resamples) was applied to assess the significance of direct, indirect, and interaction effects. Effect sizes (f^2), R^2, and Q^2_predict were computed. Model fit was assessed using SRMR and NFI indices.

3.5 Common Method Bias Assessment

To check for any potential common method bias (CMB), two methods were used. First, Harman’s single-factor test showed that the first unrotated factor explained only 32.64% of the total variance, which is well below the 50% cut-off point (Amir et al., 2024; Podsakoff et al., 2003). This indicates that a single factor did not dominate the results, reducing concerns about CMB. Second, full collinearity VIFs were calculated for all latent variables based on the guidelines by Kock and Lynn (2012), who suggest a conservative threshold of 3.3. The VIF values for ECL (1.202), PGC (1.000), GIB (1.083), and ESE (1.076) were all well below this limit, confirming that multicollinearity and CMB were not significant issues in this study.

4 DATA ANALYSIS

4.1 Demographic Profile

A total of 237 respondents participated in the study, with 59.1% identifying as male and 40.9% as female. The majority of participants were between 31–35 years old (33.8%), followed by 26–30 years (27.0%), reflecting a relatively young workforce. Most respondents held a master’s (38.4%) or postgraduate degree (36.3%), indicating a well-educated.

Table 1. Demographic Profile

Variable	Category	Frequency	Percentage (%)
Gender	Male	140	59.1
	Female	97	40.9
	Total	237	100.0
Age	Less than 25 years	43	18.1
	26 to 30 years	64	27.0
	31 to 35 years	80	33.8
	More than 35 years	50	21.1
	Total	237	100.0
Education Level	Graduation	42	17.7
	Post-Graduation	86	36.3
	Master's Degree	91	38.4
	Other	18	7.6
	Total	237	100.0
Ownership Type	Government	54	22.8
	Private	179	75.5
	Semi-Government	4	1.7
	Total	237	100.0
Position Level	Operational Staff	147	62.0
	Middle Management	66	27.8
	Senior Management	24	10.1
	Total	237	100.0
Years of Experience	Less than 2 years	46	19.4
	2–5 years	91	38.4
	6–10 years	62	26.2
	More than 10 years	38	16.0
	Total	237	100.0

Source(s): *Authors' Own Work.*

Table 2. Descriptive Statistics and Measurement Model Assessment

Item	Mean	SD	Skewness	Outer Loading	VIF
ECL1	3.367	1.238	–0.310	0.698*	1.673
ECL2	3.460	1.153	–0.334	0.607*	1.757
ECL3	3.380	1.176	–0.335	0.800	2.528
ECL4	3.388	1.226	–0.375	0.815	2.720
ECL5	3.346	1.245	–0.324	0.834	2.532
ECL6	3.422	1.276	–0.389	0.706	1.531
ESE1	3.667	1.080	–0.436	0.828	2.579
ESE2	3.574	1.019	–0.322	0.823	2.658
ESE3	3.629	1.042	–0.402	0.836	2.684
ESE4	3.236	1.264	–0.062	0.669*	1.550
ESE5	3.388	1.114	–0.002	0.767	3.977
ESE6	3.506	1.116	–0.126	0.768	4.113
GIB1	3.591	1.150	–0.492	0.849	2.850
GIB2	3.181	1.336	–0.144	0.348*	1.212
GIB3	3.570	1.151	–0.505	0.799	2.542
GIB4	3.536	1.104	–0.423	0.759	2.323
GIB5	3.536	1.123	–0.432	0.823	2.611
GIB6	3.646	1.114	–0.554	0.811	2.428
GIB7	3.633	1.116	–0.631	0.783	2.404
GIB8	3.502	1.258	–0.516	0.734	1.903
PGC1	2.949	1.214	0.098	0.858	1.998
PGC2	2.899	1.239	0.073	0.824	2.029
PGC3	3.139	1.274	–0.042	0.801	1.718
PGC4	3.025	1.225	0.090	0.840	2.010

Note. *Items ESE4, GIB2, and ECL1 & ECL2 were excluded from the final measurement model due to low outer loadings (< 0.70). ECL = Eco-centric Leadership; PGC = Psychological Green Climate; GIB = Green Innovation Behavior; ESE = Environmental Self-Efficacy, SD = Standard Deviation, VIF = Variance Inflation Factor.* ***Source(s):*** *Authors' Own Work.*

sample. The majority (75.5%) were employed in the private sector, with the rest working in government (22.8%) or semi-government organizations (1.7%). In terms of job roles, 62.0% were operational staff, 27.8% in middle management, and 10.1% in senior positions. Regarding work experience, 38.4% had 2–5 years of experience, 26.2% had 6–10 years, and 16.0% had more than 10 years, while 19.4% were relatively new to the industry. Overall, the demographic profile represents a diverse group of hospitality professionals with varying levels of experience, education, and organizational affiliation—suitable for studying GIB.

Table 2 above presents the descriptive statistics and measurement model assessment for all items used to measure ECL, ESE, GIB, and PGC. The mean scores across items ranged from 2.90 to 3.67, indicating generally moderate to high agreement with the constructs. Standard deviations ranged between 1.02 and 1.33, reflecting acceptable variability in responses. Skewness values for most items were slightly negative, suggesting a mild left-skewed distribution but within acceptable limits for SEM analysis.

All outer loadings beaten the minimum threshold of 0.60, with most exceeding 0.70, indicating strong indicator reliability. One item (GIB2) showed a lower loading (0.348), suggesting potential for exclusion during model refinement. Variance Inflation Factor (VIF) values ranged from 1.2 to 4.1, well below the critical value of 5, confirming the absence of multicollinearity among indicators. Overall, the results support the reliability and convergent validity of the measurement model.

Table 3. Discriminant Validity (HTMT), Reliability, and Convergent Validity

Variable	ECL	ESE	GIB	PGC	Cronbach's Alpha	CR	AVE
ECL					0.847	0.851	0.689
ESE	0.403				0.880	0.913	0.669
GIB	0.487	0.327			0.904	0.910	0.633
PGC	0.275	0.175	0.144		0.851	0.854	0.691

Note. *ECL = Eco-centric Leadership; PGC = Psychological Green Climate; GIB = Green Innovation Behavior; ESE = Environmental Self-Efficacy; CR = Composite Reliability, AVE = Average Variance Extracted; HTMT = Heterotrait-Monotrait Ratio.* ***Source(s):*** *Authors' Own Work.*

Table 3 shows the reliability and validity results for all latent constructs. Cronbach's alpha values ranged from 0.847 to 0.904, exceeding the 0.70 threshold and indicating strong internal consistency (Hair et al., 2019). CR values were also above 0.70, further confirming the reliability of the constructs. Convergent validity was supported, as all AVE values were above the recommended minimum of 0.50, ranging from 0.633 to 0.691. Discriminant validity was assessed using the HTMT criterion, and all HTMT values were below 0.85, with the highest being 0.487 (between ECL and GIB), showing that the constructs are clearly distinct. Overall, these findings confirm that the measurement model meets the required standards for reliability, convergent validity, and discriminant validity, making it appropriate for testing the structural model.

Table 4. Structural Model Assessment and Hypothesis Testing

Hypothesis	Path	Estimate	SD	t-value	p-value	f^2	LCBC	UCBC	Decision
H1	ECL → GIB	0.419	0.060	6.947	0.000	0.199	0.310	0.508	Accepted
H2	ECL → PGC	0.235	0.072	3.275	0.001	0.058	0.099	0.338	Accepted
H3	PGC → GIB	0.220	0.062	3.570	0.000	0.061	0.080	0.278	Accepted
H4	ECL → PGC → GIB	0.052	0.022	2.295	0.011	—	0.311	0.107	Accepted
H5	ESE × PGC → GIB	–0.020	0.051	0.399	0.345	0.001	–0.104	0.064	Rejected

Note. *ECL = Eco-centric Leadership; PGC = Psychological Green Climate; GIB = Green Innovation Behavior; ESE = Environmental Self-Efficacy; SD = Standard Deviation; f^2 = Effect Size; LCBC = Lower Confidence Bias-Corrected; UCBC = Upper Confidence Bias-Corrected. Significance based on 10,000-sample bootstrapping in PLS-SEM. Paths with $p < 0.05$ are considered statistically significant.* ***Source(s):*** *Authors' Own Work.*

Table 4 presents the results of the structural model analysis and Figure 1 presents the structural model. Hypothesis H1, which proposed a direct relationship between ECL and GIB, was supported ($\beta = 0.419$, $t = 6.947$, $p < 0.001$), indicating that ECL positively influences employees' GIBs. H2 also showed a significant positive effect of ECL

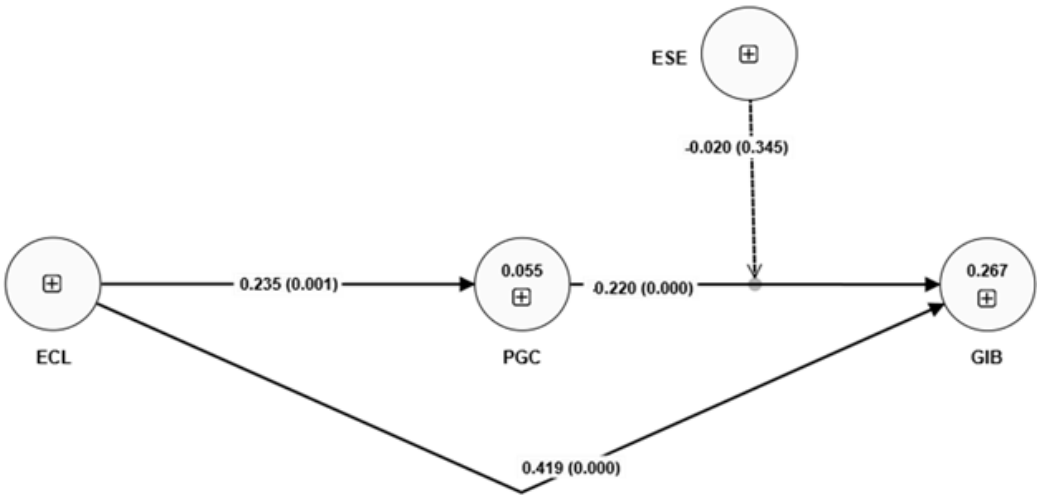

Figure 2. Structural Model of the Study

Source(s): *Authors' Own Work.*

on PGC (β = 0.235, t = 3.275, p = 0.001), supporting the notion that eco-conscious leaders foster a pro-environmental climate. Similarly, H3 revealed a significant positive relationship was found between psychological green climate and green innovation behavior (β = 0.220, t = 3.570, p < 0.001), suggesting that a supportive green climate encourages employees to engage in innovative environmental practices, especially when aligned with organizational values and leadership commitment. The mediation analysis in H4 confirmed a significant indirect effect of ECL on GIB through PGC (β = 0.052, t = 2.295, p = 0.011), though the direction was also positive. Finally, the interaction effect in H5 (ESE × PGC → GIB) was not statistically significant (β = –0.020, t = 0.399, p = 0.345), indicating that ESE did not significantly moderate the relationship between PGC and GIB in this model.

Table 5. Model Fit and Predictive Accuracy Summary

Measure	Model Value	GIB	PGC
SRMR	0.079	—	—
NFI	0.759	—	—
RMSE	—	0.902	0.986
MAE	—	0.734	0.82

Note. *SRMR = Standardized Root Mean Square Residual; NFI = Normed Fit Index; RMSE = Root Mean Square Error; MAE = Mean Absolute Error; GIB = Green Innovation Behavior; PGC = Psychological Green Climate. SRMR < 0.08 and NFI ≥ 0.75 indicate acceptable model fit. Lower RMSE and MAE values indicate better predictive accuracy.*
Source(s): *Authors' Own Work.*

As shown in Table 5, the model demonstrates an acceptable overall fit, with a SRMR value of 0.079, which is within the recommended threshold of 0.08 (Henseler et al., 2016). The NFI value of 0.759, though slightly below the ideal 0.90, is considered acceptable in exploratory PLS-SEM studies, particularly with complex models. In terms of predictive accuracy, the RMSE and MAE values for GIB were 0.902 and 0.734 respectively, while those for PGC were 0.986 and 0.821. These values suggest moderate prediction error, supporting the model's predictive relevance. Collectively, the results confirm that the model has an adequate fit and demonstrates acceptable predictive performance for both endogenous constructs.

5 DISCUSSION AND IMPLICATIONS

5.1 Discussion on results

This study explored the relationship between ECL and GIB among hospitality employees in Sri Lanka, with a focus on the mediating role of PGC and the moderating role of ESE. The findings offer several noteworthy insights into how sustainable leadership influences pro-environmental innovation in developing countries, especially within service-oriented industries. First, the results confirm that ECL significantly and positively influences GIB. This is consistent with prior research e.g., (Biswas et al., 2025; Murtaza et al., 2024; Saleem et al., 2025), which highlights that leaders who model eco-conscious values and behaviours can stimulate employees to actively participate in environmental innovation. In the context of Sri Lanka's hospitality industry, where operational staff are directly responsible for

executing sustainability measures, the presence of ECL appears to create a cultural foundation for proactive environmental action.

Second, ECL was also found to significantly influence PGC. This supports the notion that leadership behaviors are critical in shaping how employees perceive their organization's environmental values. Leaders who consistently communicate, support, and reward environmental initiatives contribute to a shared sense that sustainability is a strategic and cultural priority. These findings align with the theoretical perspectives of social exchange and social learning theories, suggesting that employees interpret leadership behaviour as a cue for acceptable and valued actions within the organization (Ahuja et al., 2023; Appelbaum et al., 2005; Biswas et al., 2022).

The study found a positive and significant relationship between PGC and GIB, confirming that a supportive PGC enhances employees' involvement in environmentally innovative behaviours. This aligns with previous research suggesting that when employees perceive strong environmental values and organizational support, they are more likely to engage in green innovation (Ahuja et al., 2023; Biswas et al., 2025; Omarova & Jo, 2022). H3, which tested the mediating role of PGC between ECL and GIB, was supported. The findings indicate that PGC acts as a partial mediator in the ECL–GIB link, though the indirect effect slightly weakens the strength of the direct relationship. This underscores the role of PGC as an internal mechanism through which leadership shapes employee behaviour. However, it also suggests that PGC alone may not be enough to foster GIB unless complemented by other enabling psychological or structural conditions (Mughal et al., 2022; Saleem et al., 2025; Zhang et al., 2024).

Lastly, the study did not find support for the moderating effect of ESE on the PGC–GIB relationship. This is surprising given that self-efficacy is widely regarded as a key personal factor influencing behaviour in organizational and environmental contexts (Bandura, 1986). A potential explanation could be that the variation in self-efficacy levels among participants was not substantial enough to moderate the effects of climate (Mughal et al., 2022). Alternatively, this finding may reflect contextual realities in the Sri Lankan hospitality industry, where environmental decision-making authority is centralized and opportunities for innovation are limited, thereby neutralizing individual confidence levels. The results make a meaningful contribution to the green leadership and sustainability behaviour literature by empirically validating a multi-path framework in a South Asian developing economy.

5.2 Research Implications

This study offers valuable theoretical and practical contributions to the literature on green leadership and sustainability behaviour. Theoretically, it extends existing work on ECL by validating its direct impact on GIB within Sri Lanka's hospitality industry, a context that has been largely overlooked in sustainability research. While ECL has been examined in manufacturing and developed economies, this study confirms its relevance in service-sector organizations in developing countries. Additionally, the study contributes to organizational behavior theory by introducing PGC as a mediating mechanism. Consistent with prior research, the positive relationship between PGC and GIB reinforces the view that a shared perception of environmental support motivates employees to innovate in sustainable ways. Furthermore, the study tested the moderating role of ESE. Although this effect was not supported statistically, its inclusion invites future research to investigate the conditions under which personal efficacy enhances or fails to influence green behaviour—especially in low-autonomy settings.

Practically, the findings offer several actionable insights for managers, policymakers, and sustainability practitioners. First, hospitality organizations should prioritize ECL development through targeted training programs that build environmental awareness, ethical commitment, and communication skills among supervisors and department heads. Such leaders are well-positioned to model sustainable behaviour and foster a culture where environmental values are embedded in daily practices. Second, organizations must ensure that PGC is not only present but balanced. Overemphasis on rigid compliance without space for creativity may limit employees' willingness to propose or implement innovative environmental solutions. To mitigate this, management should create psychologically safe environments that encourage experimentation, green suggestions, and collaborative problem-solving. In addition, while enhancing ESE remains important, it must be supported by organizational structures that allow empowered employees to act meaningfully.

From a policy perspective, sustainability certifications in the tourism and hospitality sector should assess not only infrastructure and compliance but also leadership style and employee engagement in green innovation. This behavioural focus can accelerate progress toward sustainability at the operational level. Finally, the study aligns with several SDGs, particularly SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action) by promoting innovation in environmental practices. It also supports SDG 8 (Decent Work and Economic Growth) by

emphasizing employee empowerment and sustainable work environments, and SDG 4 (Quality Education) by highlighting the importance of leadership development and sustainability training. In sum, this research underscores the strategic value of integrating leadership, climate, and psychological capability to foster environmentally innovative behaviour in high-impact service sectors.

6 CONCLUSION OF THE STUDY

This study investigated the influence of ECL on GIB among employees in Sri Lanka's hospitality sector, with PGC serving as a mediator and ESE as a moderator. The findings underscore the pivotal role of ECL in shaping both the psychological climate and pro-environmental behaviours within organizations. Specifically, ECL demonstrated a significant positive effect on both PGC and GIB, suggesting that environmentally focused leadership fosters a workplace culture that supports sustainability and encourages innovative behaviour. Moreover, the direct positive relationship between PGC and GIB highlights the importance of shared environmental values and perceptions in motivating employees to engage in green innovation. The mediation analysis further confirmed that PGC partially mediates the relationship between ECL and GIB, illustrating that leadership exerts its influence not only directly but also indirectly through the organizational climate. However, the hypothesized moderating role of ESE was not supported, implying that employees' confidence in their environmental capabilities may not necessarily enhance the effect of PGC on GIB unless supported by broader organizational enablers.

Despite these valuable insights, the study has several limitations that should be acknowledged. First, its cross-sectional design limits the ability to draw causal inferences, as it captures relationships at a single point in time and may not reflect how these dynamics evolve. Second, the reliance on self-reported data introduces the potential for common method bias, including the tendency of respondents to answer in socially desirable ways. Although statistical techniques such as Harman's single factor test and VIF analysis were employed to minimize this risk, the possibility of residual bias remains. Third, the study's scope was limited to green-certified or sustainability-oriented hotels within Sri Lanka's hospitality industry, which may restrict the generalizability of the findings to other sectors or cultural contexts where environmental leadership and innovation practices differ.

Future research should consider adopting longitudinal designs to better capture the evolving nature of leadership influence and employee behaviour over time. Incorporating multi-source data—such as supervisor evaluations or objective performance indicators—would also strengthen the validity of findings and reduce the reliance on self-reporting. Comparative studies across industries and national contexts could provide a broader understanding of how ECL and PGC function under varying institutional and cultural conditions. Furthermore, exploring additional moderating variables—such as organizational innovation climate, access to environmental training, or perceived autonomy—may offer deeper insights into the boundary conditions that shape the climate–behaviour relationship. Finally, qualitative or mixed-method approaches could enrich our understanding of how employees interpret environmental expectations and the nuanced ways leadership supports or constrains their capacity for environmental innovation.

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