

Assessing the Influence of Organizational Green Culture on Green Performance Through Green Innovation: Evidence from a BOI Company in Sri Lanka.

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Abstract

Growing global concern over environmental sustainability has compelled firms to realign their strategic priorities toward green innovation. Although organizations increasingly recognize the importance of environmental responsibility, empirical evidence on the mechanisms through which organizational culture enhances environmental outcomes remains limited, particularly in developing economies. This study aims to examine the influence of Organizational Green Culture (OGC) on Environmental Performance (EP) through the mediating role of Green Innovation (GI) within a developing economy context, empirically examine whether green innovation functions as a mediating mechanism linking organizational green culture to environmental performance in a developing economy context."

While prior research has explored green culture and performance in developed economies, limited empirical evidence exists from South Asian emerging markets, particularly Sri Lanka. This study addresses that gap by developing and testing a mediation model using survey data collected from 209 employees of a manufacturing firm located in a Board of Investment (BOI) zone in Sri Lanka.

Using Partial Least Squares Structural Equation Modeling (PLS-SEM), the findings reveal that OGC significantly enhances GI, and GI significantly improves EP. However, OGC does not directly affect EP, confirming that green innovation fully mediates the relationship. These results underscore the critical role of green innovation as the key mechanism through which green organizational culture translates into improved environmental outcomes.

The study contributes theoretically by extending the Natural Resource-Based View (NRBV) in a developing country setting and empirically demonstrating that cultural commitment alone is insufficient unless translated into innovation capabilities. The findings offer strategic implications for managers seeking to improve environmental performance through innovation-driven cultural transformation.

Keywords: *organizational green culture, green innovation, environmental performance, sustainability, manufacturing firms, Sri Lanka*

1. Introduction

Environmental sustainability has become a central concern for the manufacturing sector as firms face increasing pressure from environmental regulations, shareholders, and market forces to reduce their ecological footprint (Leonidou et al., 2013; Yu et al., 2017). At the same time, consumer preferences have shifted markedly toward environmentally friendly products, resulting in a rapid growth in demand for green products and sustainable business practices (Hoffmann, 2007; Zhu et al., 2008; Kotler, 2011). Governments have also strengthened environmental regulations to minimize the adverse environmental impacts of industrial activity. Collectively, these regulatory, market, and societal pressures have compelled manufacturing firms to adopt greener and more innovative strategies to achieve their corporate environmental objectives (Robinson & Stubberud, 2013).

In response to these pressures, green innovation has emerged as a key strategic approach for organizations seeking to balance environmental responsibility with competitive performance. However, research on green innovation remains at an early stage (Andersen, 2008). While green innovation is widely viewed as essential for long-term sustainability, some studies suggest that its implementation may initially increase development time and costs, potentially constraining short-term firm performance (Das et al., 2006; Ragatz et al., 2002). This tension has intensified scholarly interest in understanding whether and how green innovation ultimately enhances organizational performance, particularly environmental performance (Martins & Terblanche, 2003). Despite this growing attention, empirical evidence remains fragmented, especially in developing country contexts.

Organizational green culture (OGC) has been identified as a critical antecedent of green innovation. OGC reflects the extent to which environmental values are embedded within an organization's vision, mission, and shared norms, guiding managerial and employee behavior toward sustainability (Stone et al., 2004). When environmental responsibility is internalized as a core organizational value, employees are more likely to support green initiatives and engage actively in environmental problem-solving (Baker & Sinkula, 2005; De Ruyter et al., 2009; Grinstein & Nisan, 2009). A strong green culture therefore creates a supportive environment in which green innovation can flourish, potentially translating into superior environmental performance.

Although prior studies suggest links between organizational culture, innovation, and performance, limited empirical research has examined the mediating role of green innovation in the relationship between organizational green culture and environmental performance, particularly within developing economies. This gap is especially evident in the Sri Lankan manufacturing sector, where sustainability-driven organizational practices remain underexplored. Addressing this gap, the present study investigates how organizational green culture influences environmental performance through green innovation in a manufacturing company located in the Horana Board of Investment (BOI) zone in Sri Lanka. By extending existing frameworks to a developing country context, this study aims to provide

empirical evidence on the cultural and innovative mechanisms through which firms can enhance their environmental performance.

2. Literature Review

2.1. Organizational Green Culture and Environmental Performance

Green performance reflects an organization's effectiveness in managing environmental impacts through regulatory compliance, ecological responsibility, and environmental management systems (Chinander, 2001; Ilinitich et al., 1998; Veleva & Ellenbecker, 2000). It captures the extent to which firms implement environmentally responsible practices such as reducing waste, conserving energy, minimizing emissions, and promoting recycling (Zailani et al., 2012). As such, green performance serves as a critical indicator of an organization's commitment to sustainability and environmental stewardship (Neely et al., 1995).

Organizational green culture (OGC) has been widely recognized as a key driver of environmental performance. OGC represents the shared environmental values, beliefs, and norms embedded within an organization's vision, mission, and everyday practices, which shape employee attitudes and behaviors toward sustainability (Stone et al., 2004). Prior research suggests that a strong green culture can transform employees into change agents who actively support and implement environmentally responsible initiatives (Rao & Holt, 2005). When top management demonstrates a strong commitment to environmental protection, the adoption of green strategies becomes more effective and embedded throughout the organization (Klassen & Vachon, 2003; Yung et al., 2011).

Organizations with well-established green cultures tend to promote environmentally friendly products and operational practices grounded in ecological values (Banerjee et al., 2003). Such cultures facilitate the alignment of organizational strategies with environmental objectives, thereby enhancing green performance outcomes (Schlegelmilch et al., 1996). Conversely, firms lacking a strong green culture often face resource constraints and managerial resistance, leading to the prioritization of short-term economic goals over environmental responsibilities (Russo & Fouts, 1997). In these contexts, environmental initiatives may be perceived as cost burdens rather than strategic investments, resulting in lower levels of green performance.

Empirical evidence consistently supports the positive relationship between organizational green culture and environmental performance. Studies by Chen (2011), Zailani et al. (2012), and Wang (2019) demonstrate that organizations with strong green cultures exhibit significantly higher levels of environmental performance. These findings indicate that green culture enables firms to respond more effectively to environmental pressures and sustainability demands.

2.2. The Mediating Role of Green Innovation

Green innovation plays a crucial mediating role in translating organizational green culture into improved environmental performance. Green innovation refers to the development and implementation of new products, processes, and practices that reduce environmental harm while enhancing organizational sustainability outcomes (Chen, 2011). Prior studies have shown that organizations with strong green cultures are more likely to adopt green innovations, as employees internalize environmental values and actively engage in sustainability-driven innovation activities (Baker & Sinkula, 2005; De Ruyter et al., 2009; Grinstein & Nisan, 2009).

Empirical research provides strong support for the mediating effect of green innovation between organizational green culture and environmental performance. Chen (2011) and Zailani et al. (2012) found that green innovation significantly enhances environmental performance and partially mediates the impact of green culture. Similarly, Roscoe et al. (2019) reported that green innovation strengthens the relationship between green organizational culture and environmental performance by encouraging pro-environmental employee behaviors. Hadjri et al. (2019) also confirmed the positive influence of green organizational culture on environmental performance through green management and innovation practices.

Further studies highlight that green organizational culture motivates employees to adopt sustainable behaviors and actively participate in environmental initiatives, thereby fostering innovation-led environmental improvements (Rizvi & Garg, 2020). Green culture can thus be viewed as a strategic capability that enables firms to simultaneously pursue environmental and performance objectives (Burki et al., 2018). In organizations facing increasing environmental pressures, a well-developed green culture supported by green innovation serves as a critical mechanism for achieving superior environmental performance (Wang, 2019).

Green innovation enables firms to reduce environmental harm through eco-friendly products, processes, and managerial practices. Empirical studies increasingly support the significant effect of green innovation on environmental performance.

2.3. Organizational Green Culture and Green Innovation

The concept of green innovation has been discussed in the literature under multiple terminologies, including *eco-innovation* and *environmental innovation*, leading to some conceptual ambiguity (Belin et al., 2011; Brunnermeier & Cohen, 2003; De Marchi, 2012; Hojnik & Ruzzier, 2016; Wang, 2019). Despite these variations, scholars broadly agree that green innovation refers to innovations that reduce environmental harm while creating value for organizations and society.

Fussler and James (1996) define green innovation as the development of new products and processes that deliver business and customer value while significantly reducing environmental impacts. Similarly, the Eco-Innovation Observatory (2012) describes green innovation as the introduction of new or substantially improved products, processes, organizational practices, or marketing solutions that reduce resource consumption and environmental pollution across the product life cycle. Reid and Miedzinski (2008) further emphasize that green innovation encompasses competitively priced goods and systems that minimize natural resource use and toxic emissions. Building on these perspectives, Wang (2019) conceptualizes green innovation as product, process, and managerial innovations that significantly reduce environmental burdens.

Organizational culture plays a critical role in shaping innovation outcomes. Prior studies suggest that firm culture, leadership orientation, and strategic planning directly influence innovation capability (O'Regan & Ghobadian, 2005). Organizations with well-defined and supportive cultures tend to demonstrate higher levels of innovation than those with weaker cultural alignment. In the context of sustainability, a strong organizational green culture (OGC) characterized by shared environmental values, norms, and behaviors can facilitate the adoption and diffusion of green innovation strategies (Porter & Van der Linde, 1995a).

OGC supports innovation by encouraging environmentally responsible thinking and guiding employee behavior toward ecological objectives. Greeno and Robinson (1992) argue that green organizational culture promotes innovation in environmental technologies, while Wang (2019) highlights that OGC shapes firm behavior and norms related to environmental support. Managers operating within organizations that prioritize ecological preservation are more likely to implement environmental protection policies and invest in green innovation initiatives. This cultural alignment enables firms to differentiate themselves through enhanced green innovation capabilities and compliance with environmental quality standards (Wang, 2019).

Empirical studies provide strong support for the positive relationship between organizational green culture and green innovation. Chang (2015) and Chen et al. (2012) found that green organizational culture significantly enhances green innovation in manufacturing firms. Tajeddini and Trueman (2012) further demonstrated that cultural dimensions such as long-term orientation positively influence innovation outcomes. Khazanchi et al. (2007) argue that organizations with strong green cultures are more actively involved in environmental protection activities, thereby encouraging employees to engage in green innovation efforts. Collectively, these findings suggest that organizational green culture is a foundational driver of green innovation.

From the Resource-Based View (RBV) and Natural Resource-Based View (NRBV), organizational green culture alone may not directly yield environmental benefits unless translated into innovation

capabilities. Green innovation serves as the operational mechanism through which cultural values influence performance outcomes.

2.4. Green Innovation and Green Performance

Green innovation has increasingly been viewed as a strategic response to environmental regulations and growing societal pressure on manufacturing firms to reduce environmental damage (Wang, 2019). Governments worldwide have introduced stricter environmental regulations, prompting firms to adopt green innovations aimed at minimizing pollution, waste, and resource consumption. These innovations allow firms to align environmental responsibility with corporate objectives for sustainability (Robinson & Stubberud, 2013).

Despite its strategic importance, research on green innovation remains relatively limited and has produced mixed findings. Andersen (2008) noted that green innovation strategies are still in their early developmental stages, while Wang (2019) emphasized the scarcity of empirical studies examining the innovation environmental performance relationship. Some studies suggest that green innovation enhances environmental outcomes without necessarily improving short-term financial performance (Rao & Holt, 2005). In contrast, others argue that green innovation may initially reduce performance due to increased development time and higher implementation costs (Das et al., 2006; Ragatz et al., 2002).

These contradictory findings have intensified scholarly interest in understanding the impact of green innovation on environmental performance. Empirical evidence increasingly supports a positive relationship between green innovation and green performance. Wang (2019) found that green innovation significantly improves environmental performance in manufacturing firms. Similarly, Seman et al. (2019) reported that green innovation has a strong positive effect on environmental performance, while Wang et al. (2021) demonstrated that promoting green concepts within organizations contributes to environmental protection and overall firm performance. These findings indicate that green innovation serves as a critical mechanism through which firms can achieve improved environmental outcomes.

2.5. The Mediating Role of Green Innovation

From a strategic and resource-based perspective, organizational green culture alone may not directly translate into superior environmental performance unless it is operationalized through green innovation practices. Firms that actively support green innovation are better positioned to enhance green performance, strengthen corporate image, and create new market opportunities (Michaelis et al., 2018). Green innovation enables organizations to reduce production waste, minimize pollution, and improve

environmental efficiency, thereby reinforcing firm reputation and legitimacy (Berry & Rondinelli, 1998; Chen et al., 2006).

A shared environmental vision is a key characteristic of strong organizational green culture and serves as a catalyst for green innovation (Miles et al., 2000). When managers and employees collectively value environmental protection, organizations are more likely to allocate resources toward green innovation initiatives (Weller, 2006). Empirical studies consistently demonstrate that green innovation mediates the relationship between organizational green culture and green performance. Chen (2011) and Zailani et al. (2012) found that green innovation partially or fully mediates this relationship, suggesting that green culture enhances environmental performance primarily through innovation mechanisms.

Further evidence by Wang (2019) confirms that green innovation fully mediates the impact of organizational green culture on green performance. These findings indicate that organizational green culture acts as a foundational driver that stimulates green innovation, which subsequently leads to improved environmental outcomes. Thus, green innovation serves as a critical explanatory mechanism linking organizational green culture to green performance.

Based on the theoretical foundation of the Resource-Based View (RBV) and Natural Resource-Based View (NRBV), this study proposes that organizational green culture enhances green innovation capability, which subsequently improves environmental performance. Accordingly, the following hypotheses are formulated:

H1: Organizational Green Culture (GOC) has a positive and significant effect on Green Innovation (GI).

H2: Green Innovation (GI) has a positive and significant effect on Environmental Performance (EP).

H3: Organizational Green Culture (GOC) has a positive and significant direct effect on Environmental Performance (EP).

H4: Green Innovation (GI) mediates the relationship between Organizational Green Culture (GOC) and Environmental Performance (EP).

3. Methodology

Based on the Resource-Based View (RBV) and Natural Resource-Based View (NRBV), this study proposes that Organizational Green Culture (GOC) serves as an internal strategic capability that enhances Green Innovation (GI), which in turn improves Environmental Performance (EP). In addition to this indirect pathway, the model also examines the direct effect of GOC on EP to determine whether green innovation functions as a mediating mechanism. The conceptual framework is presented in Figure 1.

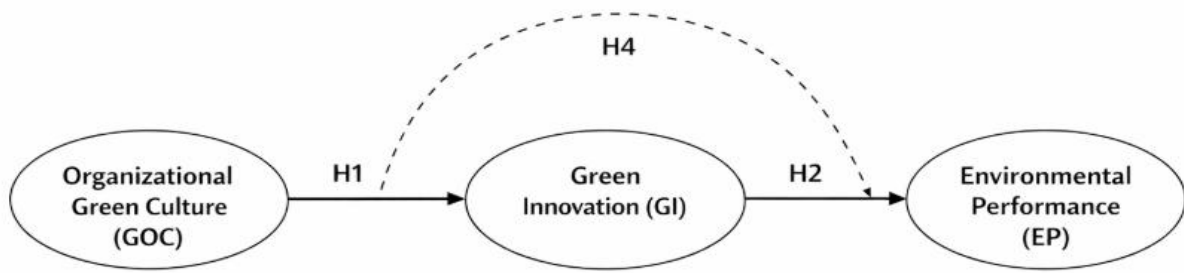


Figure 1- Conceptual Framework (Source : Author)

3.1. Research Design and Sample

This study employed a quantitative, cross-sectional survey design to examine the relationships among organizational green culture, green innovation, and environmental performance. Data were collected from employees working in a manufacturing firm located in the Horana Board of Investment (BOI) zone in Sri Lanka.

The target population consisted of 453 employees. Based on the Morgan sample size determination table, a sample size of 209 respondents was deemed appropriate. A total of 250 questionnaires were distributed, of which 220 were returned, yielding a response rate of 88.5%. After excluding 11 incomplete responses, 209 valid questionnaires were retained for final analysis.

3.2. Data Collection Procedure

Data were collected using a structured self-administered questionnaire distributed via Google Forms. The questionnaire was developed based on established measures from prior literature to ensure content validity. Participation was voluntary, and respondents were assured of confidentiality and anonymity to reduce response bias.

The questionnaire was structured into four main sections. The first section collected demographic information to provide background characteristics of the respondents. The second section measured organizational green culture using six items. The third section assessed green innovation as the mediating variable using nine items. The fourth section measured environmental performance using nine items. An optional open-ended section was included at the end of the questionnaire to allow respondents to provide additional comments or insights, which can enhance data quality and capture unanticipated perspectives (Creswell & Creswell, 2018).

All construct items were measured using a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The use of a Likert scale is widely accepted in behavioral and management research as it enables respondents to express varying degrees of agreement and facilitates reliable quantitative analysis.

4. Data Analysis and Results

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the relationships among Green Organizational Culture (GOC), Green Innovation (GI), and Environmental Performance (EP). PLS-SEM was selected due to its suitability for predictive research, complex mediation models, and non-normal data distributions. All constructs were modeled using reflective indicators, following the guidelines of Hair et al. (2017). The analysis was conducted in two stages: (1) assessment of the measurement model, and (2) assessment of the structural model, including mediation and hypothesis testing.

4.1. Measurement Model Assessment

The measurement model was evaluated for internal consistency reliability, convergent validity, indicator reliability, and discriminant validity using PLS-SEM.

4.1.1. Construct Reliability and Convergent Validity

Internal consistency reliability was assessed using Cronbach's alpha and composite reliability (pa and pc). As presented in Table 3, Cronbach's alpha values for Green Organizational Culture (0.972), Green Innovation (0.895), and Environmental Performance (0.896) exceeded the recommended threshold of 0.70 (Nunnally, 1978), indicating strong internal consistency. According to George and Mallery (2003), values above 0.90 indicate excellent reliability, while values above 0.80 indicate good reliability.

Composite reliability values (pa and pc) were also above the acceptable threshold of 0.70 for all constructs, with several values exceeding 0.90, confirming excellent construct reliability. Composite reliability provides a more accurate estimate of internal consistency than Cronbach's alpha, as it accounts for individual indicator loadings (Hair et al., 2017).

Convergent validity was evaluated using Average Variance Extracted (AVE). All AVE values exceeded the minimum recommended value of 0.50 (Fornell & Larcker, 1981), indicating that the constructs explained more than 50% of the variance in their indicators (Hair et al., 2010). These results confirm adequate convergent validity for all constructs.

Cronbach's alpha, composite reliability (pa and pc), and Average Variance Extracted (AVE) values exceeded recommended thresholds, confirming strong internal consistency and convergent validity.

Table 1 - Construct Reliability and Validity (Source: Author)

Construct	Cronbach's Alpha	Composite Reliability (pa)	Composite Reliability (pc)	Average Variance Extracted (AVE)
EP	0.896	0.897	0.917	0.579
GI	0.895	0.897	0.916	0.577
GOC	0.972	0.972	0.974	0.640

4.1.2. Indicator Reliability (Outer Loadings)

Indicator reliability was assessed by examining outer loadings. All measurement items exhibited loadings above the recommended threshold of 0.70, indicating that each indicator sufficiently represented its corresponding latent construct. According to Hair et al. (2017), loadings above 0.70 suggest that more than 50% of the variance in an indicator is explained by the latent construct. As all indicators met this criterion, no items were removed from the measurement model.

4.1.3. Discriminant Validity

Discriminant validity was assessed using the Fornell–Larcker criterion, which requires that the square root of the AVE for each construct be greater than its correlations with other constructs (Fornell & Larcker, 1981).

Table 2 - Fornell-Larcker criterion (Source: Author)

Construct	EP	GI	GOC
EP	0.761		
GI	0.613	0.760	
GOC	0.470	0.750	0.800

As shown in Table 2, the square root of AVE for Environmental Performance (0.761) exceeded its correlations with Green Innovation (0.613) and Green Organizational Culture (0.470). Similarly, the square root of AVE for Green Innovation (0.760) was greater than its correlations with Environmental Performance (0.613) and Green Organizational Culture (0.750). The square root of AVE for Green Organizational Culture (0.800) also exceeded its correlations with Environmental Performance (0.470) and Green Innovation (0.750). These results confirm that discriminant validity is established and that all constructs are empirically distinct.

4.2. Structural Model Assessment

After confirming the adequacy of the measurement model, the structural model was evaluated by examining path coefficients, coefficients of determination (R^2), and mediation effects. Bootstrapping with 5,000 subsamples was used to assess the significance of the hypothesized relationships.

4.2.1. Path Coefficients and Explained Variance

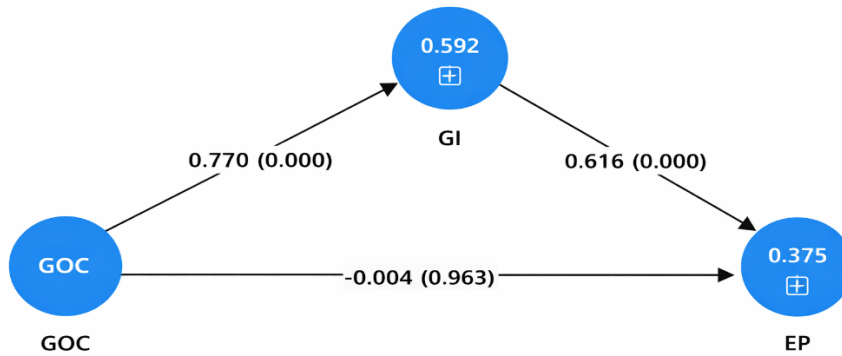


Figure 2 - Coefficient and significant Values

Figure 2 presents standardized path coefficients and R^2 values derived from bootstrapping (5,000 subsamples). Solid lines represent significant relationships, while dashed lines indicate non-significant paths. The results indicate that Green Organizational Culture has a strong and significant effect on Green Innovation ($\beta = 0.770$, $t = 33.134$, $p < 0.001$). Green Innovation also has a significant effect on Environmental Performance ($\beta = 0.616$, $t = 6.942$, $p < 0.001$). In contrast, the direct effect of Green Organizational Culture on Environmental Performance was non-significant ($\beta = -0.004$, $t = 0.046$, $p = 0.963$).

The coefficient of determination (R^2) values indicate that the model explains 59.2% of the variance in Green Innovation and 37.5% of the variance in Environmental Performance. According to Hair et al. (2017), these values represent moderate to substantial explanatory power in behavioral research.

4.2.2. Mediation Analysis

Table 3 -Path Coefficients (Source: Author)

Path	Original (O)	Sample Sample (M)	Mean Std. (STDEV)	Deviation	t- value	p- value
GI → EP	0.616	0.619	0.089		6.942	0.000

GOC	→	-0.004	-0.004	0.083	0.046	0.963
EP						
GOC	→	0.770	0.771	0.023	33.134	0.000
GI						

Table 4 -Specific Indirect effect (Source: Author)

Indirect Path	Original Sample (O)	Sample Mean (M)	Std. Deviation (STDEV)	t-value	p-value
GOC → GI → EP	0.474	0.478	0.072	6.538	0.000

Mediation analysis was conducted to examine whether Green Innovation mediates the relationship between Green Organizational Culture and Environmental Performance. The results reveal a significant indirect effect of Green Organizational Culture on Environmental Performance through Green Innovation ($\beta = 0.474$, $t = 6.538$, $p < 0.001$). At the same time, the direct effect of Green Organizational Culture on Environmental Performance remained non-significant.

This pattern indicates full mediation, suggesting that Green Organizational Culture enhances Environmental Performance only through Green Innovation. Therefore, Green Innovation serves as a critical mechanism through which organizational green culture is translated into environmental outcomes.

4.3. Path Analysis and Hypotheses Testing Results

The results of the path analysis reveal several significant relationships among the study variables. Hypothesis H1, which proposed a direct effect of Green Organizational Culture (GOC) on Environmental Performance (EP), was not supported. The path coefficient between GOC and EP was negative and statistically non-significant ($\beta = -0.004$, $t = 0.046$, $p = 0.963$), indicating that organizational green culture does not directly influence environmental performance.

In contrast, Hypothesis H2 was supported, as Green Organizational Culture exhibited a strong and significant effect on Green Innovation (GI) ($\beta = 0.770$, $t = 33.134$, $p < 0.001$). This finding suggests that a robust green organizational culture significantly enhances green innovation activities within the organization.

Similarly, Hypothesis H3 was supported, as Green Innovation demonstrated a significant effect on Environmental Performance ($\beta = 0.616$, $t = 6.942$, $p < 0.001$). This result indicates that green innovation plays a critical role in improving environmental performance outcomes.

Finally, Hypothesis H4, which proposed a mediating role of Green Innovation in the relationship between Green Organizational Culture and Environmental Performance, was supported. The mediation analysis revealed a significant indirect effect of GOC on EP through GI ($\beta = 0.474$, $t = 6.538$, $p < 0.001$), while the direct effect of GOC on EP remained non-significant. This pattern provides evidence of full mediation, indicating that Green Innovation is a necessary mechanism through which Green Organizational Culture influences Environmental Performance.

5. Discussion of Findings

Prior research has extensively documented the role of organizational culture in shaping firm performance and innovation outcomes (Deshpandé & Farley, 2004; Farley et al., 2008). However, empirical investigations into how organizational green culture influences environmental performance through green innovation remain limited, particularly in developing country contexts. Addressing this gap, the present study provides empirical evidence on the mediating role of green innovation in the relationship between organizational green culture and environmental performance within a Sri Lankan manufacturing setting.

Although prior studies (e.g., Wang, 2019) reported a direct positive effect of organizational green culture on environmental performance, the present findings do not support this direct relationship. This discrepancy may reflect contextual differences between developed and developing economies, regulatory maturity, and innovation infrastructure.

The findings reveal that organizational green culture does not exert a direct influence on environmental performance, but instead affects environmental outcomes indirectly through green innovation. This result partially contrasts with the findings of Wang (2019b), who reported a direct effect of green organizational culture on green performance in Taiwan. The divergence may be attributed to contextual differences between developed and developing economies, particularly in terms of regulatory enforcement, technological maturity, and organizational readiness for environmental initiatives. In developed economies such as Taiwan, environmental protection mechanisms and innovation infrastructures are more advanced, enabling green culture to translate more directly into performance outcomes.

Consistent with prior literature, the study confirms that organizational green culture has a significant effect on green innovation. This finding reinforces the argument that shared environmental values, norms, and beliefs encourage organizations to invest in environmentally friendly products, processes, and technologies. While previous studies on green innovation have largely focused on market pull and technology push factors as primary drivers (Porter & Van der Linde, 1995b; Cleff & Rennings, 1999),

the current findings highlight the importance of internal cultural factors as a foundational driver of green innovation.

Moreover, the results demonstrate that green innovation significantly enhances environmental performance, supporting the view that innovation is a critical mechanism through which organizations reduce environmental impacts and improve sustainability outcomes. Importantly, the mediation analysis confirms that green innovation fully mediates the relationship between organizational green culture and environmental performance, indicating that green culture alone is insufficient to generate environmental benefits unless it is operationalized through innovation activities. This finding aligns closely with Wang (2019b) and extends his work by validating the model in a developing country context using a different methodological approach (PLS-SEM instead of AMOS).

From a theoretical perspective, the findings are consistent with both the Resource-Based View (RBV) and the Natural Resource-Based View (NRBV). Organizational green culture can be considered a valuable, rare, and difficult-to-imitate resource that provides competitive advantage (Barney, 1991). However, the results suggest that this cultural resource must be transformed into green innovation capabilities to yield superior environmental performance. In line with NRBV theory, environmental pressures should be addressed by developing new organizational capabilities such as green innovation rather than relying solely on symbolic or cultural commitments (Russo & Fouts, 1997; Wang, 2019b).

Overall, this study advances the literature by empirically demonstrating that green innovation is the critical conduit through which organizational green culture translates into environmental performance, particularly in emerging economies like Sri Lanka.

5.1. Managerial and Social Implications

The findings of this study offer important managerial and social implications for manufacturing organizations seeking to enhance environmental performance through organizational green culture and green innovation, particularly in developing country contexts.

From a managerial perspective, the results emphasize the critical role of organizational green culture as a strategic foundation for fostering green innovation. Managers should actively embed environmentally friendly values into the organization's vision, mission, and daily practices. Strong leadership commitment is essential, and senior management should model pro-environmental behavior while recruiting and promoting individuals who demonstrate environmental consciousness (Jaffe et al., 2002). Such leadership-driven cultural alignment enables organizations to translate green values into innovative environmental practices.

The study further highlights the importance of resource management and regulatory compliance. Managers should closely monitor resource utilization, waste management, and energy consumption to

meet environmental regulations while improving green performance. Balancing cost-efficiency with investments in environmentally friendly technologies allows firms to comply with regulations without undermining competitiveness.

In addition, green initiatives supported by innovation create new market opportunities and competitive advantages. Organizations that adopt eco-friendly production processes and sustainable practices can differentiate themselves from competitors, enhance corporate reputation, and attract environmentally conscious customers. Integrating environmental considerations into strategic decision-making ensures that organizational policies, procedures, and long-term strategies remain aligned with green culture objectives.

A key implication of the findings is that green innovation acts as the primary mechanism through which green culture influences environmental performance. Managers should therefore actively promote green innovation by encouraging experimentation, learning, and employee participation in sustainability initiatives. Creating a supportive organizational environment where employees internalize green values enhances both innovation capability and environmental commitment.

From a social perspective, the findings suggest that organizations have a broader responsibility beyond internal performance outcomes. Manufacturing firms can contribute to community environmental awareness by organizing outreach programs focused on sustainability and environmental protection. Collaborations with universities and educational institutions can facilitate knowledge sharing and promote environmental literacy among students and the wider community.

By engaging in such initiatives, organizations can strengthen their social legitimacy and public reputation as environmentally responsible entities. Sharing best practices and emerging trends in sustainable business not only benefits society but also reinforces the organization's long-term credibility and trust among stakeholders.

Overall, the integrated managerial and social implications underscore that cultivating a strong organizational green culture, supported by continuous green innovation, benefits not only firm-level environmental performance but also broader societal sustainability objectives.

5.2. Conclusion

This study provides robust empirical evidence that green innovation is the critical mechanism through which organizational green culture influences environmental performance in a developing country context. By demonstrating full mediation, the findings advance sustainability and innovation literature while offering actionable insights for managers and policymakers.

5.3. Limitations and Directions for Future Research

Despite its contributions, this study is subject to several limitations that should be considered when interpreting the findings and that also offer avenues for future research.

First, the study was conducted within a single plastic manufacturing company located in a specific Board of Investment (BOI) zone in Sri Lanka, which may limit the generalizability of the results to other industries, organizational contexts, or geographic regions. Although Sri Lanka hosts numerous manufacturing firms across diverse sectors, organizational structures, and regulatory environments, the findings may not fully capture these variations. Future studies should therefore examine multiple organizations across different manufacturing sectors to enhance external validity.

Second, the research employed a cross-sectional design, with data collected over a relatively short period. Such a design restricts the ability to capture dynamic changes in organizational green culture, green innovation, and environmental performance over time. Longitudinal studies would allow researchers to observe how these relationships evolve and to establish stronger causal inferences.

Third, limited awareness and understanding of green organizational culture, environmental innovation, and sustainability practices among employees may have influenced respondents' perceptions and responses. Environmental regulations and sustainability concepts are still emerging within the Sri Lankan organizational and educational context, which could have resulted in response bias. Future research may benefit from incorporating awareness programs prior to data collection or including control variables that capture respondents' environmental knowledge.

Fourth, the high workload and time constraints commonly experienced by BOI manufacturing employees particularly in export-oriented firms may have affected the accuracy and depth of questionnaire responses. Alternative data collection strategies, such as staged surveys or interviewer-assisted administration, could improve response quality in future studies.

Finally, this study adopted a purely quantitative and descriptive approach, which limits deeper exploration of underlying behavioral and organizational mechanisms. Future research could adopt mixed-method designs, integrating qualitative techniques such as interviews or focus groups to gain richer insights into how green culture and innovation practices are developed and implemented within organizations.

In light of these limitations, future research should extend the model to multiple firms and industries, employ longitudinal and mixed-method approaches, and consider context-specific measurement instruments tailored to developing economies. Locally validated questionnaires, combined with cross-cultural comparisons, would further strengthen the robustness and applicability of findings related to organizational green culture, green innovation, and environmental performance.

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