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The Impact of Sustainable Leadership on Sustainable Performance: The Moderated Mediation of Green Organizational Culture and Organizational Commitment

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Abstract

This study investigates the relationship between sustainable leadership and the sustainable performance of Small and Medium-sized Enterprises (SMEs) in Pakistan, with a particular focus on the mediating role of organizational commitment and the moderating influence of green organizational culture. Data were collected from 351 respondents representing small to medium-sized manufacturing firms using a purposive sampling technique. SmartPLS 4 software was employed to test the measurement and structural model and to test the hypotheses using partial least square structural equation modeling. The findings reveal a significant positive association between sustainable leadership and sustainable organizational performance. Moreover, organizational commitment was found to mediate this relationship, while green organizational culture emerged as a critical contextual factor influencing these dynamics. This study contributes to the existing literature by offering a novel perspective on how sustainable performance encompassing ethical practices, social responsibility, and environmental initiatives is vital for achieving long-term organizational success in a rapidly evolving business environment.

Keywords: Sustainable leadership, small-medium enterprise, sustainable performance, organizational commitment, green organizational cultural, manufacturing SMEs.

1. Introduction

Natural disasters and external pressure force the organization to attain sustainability. Diversifying factors including changes in the climate, conflicts between cultures, political changes, technology, globalization of the economy and migration now require

organizations to consider both their local and global environments (Iqbal & Hassan, 2018; Lopes de Sousa Jabbour et al., 2020). The significant changes in climatic patterns have imposed considerable pressure on commercial organizations, which are often regarded as key players in the business (Iqbal & Hassan, 2018). Consequently, there has been a heightened emphasis on the cultivation of socially and environmentally responsible activities, aimed at securing a competitive edge that is sustainable in the long run (Knudsen et al., 2021).

In this context, (SL) supports businesses in meeting the expectations of various stakeholders when it comes to social and environmental issues, also helping them to become more respected and esteemed (Liao, 2022). Leaders who possess the capacity to strategically plan, effectively execute, and actively advocate for policies and programs are essential in meeting the requirements of sustainable development (Sifat, 2019; Tsalis et al., 2020). Sustainable leadership has become widely recognized and successful in leading work related to sustainable development (Iqbal, Ahmad, & Halim, 2020; Shriberg & MacDonald, 2013). According to (Hallinger & Suriyankietkaew, 2018), the presence of sustainable leaders inside an organization is of utmost importance for its success.

According to Hambrick and Mason (1984), leadership impacts organizational success by showcasing certain behaviors and using different tactics. Mariappanadar (2018) indicates that leadership refers to how much a leader shows different levels of member-specific behavior to encourage commitment in the organization which is part of employee engagement (Mariappanadar, 2018). An organization is said to have sustainable performance if it can grow over time while controlling its financial, environmental and social impact (Wang et al., 2022). Business sustainability goes beyond financial viability and includes other elements. It also involves environmental stewardship, ethical business practices, and social good (Mensah, 2019; Shrivastava, 1995; Stoddart, 2011). Sustainable performance organizations integrate economic goals with environmental and social responsibility. More companies are recognizing the need for sustainable leadership and investing heavily in sustainable performance (Piwowar-Sulej et al., 2021).

In Past literature, sustainable leadership and performance have been widely studied (Liao, 2022; Nazir, Khadim, & Syed, 2025), for an organization's growth and success, sustainable leadership is very crucial (Al-Zawahreh et al., 2019). SL is emerging leadership style, hence further study is needed (Burawat, 2019). Since sustainable leadership greatly affects sustainable performance, Burawat (2019) proposes analyzing the variables that influence or shape the overall process within the complex model. There is a great deal of concern among academics over the influence that industrial organizations have on the environment. As a consequence of this, environmentally, economically, and socially responsible practices are required to fulfill the standards (Pham et al., 2019). To reduce the amount of damage done to the environment, the first step is to identify and put into action ecologically sustainable practices (Wong et al., 2020). Green organizational culture as an area of study is newly developing and has just started to appear. The term “GOC” refers to an

environmental philosophy that considers scientific, political, and aesthetic elements to achieve the goal of fostering sustainable economic and ecological development (Chandra et al., 2021). Cultural shifts are the cause of the greater attention that employees inside companies are paying to environmental issues. This, in turn, affects the whole organization. GOC will benefit more if managers care more about the impact their actions have on the environment. (Al-Hakimi et al., 2022; Al-Hakimi et al., 2025).

The Sustainable Development Agenda from 2030 stresses the importance of helping people live healthier and fostering a global vision for sustainable development. SL has gained significant prominence in the study of leadership theory (Liao, 2022). SL has arisen as an effective technique which tackle sustainable concerns. No studies to date have looked at how SL and OC affect SP when used together. Keeping in mind this study was designed to study the association between SLand SP through OC as a mediator. Previously, the role of SL and SP was reported and it showed a positive association (Iqbal & Ahmad, 2021). SL and SP need more exploration to define the intervening variables and elements that can lead organizations to unprecedented realms of success.

Small and medium enterprises (SMEs) of the manufacturing sector industry are facing numerous challenges in sustainability and leadership. The reason behind this is the lack of sustainable leadership and green organization culture in an organization. The problem is yet to be solved through determining the intervening variables and having a practical approach towards it and this research aids in solving the challenges to a better extent. Moreover, the SMEs in Pakistan are also facing severe challenges in terms of leadership, performance, organizational commitment, and green organizational culture.

Hence this research will also provide a platform for developing a mechanism for SMEs in Pakistan to flourish by applying the practical approaches of sustainable leadership. From above discussion, the following research questions arise: Does SL influence SP? Does SL show a positive association with OC? Does OC influence SP? Do OC mediate between SL & SP? Do GOC moderates role between OC and SP? Does GOC moderate the relationship between SL and SP in presence of OC as a mediator.

The research is organized as follows to answer the questions. Researchers review and study variable-related literature to build a strong groundwork for the conceptual model and hypotheses. In addition, the chosen method for collecting or analyzing data is presented in detail. The results obtained from the findings are discussed following with the academic contribution and research implications are described. Finally, the limitations and directions in future research are suggested.

2. Literature Review and Hypotheses Development

2.1 Sustainable Leadership and Sustainable Performance

For an organization to achieve lasting and sustainable performance, sustainable leadership is key and means using a holistic approach, striving for lasting results and developing

skilled managers (Avery & Bergsteiner, 2011; Gerard et al., 2017). According to previous studies having leaders with sustainable values can greatly improve a company's sustainability results (Kantabutra & Avery, 2013; Nazir et al., 2025). Literature experts advise aspiring leaders and managers to actively develop leadership abilities that priorities sustainability and values in organizational practices (Liao, 2022). It has been studied by experts that when the top officials of a company promote environmental and social goals, the employees want to succeed in reaching them too. (Fang et al., 2022).

Experiments have demonstrated that paying attention to sustainable leadership greatly improves sustainable performance (Iqbal & Ahmad, 2021). Iqbal et al. (2020) link psychological safety in SMEs to sustainable leadership and point out that this helps achieve sustainable performance (Iqbal, Ahmad, & Halim, 2020). This enables businesses to sustain equilibrium in terms of economics, society, and the environment throughout their entire life cycle, while also assisting organizations in attaining enduring sustainable performance and development (Liao, 2022).

- H1: There is a positive relationship between sustainable leadership and sustainable performance.

2.2 Sustainable Leadership and Organizational Commitment

Various research has shown that leadership style is a precursor to organizational commitment (Demirtas & Akdogan, 2015; Haque et al., 2019). Leadership styles in organizations may foster a greater degree of organizational dedication and exhibit favorable connections between different leadership methods and employee performance (Mohd Adnan & Valliappan, 2019). Transformational and ethical leadership styles have been shown to have a strong positive correlation with organizational commitment (Demirtas & Akdogan, 2015). These results are encouraging for further investigation into the idea that SL might have a favorable impact on the commitment levels of employees. While certain value-based leadership techniques are indicative of workers' commitment to the organization, there has been less or no focus on how sustainability might affect all three aspects of employee commitment. In a previous study by Iqbal and Ahmad (2021), the link among organizational learning, sustainable performance and sustainable leadership was explored by applying the (NRBV) and dynamic capacity theory (Iqbal & Ahmad, 2021). What usually shows organizational commitment to preserving the environment are things like employees saving paper, using less energy, promoting ways to support the environment, helping employees adopt eco-friendly behaviors and encouraging stricter regulations for the environment. (Yue et al., 2021). SL is a complex and dynamic kind of leadership that is more effective than other conventional types. The main difference between other forms of leadership and sustainable leadership lies in considerations of scope, values, society, environment and promoting positive change (Han et al., 2019; Nisha et al., 2022). Discussing the above literature, we propose following hypothesis:

- H2: The relationship between sustainable leadership and organizational commitment is positive.

2.3 Organizational Commitment and Sustainable Performance

Being committed to an organization means following its goals, objectives, values, laws and traditions and taking steps to keep it running well (Dominic & Salim, 2018). Work performance is greatly influenced by organizational commitment. Employees who possess a solid sense of organizational commitment exhibit favorable conduct towards the company, exert maximum effort, make sacrifices, have a high degree of loyalty, and possess a desire to stay with the organization (Eliyana & Ma'arif, 2019).

Setting the foundation for shifting the workforce's management mindset from the traditional control strategy approach to the innovative commitment method. According to Kartika (2020) and Purwanto (2020), HRM is designed to increase the efficiency and productivity of a company by motivating employees(Kartika et al., 2020; Purwanto, 2020a). In Iqbal's (2015) publication, he contends that to enhance employee loyalty and commitment, a corporation must exhibit unwavering devotion to its workers (Iqbal, 2015). These results indicate that firms may improve their overall performance by encouraging the adoption of organizational commitment towards workers.

Emotions encourage employees to do their best and help the firm grow. Thus, individuals who are highly committed to the organization tend to have better performance. Dyah et al. (2016) found that the level of interest employees have in the institute, impacts their work performance. A higher level of commitment helps team members to achieve their full potential in the workplace (Kartika et al., 2020; Nugroho et al., 2020; Purwanto, 2020b). Abduloh et al. (2020) also found that being dedicated to an organization has strong effect on the enduring viability of company's activities and their success in benefiting both the public and private sectors. This research adds to what is known from earlier studies by showing that the aspects of organizational commitment are linked with better employee performance over a longer period. When the organization shows strong commitment, it makes employees more willing to stay (Muvida et al., 2023; Sari et al., 2023). Hence, we propose following hypothesis:

- H3: The relationship between organizational commitment & sustainable performance is positive.

2.4 Mediating Role of Organizational Commitment between Sustainable Leadership and Sustainable Performance

Multiple studies show that organizational commitment plays a mediating role between many aspects and long-term performance of organization. The research by Brown et al. (2019) explores the link between organizational commitments, burnout, and job satisfaction among social workers, examining several approaches (Brown et al., 2019). Lee et al. (2018) found that OC plays a mediating role between SP and CSR (Lee et al., 2018; Macke & Genari, 2019). Organizational commitment is strongly correlated with work satisfaction. Satisfaction is dependent on many factors linked to the company's employees.

Different studies propose that satisfaction is a precursor of organizational commitment (Morrow, 2011). Similarly, performance strongly correlates with organizational dedication, resulting in both technical and productive results. The mediation between organizational commitment and corporate sustainability performance in Chinese enterprises is well studied (Wang et al., 2020). However, there is no such research in which OC mediates between SL and SP. This research aims to study the mediation of OC between SL and SP. Hence, we propose following hypothesis:

- H4: The sustainable leadership and sustainable performance relationship is mediated by organizational commitment.

2.5 The Indirect Impact of Sustainable Leadership on Sustainable Performance through Perception of Organizational Commitment is Moderated by Green Organizational Culture

GOC means the set of guidelines and practices that manage how employees should act in the company. Researchers described green corporate culture as the level of workers' devotion to ecologically responsible behaviors and norms (Asmui et al., 2016). It was shown that organizational commitment was positively influence by organizational culture. The organization determines a set of principles, concepts and values called "organizational culture" that helps moderate behavior and attitude among members to achieve the company's aims. An organization that prioritizes environmental preservation might be said to have a green culture (GC). Thus, the company's mission statement incorporates fundamental values of the workforce, instilling in each team member a sense of responsibility for environmental protection (Abbas & Dogan, 2022). Employee awareness of environmental concerns has been increased as a consequence of green culture (Lee et al., 2022; Al-Hakimi et al., 2025), improves the quality of their job. If green culture is to flourish, managers must prioritize environmental protection (Azhar & Yang, 2022). Employees who work in green culture are also far more inclined to take environmental concerns seriously (Azhar & Yang, 2022).

Experts have explored how practicing sustainability in HRM impacts how the company deals with the environment. (Martín-de Castro et al., 2016; Tsai et al., 2020). Based on the results, OGC was considered a good measure of how well an organization performed in terms of competition and its impact on the environment. In addition, the research shows that green innovation is what completely connects green organizational culture with green performance, while it has shown to have a partial mediating effect between a green organizational culture and its competitive edge in the situation of environment pressures (Wang, 2019). According to (Jabbour & de Sousa Jabbour, 2016), a company's culture may work as a catalyst for the development of innovative organizational structures or sustainable manufacturing practices. Employees are motivated to adopt sustainable habits by GOC (Schein, 1984). to Ng et al. (2015) suggests that executing the green strategy and achieving sustainable outcomes depend on GOC acceptance. Additionally, GOC gives staff members a sense of accountability for protecting the environment. Therefore, if a company can grip environmental issues, GOC will encourage employees to protect the environment,

since research shows that GOC improves workers' environmental stewardship practices (Chen et al., 2012; Gürlek & Tuna, 2018). Drawing from the NRBV theory, Nureen et al. (2023) investigated how the presence of green culture, green supply chain practices, green training and company results are linked. In addition, the findings showed that GOC helps to improve the connection between green training and firm performance. To maintain a competitive edge, organizations must implement cultural change. As businesses work to institutionalize and integrate an environmental concern across the whole organization, this perspective has elevated green organizational culture to a central position. It is essential for businesses to assess the degree of "greening" their culture as it is believed that combining environmental issues with organizational culture should lead to a firm's sustainable competitive advantage (Aggarwal & Agarwala, 2022)

Previous research has shown that an organization's perception of its surroundings may be influenced by its green organizational culture, and employees play a critical role as agent of change in this process (Roscoe et al., 2019). An organization's GOC is a driving force behind the implementation of many environmental measures (Abdul-Rashid et al., 2017). In the same way, Wu and Chen (2018) proved that leadership encourages OC and Lok and Crawford (2004) found that organizational culture is strongly linked to OC. With the support of literature discussed above, we propose following hypotheses:

- H5: The green organizational culture positively moderates the relationship between organizational commitment and sustainable performance.
- H6: The indirect impact of sustainable leadership on sustainable performance through perception of organizational commitment is moderated by green organizational culture.

2.6 Theoretical Framework

This research uses social exchange theory (SET) and natural resource based view (NRBV) in several ways. The NRBV model argues that what gives a company an advantage is its resources and skills that are uniquely its own. Sustainable leadership views SL practices as distinctive assets that help an organization survive. Strategic resources include sustainable leadership principles including ethical, social, and environmental decision-making. According to the NRBV, companies with precious, uncommon, and hard-to-replace resources are more likely to maintain a competitive edge. SL habits are a unique resource that affects performance long-term. NRBV should emphasize OC as a mediator to improve our research. Implementing SL practices as strategic resources requires OC. SL may boost performance if workers are committed to the company's sustainability goals. Efficient management of its unique resources gives an organization an advantage, as suggested by the NRBV theory.

This research uses Social Exchange Theory (SET) to examine the complex relationships between (SP), (OC), and (SL). SET provides a theoretical framework for understanding

how interactions affect resource flow inside an organization. Sustainable leaders are seen to have qualities that encourage personnel to rely on one other, which boosts commitment. This suggests that a good and trustworthy connection between workers and the organization might promote employee commitment and improve long-term performance.

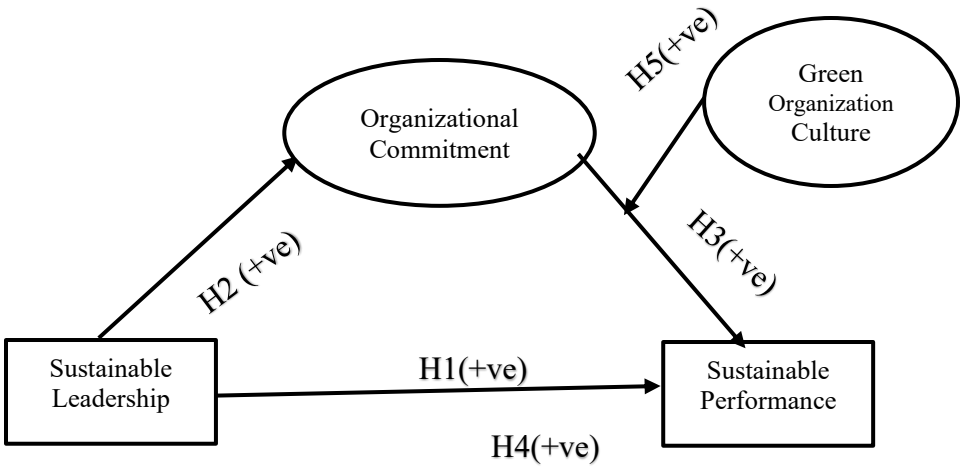

Figure 1: Conceptual Framework

3. Research Methodology

A Google form was used to design an online questionnaire for respondents and data from self-administered questionnaires were directly collected from respondents. In order to gather data, we used a cross-sectional survey technique. All the data was gathered in a Cross-sectional method over a span of two months. The research focused on Managers/Owners/Managing directors/Partners who are working in manufacturing sector SMEs in twin cities. Data was collected in Cross-sectional research method within a period of two months. The target population for this research was Managers/Owners/Managing directors/Partners working in manufacturing sector SMEs of twin cities. Responses were collected by the Convenience sampling approach. Based on the formula of Krejcie and Morgan (1970), the sample size is set to 384 using a 95% confidence level and a standard error of 0.05. Just over 480 questionnaires were sent, some online and some directly to the SMEs interested. Out of 480 questionnaires 365 responses received, but some questionnaires were not properly filled and some having missing responses, so total 351 responses sample data were finalized for analysis. Response rate is 76%.

3.1 Measurement Scales

- These measurement Scales were applied in the current study to measure the constructs.
- This study used 15-items measurement scale of sustainable leadership from the study of (McCann & Holt, 2010a).
- A nine-item questionnaire (OC) was developed to study organizational commitment amongst employees (Mowday et al., 1982).
- The sustainable performance 15 item scale was taken from (Khan & Quaddus, 2015).
- Green organizational culture comprised of six-item scale developed by (Denison & Mishra, 1995).

4. Data Analysis

The data was analyzed using of Smart PLS4. To check the proposed relationships, Smart PLS4 was used to test the structural model by applying partial least square structural equation modeling (PLS-SEM). Justification for employing smart pls is twofold. Firstly, the prime focus of the current study is to evaluate the impact of exogenous variable on endogenous variable in context of variance explained for which, Smart pls is a better suited tool. Secondly, the model for the current study is complex in nature in a sense that it involves application of mediation and moderation and also moderated mediation for hypotheses testing. As per suggestion from Ringle et al., 2015 and Henseler and Fassott 2009 smart pls is a better tool for evaluation of conditional direct and indirect effects.

4.1 Respondents Profile and Demographic Details

Six demographic variables have been included in the study this time. These factors are Gender, Age, Qualification, Work experience, designation and location of SMEs (Table 1). In this study, gender, age, designation, experiences and qualification are control variables because they stay the same for everyone and do not play a role in the variables studied. In the current research, a total of 351 respondents replied. Out of 351 respondents, male respondents were 321 and female respondents were 30 which makes the percentage of male respondents 91.5% and for female 8.5% (Table 1).

Table 1: Frequency Distribution of Variables (used in the current study)

Gender	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Female	30	8.5	8.5	8.5
Male	321	91.5	91.5	100.0
Total	351	100.0	100.0	
Age				
18 to 25	24	6.8	6.8	6.8
26 to 40	192	54.7	54.7	61.5
41 to 55	128	36.5	36.5	98.0
56 and above	7	2.0	2.0	100.0
Total	351	100.0	100.0	
Qualification				
Bachelors (16 Years)	110	31.3	31.3	31.3
FSC	18	5.1	5.1	36.5
Higher	108	30.8	30.8	67.2
Master (18 Years)	109	31.1	31.1	98.3
Other	3	.9	.9	99.1
S.S.C	3	.9	.9	100.0
Total	351	100.0	100.0	
Work Experience				
3 to 5 Years	74	21.1	21.1	21.1
6 to 10 Years	94	26.8	26.8	47.9
Less than 3 Years	22	6.3	6.3	54.1
More than 10 Years	161	45.9	45.9	100.0
Total	351	100.0	100.0	
Designation				
Manager	108	30.8	30.8	30.8
Managing Director	28	8.0	8.0	38.7
Managing Partner	35	10.0	10.0	48.7
Owner	131	37.3	37.3	86.0
Partner	49	14.0	14.0	100.0
Total	351	100.0	100.0	
Location of SMEs				
Islamabad	202	57.5	57.5	57.5
Rawalpindi	149	42.5	42.5	42.5
Total	351	100.0	100.0	

4.1 Correlation Analysis

Relationships between the variables have been studied through correlation analysis. The correlation Table 2 presents the interrelationships between the variables in the study, providing valuable insights into their associations.

Table 2: Correlation among Variables

	Sustainable Leadership (SL)	**Sustainable Performance (SP)**	**Organizational Commitment (OC)**	**Green Organizational Culture (GOC)**
SL	1.000			
SP	.676**	1.000		
OC	.624**	.675**	1.000	
GOC	.622**	.649**	.678**	1.000

Note: **Correlation is significant at 0.01(2-tailed)

*Correlation is significant at 0.05(2-tailed)

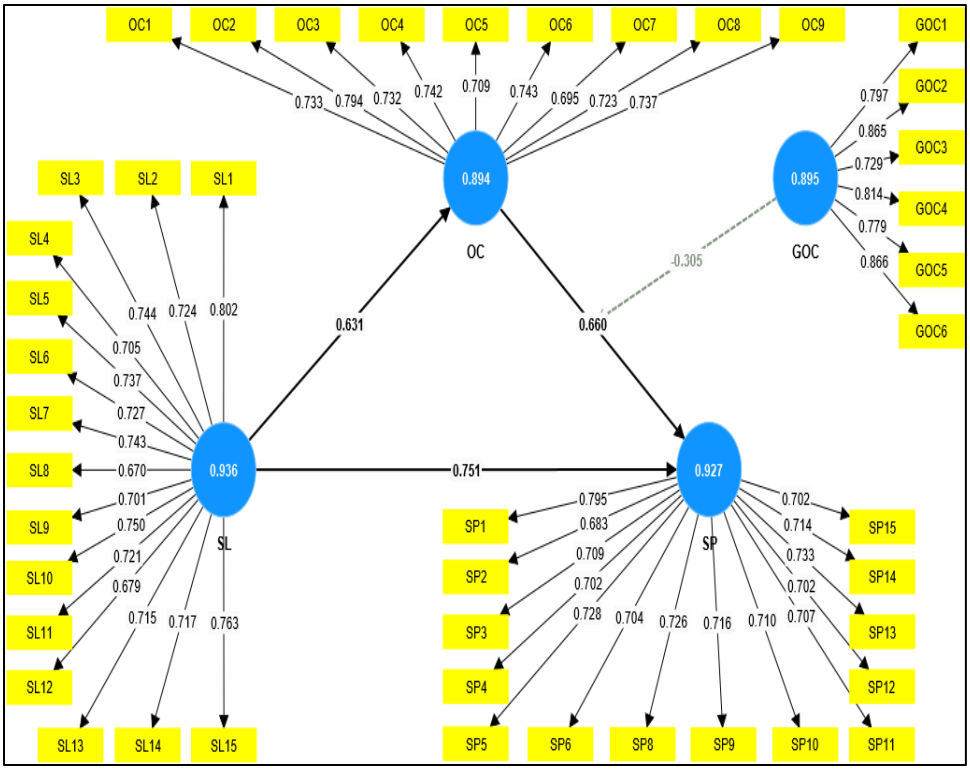

Figure 2: Measurement Model with Factor Loading

4.2 Factor Loading, Reliability, and Validity

Table 3: Factor loading, Reliability, and Validity

Constructs	Items	Loadings	AVE	C. Reliability	Cro. Alpha
Sustainable Leadership (SL)	SL1	0.767	0.522	0.936	0.935
	SL2	0.707			
	SL3	0.732			
	SL4	0.711			
	SL5	0.74			
	SL6	0.72			
	SL7	0.747			
	SL8	0.675			
	SL9	0.7			
	SL10	0.753			
	SL11	0.729			
	SL12	0.666			
	SL13	0.691			
	SL14	0.731			
	SL15	0.766			
Organizational Commitment (OC)	OC1	0.725	0.541	0.897	0.894
	OC2	0.801			
	OC3	0.724			
	OC4	0.751			
	OC5	0.707			
	OC6	0.75			
	OC7	0.698			
	OC8	0.726			
	OC9	0.734			
Green Organizational Culture (GOC)	OC1	0.725	0.755	0.953	0.936
	OC2	0.801			
	OC3	0.724			
	OC4	0.751			
	OC5	0.707			
	OC6	0.75			
Sustainable Performance (SP)	SP1	0.796	0.514	0.928	0.927
	SP3	0.71			
	SP4	0.701			
	SP5	0.726			
	SP6	0.703			
	SP8	0.724			
	SP9	0.718			
	SP10	0.709			
	SP11	0.707			
	SP12	0.702			
	SP13	0.732			
	SP14	0.717			
	SP15	0.701			

Table 3 explains the measurement model of the research. The four variables used are SL, SP, OC, and GOC. Factor loading is used to check the reliability and validity of the measurement model. According to the criteria, the values should be greater than 0.50 and ideally at least 0.7 (Hair et al., 2013). All the variables have reached the criteria, the Cronbach Alpha reliability acceptable requirement of 0.70 (Nunnally & Bernstein, 1994).

4.3 Discriminant Validity

Discriminant validity means that a construct should differ from other constructs. One way of assessing discriminant validity is the Fornell and Larcker (1981) Criterion. You can find the Test results for Discriminant validity in the section below (Table 4). It was found that the scales have different types of validity.

Table 4: Discriminant Validity

	Green Organizational Culture (GOC)	**Organizational Commitment (OC)**	**Sustainable Leadership (SL)**	**Sustainable Performance (SP)**
GOC	0.869			
OC	0.678	0.736		
SL	0.622	0.624	0.723	
SP	0.649	0.675	0.676	0.717

4.4 Path Coefficient

Table 5: Path Coefficient

	Sample	**Mean**	**St. deviation**	**t statistic**	**P-values**
GOC -> SP	0.14	0.145	0.039	3.621	0.000
OC -> SP	0.487	0.485	0.039	12.472	0.000
SL -> OC	0.48	0.484	0.05	9.547	0.000
SL -> SP	0.338	0.339	0.051	6.577	0.000

GOC = Green Organizational Culture, SP = Sustainable Performance
OC = Organizational Commitment, SL = Susainable Leadership

OC and SP have a strong and positive connection, as proved by the path coefficient of 0.487 and a sample average of 0.485 with STDEV of 0.039 (see Table 5). The path has a T statistic of 12.472 and a very small p-value of 0, showing that it is statistically significant. The association between SL and OC is also highly positive, as the path coefficient shows (0.48), the sample mean (0.484) and the standard deviation (0.05). The T statistics for this path is 9.547, and the p-value is 0, which also denotes statistical significance.

It has been observed that the relationship between SL and SP is positive. The path coefficient between SL and SP is 0.338, with a sample mean of 0.339 and a STDEV of 0.051. Additionally, the relationship between GOC and SP is positive. The path coefficient between GOC and SP is 0.14, with a sample mean of 0.148 and a standard deviation of 0.038. These insights provide a comprehensive understanding of the underlying mechanisms shaping organizational outcomes and offer pertinent implications for management and organizational practices. The research shows strong connections between the different factors in the proposed model.

4.5 Specific Indirect Effect

Table 6: Indirect Effect

	Sample	Mean	St. deviation	t-statistic	P-values
SL -> OC -> SP	0.234	0.235	0.03	7.796	0.000

SL = Sustainable Leadership, OC = Organizational Commitment, SP = Sustainable Performance

The path coefficient now equals 0.235, with a mean value of 0.235 and a standard deviation of 0.03 (as shown in Table 6). The T statistics are 7.796 and the p-value is 0, so the indirect effect is considered to be significant.

4.6 Moderation Analysis

Table 7: Conditional Direct Effect

	Original Sample	Sample Mean	Standard Deviation	t-statistic	P-values
OC -> SP conditional on GOC at -1 SD	0.447	0.448	0.064	6.997	0.000
OC -> SP conditional on GOC at +1 SD	0.840	0.841	0.086	9.719	0.000
OC -> SP conditional on GOC at Mean	0.644	0.644	0.058	11.060	0.000

GOC = Green Organizational Culture, SP = Sustainable Performance

OC = Organizational Commitment, SL = Sustainable Leadership

The results (Table 7) confirmed that Green Organizational Culture as a moderator is significant in the path of Sustainable Leadership, Organizational Commitment, and Sustainable Performance at the mean (Beta Coefficient is = 0.644, t statistics =11.060, Confidence Interval 95% and P Value of 0.00). The presence of a high Green Organizational Culture increases the Sustainable Leadership, Organizational Commitment and Sustainable Performance levels positively and significantly (+1 standard deviation, Beta Coefficient is 0.84, t statistics amount to 9.719, Confidence Interval 95% and a P Value = 0.00). Lower levels of Green Organizational Culture in the path of Sustainable

Leadership, Organizational Commitment and Sustainable Performance are significant at -1 standard deviation (Beta Coefficient is = 0.447, t statistics =6.997, Confidence Interval 95% and P Value of 0.00). Results prove that a higher level of GOC aids in amplifying the impact of SL on SP such that managers that are high on GOC further strengthen the effect of SL on SP. Other the other hand, managers with low orientation towards GOC have a lower probability of depicting SP at work. Thus, supporting our moderated Hypothesis H5.

4.7 Moderated Mediation Analysis

Table 8: Conditional Indirect Effect

	Original Sample	Sample Mean	Standard Deviation	t statistics	P values
SL -> OC -> SP conditional on GOC at +1 SD	0.31	0.31	0.045	6.883	0.000
SL -> OC -> SP conditional on GOC at -1 SD	0.165	0.165	0.03	5.435	0.00
SL -> OC -> SP conditional on GOC at Mean	0.238	0.237	0.033	7.127	0.00

The results confirmed that Green Organizational Culture As a moderator is significant in the path of sustainable leadership, organizational commitment and sustainable performance at mean (Beta Coefficient is = 0.238, t statistics =7.127, Confidence Interval 95% and P Value of 0.00). Higher levels of green organizational culture in the path of sustainable leadership, organizational commitment and sustainable performance is significant at +1 standard deviation (Beta Coefficient is = 0.31, t statistics =6.883, Confidence Interval 95% and P Value of 0.00). Lower levels of green organizational culture in the path of sustainable leadership, organizational commitment and sustainable performance is significant at -1 standard deviation (Beta Coefficient is = 0.165, t statistics =5.435, Confidence Interval 95% and P Value of 0.00). The results from analysis confirmed that with increase in the levels of green organizational culture the indirect effect sustainable leadership on sustainable performance through OC is improved, therefore our Hypothesis H6 of moderated mediation is supported.

The results indicate the index value is significant and shows moderated mediation (index = 0.061), SE = 0.012, 95%. The results aid in iterating that SL effectiveness as a driving force for SP through OC is dependent upon the organization's cultural context. Strong GOC not only strengthens employees' commitment but also enhances the effect of SL on sustainable performance. Contrary to this, when GOC is weak, although with the positive influence of SL has a considerably weaker impact. This proves that leaders who emphasize

on maximizing sustainable performance should foster green organizational culture, which in turn creates an enabling environment where leadership practices are aptly translated into sustainable performance.

5 Discussion on Findings

It became clear during the research that sustainable leadership is linked to better sustainable performance. NRBV also argues that firms can gain a competitive advantage by enhancing the capabilities and resources that can increase environmental performance. Research supports the fact from results and theory that SMEs with SL show better SP, as sustainable leadership strongly influences sustainable performance (Iqbal & Ahmad, 2021; Nazir et al., 2025) and these effects are strengthened by GOC and mediated by OC. Moreover, the research we conducted demonstrates that Sustainable Leadership and sustainable performance are related, findings which are also present in studies involving SMEs (Iqbal, Ahmad, Nasim, et al., 2020). There is a strong positive connection between SL and OC. By studying SL and OC, we found that positive associations exist between Transformational and ethical leadership and organizational commitment (Demirtas & Akdogan, 2015). The results of current research implied well with the results of (Muvida et al., 2023; Sari et al., 2023). Employees' level of commitment to their work is improved when the organization also stays committed. Additionally, studies pointed out that strong commitment to staff within an organization can advance workforce development by ensuring fair treatment, equitable compensation, training and personal twinning (Purwanto, 2020b). Dynamic capabilities theory complements NRBV by explaining how firms adapt, reconfigure, and integrate resources to respond to rapidly changing sustainability demands. From a DC perspective, sustainable leadership is an orchestration capability. According to the study, organization commitment helps link the relationship between SL and SP. According to Lee et al. (2018), organizational commitment plays a role in linking how well organizations perform sustainably with their level of corporate social responsibility (Lee et al., 2018). Similarly, our research is in line with the adoption of sustainable leadership practices acts as a strong indicator of an organization's commitment to sustainable development (Macke & Genari, 2019). The findings of the study are supported by the fact that OC indirectly affects corporate sustainability performance in Chinese companies (Wang et al., 2020). However, there is no such research in which organizational commitment mediates between SL and SP so doing research by taking organizational commitment as a mediator brought novelty in the domain of Sustainable leadership practices. It will also present knowledge on the 2030 Agenda for Sustainable Development which all United Nations members agreed upon in 2015. Next, the analysis confirmed that GOC as a moderator is significant. According to the analysis, the positive relationship between sustainable leadership and sustainable performance through OC is stronger at high levels of Green Organizational Culture which supports our moderated mediation. Our finding is supported by previous literature i.e Individuals who are happy and committed in

their jobs are dedicated to doing their work more efficiently (Lee et al., 2018; Riyanto & Panggabean, 2020). Further employees who work within green culture are also far more motivated to take environmental concerns seriously (Azhar & Yang, 2022).

6 Implications of the Study

6.1 Theoretical Contribution

This study contributed to theory by examining how a leader's sustainability connects with employees' commitment by studying sustainable performance through the moderated mediation of green organization culture and organizational commitment. Grounded on NRBV theory, findings suggest that SL and SL and GOC represent rare and inimitable resources that generate competitive sustainable advantage by fostering employee commitment toward sustainability. Simultaneously, Dynamic Capabilities (DC) perspective: While GOC facilitates the transformation and institutionalization of these practices, SL serves as a detecting and seizing capability, energizing OC to put sustainable intent into action. Many earlier studies have investigated sustainable leadership with other mediators like organizational learning (Iqbal, Ahmad, Nasim, et al., 2020), and frugal Innovation (Iqbal, Ahmad, & Halim, 2020) but this study provides new insight by testing OC as a mediator and GOC as a moderator. Sustainable leadership, on the other hand, is concerned with success of organization from both societal and organizational viewpoints (Avery & Bergsteiner, 2011). It points out that this research explores the role of organizational commitment as a mediator, as well as green organizational culture as a possible moderator in the relationship between SL and SP.

6.2 Managerial Implications

The findings of this study suggested that to increase the sustainable performance of the organization, the leaders should increase employees' organizational commitment and bring a green organizational culture in the organization. This alignment can lead to enhanced motivation, engagement, and effort directed towards achieving sustainable performance goals. This research envisaged the implementation of SL in a large social system. Organizations may encourage SL practices in their domains by providing sustainability-based visions and development objectives, encouraging a commitment of long-term, and enlisting staff participation. To support sustainable leadership practices, organizations should focus on developing capacity at both the organizational and social levels. Furthermore, this study is helpful for overall policymakers and manufacturing sector organizations like companies, corporations, and public ltd companies. The policymakers should introduce policies that are useful in promoting and achieving sustainable performance from economic, social, and environmental perspectives. Moreover, government needs to come up with a policy at the national level that not only supports but also incentivizes the adoption of a green organizational culture for promotion of sustainable performance in areas of environmental, social, and governance aspects. In totality, sustainable leadership, organizational commitment, and green organizational culture together can create a synergistic effect on achieving sustainable performance.

Organizations that effectively integrate these elements are in good position to drive sustainable practices in the organization.

6.3 Limitations and Future Research Directions

Despite the contribution, the findings of this research study are significant, yet like all other studies of social sciences, this research still poses some limitations that need to be considered. The 1st limitation of this study is that the data is collected from SME's, which may constrain in the generalizability of results. In future studies, data can be collected from different multinational corporations which have different governance and resource structures. Secondly, as the study was cross-sectional and there was less period, the interpretation of the study can be studied in depth by carrying out a longitudinal study. Longitudinal or experimental research would be very useful in this regard. Lastly, the data was collected through self-report, which may include the problem of common method bias. Future studies can use different statistical tests and multi-level or archival data can mitigate the issue of common method bias.

Though the current study contributes to the existing body of knowledge about sustainable performance in organizations by using NRBV and DC theory, in the future, integrating many other mediators and moderates i.e., green organization commitment, employees' engagement, absorptive capacity etc. The study has a novel contribution of OC; future studies can use multilevel research model, by introducing individual-level variable (like employee green identity) and on the organizational level (i.e., innovation), can contribute to sustainable performance.

7. Conclusion

This research provides evidence that sustainable leadership approaches are prevalent in certain organizations. In the discipline of sustainable development and leadership, sustainable leadership is a subject that is becoming more relevant and is also on the rise. Both practitioners and scholars are of the opinion that sustainable leadership is an independent idea that provides a significant contribution to the achievement of long-term success by any organization. According to Tan et al.'s research from 2020, businesses that wish to continuously enhance their operational performance must make it a priority to cultivate a leadership style that is sustainable (Tan et al., 2020). Responding to the demand, the current research offered convincing empirical data from a developing country-Pakistan. Based on NRBV theory, this research suggested that a sustainable leader increases commitment. Current research argued that organizational commitment plays a role in mediating the link between sustainable leadership and sustainable performance. Hence, the correlation between SL and SP indirectly supports the notion that practitioners may enhance sustainable performance by fostering organizational commitment and using green organizational culture as a moderator.

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REFERENCES

Abbas, J., & Dogan, E. (2022). The impacts of organizational green culture and corporate social responsibility on employees' responsible behaviour towards the society. *Environmental Science and Pollution Research, 29*(40), 60024-60034. https://doi.org/10.1007/s11356-022-20072-w

Abdul-Rashid, S. H., Sakundarini, N., Ariffin, R., & Ramayah, T. (2017). Drivers for the adoption of sustainable manufacturing practices: A Malaysia perspective. *International Journal of Precision Engineering and Manufacturing, 18*, 1619-1631. https://doi.org/10.1007/s12541-017-0191-4

Abduloh, O. A., Juhadi, A. S., Mohammad Syaifuddin, B. E., Winarto, N. A. W. A., Mubtadi, W., Adinugraha, A. P. H. H., & Masruri, M. N. A. (2020). Effect of organizational commitment toward economical, environmental, social performance and sustainability performance of Indonesian private universities. *PalArch's Journal of Archaeology of Egypt/Egyptology, 17*(7), 6951-6973.

Aggarwal, P., & Agarwala, T. (2025). Green organizational culture: An exploration of dimensions. *Global Business Review, 26*(4), 1103-1126. https://doi.org/10.1177/09721509211049890

Al-Hakimi, M. A., Al Koliby, I. S., Al-Swidi, A. K., Mehat, N. A. B., & Taleb, T. S. (2025). From quality to green innovation: the catalytic role of green organizational culture in TQM and green manufacturing practice. *International Journal of Innovation Science*, [accepted paper]. https://doi.org/10.1108/IJIS-02-2025-0064

Al-Hakimi, M. A., Al-Swidi, A. K., Gelaidan, H. M., & Mohammed, A. (2022). The influence of green manufacturing practices on the corporate sustainable performance of SMEs under the effect of green organizational culture: A moderated mediation analysis. *Journal of cleaner production, 376*, 134346. https://doi.org/10.1016/j.jclepro.2022.134346

Al-Zawahreh, A., Khasawneh, S., & Al-Jaradat, M. (2019). Green management practices in higher education: The status of sustainable leadership. *Tertiary Education and Management*, 25, 53-63. https://doi.org/10.1007/s11233-018-09014-9

Asmui, M. u., Mokhtar, N. M., Musa, N. D., & Hussin, A. (2016). The implementation of organizational green culture in higher educational institution. Regional Conference on Science, Technology and Social Sciences (RCSTSS 2014) Business and Social Sciences, https://doi.org/10.1007/978-981-10-1458-1_31

Avery, G. C., & Bergsteiner, H. (2011). Sustainable leadership practices for enhancing business resilience and performance. *Strategy & Leadership, 39*(3), 5-15. https://doi.org/10.1108/10878571111128766

Azhar, A., & Yang, K. (2022). Examining the influence of transformational leadership and green culture on pro-environmental behaviors: Empirical evidence from Florida city governments. *Review of Public Personnel Administration, 42*(4), 738-759. https://doi.org/10.1177/0734371X211027347

Brown, A. R., Walters, J. E., & Jones, A. E. (2019). Pathways to retention: Job satisfaction, burnout, & organizational commitment among social workers. *Journal of Evidence-Based Social Work, 16*(6), 577-594. https://doi.org/10.1080/26408066.2019.1658006

Burawat, P. (2019). The relationships among transformational leadership, sustainable leadership, lean manufacturing and sustainability performance in Thai SMEs manufacturing industry. *International Journal of Quality & Reliability Management, 36*(6), 1014-1036. https://doi.org/10.1108/IJQRM-09-2017-0178

Chandra, Y., Lee, E. K. M., & Tjiptono, F. (2021). Public versus private interest in social entrepreneurship: Can one serve two masters? *Journal of cleaner production, 280*, 124499. https://doi.org/10.1016/j.jclepro.2020.124499

Chen, H., Chiang, R. H., & Storey, V. C. (2012). Business intelligence and analytics: From big data to big impact. MIS quarterly, 1165-1188. https://doi.org/10.2307/41703503

Demirtas, O., & Akdogan, A. A. (2015). The effect of ethical leadership behavior on ethical climate, turnover intention, and affective commitment. *Journal of Business Ethics, 130*, 59-67. https://doi.org/10.1007/s10551-014-2196-6

Denison, D. R., & Mishra, A. K. (1995). Toward a theory of organizational culture and effectiveness. *Organization science, 6*(2), 204-223. https://doi.org/10.1287/orsc.6.2.204

Dyah Sawitri SE, M., Endang Suswati, S., & Khasbulloh Huda SE, M. (2016). The impact of job satisfaction, organization commitment, organization citizenship behavior (OCB) on employees' performance. *International Journal of Organizational Innovation (Online), 9*(2), 24.

Eliyana, A., & Ma'arif, S. (2019). Job satisfaction and organizational commitment effect in the transformational leadership towards employee performance. *European Research on Management and Business Economics, 25*(3), 144-150. https://doi.org/10.1016/j.iedeen.2019.05.001

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research, 18*(1), 39-50. https://doi.org/10.1177/002224378101800104

Gerard, L., McMillan, J., & D'Annunzio-Green, N. (2017). Conceptualising sustainable leadership. *Industrial and Commercial Training, 49*(3), 116-126. https://doi.org/10.1108/ICT-12-2016-0079

Ghazilla, R. A. R., Sakundarini, N., Abdul-Rashid, S. H., Ayub, N. S., Olugu, E. U., & Musa, S. N. (2015). Drivers and barriers analysis for green manufacturing practices in Malaysian SMEs: a preliminary findings. *Procedia Cirp, 26*, 658-663. https://doi.org/10.1016/j.procir.2015.02.085

Gürlek, M., & Tuna, M. (2018). Reinforcing competitive advantage through green organizational culture and green innovation. *The service industries journal, 38*(7-8), 467-491. https://doi.org/10.1080/02642069.2017.1402889

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long range planning, 46*(1-2), 1-12. https://doi.org/10.1016/j.lrp.2013.01.001

Hallinger, P., & Suriyankietkaew, S. (2018). Science mapping of the knowledge base on sustainable leadership, 1990-2018. *Sustainability, 10*(12), 4846. https://doi.org/10.3390/su10124846

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of management review, 9*(2), 193-206. https://doi.org/10.2307/258434

Han, Z., Wang, Q., & Yan, X. (2019). How responsible leadership predicts organizational citizenship behavior for the environment in China. *Leadership & Organization Development Journal, 40*(3), 305-318. https://doi.org/10.1108/LODJ-07-2018-0256

Haque, A., Fernando, M., & Caputi, P. (2019). The relationship between responsible leadership and organisational commitment and the mediating effect of employee turnover intentions: An empirical study with Australian employees. *Journal of Business Ethics, 156*, 759-774. https://doi.org/10.1007/s10551-017-3575-6

Henseler, J., & Fassott, G. (2009). Testing moderating effects in PLS path models: An illustration of available procedures. In Handbook of partial least squares: Concepts, methods and applications (pp. 713-735). Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-540-32827-8_31

Iqbal, A. (2015). Employment and organizational commitment in Pakistani organizations. *Global Journal of Human Resource Management, 3*(1), 1–11.

Iqbal, Q., & Ahmad, N. H. (2021). Sustainable development: The colors of sustainable leadership in learning organization. *Sustainable Development, 29*(1), 108-119. https://doi.org/10.1002/sd.2135

Iqbal, Q., Ahmad, N. H., & Halim, H. A. (2020). How does sustainable leadership influence sustainable performance? Empirical evidence from selected ASEAN countries. *Sage Open, 10*(4), 2158244020969394. https://doi.org/10.1177/2158244020969394

Iqbal, Q., Ahmad, N. H., Nasim, A., & Khan, S. A. R. (2020). A moderated-mediation analysis of psychological empowerment: Sustainable leadership and sustainable performance. *Journal of cleaner production, 262*, 121429. https://doi.org/10.1016/j.jclepro.2020.121429

Iqbal, Q., & Hassan, S. H. (2018). Green management matters: green human resource management as blue ocean strategy. Firms' Strategic Decisions. *Theoretical and Empirical Findings, 3*, 214-236. https://doi.org/10.2174/9781681086255118030014

Jabbour, C. J. C., & de Sousa Jabbour, A. B. L. (2016). Green human resource management and green supply chain management: Linking two emerging agendas. *Journal of cleaner production, 112*, 1824-1833. https://doi.org/10.1016/j.jclepro.2015.01.052

Kantabutra, S., & Avery, G. (2013). Sustainable leadership: Honeybee practices at a leading Asian industrial conglomerate. *Asia-Pacific Journal of Business Administration, 5*(1), 36-56. https://doi.org/10.1108/17574321311304521

Kartika, H., Norita, D., Triana, N. E., Roswandi, I., Rahim, A., Naro, A., . . . Suprihatiningsih, W. (2020). Six sigma benefit for Indonesian pharmaceutical industries performance: a quantitative methods approach. *Systematic Reviews in Pharmacy, 11*(9), 466-473.

Khan, E. A., & Quaddus, M. (2015). Development and validation of a scale for measuring sustainability factors of informal microenterprises-A qualitative and quantitative approach. *Entrepreneurship Research Journal, 5*(4), 347-372. https://doi.org/10.1515/erj-2014-0017

Knudsen, E. S., Lien, L. B., Timmermans, B., Belik, I., & Pandey, S. (2021). Stability in turbulent times? The effect of digitalization on the sustainability of competitive advantage. *Journal of Business Research, 128*, 360-369. https://doi.org/10.1016/j.jbusres.2021.02.008

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement, 30*(3), 607-610. https://doi.org/10.1177/001316447003000308

Lee, C.-C., Wang, C.-W., & Ho, S.-J. (2022). The dimension of green economy: Culture viewpoint. *Economic Analysis and Policy, 74,* 122-138. https://doi.org/10.1016/j.eap.2022.01.015

Lee, J. W., Kim, Y. M., & Kim, Y. E. (2018). Antecedents of adopting corporate environmental responsibility and green practices. *Journal of business ethics, 148*, 397-409. https://doi.org/10.1007/s10551-016-3024-y

Lee, J. Y., Park, S., & Baker, R. (2018). The moderating role of top management support on employees' attitudes in response to human resource development efforts. *Journal of Management & Organization, 24*(3), 369-387. https://doi.org/10.1017/jmo.2017.37

Liao, Y. (2022). Sustainable leadership: A literature review and prospects for future research. *Frontiers in Psychology, 13*, 1045570. https://doi.org/10.3389/fpsyg.2022.1045570

Lok, P., & Crawford, J. (2004). The effect of organisational culture and leadership style on job satisfaction and organisational commitment: A cross-national comparison. *Journal of management development, 23*(4), 321-338. https://doi.org/10.1108/02621710410529785

Lopes de Sousa Jabbour, A. B., Vazquez-Brust, D., Chiappetta Jabbour, C. J., & Andriani Ribeiro, D. (2020). The interplay between stakeholders, resources and capabilities in climate change strategy: converting barriers into cooperation. *Business Strategy and the Environment, 29*(3), 1362-1386. https://doi.org/10.1002/bse.2438

Macke, J., & Genari, D. (2019). Systematic literature review on sustainable human resource management. *Journal of cleaner production, 208*, 806-815. https://doi.org/10.1016/j.jclepro.2018.10.091

Mariappanadar, S. (2018). The impact of dissonance in schema based leadership perceptions on employee engagement: Evidence from Australia. *Personnel Review, 47*(7), 1309-1329. https://doi.org/10.1108/PR-03-2017-0081

Martín-de Castro, G., Amores-Salvadó, J., & Navas-López, J. E. (2016). Environmental management systems and firm performance: Improving firm environmental policy through stakeholder engagement. *Corporate social responsibility and Environmental Management, 23*(4), 243-256. https://doi.org/10.1002/csr.1377

McCann, J. T., & Holt, R. A. (2010a). Defining sustainable leadership. *International Journal of Sustainable Strategic Management, 2*(2), 204-210. https://doi.org/10.1504/IJSSM.2010.032561

Mensah, J. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. *Cogent social sciences, 5*(1), 1653531. https://doi.org/10.1080/23311886.2019.1653531

Mohd Adnan, S. N. S., & Valliappan, R. (2019). Communicating shared vision and leadership styles towards enhancing performance. *International Journal of Productivity and Performance Management, 68*(6), 1042-1056. https://doi.org/10.1108/IJPPM-05-2018-0183

Mowday, R. T., Porter, L. W., & Steers, R. M. (1982). Employee-organization linkages. The psychology of commitment, absenteeism, and turnover. New York: Academic Press. https://doi.org/10.1016/B978-0-12-509370-5.50005-8

Muvida, S. I., Yuliati, U., & Irawati, S. (2023). The Influence of Organizational Culture on Employee Performance with Organizational Commitment as Mediation Variable.

Jamanika. *Jurnal Manajemen Bisnis dan Kewirausahaan, 3*(02), 177-185. https://doi.org/10.22219/jamanika.v3i02.27374

Nazir, S., Khadim, S., & Syed, N. (2025). Go where the winners go-examining the impact of sustainable leadership on firms' sustainable performance through mediation and moderation analysis. Management *Research Review, 48*(7), 1015-1042. https://doi.org/10.1108/MRR-04-2024-0288

Ng, R., Low, J. S. C., & Song, B. (2015). Integrating and implementing Lean and Green practices based on proposition of Carbon-Value Efficiency metric. *Journal of cleaner production, 95*, 242-255. https://doi.org/10.1016/j.jclepro.2015.02.043

Nisha, N. T., Nawaz, N., Mahalakshmi, J., Gajenderan, V., & Hasani, I. (2022). A Study on the Impact of Sustainable Leadership and Core Competencies on Sustainable Competitive Advantage in the Information Technology (IT) Sector. *Sustainability, 14*(11), 6899. https://doi.org/10.3390/su14116899

Nugroho, B. S., Suheri, Hakim, L., Irawan, B., Sugeng Sholehuddin, M., Ibrahim, T., Ridlwan, M., Hidayati, L., Aji, G., Mufid, A., Ihsan, N., Purwanto, A., & Fahlevi, M. (2020). Exchange (LMX) and Organizational Citizenship Behavior (OCB) to Indonesian Lectures' Performance. *Systematic Reviews in Pharmacy, 11*(9), 507-516.

Nunnally, J., & Bernstein, I. (1994). The Assessment of Reliability. Psychometric Theory. Evaluation Review, 21(5), 614-635.

Nureen, N., Xin, Y., Irfan, M., & Fahad, S. (2023). Going green: how do green supply chain management and green training influence firm performance? Evidence from a developing country. *Environmental Science and Pollution Research, 30*(20), 57448-57459. https://doi.org/10.1007/s11356-023-26609-x

Pham, N. T., Tučková, Z., & Jabbour, C. J. C. (2019). Greening the hospitality industry: How do green human resource management practices influence organizational citizenship behavior in hotels? A mixed-methods study. *Tourism management, 72*, 386-399. https://doi.org/10.1016/j.tourman.2018.12.008

Piwowar-Sulej, K., Krzywonos, M., & Kwil, I. (2021). Environmental entrepreneurship-Bibliometric and content analysis of the subject literature based on H-Core. *Journal of cleaner production, 295*, 126277. https://doi.org/10.1016/j.jclepro.2021.126277

Purwanto, A. (2020a). Democratic, Autocratic, Bureaucratic and Charismatic Leadership Style: Which Influence School Teachers Performance in Education 4.0 Era? *Systematic Reviews in Pharmacy, 11*(9), 277-286.

Purwanto, A. (2020b). Effect of organizational citizenship behavior, work satisfaction and organizational commitment toward Indonesian school performance. *Systematic Reviews in Pharmacy, 11*(9), 962-971.

Ringle, C., Da Silva, D., & Bido, D. (2014). Structural equation modeling with the SmartPLS. *Brazilian Journal of Marketing, 13*(2). https://doi.org/10.5585/remark.v13i2.2717

Riyanto, S., & Panggabean, M. (2020). The impact of leadership, organizational culture and organizational climate on employee job satisfaction (Case Study: PT Garuda Indonesia (Persero) Tbk) [Paperpresentation]. . 4th International Conference on Management, Economics and Business (ICMEB2019), Jakarta, Indonesia. https://doi.org/10.2991/aebmr.k.200205.007

Roscoe, S., Subramanian, N., Jabbour, C. J., & Chong, T. (2019). Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development. *Business Strategy and the Environment, 28*(5), 737-749. https://doi.org/10.1002/bse.2277

Sari, V. N., Hady, H., & Elfiswandi, E. (2023). The Influence of Organizational Culture and HR Competency on Employee Commitment and Their Impact on Organizational Performance. *International Journal of Social Science and Business, 7*(2), 287-295. https://doi.org/10.23887/ijssb.v7i2.51921

Schein, E. H. (1984). Culture as an environmental context for careers. *Journal of Organizational Behavior, 5*(1), 71-81. https://doi.org/10.1002/job.4030050107

Shriberg, M., & MacDonald, L. (2013). Sustainability leadership programs: Emerging goals, methods & best practices. *Journal of Sustainability Education, 5*(1), 1-21.

Shrivastava, P. (1995). The role of corporations in achieving ecological sustainability. *Academy of management review, 20*(4), 936-960. https://doi.org/10.2307/258961

Sifat, R. I. (2019). Role of leadership for achieving sustainable development goals. *GIS Business, 14*. 12-13 https://doi.org/10.26643/gis.v14i3.1944

Stoddart, H. (2011). A pocket guide to sustainable development governance. Common wealth Secretariat: Stakeholder Forum. 25-29

Tan, Y., Shuai, C., Shen, L., Hou, L., & Zhang, G. (2020). A study of sustainable practices in the sustainability leadership of international contractors. *Sustainable Development, 28*(4), 697-710. https://doi.org/10.1002/sd.2020

Tsai, K. H., Huang, C. T., & Chen, Z. H. (2020). Understanding variation in the relationship between environmental management practices and firm performance across studies: A meta-analytic review. *Business Strategy and the Environment, 29*(2), 547-565. https://doi.org/10.1002/bse.2386

Tsalis, T. A., Malamateniou, K. E., Koulouriotis, D., & Nikolaou, I. E. (2020). New challenges for corporate sustainability reporting: United Nations' 2030 Agenda for sustainable development and the sustainable development goals. *Corporate Social*

Responsibility and Environmental Management, 27(4), 1617-1629. https://doi.org/10.1002/csr.1910

Wang, C.-H. (2019). How organizational green culture influences green performance and competitive advantage: The mediating role of green innovation. *Journal of Manufacturing Technology Management, 30*(4), 666-683. https://doi.org/10.1108/JMTM-09-2018-0314

Wang, X., Lin, H., & Tian, M. (2020). Corporate sustainability performance of Chinese firms: An empirical analysis from a social responsibility perspective. *Emerging Markets Finance and Trade, 56*(9), 2027-2038. https://doi.org/10.1080/1540496X.2019.1608522

Wang, Y., Zhang, S., & Xu, S. (2022). Impact of Efficient Resource Management Practices on Sustainable Performance: Moderating Role of Innovative Culture-Evidence from Oil and Gas Firms. *Frontiers in Psychology, 13*, 938247. https://doi.org/10.3389/fpsyg.2022.938247

Wong, C. Y., Wong, C. W., & Boon-itt, S. (2020). Effects of green supply chain integration and green innovation on environmental and cost performance. *International Journal of Production Research, 58*(15), 4589-4609. https://doi.org/10.1080/00207543.2020.1756510

Wu, C.-M., & Chen, T.-J. (2018). Collective psychological capital: Linking shared leadership, organizational commitment, and creativity. *International journal of hospitality management, 74*, 75-84. https://doi.org/10.1016/j.ijhm.2018.02.003

Yue, X., Feng, Y., & Ye, Y. (2021). A Model of Sustainable Leadership for Leaders in Double First-Class Universities in China. *International Journal of Higher Education, 10*(3), 187-201. https://doi.org/10.5430/ijhe.v10n3p187

Fang, L., Shi, S., Gao, J., & Li, X. (2022). The mediating role of green innovation and green culture in the relationship between green human resource management and environmental performance. PLOS one, 17(9), e0274820. https://doi.org/10.1371/journal.pone.0274820

Dominic, E., & Salim, M. (2018). A study on the role of organizational commitment and perception towards organizational justice and fairness in triggering organizational citizenship behavior among b school faculty members in Kerala. Rajagiri Management Journal, 12(1), 23-42.