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Unleashing the role of greenwashing in the relationship of environmental sustainability thoughts and environmental performance: exploring the importance of generative leadership

Zahid Yousaf[1] · Maria Palazzo[2] · Magdalena Radulescu[3,4] · Asad Javed[5]

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Abstract
The purpose of this paper is to explore the existing relationships among greenwashing, thoughts on environmental sustainability, environmental performance, and generative leadership. Data from 575 small- and medium-sized enterprises (SMEs) from Saudi Arabia were used to test research hypotheses. By using a questionnaire, the results were derived through random sampling, indicating that the findings could be helpful for future research in this field. This study demonstrates how firms can become more efficient and improve their environmental performance through environment sustainable thoughts. However, greenwashing is expected to negatively influence the relationship of environment sustainable thoughts and environmental performance. Furthermore, the study examines the mediating roles of greenwashing and generative leadership in the relationship between environmental sustainability thoughts and environmental performance. The findings may be helpful for managers who want to run their companies sustainably since they need to understand the role of greenwashing and creative leadership. In fact, generative leadership within an organization increase the likelihood of promoting environmental performance, whereas greenwashing negatively contributes to improving environmental performance. The perspective adopted in this paper is consistent with previous theoretical studies and emphasizes attractive trends in environmental-friendly businesses. Similarly, the research offers insights into the sustainability realm, bridging various factors to provide a broader understanding and in-depth analysis of how greenwashing and generative leadership affect each dimension of sustainability and environmental performance of companies.

Keywords Environmental sustainability thoughts · Greenwashing · Generative leadership · Environmental performance · Small- and medium-sized enterprises (SMEs)

1 Introduction

In the contemporary literature, sustainable use and environmental sustainability performance are mainly examined by small and medium businesses rather than larger organizations, whereas SMEs (small- and medium-sized enterprises) jointly contribute to a large

Extended author information available on the last page of the article

share of ecological impacts from numerous commercial activities/processes and remain underexplored in the scholarly literature (Das et al., 2020; Ögmundarson et al., 2020). Sustainable environmental practices are developed through the development of internal capabilities and a green culture that promotes high environmental performance (EP) (Abbas & Khan, 2022; Pullman et al., 2009). Despite this, businesses across different industries and locations have been compelled to engage in green practices due to societal and stakeholder pressures (Konar & Cohen, 2001; Lin et al., 2021; Rasheed, 2022). Many businesses primarily rely on tangible natural resources to address environmental sustainability issues (Vezzoli & Manzini, 2008; Yahya et al., 2021). The previous research has demonstrated that all employees across functional levels in SMEs have a significant impact on environmental outcomes (Alraja et al., 2022; Ilinitch et al., 1998; Rasool et al., 2021); however, the vital role of thoughts on environmental sustainability has not been recognized yet. Due to the underperformance of employee competencies and motivation, SMEs have been largely unable to address the complex challenges associated with environmental sustainability performance (Mankoff et al., 2007; Zahoor & Gerged, 2021). In this study, we explore the impact of environmental sustainability thoughts (EST) on the intention of achieving environmental performance (EP) from diverse perspectives.

In the face of intense competition, businesses are compelled to continuously set themselves apart from their competitors (Ellitan, 2020). A variety of drivers compels firms to strive toward better environmental practices. Among these are regulatory compliance obligations (Dupraz & Guyomard, 2019), cost saving measures (Kularatne et al., 2019), risk management priorities (Alzoubi et al., 2020), a push for competitive advantage (Zameer et al., 2020), the demands of stakeholders (Stocker et al., 2020), and the need for market access and funding opportunities (Maltais & Nykvist, 2020). As a solution to environmental concerns, firms are increasingly turning to green initiatives as a way to achieve differentiation (Bager & Lambin, 2020). This is due to the growing recognition that they have an environmental responsibility, as consumers and other stakeholders place greater importance on corporate environmental performance (Alsayegh et al., 2020). Furthermore, in order to achieve sustainability, businesses have been pushed to adopt environmentally friendly practices and strategies (Singh et al., 2022; Sumrin et al., 2021). To capitalize on this trend, some firms use advertising messages that prominently feature environmentally friendly syntax and context (Szabo & Webster, 2021). However, some organizations started practicing concepts like greenwashing (GW), a deceptive marketing tactic used to mislead consumers into believing that a product or service is environmentally friendly when it is not (Mangini et al., 2020; Szabo & Webster, 2021; Tarabieh, 2021). Greenwashing can have serious negative effects on consumers and businesses (Ioannou et al., 2022). Greenwashing can cause consumers to become confused, doubtful, and suspicious of environmental promises (Tarabieh, 2021). This can make it challenging for customers to decide on purchases with knowledge and can damage the credibility of genuine eco-friendly goods and services (Dragomir & Dragomir, 2020). On the other hand, greenwashing can have negative effects on a company's reputation as well as social, environmental, and ecological implications (Gatti et al., 2019). Companies that make inaccurate or deceptive environmental claims risk legal action from consumer protection organizations, bad press, and a loss of customer confidence (Tarabieh, 2021). This may result in a drop in sales and a tarnished brand reputation, both of which can be challenging to repair (Santos et al., 2023). Although there has been substantial development in the understanding and assessment of greenwashing, little is known about management views how it effects in the relationship of environmental sustainability thoughts and environmental performance. The literature evidenced that there have been major contributions and breakthroughs in the field of green marketing;

however, more research is still required to fully comprehend how greenwashing affects the aforesaid variables and their relationship. The existing literature linked negative impact of greenwashing on purchase intent (Nguyen et al., 2019; Tarabieh, 2021), green confusion and green brand (Qayyum et al., 2022), capability reputation (Ioannou et al., 2022), employees value orientation (Tahir et al., 2020), market consumption (Arouri et al., 2021), job performance (Li et al., 2022), financial performance (Li et al., 2023), organizational credibility (Kassinis et al., 2022), and green innovation (Zhang, 2022). Furthermore, the direct link of greenwashing with environmental performance has been studied and proved, however, has not gotten enough study attention to its indirect impact in the relationship of environmental sustainability thoughts and environmental performance and only a few studies that evaluated the impact of greenwashing on the environmental performance of SMEs, especially in a developing and non-Western countries. This empirical and evidence gap will be addressed by the current research by evaluating the moderating role of GW in the relationship between EST and EP for SMEs.

In recent years, environmental sustainability has grown in importance for businesses (Cai et al., 2020; Yong et al., 2020). Stakeholders are starting to demand more accountability from corporations to move toward sustainability as the negative effects of climate change and other environmental problems become more obvious (Baumüller & Sopp, 2022; Lashitew, 2021; Stahl et al., 2020). As a result, businesses are looking for ways to incorporate environmentally friendly practices into their daily operations in order to enhance their EP (Al-Swidi et al., 2021; Gilal et al., 2019; Roscoe et al., 2019). Although many studies have looked at the connection between EP and EST, not much is known about the variables that moderate this connection. Thus, there is an empirical gap that exists in the literature. One potential mediator that has not gotten much attention in the literature is generative leadership (GL), a style of leadership characterized by the capacity to generate new options and perspectives. In the existing literature, leaders are increasingly recognizing the importance of integrating sustainability into their decision-making processes. GL, characterized by its ability to create new possibilities and perspectives, is a critical leadership style for organizations looking to develop long-term, sustainable strategies (Maczux, 2012). It further increased awareness of sustainability issues that influence leaders' decision-making processes. At the same time, environmentally sustainable thoughts lead to the development of new perspectives and innovative solutions to environmental challenges (Begum et al., 2022a, 2022b). Furthermore, environmental sustainability thinking motivates leaders to embrace change and act toward more sustainable practices thus enhancing the EP. There are limited studies that studied the proposed links. This literature gap will be addressed by the current study by exploring the mediating role of GL in the relationship of EST and EP.

The current study envisages a vague situation concerning to this relationship by the research questions including How do environmental sustainability thoughts directly affect EP?, Do GW moderate the linkage between environmental sustainability thoughts and EP?, What is the effect of environmental sustainability thoughts on GL?, How does GL influence EP?, and Is the relationship between environmental sustainability thoughts and EP is mediated by GL?

The study contributes to the existing literature by adding valuable insights. The study can be utilized by the management and practitioners to enhance their SMEs environmental performance. The study suggested them that greenwashing can have serious negative effects on environmental performance. Greenwashing can cause consumers to become confused, doubtful, and suspicious of environmental promises and at the same time it can reduce the overall impact of environmental sustainability thoughts on EP. Therefore,

managers and practitioners should avoid GW, develop generative leadership, integrating sustainability objectives into business strategy by avoiding GW to increase their EP. In this way, they can accomplish a more sustainable future for the earth and themselves by doing this.

The paper is presented in the following order. Section 2 shows the literature review, and the next section presents the methodology. Section 4 consists of a discussion, limitations, and future research and the last section includes data analysis and results.

2 Literature review and hypotheses development

The following section describe the process of hypothesis development:

2.1 Environmental sustainability thoughts and EP

Research has been conducted globally on the link between environmental sustainability and EP, yielding a range of interesting findings (Delmas et al., 2010; Repar et al., 2017). However, there is still no consensus on the relationship between these concepts. According to Kassinis and Soteriou (2015) and Hang et al., (2022), environmental sustainability is positively linked to organizational performance, as measured by customer satisfaction. When assessing environmental sustainability, Zhang et al. (2008) and Rehman et al. (2023) recommend that organizations put paying emission costs ahead of adopting eco-friendly behaviors. In the tourism sector, Molina-Azorin et al. (2009) discovered a link between environmental sustainability and EP, indicating that businesses that prioritized sustainability outperformed their competitors. Le and Ikram (2022) and Tang et al. (2018) also found a positive relationship between environmentally friendly sustainability and various aspects of corporate performance. Consequently, environmental sustainability practices are a good way for an organization to reduce production costs, enhance its reputation, and contribute to its environmental performance (Delmas & Blass, 2010; Repar et al., 2017; Zhang et al., 2022). As a result, a preliminary hypothesis can be formulated:

H1 Environmental sustainability thoughts and EP are positively interrelated.

2.2 Environmental sustainability thoughts and generative leadership

The pressure to reduce organizations' environmental impact is causing them to become more aware of the importance of environmental sustainability (Ahmed et al., 2022). Creating a culture of sustainability through leadership is one way to improve organizational environmental sustainability (Al-Swidi et al., 2021). Thus, the GL style emerged to cope with such situations. GL is a leadership style that focuses on creating a positive and inclusive work environment. The literature suggests that environmental sustainability thoughts have a positive impact on GL (Mel'Nichuk Marina, 2019). According to a study by Begum et al., (2022a, 2022b), environmental sustainability thoughts positively impact leadership behavior related to sustainability. Study results found that leaders with strong commitments to environmental sustainability are more likely to reduce waste and energy consumption and engage in sustainable behaviors. Another study by Raab et al. (2018) found that environmental sustainability thoughts positively impact the adoption of sustainable practices in

organizations. According to the study, employees who have a positive attitude toward environmental sustainability are more likely to adopt sustainable practices at work. According to a study by Zhang et al. (2021), leaders who have a strong environmental identity are more likely to engage in sustainable behaviors and create a culture of sustainability in the workplace, thus supporting the argument of the study. Similarly, a study by Domínguez-Escrig et al. (2019) found that environmental sustainability thoughts positively impact the adoption of GL behaviors related to sustainability. It has been found that leaders who are positive toward environmental sustainability are more likely to implement sustainable practices and encourage sustainability within their organizations (Adams et al., 2021). Based on these findings and previous research, it is proposed that:

H2 There is a positive relationship between thoughts on environmental sustainability and generative leadership.

2.3 Generative leadership and environmental performance

Leadership plays a vital role in promoting environmental sustainability within an organization. Recently, the role of GL has been increasingly discussed regarding improving EP as their style of leadership encourages a culture of collaboration, innovation, and creativity. In this leadership style, employees are encouraged to explore new ideas, take risks, and work together to solve complex problems. In the existing literature, several studies have explored the impact of GL on EP. In one study, Castillo and Trinh (2019) discovered that GL improved EP in the manufacturing sector. The study discovered that GL supported staff members' participation in eco-friendly activities like waste minimization and energy conservation. Another study by Sotarauta (2015) found that GL had a positive impact on environmental innovation in Chinese manufacturing firms. In the study, it was found that GL employees were encouraged to think creatively and develop innovative solutions to environmental issues. A study by Rogers et al. (2000) explored the impact of GL on EP in the hospitality industry. The study found that GL had a positive impact on EP by encouraging employees to engage in sustainable practices such as reducing energy consumption and waste. According to a study by Surie and Hazy (2006), GL positively impacts environmental sustainability in organizations. It was found that leaders who create a culture of sustainability in the workplace are more likely to increase the uptake of sustainable practices. Overall, the GL approach has a positive effect on EP since it encourages employees to adopt sustainable practices and develop innovative solutions. Organizations that adopt GL can benefit from improved EP, reduced costs, increased efficiency, and enhanced reputation with stakeholders. Based on the aforementioned considerations and previous research, the hypothesis is suggested as:

H3 Generative leadership and environmental performance are positively interrelated.

2.4 The moderating role of greenwashing

The practice of greenwashing involves businesses faking their environmental friendliness in order to promote their goods, practices, or goals (Kaur et al., 2023). Greenwashing more explicitly refers to the selective disclosure of favorable information regarding a company's environmental or social performance while omitting negative information on the same dimensions in the context of environmental conservation (Zhang, 2023). Essentially,

greenwashing is when a business presents itself as ecologically beneficial while actually harming the environment underneath.

A company's intents and guiding principles with regard to its overall environmental performance are stated in its environmental policies, which provide a set of environmental objectives and targets (Asiaei et al., 2022; Ramus & Montiel, 2005) for achieving ES. SMEs that are dedicated to ES, they work to implement wholesome and sensible methods and policies in order to achieve it. Because some businesses successfully manage their environmental consequences through self-regulation, regulatory action is not necessary (Holliday et al., 2002; Onah et al., 2022). This may have advantages, but it may not always work. While industry sectors may not differ much in their adherence to certain environmental policies, only cutting-edge businesses in the sector actually put those principles into practice proactively (Perifanis et al., 2023; Ramus & Montiel, 2005). The other may practice greenwashing to protect themselves as companies are more likely to use greenwashing when they fail to translate policies into practical execution. Greenwashing businesses typically do poorly in terms of the EP and are less likely to adhere to their environmental standards (Heras-Saizarbitoria et al., 2020). When we consider the role of greenwashing in the relationship of EST and EP, GW is more likely to dampens the said relationship as SMEs declare its support for environmental protection does not imply that it would implement environmentally friendly practices and policies (Dzikriansyah et al., 2023; Ramus & Montiel, 2005; Winn & Angell, 2000). Making environmental claims or utilizing green marketing lingo alone is not the same as engaging in green activities. This is because greenwashing firms are less likely to implement environmental policies effectively and tend to have worse EP. Based on these arguments, the hypothesis formulated is:

H4 The relationship between environmental sustainability and environmental performance is moderated by greenwashing.

2.5 Mediating role of generative leadership

According to some researchers, such as Scharmer and Kaufer (2013), GL is a leadership style that emphasizes the creation of a future that is better than the present. In this style, opportunities are created, innovation is fostered, and people and organizations are empowered to meet the challenges of the future. Generative leaders are proactive, forward-thinking, and focused on creating a vision for the future and then working to make that vision a reality (Scharmer & Kaufer, 2013). They are also known for their ability to inspire and motivate others, and to create a sense of shared purpose among team members. Additionally, generative leaders create an environment conducive to learning and growth, and they support their team members in developing their skills and capabilities to succeed (Scharmer & Kaufer, 2013). GL is considered to be especially significant in today's quickly evolving and uncertain environment since it can assist organizations in adapting and addressing these issues (Wilkinson, 2006). This can be achieved by fostering creativity, experimentation, and learning, and by building a culture of resilience and adaptability. In contrast to traditional forms of leadership, which often focus on short-term objectives, GL is focused on creating a better future for the organization and society.

According to Silsbee (2008), GL has become essential in modern businesses, particularly as there is a growing emphasis on sustainable business practices and a move away from corporate greed. The challenges facing organizations today are complex and global and include issues such as climate change, social disruption, and resource depletion.

Environmental sustainable thoughts alone cannot tackle these challenges; therefore, businesses require GL to balance short-term and long-term goals and create value for diverse stakeholders. These studies suggest that transformational leadership can play a mediating role in the relationship between environmental sustainability and performance, by strengthening the positive impact of environmental management practices and promoting environmental innovation. It is plausible that GL, which shares some similarities with transformational leadership, could also act as a mediator in this relationship. Thus, in the context of the current study, GL acts as a mediator in the relationship between environmental sustainable thoughts and EP.

Thus, in the context of the current study, GL acts as a mediator in the relationship between environmental sustainable thoughts and EP.

H5 The relationship between environmental sustainable thoughts and environmental sustainability is mediated by generative leadership.

Figure 1 sets a theoretical framework based on research hypotheses.

3 Methodology

In this study, we used a qualitative method for data collection. SMEs that were registered with the Saudi Arabian General Investment Authority (SAGIA), Chambers of Commerce and Industry, and the Ministry of Commerce and Investment were selected to collect the data. It helped researchers in getting additional information like the size, sector, and location of the SMEs. The study approaches SMEs in manufacturing, services, and energy and mining sectors were selected for the current research. A total of 30 (10 from each sector) were selected and approached by research associates to know their volunteers to participate in our research. Following the work of Nurunnabi (2020), data were collected from Riyadh, Makkah, and Eastern Region. The data were collected from aforementioned regions as these are among the biggest states in the country. Furthermore, the sectors which were focused on in the current study were present in these regions. One of the research assistants personally visits those SMEs to take appointments on specific dates, day, and timing for

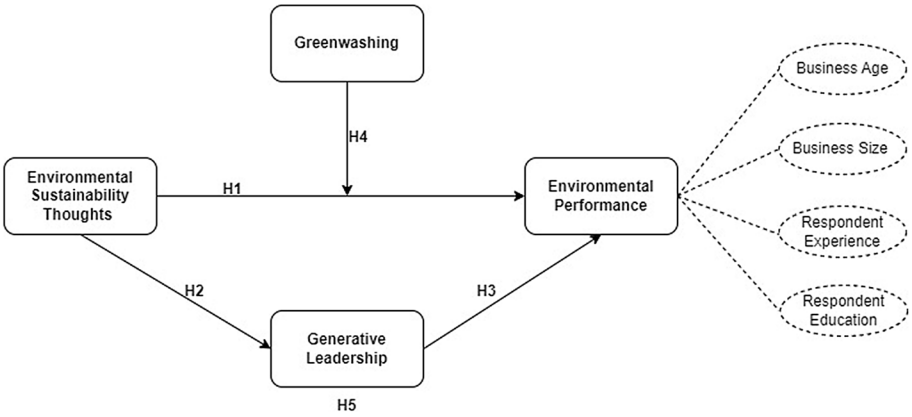

Fig. 1 Conceptual framework

questionnaire fulfillment on the spot from all triads such as the CEO, owner, senior managers, and HR managers. Following the recommendations of Harrington, Clark, and Miller (2013), the sample size for the current study involving testing a mediation model was estimated to be equal to or greater than 450. However, as there is low response rate in academic researcher, the concept of oversampling proposed by Fink (1995) and also indorsed Salkind (1997) was also utilized. Resultingly, we selected 500 respondents including the CEO, human resource manager, senior manager, senior employees, and owners who fulfilled the questionnaires on spot and returned back to us on the same day. The selected respondents filled out survey questionnaires on environmental sustainability thoughts, GW, GL, and EP respectively. Out of 500, 461 responses were complete in all respects and were used for the current research. Response rate for the study was 92%. Total data were collected within one and a half months from all SMEs' respondents. Questionnaire items were checked by three academic experts before their distribution to test their validity and reliability. The questionnaire was divided into two sections. In Sect. 1 all demographic variables such as age, experience, and education are mentioned and Sect. 2 contains the detail of the study items (see Appendix).

3.1 Measurements

For the measurement of environmental sustainability thoughts (independent variable), GW (moderating variable), and EP (dependent variable), prior study items were adapted. To measure the responses, items validity five-point Likert scale where 0 = strongly disagree and 4 = strongly agree was used.

3.1.1 Environmental sustainability thoughts

Environmental sustainability thoughts were measured through a 7-item scale adapted from Şahin and Erkal (2017).

3.1.2 Greenwashing

For the measurement of GW, a 5-item scale was adapted from Zhang et al. (2018).

3.1.3 Environmental performance

EP is measured through a 4-item scales adapted from Singh et al, (2020).

3.1.4 Generative leadership

GL was measured using the scale developed by Alma Çallı et al. (2022). Eighteen items with factor loading value greater than 0.7 were used in the current study.

4 Data analysis

Results are discussed below:

4.1 Discriminant validity

Statistical Package for the Social Sciences (SPSS v23.0) was used in this study. According to Fornell and Larcker (1981), the method was applied to test the discriminant validity. Table 1 shows the reliability, validity, and average variance extracted. Table 1 demonstrates that all the values met the established criteria, with composite reliability and average variance extract exceeding the cutoff points. Specifically, the composite reliability (CR) > 0.70, the average variance extracted (AVE) > 0.50, and the CR values were greater than the average variance extracted. Moreover, Cronbach's alpha > 0.70.

Table 2 shows the confirmatory factor analysis (CFA). Using analysis of a moment structures (AMOS), the CFA technique was used to the abstract scale of validity of the constructs of this research. The fit keys, $\chi^2 = 1167.21$, Df = 431, $\chi^2/df = 2.70$, CFI = 0.91, GFI = 0.92, RMSEA = 0.04, proved the fitness of our model.

4.2 Descriptive statistics

The results of the mean, standard deviation (SD), alpha, and correlation are presented in Table 3. Results proved environmental sustainability thoughts (EST), greenwashing (GW), generative leadership (GL), and environmental performance (EP). GW is significantly associated with EST ($r = 0.215$**, p-value = Significant). EP has a positive and significant association with EST ($r = 0.313$**, p value = Significant), and GW ($r = 0.315$**, p value = Significant). GL has positive and significant association with EP ($r = 0.23$**, p value = Significant), GW ($r = 0.331$**, p value = Significant), and EP ($r = 0.41$**, p value = Significant). Furthermore, given that the VIF scores were less than 10.0, they further demonstrate that multi-collinearity is not a problem in this study.

4.3 Hypothesis testing

Table 4 shows the results of the first four hypotheses (H1-H4). Structural equation modeling was used, and the results are presented in Table 4. H1 showed that EST is positively associated with EP, ($\beta = 0.271$, p-value is less than 0.001). H2 was also confirmed that EST predicts GW ($\beta = 0.398$, p-value is less than 0.001). H3 showed that GL was positively associated with EP ($\beta = 0.356$, p-value is less than 0.001). And the significant relationship of EST with EP was turned insignificant with the addition of GL as a mediator, confirming H5 of the study.

Table 5 shows the moderating effect of GW between EST and EP. Hierarchal regression analysis was used, and the result indicated that GW is a significant moderator between EST and EP. Hence, H4 was accepted.

5 Discussion

The current study examined the influence of environmentally friendly sustainability thoughts, GL, and GW on the EP on SMEs. Owners, managers, consumers, and researchers are increasingly interested in EP because SMEs can improve their financial performance, enhance their reputation, comply with regulations, and contribute to a more sustainable future by prioritizing their impact on the environment. Keeping in view the importance of the topic, current research developed a model with five hypotheses.

Table 1 Values of alpha, CR, and AVE

Variable	Fact. Loa	T-Value	Alpha Val	C.R Val	AVE Val
Environmental sustainability thoughts			0.82	0.93	0.66
EST_1	0.82	15.47			
EST_2	0.85	14.52			
EST_3	0.78	15.65			
EST_4	0.86	14.95			
EST_5	0.88	14.55			
EST_6	0.74	13.52			
EST_7	0.78	14.45			
Greenwashing			0.84	0.91	0.66
GW1	0.84	15.65			
GW2	0.85	14.55			
GW3	0.80	15.47			
GW4	0.78	13.54			
GW5	0.82	14.52			
Environmental performance			0.86	0.88	0.65
EP1	0.84	15.44			
EP2	0.86	14.58			
EP3	0.74	13.55			
EP4	0.78	14.75			
Generative leadership			0.756	0.96	0.61
GL-1	0.71	13.45			
GL-2	0.76	15.65			
GL-3	0.77	15.43			
GL-4	0.71	14.54			
GL-5	0.87	14.43			
GL-6	0.76	14.67			
GL-7	0.77	13.98			
GL-8	0.89	14.54			
GL-9	0.74	15.43			
GL-10	0.74	14.54			
GL-11	0.78	13.78			
GL-12	0.87	15.65			
GL-13	0.76	15.88			
GL-14	0.78	13.65			
GL-15	0.73	14.78			
GL-16	0.76	14.98			
GL-17	0.78	15.54			
GL-18	0.87	14.56			

This research H1 supports that environmental sustainability thoughts positively affect EP. The previous research on environmental sustainability and EP has been conducted worldwide, leading to a diverse range of findings (Delmas et al., 2010; Repar et al., 2017). Despite the connection between these concepts, there is no clear consensus on the relationship between

Table 2 CFA

Description	$\chi 2$	Df	$\chi 2$/df	RMESA	GFI	CFI
Four-factor model	1167.21	431	2.70	0.04	0.92	0.91
Three-factor model	1099.21	375	2.93	0.09	0.79	0.80
Two-factor model	1011.41	370	2.73	0.21	0.69	0.71
One-factor model	1101.61	322	3.42	0.24	0.59	0.61

Table 3 Descriptive analysis

Variable	Mean	SD	1	2	3	4	5	6	7	8
1 Business.Age	4.64	1.15	1.00							
2 Business.Size	1.65	0.32	1.21*	1.00						
3 Respondent.Experience	5.76	0.89	0.11	0.011	1.00					
4 Respondent.Education	4.21	0.62	0.26	0.12	−0.12	1.00				
5 EST	3.23	0.76	0.21*	0.14	−0.25	0.21	1.00			
6 GW	3.44	0.65	0.61	.021	−.98*	0.41	.215**	1.00		
7 EP	3.37	0.8`	0.15*	−0.12	0.12	0.12*	.313**	.315**	1.00	
8 GL	3.23	0.69	0.22	0.32	0.11	0.21	.23**	.331*	0.41*	1.00

EST = Environmental sustainability thoughts; GW = greenwashing; EP = environmental performance; G = generative leadership

Table 4 Results of H1, H2, H3, and H4

Model	Description	B	F	T	Sig	Remarks
M1	EST→EP	0.271	13.205	4.150	< .001	Accepted H1
M2	EST→GL	0.398	46.334	6.310	< .001	Accepted H2
M3	GL→EP	0.356	59.412	8.560	< .001	Accepted H3
M4	EST→GL→EP	0.218	29.48	5.610	0.974	Accepted H4
		0.273			< .001	

EST = Environmental sustainability thoughts; GW = greenwashing; EP = environmental performance; G = generative leadership

them (Lin et al., 2013). Customer satisfaction and environmental sustainability are positively correlated, according to Kassinis and Soteriou (2015), although Zhang et al. (2008) found that some businesses may opt to pay emission taxes rather than encourage environmentally sustainable behavior. Environmental sustainability and EP were found to be positively correlated in the tourism sector by Molina-Azorin et al. (2009), with enterprises devoted to sustainability obtaining greater levels of performance. Moreover, Lin et al. (2013) discovered a favorable correlation between business performance metrics and environmental sustainability. Accordingly, we hypothesize that environmental sustainability improvements can motivate small- and medium-sized enterprises (SMEs) to enhance and improve EP. The current study's H2 demonstrates that environmental sustainability thoughts directly influence GL. The data also supported the hypothesis. According to the study, environmental sustainability is a fundamental component of the GL vision, and leaders think carefully before making decisions that have an environmental impact. Castillo et al. (2019) also support this argument of the

Table 5 Moderating results

EP						
Detail	β	$T-$ Value	β	$T-$ Value	β	$T-$ Value
Step 1						
Business_age	0.10	0.31	0.12	0.47	0.13	0.41
Business + size	0.51	1.21	0.47	1.04	0.48	0.68
Respondent_education	0.17	0.17	0.13	0.21	1.14	1.43
Respondent_experience	0.08	0.14	0.10	0.23	0.02	0.03
Step 2						
EST		0.283*	5.27	0.296*	4.11	
GW			−0.369*	5.32	−0.373*	6.41
Step 3						
ESTxGW					−0.28**	3.12
F		3.23**		15.24*		16.23*
R2		0.02		0.19		0.21
Change-R2				0.17		0.02

study. According to Macaux (2012), leaders who prioritize environmental sustainability are more likely to engage in GL practices. H3 of the study linked GL with EP of SMEs. Data also supported the proposed hypothesis. Findings such as these confirm prior studies and advance previous literature knowledge about a leader's vision and attitude regarding engaging in environmentally friendly practices and satisfying customers' needs. Moreover, a generative leader remains more focused on creating a positive impact on people and society, thus enhancing EP. Macaux (2012) also proved the importance of GL for the sustainable performance of the organization. Thus, supporting the stance of the current study.

Fourth hypothesis (H4) of the study tested the moderating role of GW in the relationship between environmental sustainability thoughts and EP. The results of the study supported H4, which proposed that GW moderates the relationship between environmental sustainability thoughts and EP in such a way that when GW is higher, the relationship between EST and EP is dampened. This finding is consistent with the previous research that has shown that GW can reduce the market value (Du (2015), environmental and product perception (Szabo & Webster, 2021), sustainable business strategy (Jhamb & Fiegl, 2022), green purchasing (Wang et al., 2020), and green brand trust (More, 2019). The last hypothesis (H5) tested the mediating role of GL in the relationship between environmental sustainability thoughts and EP. The result also supported the hypothesis. It is essential for contemporary managers to have positive environmental thoughts that further lead to EP. Furthermore, GL also plays a key role in the relationship between environmental sustainability thoughts and EP by fostering a culture of sustainability, encouraging creativity and innovation, and promoting learning and growth. By focusing on GL, organizations can create a more sustainable future while also driving better business outcomes.

6 Conclusions and policy recommendations

This study emphasizes the significance of creative leadership and environmental sustainability ideas in achieving environmental performance for SMEs in Saudi Arabia. According to the findings, SMEs should priorities creating a culture of environmental sustainability, and committed executives can be important in creating such a culture. The study does, however, provide a warning about the detrimental effects of 'greenwashing', which can sabotage the link between EP and environmental sustainability beliefs. In order to avoid greenwashing, SMEs must make sure that their environmental statements are transparent and true. SMEs may achieve a more sustainable future while avoiding the traps of greenwashing by putting an emphasis on ES and GL. The results of the study support all indirect and direct hypotheses, and they also suggest numerous practical and theoretical contributions as outlined below.

6.1 Theoretical implications

The study extended the existing literature by examining the relationship between environmental sustainability thoughts, EP, GL, and GW. The study has theoretical implications for the literature. A *first* contribution of this study is to advance ecological modernization theory by identifying and elucidating what factors can help SMEs achieve EP. Environmental sustainability is regarded as a strategic capability that SMEs should utilize to achieve GL, which has a positive impact on EP and GW negatively influence the EP. Thus, the study proposed that environmental sustainability thoughts are vital resources that assist firms in a valuable manner in acquiring EP. *Secondly*, the study proved that environmental sustainability thoughts are important and essential for GL. According to this study, environmental sustainability thoughts have a positive impact on GL and EP in turn, leading to an enhancement of GL. *Lastly*, the study highlighted the moderating role of GW in the relationship between environmental sustainability thoughts and EP. Only a limited number of studies have tested a similar mechanism. By adding GW as a moderator, the study added to a more comprehensive understanding of EP.

6.2 Practical implications

This research provides several critical practical implications to management about the development of environmental sustainability thoughts and their impacts on the attainment of EP. *Firstly*, SMEs should devote environmental sustainability thoughts as a strategic resource to increase the human potential for improving EP. Thus, it is suggested that upper management could develop environmental sustainability thoughts by designing green policies/practices for achieving EP. *Moreover*, the study demonstrated that environmental sustainability thoughts are also essential for the flourishing of GL skills. Thus, it is essential for managers and owners of SMEs to create a culture where employees have shared norms and values to think positively about sustainability resulting in the emergence of GL which further improves the EP of SMEs. *Thirdly*, GW is a misleading concept considered by SMEs for obtaining, designing, and developing green beliefs and standards for achieving EP. However, the results demonstrated that GW dampens the link of EST and EP. *Lastly*, we recommend that management should emphasize GW practices as a blustering force to achieve EP through unconditional support of environmental sustainability thoughts. All these efforts will help SMEs to enhance their EP. Accordingly, the study provides various

practical implications to managers and policymakers of SMEs to accomplish higher EP with the supportive role of environmental sustainability thoughts and by avoiding GW.

6.3 Limitations and future directions

This study has several limitations that would act as a future direction for other research. *Firstly*, the present study examined the impact of this empirical model in the SMEs sector, limiting its application to other industries. Consequently, we recommend that future studies broaden our study framework to other manufacturing, services, and industry sectors. *Secondly*, our study used quantitative methods and simple random sampling techniques for data collection; future studies should use cross-sectional methods, qualitative methods, or another sampling technique. *Thirdly,* the study is based on single independent variable (EST), single moderating variable (GW), and single mediating variable (GL) that are influencing EP. In future studies, different other variables can also be added to make model capture extra information. *Finally*, to measure and achieve EP, this study used variables such as environmental sustainability thoughts, GL, and GW. We propose that future studies should use other sample perception to better explain and recognize SME's EP.

Appendix: Questionnaire

Environmental Sustainability Thoughts

1. In my perspective, environmental conservation is crucial.
2. For things that are healthy for the environment, I'm willing to spend more.
3. I try to reduce the amount of water and electricity I use.
4. I'm worried about how global warming will affect the environment.
5. Recycling and material repurposing, in my opinion, are crucial.
6. I think that there is a connection between climate change and human activity.
7. In order to reduce my environmental impact, I'm willing to change my way of life.

Greenwashing

1. Our SME exaggerates the environmental advantages in its ads.
2. The environmental promises made by our SME in its ads are hazy or vague.
3. Our SME's environmental claims are not adequately disclosed in its ads.
4. Our SME puts an excessive amount of attention on unimportant environmental benefits.
5. Our SME misleads customers by giving the idea that it is environmentally friendly despite the fact that this is not supported by its advertisements.

Environmental performance

1. Our SME complies with environmental laws and norms or goes above and beyond them.
2. Our SME has taken measures to reduce its environmental impact.
3. Our SME keeps a close eye on its environmental performance and reports it.
4. Our SME has a solid reputation for being environmentally responsible.

Generative leadership

1. Our SME encourages team members to contribute to the accomplishment of shared objectives through their original ideas.
2. Our SME gives team members time to reflect and recognize their experiences and insights.
3. Our SME tries to create a supportive workplace where employees can feel supported and empowered.
4. In Our SME, people work in partnership with others to develop original concepts and solutions.
5. Our SME gives team members opportunities to progress professionally.
6. Our SME emphasizes on respect and trust when forming bonds with teammates.
7. In our SME, we encourages critical thought and assumption-checking among team members.
8. Our employees are prepared to take calculated risks in order to achieve important goals.
9. Our employees has a good outlook and a pleasant attitude.
10. Our management and leadership invite feedback and accept useful criticism.
11. We uphold moral standards and social duty.
12. We encourage team members to assume responsibility for their duties and obligations.
13. Our expectations are precisely stated and well communicated.
14. We are willing to make tough choices when necessary.
15. We are flexibility and adaptation to changing situations are displayed.
16. We respect the contributions of every member while celebrating team accomplishments.
17. We enable team members to benefit from their setbacks and mistakes.
18. We develop a clear vision for the team.

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Declarations

Conflict of interest The authors declare no conflict of interest.

References

Abbas, J., & Khan, S. M. (2022). Green knowledge management and organizational green culture: An interaction for organizational green innovation and green performance. *Journal of Knowledge Management*. https://doi.org/10.1108/JKM-03-2022-0156

Adams, P., Braunberger, D., Hamilton, S., & Caldwell, B. (2021). Leaders in limbo: The role of collaborative inquiry influencing school leaders' levels of efficacy. *The Canadian Journal of Action Research, 22*(1), 27–44.

Ahmed, Z., Ahmad, M., Rjoub, H., Kalugina, O. A., & Hussain, N. (2022). Economic growth, renewable energy consumption, and ecological footprint: Exploring the role of environmental regulations and democracy in sustainable development. *Sustainable Development, 30*(4), 595–605.

Alma Çallı, B., Özşahin, M., Coşkun, E., & Rıfat Arık, A. (2022). Do generative leadership and digital literacy of executive management help flourishing micro and small business digital maturity? *International Journal of Organizational Leadership, 11*(3), 307–332.

Alraja, M. N., Imran, R., Khashab, B. M., & Shah, M. (2022). Technological innovation, sustainable green practices and SMEs sustainable performance in times of crisis (COVID-19 pandemic). *Information Systems Frontiers, 24*(4), 1081–1105. https://doi.org/10.1007/s10796-022-10250-z

Alsayegh, M. F., Abdul Rahman, R., & Homayoun, S. (2020). Corporate economic, environmental, and social sustainability performance transformation through ESG disclosure. *Sustainability, 12*(9), 3910.

Al-Swidi, A. K., Gelaidan, H. M., & Saleh, R. M. (2021). The joint impact of green human resource management, leadership and organizational culture on employees' green behaviour and organisational environmental performance. *Journal of Cleaner Production, 316*, 128112.

Alzoubi, H., Ahmed, G., Al-Gasaymeh, A., & Kurdi, B. (2020). Empirical study on sustainable supply chain strategies and its impact on competitive priorities: The mediating role of supply chain collaboration. *Management Science Letters, 10*(3), 703–708.

Arouri, M., El Ghoul, S., & Gomes, M. (2021). Greenwashing and product market competition. *Finance Research Letters, 42*, 101927.

Asiaei, K., Jusoh, R., Barani, O., & Asiaei, A. (2022). How does green intellectual capital boost performance? The mediating role of environmental performance measurement systems. *Business Strategy and the Environment, 31*(4), 1587–1606.

Bager, S. L., & Lambin, E. F. (2020). Sustainability strategies by companies in the global coffee sector. *Business Strategy and the Environment, 29*(8), 3555–3570.

Baumüller, J., & Sopp, K. (2022). Double materiality and the shift from non-financial to European sustainability reporting: Review, outlook and implications. *Journal of Applied Accounting Research, 23*(1), 8–28.

Begum, S., Ashfaq, M., Xia, E., & Awan, U. (2022a). Does green transformational leadership lead to green innovation? The role of green thinking and creative process engagement. *Business Strategy and the Environment, 31*(1), 580–597.

Begum, S., Xia, E., Ali, F., Awan, U., & Ashfaq, M. (2022b). Achieving green product and process innovation through green leadership and creative engagement in manufacturing. *Journal of Manufacturing Technology Management, 33*(4), 656–674.

Cai, X., Zhu, B., Zhang, H., Li, L., & Xie, M. (2020). Can direct environmental regulation promote green technology innovation in heavily polluting industries? Evidence from Chinese listed companies. *Science of the Total Environment, 746*, 140810.

Castillo, E. A., & Trinh, M. P. (2019). Catalyzing capacity: Absorptive, adaptive, and generative leadership. *Journal of Organizational Change Management, 32*(3), 356–376.

Das, M., Rangarajan, K., & Dutta, G. (2020). Corporate sustainability in small and medium-sized enterprises: A literature analysis and road ahead. *Journal of Indian Business Research, 12*(2), 271–300.

Delmas, M., & Blass, V. D. (2010). Measuring corporate environmental performance: The trade-offs of sustainability ratings. *Business Strategy and the Environment, 19*(4), 245–260.

Domínguez-Escrig, E., Mallén-Broch, F. F., Lapiedra-Alcamí, R., & Chiva-Gómez, R. (2019). The influence of leaders' stewardship behavior on innovation success: The mediating effect of radical innovation. *Journal of Business Ethics, 159*, 849–862.

Dragomir, V. D., & Dragomir, V. D. (2020). Ethical aspects of environmental strategy. *Corporate Environmental Strategy: Theoretical, Practical, and Ethical Aspects*, pp. 75–113.

Du, X. (2015). How the market values greenwashing? Evidence from China. *Journal of Business Ethics, 128*, 547–574.

Dupraz, P., & Guyomard, H. (2019). Environment and climate in the common agricultural policy. *EuroChoices, 18*(1), 18–25.

Dzikriansyah, M. A., Masudin, I., Zulfikarijah, F., Jihadi, M., & Jatmiko, R. D. (2023). The role of green supply chain management practices on environmental performance: A case of Indonesian small and medium enterprises. *Cleaner Logistics and Supply Chain, 6*, 100100.

Ellitan, L. (2020). Competing in the era of industrial revolution 4.0 and society 5.0. *Jurnal Maksipreneur: Manajemen, Koperasi, dan Entrepreneurship, 10*(1), 1–12.

Fink, A. (1995). *The survey handbook*. Sage Publications.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50.

Gatti, L., Seele, P., & Rademacher, L. (2019). Grey zone in–greenwash out. A review of greenwashing research and implications for the voluntary-mandatory transition of CSR. *International Journal of Corporate Social Responsibility, 4*(1), 1–15.

Gilal, F. G., Ashraf, Z., Gilal, N. G., Gilal, R. G., & Channa, N. A. (2019). Promoting environmental performance through green human resource management practices in higher education institutions: A moderated mediation model. *Corporate Social Responsibility and Environmental Management, 26*(6), 1579–1590.

Hang, Y., Sarfraz, M., Khalid, R., Ozturk, I., & Tariq, J. (2022). Does corporate social responsibility and green product innovation boost organizational performance? A moderated mediation model of competitive advantage and green trust. *Economic Research-Ekonomska Istraživanja, 35*(1), 5379–5399.

Heras-Saizarbitoria, I., Boiral, O., & Díaz de Junguitu, A. (2020). Environmental management certification and environmental performance: Greening or greenwashing? *Business Strategy and the Environment, 29*(6), 2829–2841.

Holliday, C. O., Schmidheiny, S., & Watts, P. (2002). *Walking the talk: The business case for sustainable development*. Greenleaf.

Ilinitch, A. Y., Soderstrom, N. S., & Thomas, T. E. (1998). Measuring corporate environmental performance. *Journal of Accounting and Public Policy, 17*(4–5), 383–408.

Ioannou, I., Kassinis, G., & Papagiannakis, G. (2022). The impact of perceived greenwashing on customer satisfaction and the contingent role of capability reputation. *Journal of Business Ethics*, pp. 1–15.

Jhamb, S., & Fiegl, R. (2022). Perceived greenwashing and sustainable business strategies: Understanding organizational roles in addressing environmental issues. *IUP Journal of Business Strategy*, *19*(2).

Kassinis, G. I., Kay, A. A., Papagiannakis, G., & Vlachos, P. A. (2022). Stigma as moral insurance: How stigma buffers firms from the market consequences of greenwashing. *Journal of Management Studies, 59*(8), 2154–2190.

Kassinis, G. I., & Soteriou, A. C. (2015). Environmental and quality practices: Using a video method to explore their relationship with customer satisfaction in the hotel industry. *Operations Management Research, 8*(3), 142–156.

Kaur, J., Bhudhiraja, K., & Gupta, N. (2023). Impact of green washing on consumers and businesses. In *Proceedings of the 1st International Conference on Application of AI and Statistical Decision Making for the Business World, ICASDMBW 2022, 16–17 December 2022, Delhi, India*.

Konar, S., & Cohen, M. A. (2001). Does the market value environmental performance? *Review of Economics and Statistics, 83*(2), 281–289.

Kularatne, T., Wilson, C., Månsson, J., Hoang, V., & Lee, B. (2019). Do environmentally sustainable practices make hotels more efficient? A study of major hotels in Sri Lanka. *Tourism Management, 71*, 213–225.

Lashitew, A. A. (2021). Corporate uptake of the sustainable development goals: Mere greenwashing or an advent of institutional change? *Journal of International Business Policy, 4*, 184–200.

Le, T. T., & Ikram, M. (2022). Do sustainability innovation and firm competitiveness help improve firm performance? Evidence from the SME sector in Vietnam. *Sustainable Production and Consumption, 29*, 588–599.

Li, W., Li, W., Seppänen, V., & Koivumäki, T. (2022). How and when does perceived greenwashing affect employees' job performance? Evidence from China. *Corporate Social Responsibility and Environmental Management, 29*(5), 1722–1735.

Li, W., Li, W., Seppänen, V., & Koivumäki, T. (2023). Effects of greenwashing on financial performance: Moderation through local environmental regulation and media coverage. *Business Strategy and the Environment, 32*(1), 820–841.

Lin, K., Peng, M. Y. P., Anser, M. K., Yousaf, Z., & Sharif, A. (2021). Bright harmony of environmental management initiatives for achieving corporate social responsibility authenticity and legitimacy: Glimpse of hotel and tourism industry. *Corporate Social Responsibility and Environmental Management, 28*(2), 640–647.

Lin, R. J., Tan, K. H., & Geng, Y. (2013). Market demand, green product innovation, and firm performance: Evidence from Vietnam motorcycle industry. *Journal of Cleaner Production, 40*, 101–107.

Macaux, W. P. (2012). Generative leadership: Responding to the call for responsibility. *Journal of Management Development, 31*(5), 449–469.

Maltais, A., & Nykvist, B. (2020). Understanding the role of green bonds in advancing sustainability. *Journal of Sustainable Finance & Investment*. https://doi.org/10.1080/20430795.2020.1724864

Mangini, E. R., Amaral, L. M., Conejero, M. A., & Pires, C. S. (2020). Greenwashing study and consumers' behavioral intentions. *Consumer Behavior Review, 4*(3), 229–244.

Mankoff, J. C., Blevis, E., Borning, A., Friedman, B., Fussell, S. R., Hasbrouck, J., & Sengers, P. (2007). Environmental sustainability and interaction. In *CHI'07 extended abstracts on Human factors in computing systems* (pp. 2121–2124).

Mel'Nichuk Marina, V. (2019). Leadership ideas shaped by digital insights in higher education. *Personnel Management, 4*, 75–84.

Molina-Azorín, J. F., Claver-Cortés, E., Pereira-Moliner, J., & Tarí, J. J. (2009). Environmental practices and firm performance: An empirical analysis in the Spanish hotel industry. *Journal of Cleaner Production, 17*(5), 516–524.

More, P. V. (2019). The impact of greenwashing on green brand trust from an Indian perspective. *Asian Journal of Innovation and Policy, 8*(1), 162–179.

Nguyen, T. T. H., Yang, Z., Nguyen, N., Johnson, L. W., & Cao, T. K. (2019). Greenwash and green purchase intention: The mediating role of green skepticism. *Sustainability, 11*(9), 2653.

Nurunnabi, M. (2020). Recovery planning and resilience of SMEs during the COVID-19: Experience from Saudi Arabia. *Journal of Accounting & Organizational Change, 16*(4), 643–653.

Ögmundarson, Ó., Herrgård, M. J., Forster, J., Hauschild, M. Z., & Fantke, P. (2020). Addressing environmental sustainability of biochemicals. *Nature Sustainability, 3*(3), 167–174.

Onah, D. F., Pang, E. L., & Sinclair, J. E. (2022). Investigating self-regulation in the context of a blended learning computing course. *The International Journal of Information and Learning Technology, 39*(1), 50–69.

Perifanis, N. A., & Kitsios, F. (2023). Investigating the influence of artificial intelligence on business value in the digital era of strategy: A literature review. *Information, 14*(2), 85.

Pullman, M. E., Maloni, M. J., & Carter, C. R. (2009). Food for thought: Social versus environmental sustainability practices and performance outcomes. *Journal of Supply Chain Management, 45*(4), 38–54.

Qayyum, A., Jamil, R. A., & Sehar, A. (2022). Impact of green marketing, greenwashing and green confusion on green brand equity. *Spanish Journal of Marketing-ESIC*, (ahead-of-print).

Raab, C., Baloglu, S., & Chen, Y. S. (2018). Restaurant managers' adoption of sustainable practices: An application of institutional theory and theory of planned behavior. *Journal of Foodservice Business Research, 21*(2), 154–171.

Ramus, C. A., & Montiel, I. (2005). When are corporate environmental policies a form of greenwashing? *Business and Society, 44*(4), 377–414.

Rasheed, T. (2022). Supply Chain sustainability through green practices in manufacturing: A case study from Pakistan: Supply chain sustainability. *South Asian Journal of Operations and Logistics (ISSN: 2958–2504)*, *1*(1), 57–71.

Rasool, S. F., Wang, M., Tang, M., Saeed, A., & Iqbal, J. (2021). How toxic workplace environment effects the employee engagement: The mediating role of organizational support and employee wellbeing. *International Journal of Environmental Research and Public Health, 18*(5), 2294.

Rehman, S. U., Elrehail, H., Alshwayat, D., Ibrahim, B., & Alami, R. (2023). Linking hotel environmental management initiatives and sustainable hotel performance through employees' eco-friendly behaviour and environmental strategies: a moderated-mediated model. *European Business Review*, (ahead-of-print).

Repar, N., Jan, P., Dux, D., Nemecek, T., & Doluschitz, R. (2017). Implementing farm-level environmental sustainability in environmental performance indicators: A combined global-local approach. *Journal of Cleaner Production, 140*, 692–704.

Rogers, K., Roux, D., & Biggs, H. (2000). Challenges for catchment management agencies: lessons from bureaucracies, business and resource management. *Water Sa, 26*(4), 505–512.

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.

Şahin, H., & Erkal, S. (2017). An investigation of university students' attitudes toward environmental sustainability. *European Journal of Sustainable Development, 6*(4), 147–147.

Salkind, N. J. (1997). *Exploring research* (3rd ed.). Prentice Hall.

Santos, C., Coelho, A., & Marques, A. (2023). The greenwashing effects on corporate reputation and brand hate, through environmental performance and green perceived risk. *Asia-Pacific Journal of Business Administration*. https://doi.org/10.1108/APJBA-05-2022-0216

Scharmer, O., & Kaufer, K. (2013). *Leading from the emerging future: from ego-system to eco-system economies*. Berrett-Koehler Publishers.

Shokri, A., Antony, J., & Garza-Reyes, J. A. (2021). A readiness self-assessment model for implementing green lean six sigma initiatives in manufacturing. *Journal of Cleaner Production, 287*, 125104.

Silsbee, D. (2008). *Presence-based coaching: Cultivating self-generative leaders through mind, body, and heart*. Wiley.

Singh, S. K., Del Giudice, M., Chiappetta Jabbour, C. J., Latan, H., & Sohal, A. S. (2022). Stakeholder pressure, green innovation, and performance in small and medium-sized enterprises: The role of green dynamic capabilities. *Business Strategy and the Environment, 31*(1), 500–514.

Singh, S. K., Del Giudice, M., Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change, 150*, 119762.

Sotarauta, M. (2015). *Leadership and the City: Power, strategy and networks in the making of knowledge cities*. Routledge.

Stahl, G. K., Brewster, C. J., Collings, D. G., & Hajro, A. (2020). Enhancing the role of human resource management in corporate sustainability and social responsibility: A multi-stakeholder, multidimensional approach to HRM. *Human Resource Management Review, 30*(3), 100708.

Stocker, F., de Arruda, M. P., de Mascena, K. M., & Boaventura, J. M. (2020). Stakeholder engagement in sustainability reporting: A classification model. *Corporate Social Responsibility and Environmental Management, 27*(5), 2071–2080.

Sumrin, S., Gupta, S., Asaad, Y., Wang, Y., Bhattacharya, S., & Foroudi, P. (2021). Eco-innovation for environment and waste prevention. *Journal of Business Research, 122*, 627–639.

Surie, G., & Hazy, J. K. (2006). Generative leadership: Nurturing innovation in complex systems. *Emergence-Mahwah-Lawrence Erlbaum, 8*(4), 13.

Szabo, S., & Webster, J. (2021). Perceived greenwashing: The effects of green marketing on environmental and product perceptions. *Journal of Business Ethics, 171*, 719–739.

Tahir, R., Athar, M. R., & Afzal, A. (2020). The impact of greenwashing practices on green employee behaviour: Mediating role of employee value orientation and green psychological climate. *Cogent Business & Management, 7*(1), 1781996.

Tang, M., Walsh, G., Lerner, D., Fitza, M. A., & Li, Q. (2018). Green innovation, managerial concern and firm performance: An empirical study. *Business Strategy and the Environment, 27*(1), 39–51.

Tarabieh, S. M. Z. A. (2021). The impact of greenwash practices over green purchase intention: The mediating effects of green confusion, Green perceived risk, and green trust. *Management Science Letters, 11*(2), 451–464.

Vezzoli, C., & Manzini, E. (2008). *Design for environmental sustainability* (p. 4). Springer.

Wang, H., Ma, B., & Bai, R. (2020). The spillover effect of greenwashing behaviours: An experimental approach. *Marketing Intelligence & Planning, 38*(3), 283–295.

Wilkinson, D. J. (2006). Mode four: Generative leadership. *The ambiguity advantage: What great leaders are great at* (pp. 99–118). Palgrave Macmillan UK.

Winn, M. I., & Angell, L. C. (2000). Towards a process model of corporate greening. *Organization Studies, 21*, 1119–1147.

Yahya, S., Jamil, S., & Farooq, M. (2021). The impact of green organizational and human resource factors on developing countries' small business firms tendency toward green innovation: A natural resource-based view approach. *Creativity and Innovation Management, 30*(4), 726–741.

Yong, J. Y., Yusliza, M. Y., Ramayah, T., Chiappetta Jabbour, C. J., Sehnem, S., & Mani, V. (2020). Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management. *Business Strategy and the Environment, 29*(1), 212–228.

Zahoor, N., & Gerged, A. M. (2021). Relational capital, environmental knowledge integration, and environmental performance of small and medium enterprises in emerging markets. *Business Strategy and the Environment, 30*(8), 3789–3803.

Zameer, H., Wang, Y., & Yasmeen, H. (2020). Reinforcing green competitive advantage through green production, creativity and green brand image: Implications for cleaner production in China. *Journal of Cleaner Production, 247*, 119119.

Zhang, B., Bi, J., Yuan, Z., Ge, J., Liu, B., & Bu, M. (2008). Why do firms engage in environmental management? An empirical study in China. *Journal of Cleaner Production, 16*(10), 1036–1045.

Zhang, D. (2022). Environmental regulation, green innovation, and export product quality: What is the role of greenwashing? *International Review of Financial Analysis, 83*, 102311.

Zhang, G. (2023). Regulatory-driven corporate greenwashing: Evidence from "low-carbon city" pilot policy in China. *Pacific-Basin Finance Journal, 78*, 101951.

Zhang, J., Ul-Durar, S., Akhtar, M. N., Zhang, Y., & Lu, L. (2021). How does responsible leadership affect employees' voluntary workplace green behaviors? A multilevel dual process model of voluntary workplace green behaviors. *Journal of Environmental Management, 296*, 113205.

Zhang, L., Li, D., Cao, C., & Huang, S. (2018). The influence of greenwashing perception on green purchasing intentions: The mediating role of green word-of-mouth and moderating role of green concern. *Journal of Cleaner Production, 187*, 740–750.

Zhang, X., Wang, Z., Zhong, X., Yang, S., & Siddik, A. B. (2022). Do green banking activities improve the banks' environmental performance? The mediating effect of green financing. *Sustainability, 14*(2), 989.

Authors and Affiliations

Zahid Yousaf[1] · Maria Palazzo[2] · Magdalena Radulescu[3,4] · Asad Javed[5]

✉ Magdalena Radulescu
magdalena.radulescu@upit.ro; youmagdar@yahoo.com

Zahid Yousaf
muhammadzahid.yusuf@gmail.com

Maria Palazzo
maria.palazzo@unimercatorum.it

Asad Javed
asadjaved@hu.edu.pk

[1] Government College of Management Sciences, Mansehra, Pakistan

[2] Universitas Mercatorum, Rome, Italy

[3] University of Pitesti, Pitesti, Romania

[4] Institute of Doctoral and Post-Doctoral Studies, University Lucian Blaga of Sibiu, Sibiu, Romania

[5] Department of Management Sciences, Hazara University, Mansehra, Pakistan