How ethical leadership and green values influence green performance management and creativity? Evidence from firms in Saudi Arabia

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Abstract

Purpose – While using the combined lens of Social Learning Theory and Supply Value-Fit Theory, the study emphasizes the significance of reinforcement and value congruence in attaining environmental sustainability and acclaims that organizations foster ethical leadership, implement green performance management, and align employee green values with sustainability objectives.

Design/methodology/approach – We collected data from 250 employees using convenience sampling working in two global Saudi firms operating in the oil and gas, energy and chemical sectors. We used partial least square structural equation modeling to test our hypothesis.

Findings – Our findings show that green performance management practice partially and positively mediates the relationship between ethical leadership and employee green creativity. Furthermore, the relationship between ethical leadership and green performance management practices is moderated by individuals' green values, such that the relationship is stronger when the green values are more pronounced, and vice versa.

Originality – Our study explored a novel model that explained the role of ethical leadership, green performance management and individual green values in predicting employees' green creativity. We explored this issue in an oil-rich economy which intends to reduce its carbon emissions and adopt green technologies. Our research highlights the importance of effective green performance management that can prove to be an effective control mechanism for organizations that are interested in sustainability. Furthermore, we suggest that organizations, in the presence of ethical leaders, encourage individual employees to adopt green values.

Keywords: Ethical leadership, Individual green values, green performance management, green creativity

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Introduction

Middle Eastern countries' heavy dependence on oil and gas has resulted in elevated carbon emissions, resource depletion, and environmental degradation (Zhou et al., 2025). In alignment with the Paris Agreement and its Vision 2030 initiative, the major oil producing country, Saudi Arabia is committed to achieving net-zero emissions and promoting green technologies (Aramco Sustainability Report, 2023). The United Nations has developed the Sustainable Development Goals. Firms play a pivotal role in addressing these challenges, with leaders and employees driving sustainable outcomes (Iqbal et al., 2023). Green creativity—defined as the generation of innovative ideas for environmentally friendly products, services, and processes—is critical for mitigating environmental issues (Han et al., 2025).

Leadership plays a pivotal role in cultivating altruistic, discretionary, and environmentally conscious behaviors among employees, which are essential for advancing organizational sustainability (Islam et al., 2021). Within this context, green creativity has emerged as a vital concept, enabling firms to enhance their environmental reputation while developing innovative green solutions (Zameer et al., 2021). Extensive research has examined how leadership influences employee green creativity, showing that various leadership styles, such as transformational, transactional, inclusive, and spiritual approaches, have positive effects on creativity (Arici and Uysal, 2022).

Recent scholarship has expanded this inquiry to specialized leadership concepts such as green transformational leadership, responsible leadership, and environmentally specific responsible leadership (Han et al., 2025). Growing attention has focused on ethical leadership and ethical organizational culture as drivers of green creativity and innovation (Şengüllendi et al., 2024). Grounded in Social Learning Theory (Bandura and Walters, 1963), this perspective

highlights how employees adopt sustainable behaviors by emulating ethical leaders who serve as role models (Chen and Chang, 2013).

However, significant gaps remain in understanding the mechanistic roles and boundary conditions that shape the relationship between ethical leadership and green creativity. Particularly underexplored are the roles of green performance management systems and individual green values—factors that may align and harmonize diverse stakeholder interests within firms. This study seeks to address these gaps by examining how these mechanisms interact to promote sustainable outcomes.

It makes sense to address the aforementioned gaps. At the theoretical level, we could learn more about the connection between environmentally friendly creativity and ethical leadership by describing the limits and ways in which these two concepts work together. We should go beyond the simple question of whether leaders can influence environmentally friendly new ideas. The existing conversation has focused on direct connections, resulting in a lack of new explanations. This study contributes to the expanding research on green HRM and leadership by examining sustainable behaviors from a process perspective. It does this by combining value alignment (by individual green values) and feedback processes (through green performance management). On the practical side, there exists a pressure on companies in businesses with big effects on the environment, like oil, gas, and chemicals, to achieve a balance between getting financial strength and taking care of the environment. Thus, our study encourages managers to first understand the processes that encourage green creativity in order to make leadership programs, performance review systems, and human resources policies that promote both moral behavior and new ideas for sustainability. Therefore, we expect that addressing the abovementioned gaps may guide companies to turn ethical leadership into real, visible, and long-lasting environmental benefits.

The study draws upon Social Learning Theory, which emphasizes the critical function of reinforcement in organizational contexts. According to Bandura (2001), individuals demonstrate attentiveness to behaviors that receive rewards or sanctions, with these consequences serving as anticipatory mechanisms that shape future actions. Leaders can utilize this principle by applying different control methods to effectively implement their strategic initiatives. For sustainability objectives specifically, institutionalizing such control mechanisms becomes particularly impactful.

The academic discourse on green human resource management has undergone significant evolution since the early 2000s. Understood as a system of human resource management practices that improves a firm's environmental performance (Arulrajah et al., 2015), green human resource management represents a strategic approach to sustainability. Within this framework, green performance management emerges as a particularly effective control system—one that systematically encourages environmentally beneficial behaviors while discouraging harmful practices (Jabbour et al., 2010). As Beusch et al. (2022) demonstrate, such control systems serve as vital tools for leaders seeking to realize their sustainability agenda.

Supply-Value Fit Theory (Edwards, 1991) provides a critical framework for understanding the alignment between individual green values and organizational resources. Supply-Value Fit Theory examines the congruence between employees' values, needs, and desires and the firm's provision of resources, rewards, and working conditions. This alignment is particularly crucial for environmental sustainability initiatives, as employees' green values fundamentally shape their willingness to support organizational eco-friendly goals (Dumont et al., 2017). When individual and organizational values converge, optimal employee outcomes emerge (Edwards and Cable, 2009).

Despite its theoretical importance, empirical research on individual green values in leadership and sustainability contexts remains limited. Research has shown that the environmental values of employees significantly influence their green creativity (Al-Hawari et al., 2021). Green values affect empowerment and organizational citizenship behaviors (Hameed et al., 2020) Personal environmental values moderate the relationship between green human resource management and organizational identification (Chaudhary, 2020) and green role behaviors (Islam et al., 2021). Building on these foundations, we position individual green values as a crucial enabling factor between ethical leadership and green performance management (Gilal et al., 2019). Our central proposition holds that value congruence enhances employee engagement, proactivity, and support for sustainability initiatives.

Drawing on Supply-Value Fit Theory (Edwards, 1991), we argue that employees cognitively evaluate organizational offerings and respond positively when they perceive alignment with their personal values. This makes individual values critical boundary conditions for achieving organizational sustainability goals. Complementing this perspective, Social Learning Theory (Bandura, 1977) emphasizes how employees learn sustainable behaviors through supervisor observation, highlighting the importance of leadership style. We attempt to establish the relationship between ethical leadership and green creativity, including underlying mechanisms, through three research questions.

RQ 1. What is the relationship between ethical leadership and green creativity?

RQ 2. Does green performance management as an HR practice mediate the mechanism between ethical leadership and green creativity?

RQ 3. Do individual green values moderate the relationship between ethical leadership and green creativity?

Thus, we make an important two-fold contribution to environmental sustainability literature by investigating the three research questions. First, by drawing on Social Learning

Theory (Bandura, 1977), we demonstrate that ethical leaders can inspire their followers to attain the right behaviors and contribute to green creativity. Employees reciprocate ethical leaders' pro-environmental efforts. Second, we contribute to supply-values fit theory (Edwards, 1991). Ethical leaders build a fit between individuals' green values and firm objectives. Ethical leaders can ignite and revitalize the individual green values by displaying pro-environmental behaviors. Thus, we contribute by showing that a fit between individual green values and organizational supplies results in acceptance of the reinforcement mechanism, i.e., green performance management, and employees exhibit better pro-environmental behavior, i.e., green creativity.

The Context, Theory and Hypotheses

The Kingdom of Saudi Arabia is one of the largest countries in the Middle East and a leading oil producer and exporter globally. As part of its commitment to climate change, Saudi Arabia has established a $1.5 billion fund to invest in green technologies. By investing in lower carbon intensity and alternative energy resources, Saudi Arabia supports the Paris Agreement, contributes to the Sustainable Development Goals, and aims to achieve net-zero emissions by 2050. It also establishes partnerships with firms such as the International Petroleum Industry Environmental Conservation Association (Ipieca) and the World Economic Forum (WEF) to enforce industry practices for favorable environmental performance. Saudi Arabia has also initiated a Circular Carbon Economy national program, which encourages companies to develop durable, recyclable products for their customers (Aramco Sustainability Report, 2023). Our data is from a unique country that is considered the cradle of Islam, and Islam places much emphasis on the protection of the environment (Nasir et al., 2022). Muslims are duty-bound to protect the environment as per the instructions of their religion (Sarkawi et al., 2016).

Our study combines Social Learning Theory (Bandura, 1977) and Supply-Value Fit Theory (Edwards, 1991) to explain how ethical leadership drives green creativity. Ethical leadership

models sustainable behaviors, embedding environmental values into organizational culture (Bedi et al., 2016). Employees learn through observation (emulating leaders' actions) and reinforcement (responding to rewards and punishments), with observational learning being particularly powerful (Islam et al., 2021). Ethical leaders can potentially operationalize these principles through performance systems that monitor and reward green behaviors (Beusch et al., 2022). When such systems align with employees' environmental values, they create a powerful catalyst for green creativity. Essentially, employees are more likely to innovate sustainably when they see leaders practicing what they preach and when the firm rewards these efforts in ways that resonate with their values. This framework positions green performance management as a key mechanism—leveraging both role modeling and strategic incentives—to foster eco-conscious innovation.

The Supply-Value Fit Theory (Edwards, 1991) helps explain how ethical leadership, employee values, and green performance systems interact to drive sustainability efforts. At its core, Supply-Value Fit Theory suggests that when employees' environmental values align with organizational practices, they are more motivated to engage in eco-friendly behaviors (Al-Hawari et al., 2021). This value congruence creates a powerful dynamic: employees who prioritize sustainability naturally pay more attention to environmental initiatives when ethical leaders champion them (Masterson and Lensges, 2015). The match between personal green values and organizational support for sustainability leads to stronger environmental engagement (Edwards and Shipp, 2007). Essentially, when what the firm offers (like green performance systems) matches what employees value, it creates a mutually reinforcing cycle of positive green behaviors.

Next, we examine the proposed relationships, followed by the Method section, which outlines the procedures, measures, and data analysis strategy. This section transitions to the Analysis and Results segment, presenting hypothesis tests utilizing partial least squares

structural equation modeling. Toward the end, we present the discussion on the interpretation of key findings and their implications with final concluding remarks.

Ethical leadership and employee green creativity

Leaders' effectiveness indicates their success; however, an effective leader may not necessarily be an ethical one (Nazir et al., 2021). Ethical leadership is characterized by a strong sense of integrity, fairness, and accountability (Brown et al., 2005). Ethical leaders act as role models, prioritizing ethical standards and the welfare of their employees, organization, and society. Ethical leadership distinguishes itself from other leadership styles primarily through its focus on normatively appropriate behaviors and moral values in decision-making (Brown et al., 2005). Ethical leaders have a sense of responsibility not only for their firm but also for the community. Thus, they have a natural tendency to protect the environment and encourage green creativity and innovation (Ahmad et al., 2022).

Current empirical research indicates a significant positive relationship between ethical leadership and the green creativity and behavior of employees (Piwowar-Sulej et al., 2023). Chen and Chang (2013) describe 'green creativity' as producing creative ideas connected to greener goods, services, processes, and procedures. Employee success, on the other hand, is dependent on the leader's support and opinion (Amabile et al., 2004). Building on the above, we argue that ethical leadership will foster green creativity. As Saudi Arabia focuses on green technologies and reducing carbon emissions, we anticipate that ethical leadership will play a crucial role in enhancing the green creativity of its employees.

H1. Ethical leadership is positively associated with the green creativity of employees.

The mediating role of green performance management

Ethical leadership, as defined by Brown et al. (2005), emphasizes integrity, moral conduct, and fairness in decision-making and role modeling. Unlike transformational leadership—which motivates through vision (Avolio and Bass, 1995)—ethical leadership functions through norm-

based reinforcement mechanisms that shape followers' values and behaviors. Ethical leaders integrate expectations into company principles, environment, and culture. Compliance strategies enhance these efforts by adhering to legal and social norms. A programmatic approach, specifically green performance management, aligns the expectations of both management and employees. Green performance management systems ensure that environmental strategies are integrated into organizational processes, fostering green creativity (Bahuguna et al., 2023). Environmental performance positively correlates with economic performance (Mousa and Othman, 2020) and improves with adherence to green standards (Tang et al., 2018). Setting green objectives translates environmental goals into actionable plans that drive green creativity (Mousa and Othman, 2020).

Drawing on Social Learning Theory (Bandura, 1977), employees are more likely to emulate ethical leaders who embody sustainability goals, especially when such behavior is reinforced through organizational practices like green performance management. Studies highlight the role of performance management systems in linking leadership and creativity. Transformational leaders create work environments that encourage creativity (Avolio and Bass, 1995). Ethical leaders inspire employees to find meaning in their work, which in turn strengthens their commitment to generating new ideas (Pandey and Gupta, 2008). Reinforcement mechanisms within performance management systems channel leadership influence toward creative behaviors (Bandura, 2001). Green performance management systems formalize sustainability expectations through structured monitoring, feedback, and reward mechanisms (Beusch et al., 2022). These systems enable ethical leaders to institutionalize environmental values into daily performance routines, aligning employee behavior with ecological objectives (Mousa and Othman, 2020). This process transforms ethical leadership's influence from merely symbolic into a strategic behavioral driver of green creativity, defined

as the generation of novel and valuable ideas for green products and processes (Chen and Chang, 2013).

Bahzar (2019) found that ethical leadership enhances creativity by fostering a supportive work environment. In the context of Saudi Arabia, green performance management aligns with national policies promoting environmental sustainability. Reinforcement mechanisms within green performance management enhance creativity by establishing environmental goals, offering feedback, and recognizing employees for eco-innovative actions (Merriman and Sen, 2012). Ethical leadership, supported by green performance management, aligns organizational values with national sustainability imperatives in resource-intensive industries in Saudi Arabia, where Vision 2030 and the national Net-Zero initiative emphasize environmental transformation (Amran et al., 2020). Thus, ethical leadership provides the moral foundation for sustainability and catalyzes green creativity by embedding environmental values within performance control systems.

H2. Green performance management mediates the positive association between ethical leadership and employee green creativity.

The moderating role of individual green values

While ethical leadership and green performance management offer structural and cultural foundations for green creativity, employees' individual green values determine the extent to which they internalize and respond to such cues. Rooted in Supply-Value Fit Theory (Edwards, 1991), individuals exhibit optimal motivation and performance when their values align with organizational expectations. Employees with strong green values are more receptive to leaders' ethical signals and more willing to engage in sustainability-oriented performance systems (Islam et al., 2021; Dumont et al., 2017). Individual green values influence work attitudes and behaviors (Davidov et al., 2008). Employees with strong green values are more likely to support ethical leadership and engage in environmentally responsible behaviors (Barclay and

Barker, 2020). When employee values align with organizational environmental values, they demonstrate a greater commitment to green HR practices, such as green performance management (Hameed et al., 2020). Employees intrinsically motivated by green values are more likely to embrace environmentally friendly practices (Ahmad et al., 2022).

Research suggests that green values serve as critical psychological filters, enabling employees to perceive ethical leaders as credible champions of sustainability (Al-Hawari et al., 2021; Barclay and Barker, 2020). This value congruence enhances the effectiveness of green performance management by motivating employees to transform green performance expectations into creative actions that advance environmental goals (Gilal et al., 2019). Individual green values moderate the relationship between green HR practices and green behavior-related outcomes, including environmental passion and green citizenship behavior (Rehan et al., 2024). Ethical leaders create environments conducive to green behavior by modeling sustainable practices, and employees with high green values reinforce this effect (Islam et al., 2021). HR systems that evaluate green performance encourage employees to contribute to green initiatives.

Deliberate efforts by ethical leaders to promote environmental sustainability enable businesses to establish a green identity (Şengüllendi et al., 2024). Employees with strong green values amplify the influence of ethical leadership and green performance management on green creativity. Social Learning Theory reinforces the idea that employees emulate leaders engaged in sustainable behaviors, especially when their values align with organizational goals (Şengüllendi et al., 2024). In the Saudi context, where organizational hierarchies are deeply entrenched, value alignment between ethical leaders and employees can significantly amplify moral legitimacy and behavioral engagement. Employees with higher green values are more likely to support environmental policies, view green performance management as meaningful, and proactively contribute creative eco-innovations aligned with both organizational and

national sustainability agenda (Şengüllendi et al., 2024). Hence, green values act as a psychological amplifier, strengthening the mediating mechanism of green performance management by making ethical leadership's environmental messaging more resonant and actionable.

H3. Employees' individual green values have a conditional process effect such that the mediation effect of green performance management on the relationship between ethical leadership and employee green creativity will be stronger when individual green values are high than when they are low.

Method

Participants and procedure

We collected time-lagged data from two Saudi global companies (A and B) operating in the energy, chemical, and petroleum sectors. Company A engages in oil and gas production, chemicals, and refined products, emphasizing high professional standards and Environmental, Social, and Governance (ESG) goals. Its annual reports highlight efforts to reduce its carbon footprint through technology and innovation, aligning with Sustainable Development Goals such as affordable energy (SDG-7), climate action (SDG-13), and life on land (SDG-15). It invests in minimizing environmental impacts via technology and nature-based solutions for clean water (SDG-6) and responsible consumption (SDG-12). Company B, specializing in polymers, chemical nutrients, and metals, holds 9,948 patents and prioritizes Environmental, Social, and Governance transparency. Recognized for compliance, it also addresses environmental challenges through technology, contributing to relevant Sustainable Development Goals.

Students in the master's in human resources program at a Saudi Arabian university collected the data. We recruited these students for data collection, offering them extra credit as a reward. We trained them to collect data purely on a volunteer basis, ensuring adherence to ethical

standards. We distributed a letter explaining the purpose of the research and ensuring confidentiality, along with the questionnaire in two parts. The paper-and-pencil survey questionnaires that did not seek participants' personal identity were distributed to employees at Time 1 (T_1) and Time 2 (T_2) with a one-month temporal separation (January-February 2023). A one-month lag, as suggested by Islam et al. (2021a), suffices for time-lagged studies, ensuring reliability.

T_1 data included demographic details, ethical leadership, and green performance management practices. T_2 data, collected from the same participants using unique questionnaire codes, captured individual green values and green creativity. The cross-sectional time-lagged method reduces common method bias and strengthens causal inference by increasing internal validity, particularly for research models requiring a mediation analysis (green performance management) and a moderated mediation analysis (employee green values). It also enables short-term tests that capture variations in the endogenous variable (employee green creativity), which are clearly explained by the exogenous variable (ethical leadership). For matching T_1 and T_2 responses, the survey questionnaires included identification codes assigned by the survey team.

We determined the appropriate sample size using G*Power 3.1. A minimum of 184 participants was required for a medium effect size of $f^2 = .15$, $\alpha = .05$, and power of $1–\beta = .99$ with five predictors. We used convenience sampling to distribute 500 questionnaires, anticipating nonresponses. Participants were permanent employees with at least one year of experience. Each received an invitation letter ensuring voluntary participation and anonymity. Specifically, for T_1, students pre-approached the potential participants on a referral basis and collected responses from 273 employees (273/500 = 54.60% response). However, for T_2, students contacted only those participants who responded on T_1. Due to their field commitments, 23 participants were unable to respond during the T_2 survey (250/273 = 91.58%

response). Thus, the final sample appeared to be $N = 250$ (overall, 250/500 = 50% response). Respondents included 123 males and 127 females; 34.4% had less than five years of experience, 25.6% had 5–10 years, and 40% had over 10 years. Educational qualifications varied, with 60% holding bachelor's degrees, 19.2% master's degrees, 2.4% doctorates, and the rest technical certifications.

Measures

We used validated, English-language measures recommended by Islam et al. (2023).

Ethical leadership. It is defined as "the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making" (Brown et al., 2005, p. 120). This scale was deemed appropriate as it offered others' reported opinions, which are crucial for mitigating social desirability bias that could happen in the case of self-reported assessments of ethical practices. Employees assessed their managers using a 10-item scale (Brown et al., 2005), e.g., "My manager sets an example of how to do things the right way in terms of ethics." This scale, validated in collectivist cultures like Saudi Arabia, used a 7-point rating from 1 (highly unlikely) to 7 (highly likely), achieving Cronbach's $\alpha = .92$ and $\rho_c = .94$.

Green performance management. Employees reported on a 6-item subscale from Shah's (2019) 28-item green human resource management scale, e.g., "My company reinforces compliance with meeting environmental goals." Responses ranged from 1 (strongly disagree) to 5 (strongly agree), with $\alpha = .95$ and $\rho_c = .96$.

Green creativity. Measured using Chen and Chang's (2013) 6-item scale, e.g., "The members of my organization promote and champion new green ideas to others." Items replaced "the green product development project" with "my organization." The scale used a 5-point rating (1 = strongly disagree, 5 = strongly agree), yielding $\alpha = .96$ and $\rho_c = .97$.

Individual green values. Assessed via Chou's (2014) 5-item scale, e.g., "I feel obliged to save the environment from degradation, regardless of what others do." The scale used a 5-point rating (1 = strongly disagree, 5 = strongly agree), yielding $\alpha = .90$ and $\rho_c = .93$.

Control variables. Gender (1 = women, 2 = men), education (1 = high school, 2 = associate degree, 3 = bachelor's, 4 = master's, 5 = doctorate), and experience (1 = < 5 years, 2 = 5 – 10 years, 3 = > 10 years) were controlled to account for individual creativity differences (Chen and Chang, 2013).

Analysis and Results

Preliminary analysis

We used partial least square structural equation modeling to examine the measurement structure before testing our hypotheses, verifying the measures with ten standard model fit and quality metrics. Five additional indices compared model-implied and empirical indicator correlation matrices. Table I shows the indices, values, and acceptable levels for the three models: baseline (Model 1), mediational (Model 2), and moderated mediational (Model 3). All indices were within acceptable thresholds. For robustness, we assessed the measurement structure using MPlus 7.0 (Muthén and Muthén, 1998), yielding good fit estimates: $\chi^2/df = 830.89/318 = 2.61$, $p < .001$; CFI = .91; TLI = .90; RMSEA = .08, $p < .001$.

[Insert Table I here]

Following Hair Jr. et al.'s (2021) guidelines, we computed both Cronbach's α and composite reliability coefficients (ρc) to represent internal consistency in PLS. All constructs showed Cronbach's α values of .92 – .96 and ρ_c values of .93 – .97, exceeding the .70 threshold (Table II).

[Insert Table II here]

Construct validity was confirmed through convergent and divergent validity. For convergence, all factor loadings met the ≥ .50 threshold ($.58 \leq \lambda \geq .93$, ps < .001), and all

constructs had AVE values between .59 and .83 (Table III). Divergent validity was verified as the square root of AVE exceeded latent variable correlations, and factor loadings ($.58 \leq \lambda \geq .93$) were higher than cross-loadings ($.00 \leq |\lambda c| \geq .23$).

To ensure internal validity, we examined VIFs and error terms of endogenous variables. No significant link between error terms ($r(e) = .01$, $p = .85$) and acceptable VIFs (≤ 3.3) supported robustness. Predictive validity ($Q^2 \neq 0$) for endogenous variables further confirmed the model's validity (Table IV).

[Insert Table III here]

Common method bias was addressed using ex ante and ex post remedies. Procedural remedies minimized bias during survey design and administration. Specifically, we employed two strategies: 1) We randomized survey questions, and 2) we used different response categories (Podsakoff et al., 2003). Ex post, we conducted a full collinearity test (Kock, 2015) to detect inflation or deflation due to lateral and vertical collinearity. All VIF values ranged from 1.07 to 2.37, within the acceptable ≤ 3.3 range. Average block variance inflation factor (AVIF = 1.08) and average full collinearity variance inflation factor (AFVIF = 1.45) were ideal (≤ 3.3), indicating minimal bias (Table I).

Thus, the results demonstrated robust measurement validity and reliability, ensuring the integrity of hypothesis testing outcomes. In addition to all the above estimates, participants from two comparable industries reduced the likelihood of industry-specific effects. They held diverse positions, including managerial, technical, administrative, and operational roles. Using ANOVA with Scheffe's post hoc test, we found no significant differences in green creativity between job position groups, $F(6, 243) = 1.09$, $p = .37$.

Hypothesis testing

The baseline model (hypothesis 1), mediation model (hypothesis 2), and moderated mediation model (hypothesis 3) are examined in WarpPLS 8.0 (Kock, 2022). Specifically, to demonstrate

the robustness of our results pertaining to hypotheses 2 and 3, we also employed the additivity assumption (MacKinnon et al., 2012).

Hypothesis 1 suggests that ethical leadership increases employee green creativity. Table IV, Model 1, reveals that ethical leadership positively and significantly affects employee green creativity (path *c*: $\beta = .30$, $t = 5.00$, $p < .001$). Hypothesis 1 is, hence, supported.

Hypothesis 2 suggests that ethical leadership and employee green creativity are linked via green performance management. Table IV, Model 2, reveals that ethical leadership positively relates to green performance management (path *a*: $\beta = .36$, $t = 6.05$, $p < .001$). Green performance management also positively relates to employee green creativity (path *b*: $\beta = .64$, $t = 11.27$, $p < .001$). After controlling green performance management, the association between ethical leadership and employee green creativity turned non-significant (path *c'*: $\beta = .11$, $t = 1.84$, *ns*). More specifically, results indicated that ethical leadership indirectly relates to employee green creativity via green performance management ($\beta = .23$, $t = 5.35$, $p < .001$).

Despite our study's design and analysis demonstrating temporality (the cause occurred prior to the effect on the timeline) and strength (a statistically stronger relationship appeared rather than a weaker relationship), we deemed it appropriate to assess the robustness of our results by employing the additivity assumption (MacKinnon et al., 2012). This maintains that the mediational effect is internally valid if the interaction effect of the mediating variable on the baseline relationship is not significant. Table V, Model 4, reveals that the interaction effect of green performance management ($\beta = .07$, $t = 1.06$, $p = .15$) on the relationship between ethical leadership and green creativity is non-significant. Thus, non-violation of the additivity assumption ensures the mediational effect's internal validity. Hypothesis 2 is, hence, supported.

[Insert Table IV here]

Hypothesis 3 states that green performance management's mediation effect on ethical leadership and employee green creativity is stronger when employees' green values are high. Table IV, Model 3, reveals that ethical leadership positively relates to green performance management (path *a*: $\beta = .37$, $t = 6.14$, $p < .001$). Green performance management also positively relates to employee green creativity (path *b*: $\beta = .64$, $t = 11.27$, $p < .001$). After controlling green performance management, the association between ethical leadership and employee green creativity turned non-significant (path *c'*: $\beta = .11$, $t = 1.84$, *ns*). Furthermore, individual green values have a positive interaction effect on the relationship between ethical leadership and green performance management ($\beta = .15$, $t = 2.51$, $p < .01$). The above initial evidence of the interactional effect of employees' individual green values in the presence of the mediational effect of green performance management is substantiated. That is, it is substantiated by the moderated mediation effect of employees' individual green values on the mediational effect of green performance management between the relationship of ethical leadership and employees' green creativity ($\beta = .10$, $t = 2.25$, $p < .05$).

Once again, despite our study's design and analysis demonstrating temporality and strength, we deemed it appropriate to assess the robustness of our results by employing the additivity assumption (MacKinnon et al., 2012). This time, to ensure that the moderated mediation effect is internally valid, we examined it on Path B (i.e., between green performance management and green creativity). Table V, Model 5, reveals that the moderated mediation effect of employees' individual green values ($\beta = –.05$, $t = –.78$, $p = .22$) is non-significant. Thus, non-violation of the additivity assumption ensures the mediational effect's internal validity. Hypothesis 3 is, hence, supported.

Figure 1 summarizes results on hypothesized relationships, Figure 2 summarizes the results of the robustness check, i.e., the additivity assumption, and Figure 3 depicts the interaction effects.

[Insert Table V here]

[Insert Figure 1 here]

[Insert Figure 2 here]

[Insert Figure 3 here]

Discussion

Our study examined the green creativity of employees working for two global Saudi companies, focusing on the role of ethical leadership through individual and firm-level mechanisms. While prior research has linked ethical leadership to green productivity (Ahmad et al., 2022; Şengüllendi et al., 2024), the underlying mechanisms remain unclear. Drawing on Social Learning Theory, we explored how ethical models shape pro-environmental behaviors. We argue that leaders as social referents influence followers' behavioral outcomes in daily business and firm values (Toor and Ofori, 2009). Our findings strongly support the link between ethical leadership and green creativity in an oil-rich economy.

The study proposed that ethical leadership indirectly affects employee green creativity through green performance management. Green performance management acts as a reinforcement process, aligning employee behavior with firm objectives and the ethical values leaders wish employees to follow. Literature on sustainability highlights the importance of control systems in ensuring that sustainability goals are achieved (Beusch et al., 2022). Other studies support the claim that green performance management can enhance creative efforts (Avolio and Bass, 1995; Bahzar, 2019; Bandura, 2001).

The study highlights that companies' economic success aligns with achieving green objectives (Mousa and Othman, 2020). By rewarding employees' green creativity, green performance management helps recognize and incentivize pro-environmental behaviors (Merriman and Sen, 2012; Mousa and Othman, 2020). Ethical leaders, driven by high moral standards, are well-positioned to adopt human resource management-based control systems

like green performance management, influencing employee attitudes and behaviors toward green creativity (Renwick et al., 2013).

We further discovered that the mediation effect of green performance management on the ethical leadership–green creativity relationship strengthens when employees hold strong green values. Ethical leaders foster sustainability among key stakeholders, including the business and its employees (Hörisch et al., 2014). These leaders inspire pro-environmental behaviors through their valid and influential positions (Nazir et al., 2021; Toor and Ofori, 2009). Our results suggest that ethical leadership, which instills individual green values and establishes control mechanisms like green performance management, enhances employee green creativity. These findings align with Supply-Value Fit Theory (Edwards, 1996), emphasizing the importance of value alignment between ethical leaders and employees. Our findings are also consistent with studies that explore individual green values as crucial for environmental sustainability (Al-Hawari et al., 2021; Islam et al., 2021).

Theoretical implications

Building on the above, the study holds significance in three key areas: First, the study reinforces the assertions of Social Learning Theory (Bandura and Walters, 1963) by demonstrating that ethical leadership serves as a role model for employees in learning, emulating, and engaging in environmentally sustainable behaviors. The effectiveness of this process is enhanced when leaders utilize a green performance management system. The primary concept in the aforementioned finding is that green performance management serves as a reinforcement mechanism within the framework of Social Learning Theory.

Second, the study further supports Supply-Value Fit Theory (Edwards, 1991) by demonstrating that employee green values are congruent with organizational values, particularly when leaders advocate for ethics and integrate it into green performance

management. The conditional effect of employee green values increases value congruence and enhances the perceived legitimacy of creative ideas.

Third, the study integrates Social Learning Theory (Bandura and Walters, 1963) and Supply-Value Fit Theory (Edwards, 1991) by examining the mechanisms of reinforcement and the relevance of value congruence within a unified framework. This theoretical integration is expected to broaden the scope of future green research.

Lastly, this study supports ideas that have already been put forward and adds new information to the existing scholarship on green HRM, ethical leadership, and green creativity. Generally, ethical leadership is considered merely a moral factor that affects how well a business does. Through value alignment and green performance management, two HRM control methods, our study indicates that ethical leadership leads to employee creativity that is advantageous for the environment. This combination goes beyond just matching theory with examples to demonstrate an actually supported model that links small-scale leadership ethics with large-scale sustainable systems. This study is advantageous for academics because it lays the groundwork for multiple models that connect leadership, human resource management, and environmental innovation. It also makes the social learning and supply-value fit theories more general. Therefore, this study broadens the existing understanding of green HRM and leadership while providing supporting evidence.

Practical implications

The findings hold important implications for firms and management practices. First, companies should prioritize investment in ethical leadership development by educating leaders on ethics, with a particular focus on promoting pro-environmental behaviors, articulating green values, and advocating sustainability.

Second, managers should implement comprehensive green performance management by systematically integrating environmental objectives, such as responsible consumption, into

performance evaluations. Provide specific feedback and link rewards or recognition to measures of environmentally sustainable performance.

Third, managers should assess and promote individual environmental values by incorporating ecological value assessments into recruitment and promotion criteria. Implement internal communication and training programs that leverage cultural and religious values, such as Islamic environmental stewardship in Saudi Arabia, to enhance employee alignment with firm sustainability goals and foster value congruence.

Finally, managers may tailor strategies to recognize that employees with lower green values require more significant reinforcement through green performance management, whereas those with higher green values benefit from autonomy and resources to pursue green initiatives. Green performance management provides the fundamental framework for both.

Limitations and future directions

The study had topical, theoretical, and conceptual limitations. First, the study's focus on high-impact sectors like oil, gas, and chemicals in Saudi Arabia's unique national context—characterized by its oil-rich economy, Islamic culture, and ambitious Vision 2030—limits its applicability to service sectors, non-resource-based economies, or significantly different cultural settings.

Second, the research uses social learning and supply-value fit theories to emphasize reinforcement and value congruence. However, certain theoretical lenses might be added to cover additional SDGs and ESG targets. For instance, if combined, the Ability-Motivation-Opportunity (AMO) framework for green performance management and the Theory of Planned Behavior for individual green values may have offered a larger picture.

Finally, we picked individual green values, which are steady and less likely to capture their evolution. Green creativity is examined solely as idea creation; therefore, essential steps to

integrate innovation in the framework are missing. Future researchers may address these limitations to expand the green agenda.

Conclusion

This study provides that ethical leadership indirectly promotes green creativity in Saudi Arabian energy and chemical firms. Formal green performance management systems incorporate leadership ideas with Social Learning Theory-based goals and reinforcements. Individual green values drive ethical leadership for developing green performance management systems and green creativity. Supply-Value Fit Theory is supported by the fact that ethical leaders and green performance management promote environmental principles that employees share. These findings show that sustainable firms are likely to develop ethical leaders who publicly promote green values, design robust green human resource management practices like green performance management to institutionalize and reinforce these values through performance expectations and rewards, and actively promote value congruence among employees through selection, communication, and development. Future research should evaluate value shift dynamics, green idea implementation, and model adaptation across contexts to harness employee potential for environmental innovation.

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Standardized threshold difference count ratio	1.00	1.00	1.00	Ideal: = 1.00, Acceptable: ≥ .70
Standardized threshold difference sum ratio	1.00	1.00	1.00	Ideal: = 1.00, Acceptable: ≥ .70

$N = 250$, $^{***}p < .001$

Table III. Indicator Statistics

Indicators	Constructs				f^2	T	$CI_{95\%}$
	EL	GPM	GC	IGV			
EL1	**.80**	–.16	.07	–.06	.11	14.59	[.70; .91]
EL2	**.58**	–.11	.10	.02	.06	10.20	[.47; .70]
EL3	**.67**	.22	–.23	.00	.08	11.79	[.56; .78]
EL4	**.83**	.12	–.05	–.06	.12	15.07	[.72; .93]
EL5	**.86**	.08	–.11	–.03	.12	15.68	[.75; .96]
EL6	**.75**	–.13	.01	–.04	.10	13.49	[.64; .86]
EL7	**.79**	–.05	.06	.04	.11	14.32	[.68; .90]
EL8	**.80**	.13	–.02	.06	.11	14.51	[.69; .91]
EL9	**.80**	–.01	.04	.10	.11	14.56	[.69; .91]
EL10	**.77**	–.11	.15	–.01	.10	13.86	[.66; .88]
GPM1	.02	**.88**	–.06	.00	.17	16.27	[.78; .99]
GPM2	.03	**.89**	.04	.02	.17	16.38	[.78; 1.00]
GPM3	.03	**.89**	.06	–.06	.17	16.47	[.79; 1.00]
GPM4	–.09	**.87**	–.02	–.02	.16	16.01	[.77; .98]
GPM5	–.02	**.89**	.02	.05	.17	16.42	[.79; 1.00]
GPM6	.02	**.88**	–.05	.01	.17	16.21	[.78; .99]
GC1	–.01	.03	**.86**	.01	.15	15.83	[.76; .97]
GC2	–.02	.01	**.91**	–.10	.17	16.88	[.81; 1.02]
GC3	–.02	.03	**.93**	.02	.17	17.28	[.83; 1.04]
GC4	.01	.03	**.93**	.02	.17	17.23	[.82; 1.04]
GC5	.00	–.05	**.93**	.04	.17	17.14	[.82; 1.03]
GC6	.04	–.05	**.91**	.02	.17	16.75	[.80; 1.01]
IGV1	.02	.02	.09	**.84**	.20	15.29	[.73; .95]
IGV2	.02	.12	–.04	**.87**	.21	15.96	[.76; .98]
IGV3	–.03	.01	–.02	**.86**	.21	15.67	[.75; .96]
IGV4	.03	–.20	.10	**.82**	.19	15.02	[.72; .93]
IGV5	–.04	.05	–.13	**.83**	.20	15.21	[.73; .94]

$N = 250$, f^2 = Effect Size, $CI_{95\%}$ = Confidence Interval; All factor loadings (λ), in bold face, are significant at $p < .001$ and Standard Error = .05 – .06; Factor loadings are unrotated and cross-loadings (λ_c) are oblique-rotated; EL = Ethical Leadership, GPM = Green Performance Management, GC = Green Creativity, IGV = Individual Green Values.

Table IV. Test of Hypotheses

Effects	*B*	*t*	$CI_{95\%}$	f^2	R^2	Q^2
Model 1: Baseline (Hypothesis 1)						
Control variables						
Gender → GC	.09	1.48	[–.03; .21]	.01		
Education → GC	.26	4.28***	[.14; .38]	.08		
Experience → GC	–.21	–3.41***	[–.33; –.09]	.05		
Direct effect						
EL → GC (path *c*)	.30	5.00***	[.18; .42]	.11	.26	.26
Model 2: Mediation (Hypothesis 2)						
Control variables						
Gender → GC	.03	.43	[–.10; .15]	.00		
Education → GC	.13	2.03*	[.01; .25]	.04		
Experience → GC	–.11	–1.70	[–.23; .02]	.03		
Direct effects						
EL → GPM (path *a*)	.36	6.05***	[.24; .48]	.13	.13	.13
GPM → GC (path *b*)	.64	11.27***	[.53; .75]	.47	.58	.59
EL → GC controlling GPM (path *c′*)	.11	1.84	[–.01; .24]	.04		
Indirect effect						
EL → GPM → GC	.23	5.35***		.09		
Model 3: Moderated Mediation (Hypothesis 3)						
Control variables						
Gender → GC	.03	.43	[–.10; .15]	.00		
Education → GC	.13	2.03*	[.01; .25]	.04		
Experience → GC	–.11	–1.70	[–.23; .02]	.03		
Direct effects						
EL → GPM	.37	6.14***	[.25; .48]	.13	.15	.15
GPM → GC	.64	11.27***	[.53; .75]	.47	.58	.57
EL → GC	.11	1.84	[–.01; .24]	.04		
Moderated effect						
EL X IGV → GPM	.15	2.51**	[.03; .28]	.02		
Conditional indirect effect						
EL → GC	.23	5.42***		.09		
Moderated mediation effect						
IGV	.10	2.25*		.01		

$N = 250$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$; EL = Ethical Leadership, GPM = Green Performance Management, GC = Green Creativity, IGV = Individual Green Values.

Table V. Robustness Check – Additivity Assumptions

Effects	*B*	*t*	$CI_{95\%}$	f^2	R^2	Q^2
Model 4: Additivity Assumption – H2						
Control variables						
Gender → GC	.03	.45	[–.10; .15]	.00		
Education → GC	.12	1.96*	[.01; .24]	.04		
Experience → GC	–.10	–1.66	[–.23; .02]	.03		
Direct effects						
EL → GPM	.36	6.05***	[.24; .48]	.13	.13	.13
GPM → GC	.63	11.02***	[.52; .74]	.46	.59	.59
EL → GC	.11	1.70	[–.02; .23]	.04		
Moderated effect						
EL X GPM → GC	.07	1.06	[–.06; .19]	.02		
Model 5: Additivity Assumption – H3						
Control variables						
Gender → GC	.03	.41	[–.10; .15]	.00		
Education → GC	.12	2.01*	[.01; .25]	.04		
Experience → GC	–.11	–1.75	[–.23; .01]	.03		
Direct effects						
EL → GPM	.36	6.05***	[.24; .48]	.13	.13	.13
GPM → GC	.62	10.97***	[.51; .74]	.46	.56	.59
EL → GC	.12	1.85	[–.01; .24]	.04		
Moderated effect						
GPM X IGV → GC	–.05	–.78	[–.17; .07]	.01		
Conditional indirect effect						
EL → GC	.22	5.21***		.09		
Mediated moderation effect						
IGV	–.05	–.78		.01		

N = 250, *p < .05, ***p < .001; EL = Ethical Leadership, GPM = Green Performance Management, GC = Green Creativity, IGV = Individual Green Values.

Figure 1. Summary of Results – Hypothesized Relationships

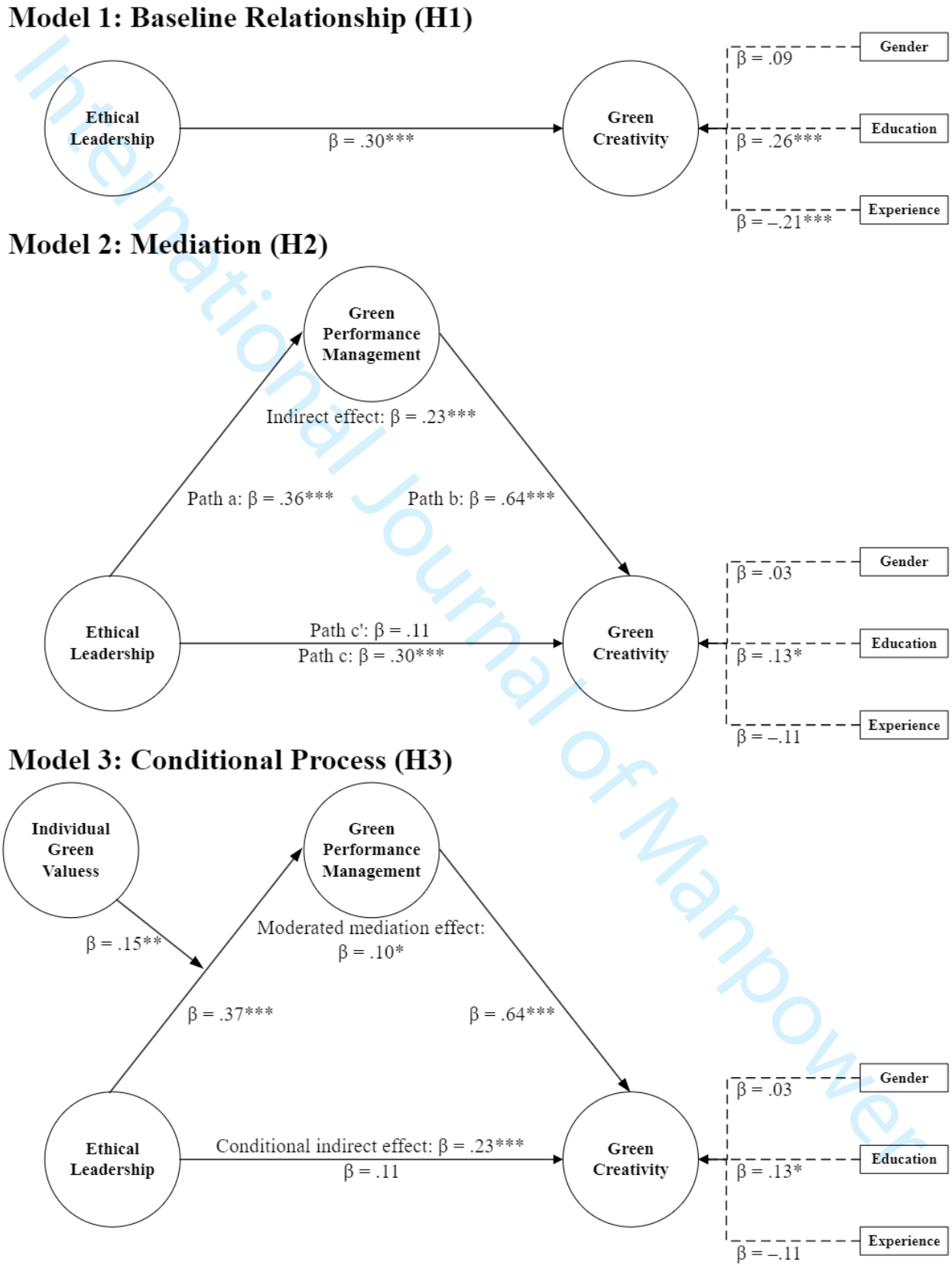


Figure 2. Summary of Results – Robustness Check

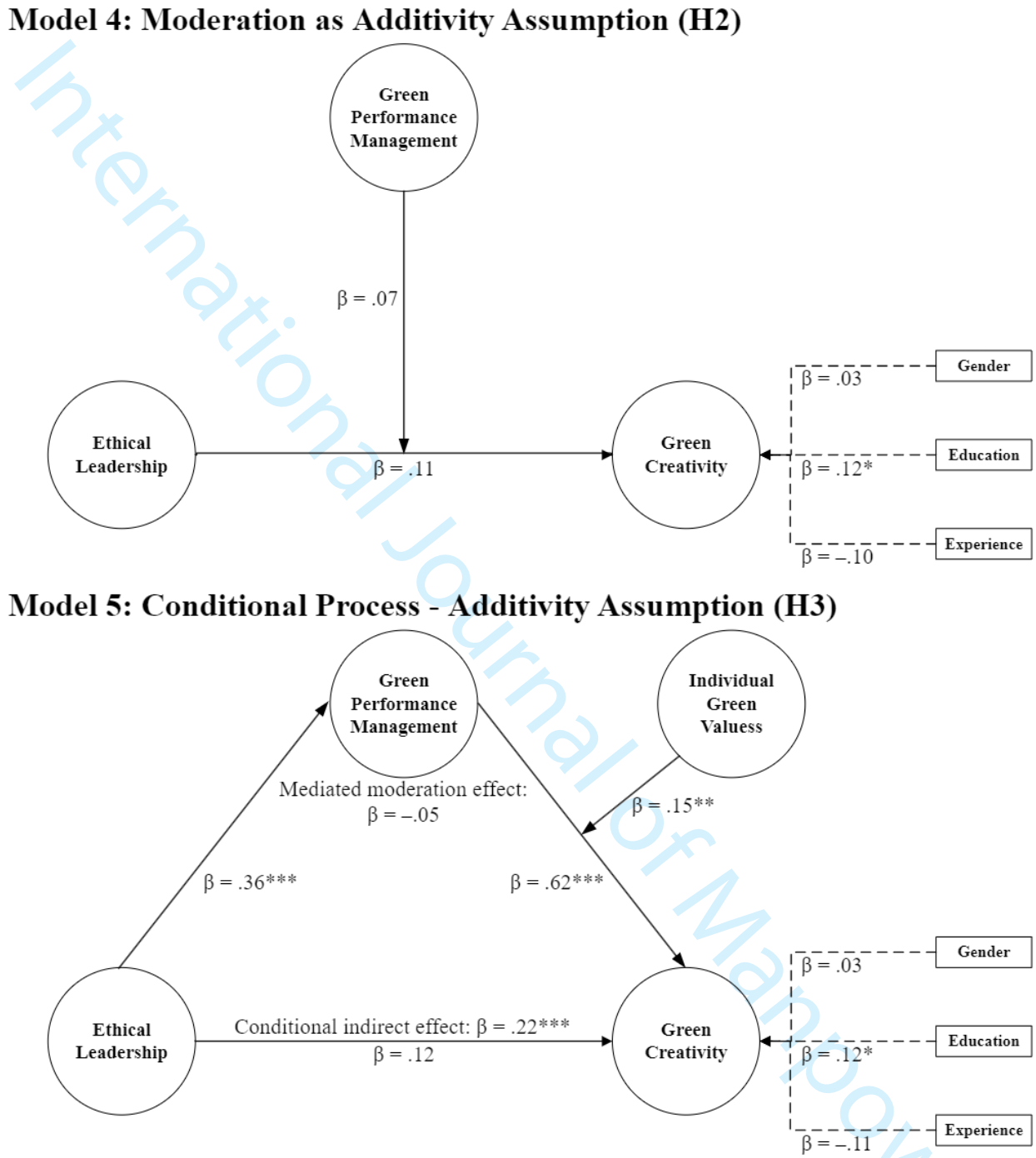
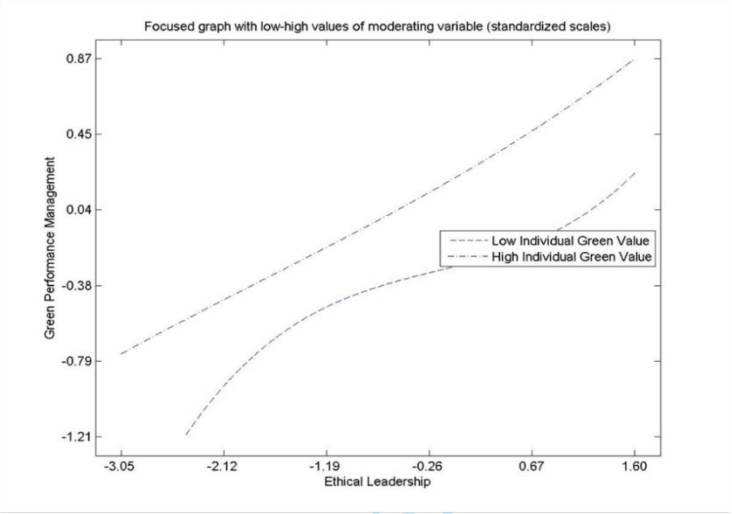
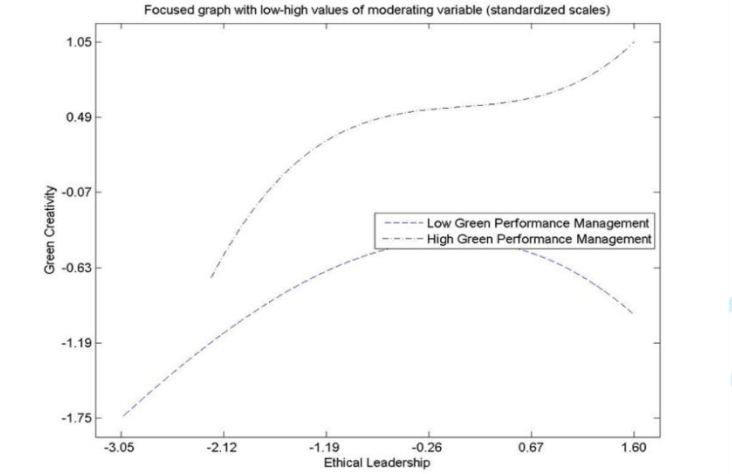


Figure 3. Interaction Effects

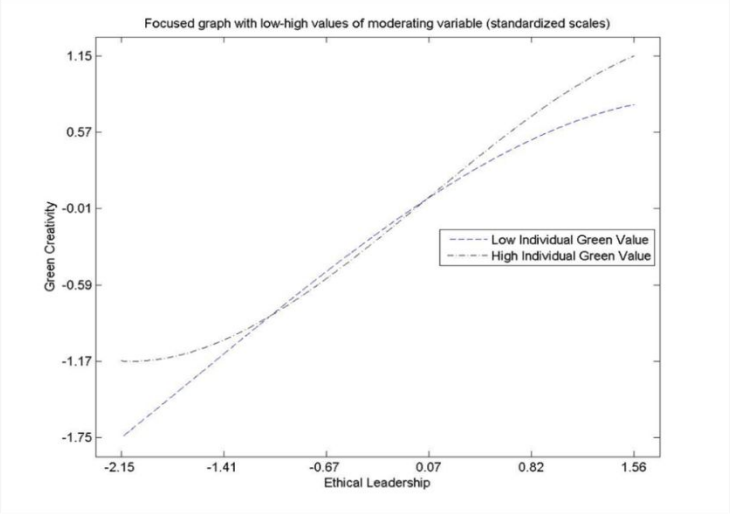
Model 3: Interaction Effect (H3)



Model 4: Interaction Effect - Additivity Assumption (H2)



Model 5: Interacton Effect - Additivity Assumption (H3)



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How Ethical Leadership and Green Values Influence Green Performance Management and Creativity? Evidence from Firms in Saudi Arabia

On successful completion of the first round of review, we appreciate more words of encouragement and valuable feedback from the anonymous reviewers as well as from Dr. Abhishek Behl, Associate Editor, International Journal of Manpower. We are pleased that one reviewer is entirely satisfied with the manuscript, and we are also motivated to still improve it in light of the comments from the other reviewer. These comments need minor revisions to improve the quality of our article by bringing in more clarity where needed. We have once again tried to address all the concerns of the reviewer in this second round of review. We hope the updated manuscript is much better and adheres to the guidelines of the International Journal of Manpower. The following table contains our replies to the two reviewers' remarks. Additionally, as desired by the Editor, the text modifications are highlighted in yellow.

Reviewer 1

Review Question	Comment	Reply
		We are grateful to you for providing insightful feedback on the first round of review. We appreciate that you have taken keen interest in improving our study and provided more developmental feedback for the second round of review. We once again assure you that we have taken all your comments seriously and tried to address them in letter and spirit.
R1-1. Originality: Does the paper contain new and significant information adequate to justify publication?:	**R1-1**. Yes, this research addresses a timely topic. The arguments are well-developed, the data is appropriately analysed, and the results offer insights that have the potential to inform future research and practice.	**R1-1**. Thank you for your positive feedback regarding the relevance and quality of the research. We appreciate your recognition of the well-developed arguments and thorough data analysis. We believe that the insights gained from this study will indeed contribute to both future research and practical applications in the field. Your encouragement is invaluable as we continue to explore this important topic.

R1-2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?:	**R1-2**. Yes, the literature review has been improved upon by the author(s) and flows well now. However, the introduction section still needs some work. The author(s) write that "significant gaps remain in understanding the mechanistic roles and boundary conditions that shape the relationship between ethical leadership and green creativity". So what? Why is it important to study these gaps? the mere presence of a gap does not in itself justify undertaking a study. A stronger rationale is needed to explain why this particular gap should be addressed. Specifically, the paper would benefit from clarifying the motivation behind the study. Why filling this gap is important for advancing the literature, and how the findings will be relevant and meaningful for practitioners. Without this justification, the contribution risks appearing descriptive rather than significant.	**R1-2.** Thank you very much for this wise remark. We introduced changes to the opening to make the theory and practical reasons for filling the gap clearer. We added a new paragraph that goes into more detail about why it's important to understand the mechanics and limits of ethical leadership and green creativity. The addition makes it clearer in the Introduction section that this study contributes to theory by showing how ethical leaders can encourage green creation through feedback and value alignment. It also stresses how important this study is for managers in industries that are pressured to be more environmentally friendly. This addition strengthens the incentive reasoning and demonstrates the study's academic and practical value. The following text is added at p. 3, l. 10 - 25). "It makes sense to address the aforementioned gaps. At the theoretical level, we could learn more about the connection between environmentally friendly creativity and ethical leadership by describing the limits and ways in which these two concepts work together. We should go beyond the simple question of whether leaders can influence environmentally friendly new ideas. The existing conversation has focused on direct connections, resulting in a lack of new explanations. This study contributes to the expanding research on green HRM and leadership by examining sustainable

		behaviors from a process perspective. It does this by combining value alignment (by individual green values) and feedback processes (through green performance management). On the practical side, there exists a pressure on companies in businesses with big effects on the environment, like oil, gas, and chemicals, to achieve a balance between getting financial strength and taking care of the environment. Thus, our study encourages managers to first understand the processes that encourage green creativity in order to make leadership programs, performance review systems, and human resources policies that promote both moral behavior and new ideas for sustainability. Therefore, we expect that addressing the abovementioned gaps may guide companies to turn ethical leadership into real, visible, and long-lasting environmental benefits."
R1-3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?:	**R1-3**. Yes, the new section on participants and procedures is well crafted and clarifies previously unanswered questions.	**R1-3**. Thank you for your positive feedback on the new section regarding participants and procedures. We are glad to know that it effectively addresses previous uncertainties. Your insights are invaluable, and I appreciate your acknowledgment of the enhancements made to improve clarity in the study.
R1-4. Results: Are results presented clearly and analysed appropriately? Do	**R1-4**. Yes, the results are clearly presented and analysed appropriately.	**R1-4**. We are grateful to you for your encouraging remark regarding the presentation and analysis of the

the conclusions adequately tie together the other elements of the paper?:		results. We strive to communicate our findings clearly and effectively, and it is encouraging to know that this effort resonated with you.
R1-5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?:	**R1-5**. The implications are quite descriptive in nature. In the theoretical implications section, the authors propose that their research supports the theories of social learning and supply-value fit. However, is that a significant contribution? Putting the findings of this research in the broader context of the literature on green HRM, ethical leadership and green creativity, would help in this area. How do the findings of this research contribute to the broader literature? How does it bring novelty and value to this literature? Why should researchers care about this? Trying to answer some of these questions will help you articulate your theoretical contributions in a better way.	**R1-5**. We appreciate this valuable suggestion. We have expanded the theoretical implications section by adding the final paragraph to situate our contribution within the broader literature on green HRM, ethical leadership, and green creativity. The revised paragraph clarifies that our study contributes novelty by (1) identifying green performance management as a concrete reinforcement mechanism through which ethical leadership promotes creativity, and (2) integrating individual green values as a boundary condition linking leadership ethics to HRM systems. These additions highlight how the study advances theory development rather than merely supporting existing frameworks. This revision strengthens the articulation of our theoretical contribution and clarifies its significance for future research. The following text is added at *p*. 21, *l*. 5 - 16). "Lastly, this study supports ideas that have already been put forward and adds new information to the existing scholarship on green HRM, ethical leadership, and green creativity. Generally, ethical leadership is considered merely a moral factor that affects how well a business does. Through value alignment and green performance management, two HRM control methods, our study indicates that ethical leadership leads to

		employee creativity that is advantageous for the environment. This combination goes beyond just matching theory with examples to demonstrate an actually supported model that links small-scale leadership ethics with large-scale sustainable systems. This study is advantageous for academics because it lays the groundwork for multiple models that connect leadership, human resource management, and environmental innovation. It also makes the social learning and supply-value fit theories more general. Therefore, this study broadens the existing understanding of green HRM and leadership while providing supporting evidence.
R1-6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the fields and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.:	**R1-6**. Yes, the paper is readable and I can see that several typing errors have been corrected now.	**R1-6**. Thank you for your positive feedback! We are glad to know that you have noticed that the readability of our manuscript is much improved and that the typing errors have been addressed. We appreciate your support and engagement!
		We once again thank you for taking the time to review our paper and provide insightful feedback.