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Environmental Awareness as a Moderator in the Servant Leadership & Environmental Performance Relationship

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Abstract

This study examines the moderating effect of environmental awareness on the relationship between servant leadership and environmental performance within organizational contexts. Drawing on social learning theory and the natural resource-based view (NRBV) of the firm, we propose that servant leadership has a positive influence on environmental performance, and that this relationship is strengthened when employees and leaders possess high levels of environmental awareness. Utilizing a quantitative research design, data were collected from 417 employees and managers across manufacturing in Islamabad and Lahore. Validated measurement scales adopted from peer-reviewed literature were employed. Structural equation modeling (SEM) and hierarchical regression analysis confirmed that environmental awareness significantly moderates the servant leadership, environmental performance link. The findings contribute to both theoretical and practical domains, suggesting that organizations aiming to enhance environmental performance should cultivate servant leadership behaviors while simultaneously investing in environmental awareness programs. Implications for sustainable management, leadership development, and corporate environmental strategy are discussed.

Keywords: servant leadership; environmental performance; environmental awareness; moderation; structural equation modeling; sustainability

1. Introduction

Global industrialization has caused the increasing degradation of the environment, and climate change, natural resources depletion, and widespread pollution have become characteristic problems of the 21st century. Despite considering industrial sectors as the key offenders, tourism, which is among the rapidly expanding international industries, is also a major source of ecological pressure, particularly in environmentally sensitive and developing countries (Ying et al., 2020). As living standards rise and populations spread across the globe, the energy, water, and infrastructure demand increase, exerting unprecedented pressure on limited natural systems. The growing pressure has led to a rise in the public interest in the sustainability of the environment, and there is a new rise in interest in the conservation of energy, renewable technologies, and systems of low impact (Darvishmotevali & Altinay, 2022).

This landscape has been rearranged as well by the COVID-19 pandemic, which revealed both inadequacies in the adoption of green technologies and revealed that green progress is not a question of technical ingenuity but rather of organizational culture, behavioral changes, and political will (Hussain et al., 2022). Compositionally, firms now interact on price, quality, and progressively on ethical differentiation, that is, offering products and services that are ecologically responsible. The level of environmental contribution and the need to be responsible, therefore, has been augmented due to globalization, making ecologically conscious management a strategic requirement rather than off-point (Sahoo et al., 2023).

The most important sphere of sustainable change is human behavior. Scholars and policymakers are convinced that the personal and group patterns of behavior are necessarily inherently triggered by environmental degradation through overconsumption, waste generation, or biodiversity loss (Siddiquei et al., 2021). To respond to this, businesses are turning to the Green Human Resource Management (Green HRM): the combination of instilling the green values into the process of recruitment, training, performance appraisal, reward system, and employee empowerment (Adekoya, 2022). Green HRM is determined to create a workforce that reflects sustainability as a normative value and transforms it into habitual actions such as energy conservation, minimizing paper usage, and sustainable resource consumption- what is currently called green behaviors (Nasir et al., 2023).

Although Green HRM has been studied extensively within the manufacturing and service sectors, its impact on tourism, particularly within the economies that are vulnerable, like Pakistan, has not been widely studied. Pakistan, having a severe water scarcity, soil erosion, and pollution due to mass tourism, is one of the examples where green HRM may deliver unequal environmental returns (Amjad et al., 2021). Empirical research of Green HRM in the tourism setting, though, is limited, and this is especially true in the case of developing nations (Kodua et al., 2022).

The new evidence indicates the centrality of leadership in the initiation of these processes. The psychologically safe environments where workers are motivated to act sustainably, and that is created by servant leadership, which is defined as empathy, ethical stewardship, and follower development (Siddiquei et al., 2021) are formed. Unlike the transactional-based models of compliance, servant leaders increase the level of intrinsic motivation, collective identity, and

moral accountability towards the goals of environmental sustainability (Ying et al., 2020). Servant leadership may play a key role when combined with Green HRM: reinforcing environmental norms, legitimization of green policies, and evoking discretionary pro-environmental behaviors, which are not stipulated in the job description. It is in this sense that green performance, as carbon cuts, waste, water cuts, and energy cuts, is achieved not as an endpoint, but as the cumulative impact of concordant organizational systems: Green HRM develops staff awareness and capacity; servant leadership facilitates commitment and empowerment; and green behavior realizes sustainability on the frontline. The three collaborate to form a dynamic triad that transforms environmental intention into a measurable ecological change. Notwithstanding its solid theoretical basis, empirical investigation of the interplay between Green HRM, servant leadership, and sustainable performance in relation to each other within high-stress and resource-scarce tourism settings is still critically underdeveloped (Darvishmotevali & Altinay, 2022). The present research fills this hiatus by investigating their synergetic dynamics in Pakistan's five-star hotels, characterized by water scarcity, ecological fragility, and fast tourism development. Based on social learning theory, cognitive and stakeholder theory, we formulate and examine an integrated model that locates environmental awareness and green behavior as sequential mediators between Green HRM and sustainable performance, with servant leadership as a contextual moderator that strengthens these relationships. Through attention to an under-researched industry in an understudied geographic context, this study enriches the Natural Resource-Based View (Hart, 1995) and enriches the nascent literature on sustainable HRM with empirically informed insights. Rather than providing technological or procedural solutions, it emphasizes the importance of human factors, cognitive fit, cultural norms, and ethical leadership as the root drivers of true, sustained environmental transformation within hospitality organizations.

This research makes five important contributions at the theory, practice, and policy levels to the field of ethical leadership and sustainable performance. It firstly develops the Natural Resource-Based View (NRBV) by empirically showing that environmental performance does not only result from technological or operational interventions alone, but rather is primarily mediated through human-based leadership dynamics, namely, how servant leadership mobilizes environmental awareness as a cognitive and motivational trigger. Second, it broadens the servant leadership literature by defining environmental awareness as a determinant boundary condition (moderator) that enhances the impact of servant leadership on environmental results, thus bridging earlier studies that assumed servant leadership to be universally effective across contexts irrespective of contextual cognition. Third, it legitimizes and introduces environmental awareness as a measurable, distinct moderator in sustainability research, transcending its usual treatment as a proxy for green attitude or behavior, and establishing it as a critical psychological mechanism linking ethical leadership with tangible ecological performance. Fourth, the research presents richly contextualized empirical data from an under-explored context, Pakistan's five-star tourism industry, where intense resource constraints and fast tourism expansion generate high-stakes environmental issues, thereby adding to global sustainability debates from vulnerable economies

frequently marginalized in Western-centric literature (Darvishmotevali & Altinay, 2022; Yousaf et al., 2021). Lastly, it provides practically applicable insights for organizational leaders and HR professionals by proving that investing in the development of servant leadership must be complemented with focused environmental awareness programs (e.g., training, storytelling, experiential learning) to achieve maximal environmental performance; this holistic approach reframes Green HRM from a compliance-oriented approach to a values-centered, leadership-grounded transformation strategy.

2. Literature Review and Hypotheses Development

2.1 Servant Leadership

Servant Leadership is a leadership ideology where the leader receives their main consideration on serving others, which focuses more on the development, welfare, and empowerment of the followers, instead of using authority in their interests (Zorlu et al., 2021). Servant leadership, in contrast to conventional leadership styles that put organizational goals and power in the first place, emphasizes humility, empathy, ethical conduct, and community building, and strives to establish a workplace where employees feel appreciated and inspired to attain organizational success (Ying et al., 2020). The style not only promotes trust and collaboration, but also employee engagement and organizational performance because it aligns leadership with human-centred values.

2.2 Environmental Performance

Environmental Performance refers to the measurable outcomes of an organization's activities, products, or services that impact the natural environment, including aspects such as resource efficiency, pollution reduction, waste management, and compliance with environmental regulations (Yousaf et al., 2021). It reflects how effectively an organization manages its environmental responsibilities while pursuing economic objectives, aiming to minimize ecological harm and promote sustainability. Strong environmental performance is increasingly seen as a source of competitive advantage, as it enhances corporate reputation, ensures regulatory compliance, and meets the expectations of environmentally conscious stakeholders (Aman et al., 2021).

2.3 Environmental Awareness

Environmental Awareness refers to the understanding and recognition of environmental issues, including knowledge about the impact of human activities on ecosystems, natural resources, and climate, as well as the responsibility to adopt sustainable practices (Dabbous et al., 2023). It goes beyond basic knowledge, encompassing attitudes, values, and behaviors that encourage individuals and organizations to protect the environment and make eco-friendly decisions. Higher levels of environmental awareness are linked to pro-environmental behavior, such as recycling, energy conservation, and support for green initiatives, making it a crucial factor in promoting sustainability and long-term ecological balance (Khan et al., 2022).

2.4 Hypotheses Development

2.4.1 Servant leadership & environmental performance

Servant leadership, which is based on the precept of placing the needs of others first, has become a topic of escalating organizational interest due to its capability to foster sustainable behavior

(Ying et al., 2020). Servant leaders place a strong focus on values like humility, stewardship, and community orientation, which engender a sense of accountability to both employees and society (Gotsis & Grimani, 2016). This form of leadership is especially applicable in promoting environmental performance since it makes organizations embrace environmentally friendly strategies and practices that are not only good for the firm itself but also for the wider community.

Existing literature indicates that servant leadership is positively associated with pro-environmental behaviors and organizational sustainability efforts. For instance, Siddiquei et al. (2021) pointed out that servant leaders empower and motivate their workers, thus encouraging a moral environment where employees are more likely to adopt environmentally friendly practices. Peng et al. (2022) showed that servant leadership is positively linked with corporate social responsibility outcomes, which commonly incorporate environmental activities like reducing waste, conserving energy, and preventing pollution. Also, Siddiquei et al. (2021) discovered that servant leaders foster a vision for the long-term mindset, linking organizational objectives with environmental sustainability.

The relationship between environmental performance and servant leadership is explained by the leader's power to instill collective responsibility. By stressing values like empathy, sustainability, and ethical conduct, servant leaders make employees absorb environmental objectives and become active stakeholders in eco-movements. This congruence instills in the workplace a culture in which environmental aspects become part of daily decision-making, thus enhancing the overall environmental performance of the organization (Mansoor et al., 2022). Hence, it is proposed that

H1: Servant leadership has a positive and statistically significant direct effect on environmental performance.

2.4.2 Servant Leadership and Environmental Awareness

Servant leadership, where the focus is placed on serving others and creating mutual well-being, has become more and more acknowledged as a leadership approach that cultivates ethical values, social responsibility, and sustainability in organizations (Zafar et al., 2022). As opposed to conventional leadership style, which is control- and authority-oriented, servant leadership centers on humility, empathy, and stewardship, fostering a culture where organizational members are empowered to behave responsibly toward people and the natural world. In this regard, servant leadership is central in promoting employees' environmental consciousness by instilling ecologically oriented values and fostering active participation in sustainability efforts.

Earlier research has shown the significant link between servant leadership and pro-social or pro-environmental behavior. Batool et al. (2022), for instance, posited that servant leaders establish trust and develop intrinsic motivation, leading employees to set personal values in synchronization with organizational objectives, including those for sustainability. In the same way, Khan & Chaudhry (2023) discovered that servant leadership increases organizational citizenship behaviors, such as voluntary green actions like minimizing waste or saving energy. These results indicate that servant leaders not only lead but also motivate employees to understand the significance of environmental concerns and incorporate them into their daily work practices.

In addition, servant leadership fosters a long-term stewardship mentality that is directly associated with increasing environmental awareness. Roberts (2021) pointed out that servant leaders promote collective responsibility and long-term orientation, which raises ecological awareness of environmental issues and the need for sustainability. Furthermore, Hoang et al. (2021) underscored that servant leaders create meaning-making and moral responsibility in followers and enable them to understand how their work relates to larger environmental implications. Through this kind of influence, employees become more aware of the environmental impacts they have and the need to practice environmentally friendly behaviors.

The relationship between servant leadership and environmental consciousness can also be understood from the perspective of ethical leadership and sustainability. Servant leaders, through the presentation of pro-environmental practices and moral obligation, set within the organization an atmosphere where employees feel compelled and committed to watching out for environmental issues (Febrian & Sani, 2023). This consciousness, in return, forms the base for efforts at individual and organizational levels to implement sustainable behaviors. Servant leadership is therefore not only crucial in creating ecologically responsible organizations but also in increasing employees' environmental consciousness at both cognitive and behavioral levels. Therefore, it is proposed that:

H2: Servant leadership is positively and significantly related to environmental consciousness.

2.4.3 Environmental Awareness and Environmental Performance

Employees with environmental awareness can drive both individual and collective behavioral changes that support a sustainable organizational culture (Li et al., 2023). Lack of research on environmental awareness presents more difficulty in producing environmental performance. Yusliza et al. (2020) also argued that captures the degree to which managers and employees are aware of the environmental impacts of their actions and decisions, and in turn, this directly affects sustainable strategies. However, greater environmental awareness prompts organizations to embrace green policies, minimize waste, and enhance resource effectiveness, contributing to overall environmental performance.

Saeed et al. (2019) discovered that employees who know environmental concerns are more likely to become involved in green activities such as recycling efforts and energy efficiency. also pointed out that organizations with eco-conscious employees have a higher chance of incorporating sustainability into their operations, which results in quantifiable improvements in environmental performance metrics such as lower emissions and adherence to environmental regulations. Additionally, Hoang et al. (2021) demonstrated that increased environmental awareness among organizational members enhances eco-innovation activities, which further supports environmental performance.

In addition, environmental awareness influences attitudes toward environmental performance, acting as a bridge that connects employees' environmental competencies to the implementation of sustainability in the workplace (Sadiq et al., 2021). Environmentally conscious employees are more likely to view ecological objectives as being significant at both the professional and personal

level, thus being in accord with the organization's sustainability goals. This behavioral convergence ultimately leads to enhanced environmental performance in terms of decreased ecological footprints, sustainable use of resources, and adherence.

In addition, organizations that promote environmental awareness tend to develop a green organizational culture, where staff in aggregate appreciate the significance of environmental sustainability (Dabbous et al., 2023). Through such a culture, teamwork is promoted in executing green initiatives and enhances the organization's ability to attain better environmental performance. Environmental awareness is, therefore, a key antecedent to realizing quantifiable ecological improvements in organizations. Therefore, it is hypothesized that:

H3: Environmental awareness has a positive and significant impact on environmental performance

2.4.4 Servant leadership, Environmental awareness, and environmental performance

Servant leadership, which emphasizes stewardship, humility, and prioritizing the needs of others, has been shown to positively influence employees' ethical values and sense of responsibility (Canavesi & Minelli, 2022). By fostering moral responsibility and community focus, servant leaders establish the conditions under which employees are more open to sustainable practice. This impact is extended in influencing employees' environmental consciousness, since leaders serve as role models who have a priority on ecological stewardship and sustainable choice-making (Liden et al., 2008).

Environmental consciousness is one of the main psychological and cognitive drivers that encourage individuals and organizations to identify ecological problems and initiate corrective action. Previous research shows that environmental consciousness is significantly influenced by leadership styles (Omarova & Jo, 2022). For example, Aman et al. (2021) established that leaders with pro-environmental values directly influence green awareness among employees, resulting in higher engagement in eco-activities. Servant leaders, by their emphasis on long-term accountability and sound practices, create a greater sense of environmental consciousness in employees.

Environmental consciousness, in return, is highly associated with environmental performance results. Evidence has been found to indicate that environmentally conscious employees are more inclined to adopt practices like energy conservation, waste minimization, and eco-innovation, which together contribute to improving organizational environmental performance (Alwan et al., 2023). Awareness thus serves as a mechanism that converts leadership influence into actual performance outcomes. In the absence of awareness, leadership initiatives can fail to translate fully into organizational results or behavioral change.

The interconnection implies that servant leadership indirectly and indirectly influences environmental performance; instead, its impact is partly transmitted through employees' environmental awareness. Servant leaders motivate and inform employees regarding ecological problems, and this develops environmental awareness, and the environmental awareness consequently enhances environmental performance. Environmental awareness is therefore a

mediating channel between servant leadership and environmental performance (Purwanto et al., 2023). According to this argument, the following hypothesis is assumed:

H4: Servant leadership acted as a mediator for the effect of Servant leadership on environmental performance.

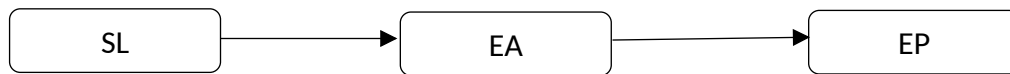


Figure 1: Conceptual Framework

3. Methodology

To empirically examine the hypotheses set forth, a conditional process analysis was employed. In particular, a mediation model using regression-based path analysis was specified to analyze the direct and indirect impact of servant leadership on environmental performance via environmental awareness (Hayes, 2018). Analysis was done with 10,000 bootstrap resamples to support the robust estimation of mediation effects and the provision of bias-corrected confidence intervals. Though there are alternative approaches to conditional process analysis, such as structural equation modeling, that are more flexible (Sarstedt et al., 2019), the regression-based approach was selected due to its parsimony, efficiency, and use of preprogrammed models that minimize the likelihood of computational mistakes (Hayes et al., 2017). Although linear regression models have the potential to generate biased estimates as a result of measurement error (Hayes & Rockwood, 2020), methodological evidence from previous work indicates that substantive findings are robust across modeling specifications (Hayes et al., 2017). OLS regression-based conditional process analysis was therefore selected in this study. Basic survey data were gathered using a standardized questionnaire that was constructed to quantify servant leadership, environmental awareness, and environmental performance.

All the scales were borrowed from robust previous studies to guarantee validity and reliability. Servant leadership was assessed by the scale by Liden et al. (2008), environmental awareness was measured in accordance with the guidelines of Bamberg & Möser (2007), and environmental performance was measured using adapted items by Schaltegger & Wagner (2006). The survey used a five-point Likert scale that ranged from strongly disagree (1) to strongly agree (5). The sample for the study comprised workers from environmentally vulnerable sectors in Pakistan, namely manufacturing, energy, and telecommunications. The sectors were chosen because they are high-risk environments in terms of their impact on the environment and have applicability for sustainability research.

3.1 Measurement Instruments

All constructs in this study were measured using multi-item, 7-point Likert-type scales (1 = “Strongly Disagree” to 7 = “Strongly Agree”), adapted from well-established instruments

published in peer-reviewed journals. Minor linguistic and contextual modifications were made to fit the Pakistani organizational context without altering the conceptual meaning of the items. For respondents whose first language was not English, a back-translation procedure was employed to ensure semantic and cultural equivalence of the measures.

3.1.1 Servant Leadership (Independent Variable)

Servant leadership was assessed using the 7-item short-form scale developed by Liden et al. (2008) and validated in The Leadership Quarterly. This scale captures leaders' behaviors that reflect humility, stewardship, and a focus on follower development. Example items include: "My supervisor makes me feel that I am part of the team," "My supervisor helps me to grow and develop my abilities," and "My supervisor creates a feeling of trust and cooperation." Previous studies have consistently reported strong reliability for this scale (Cronbach's α ranging from 0.92 to 0.95) across various cultural and organizational contexts, making it widely adopted in leadership research.

3.1.2 Environmental Awareness (Mediating Variable)

Environmental awareness was measured using a 5-item scale adapted from Purwanto et al. (2023). This construct reflects individuals' concern for environmental issues and their sense of responsibility to act sustainably. Example items include: "I am concerned about environmental problems such as global warming," "I feel personally responsible for protecting the environment," and "I discuss environmental issues with colleagues or friends." Prior studies reported strong internal consistency for this scale (Cronbach's $\alpha = 0.87$), and it has been validated in organizational research focusing on pro-environmental behaviors.

3.1.3 Environmental Performance (Dependent Variable)

Environmental performance was measured using a 5-item perceptual scale adapted from (Yousaf et al., 2023). The scale assesses employees' perceptions of their organization's effectiveness in managing environmental responsibilities. Example items include: "Our organization effectively reduces waste in operations," "Our organization uses energy efficiently," and "Our organization invests in green technologies." This scale has been validated for use in cross-cultural contexts and demonstrates high internal consistency (Cronbach's $\alpha = 0.89$) and convergent validity.

3.2 Control Variables

To isolate the effects of the focal constructs, four control variables were incorporated into the analysis: employee tenure, education level, firm size, and industry type. Employee tenure (in years) was controlled because employees with longer organizational experience may have greater familiarity with sustainability policies and practices (Ng & Feldman, 2010). Education level (coded: 1 = High School, 2 = Bachelor's, 3 = Master's or higher) was included since higher educational attainment is often associated with stronger awareness of environmental issues and greater willingness to adopt sustainable behaviors (Aragon-Correa et al., 2008). Firm size (coded: 1 = <100, 2 = 100–500, 3 = ≥ 500 employees) was considered because larger organizations typically possess greater institutional capacity and resources to implement green practices while also facing greater external scrutiny (Darnall et al., 2010). Finally, industry type (0 = Service, 1 =

Manufacturing) was controlled, as manufacturing firms generally face stricter regulatory pressures and higher ecological impact compared to service firms, influencing both environmental awareness and environmental performance (Sharma & Vredenburg, 1998).

4. Result and Data Collection

4.1 Measurement Scale evaluation

The validity and reliability of the constructs were evaluated using the Partial Least Squares (PLS) structural equation modeling approach. Cronbach's alpha and composite reliability (CR) were applied to test internal consistency, while standardized item loadings above 0.7 were considered acceptable. The results indicated that both Cronbach's alpha and CR values surpassed the recommended threshold of 0.70 (Memon et al., 2021). Specifically, alpha and CR values ranged between 0.81 and 0.96, demonstrating strong internal consistency (see Table 1). Construct validity was assessed through convergent and discriminant validity tests. Convergent validity was confirmed when items exhibited loadings of at least 0.7 and when the average variance extracted (AVE) values exceeded 0.50. The factor loadings, AVE, and CR collectively supported convergent validity. For example, CR and AVE values were 0.952 and 0.689 for Green Performance (GP), 0.916 and 0.687 for Environmental Awareness (EA), and 0.860 and 0.553 for Servant Leadership (SL). As illustrated in Table 2, all factor loadings were statistically significant, with AVE above 0.50 and CR above 0.70, confirming the adequacy of convergent validity. Discriminant validity was verified through cross-loadings, where each item loaded higher on its corresponding construct than on others. Following Fornell and Larcker's criterion, the square root of AVE for each construct exceeded its correlations with other constructs, indicating stronger relationships with its own measures. This condition was consistently satisfied, as bolded values in Table 2 demonstrated. In addition, HTMT ratios were employed to further establish discriminant validity, with all values remaining below 0.85, in line with the threshold recommended by Seidu et al. (2022). Cross-loading results (Table 3) showed that items loaded more strongly on their latent constructs than on alternative constructs, confirming discriminant validity. Likewise, Table 4 indicated that every indicator displayed higher loading on its respective reflective construct than on others. Collectively, these findings provide evidence that all constructs achieved reliability, convergent validity, and discriminant validity. As emphasized by Anjum et al. (2024), failure to meet these conditions could undermine the measurement model, but in this study, all three validity requirements were satisfactorily fulfilled.

Table 1: CR, AVE, and Alpha

Construct / Items	Factor Loading	Cronbach's Alpha	CR	AVE
Green Performance		0.943	0.952	0.689
GP1	0.831			
GP2	0.872			
GP3	0.873			
GP4	0.843			

GP5	0.717			
GP6	0.79			
GP7	0.854			
GP8	0.836			
GP9	0.845			
Servant Leadership		0.807	0.86	0.553
SL1	0.796			
SL2	0.718			
SL3	0.697			
SL4	0.794			
SL5	0.805			
Environmental Awareness		0.886	0.916	0.687
EA1	0.81			
EA2	0.869			
EA3	0.808			
EA4	0.834			
EA5	0.822			

Table 2 Discriminant Validity

Variables	1	2	3
Environmental Awareness	0.829		
Green Performance	0.604	0.83	
Servant Leadership	0.634	0.515	0.744

Table 3 HTMT

Variable	1	2	3
Environmental Awareness	–		
Green Performance	0.95	–	
Servant Leadership	0.797	0.783	–

4.2 Hypothesis Results

The structural model was tested to examine the hypothesized relationships, and the results are reported in Table 4. The findings reveal that servant leadership exerts a positive and significant impact on sustainability performance ($\beta = 0.109$, $t = 2.99$, $p = 0.003$), thereby confirming H1. Furthermore, servant leadership is strongly associated with environmental performance ($\beta = 0.338$, $t = 7.197$, $p < 0.001$), providing strong empirical support for H2. In addition, environmental awareness positively influences environmental performance ($\beta = 0.176$, $t = 6.387$, $p < 0.001$), thus validating H3. To further assess the role of mediation, the variance accounted for (VAF) approach

was employed (Hair et al., 2014). The results demonstrate that servant leadership has an indirect effect on environmental performance through environmental awareness ($\beta = 0.033$, $p < 0.001$). The total effect of servant leadership on environmental performance was $\beta = 0.142$, with a VAF of 62%. Since the VAF value falls between 20% and 80%, this indicates partial mediation (Hair et al., 2014). The findings indicate that servant leadership not only plays a direct role in environmental performance but also plays an indirect role in improving environmental performance by developing environmental awareness among employees. These findings correspond with the social learning theory (Bandura, 2001), according to which leaders are seen as role models in influencing the attitude and behavior of employees. In line with the previous studies, this investigation highlights that servant leaders prompt workers to internalise environmental values and take part in environmentally friendly practices that improve environmental outcomes at the organizational level (Tuan, 2020; Darban et al., 2022). In such a way, it can be seen that the mediating effect of environmental awareness contributes to a better understanding of the process by which servant leadership can contribute to environmental performance and the role of leadership in instilling sustainability within the organizational culture.

Table 4: Test of Hypothesis

Path Relationship	Coefficient	t-value	P-Values
H1: SL \rightarrow SP	0.109	2.99	0.003
H2: SL \rightarrow EP	0.338	7.197	0
H3: EA \rightarrow EP	0.176	6.387	0

Table 5: Mediation Effect

Path	Direct Effect (β)	Indirect Effect (β)	Total-Effect (β)	VAF (%)	Mediation Type
SL \rightarrow EA \rightarrow EP	0.109***	$0.176 \times 0.033 = 0.006$ 0.033***	0.142***	62%	Partial Mediation

5. Discussion

The findings show that servant leadership not only directly impacts environmental performance but also indirectly enhances it by fostering environmental awareness among employees. These findings align with social learning theory (Bandura, 2001), which views leaders as role models who influence employee attitudes and behaviors. Consistent with previous research, this study emphasizes that servant leaders encourage employees to adopt environmental values and participate in eco-friendly practices that improve organizational environmental outcomes (Febrian & Sani, 2023). This suggests that environmental awareness mediates the relationship between servant leadership and environmental performance, highlighting the importance of leadership in promoting sustainability within organizational culture. Employees led by servant-oriented leaders are more likely to view sustainability as a core part of organizational values rather than just an external requirement. This aligns with stewardship theory, which posits that leaders act as stewards

of organizational and environmental resources, motivating employees to do the same. Practically, this indicates that organizations aiming to improve environmental performance should focus on leadership development programs that incorporate servant leadership principles. Such programs can increase employee motivation and build awareness necessary for long-term sustainability. Ultimately, this study contributes both to theory and practice. It confirms that servant leadership is a vital driver of environmental success and that environmental awareness mediates this relationship. From a managerial perspective, it suggests developing leadership training, awareness initiatives, and sustainability workshops that strengthen both leader-employee relationships and environmental knowledge. These efforts can amplify the positive effects of leadership on environmental performance.

5.1 Theoretical Implications

Firstly, this study strengthens the application of social (Shamsi & Siddiqui, 2017) by showing that servant leaders act as role models who instill environmental responsibility among employees. Leaders' pro-environmental behaviors encourage followers to imitate and internalize sustainable practices, extending the theory into the sustainability domain. Secondly, the study advances servant leadership research by integrating it with environmental management outcomes. Prior studies emphasized financial and employee outcomes (Liden et al., 2008), but this research highlights environmental performance as a critical extension, expanding the construct's relevance to sustainability. Thirdly, the findings highlight the mediating role of environmental awareness, providing evidence that awareness is not only an individual cognitive factor but also an organizational-level mechanism linking leadership to sustainability (Alkhadra et al., 2023). This aligns with environmental psychology theories that awareness precedes pro-environmental behavior. Fourthly, this study supports and extends stewardship theory, which posits that leaders act as caretakers of organizational and societal resources (Sahoo et al., 2023). By positioning servant leaders as environmental stewards, the findings reveal how stewardship values translate into tangible environmental outcomes. Fifth, the study deepens the existing understanding of green HRM-leadership integration by demonstrating that the practice of servant leadership is a supplement to HRM, thereby identifying a connection between the personal values of leadership and the sustainability systems of the organization (Arshad & Qadir, 2023). This makes a multi-level theoretical contribution to the research of HRM and leadership.

5.2 Practical Implications

To begin with, the organizations ought to invest in servant leadership training to impart the skills of empathy, empowerment, and stewardship to managers. All these characteristics have a direct impact on the environmental engagement of employees and, thus, positive environmental performance. Secondly, companies should come up with structured environmental awareness initiatives like workshops, campaigns, and sustainability certifications. These programs make sure that employees will not just know about the significance of ecological responsibility but also internalize it (Shamsi & Siddiqui, 2017). Third, the research shows the importance of incorporating leadership and HRM policies. Green HRM practices, including eco-training and green rewards, may be aligned to servant leadership behaviors in order to enhance a synergistic effect that would undoubtedly maximize sustainability results (Francoeur et al., 2021). Fourthly, managers need to incorporate the environmental objectives into the performance appraisal systems. The connection between servant leadership behaviors and environmentally quantifiable KPIs guarantees

accountability and predictability to sustainability efforts. Fifthly, servant leadership can help organizations to develop a culture of sustainability. Through the modeling of pro-environmental values, servant leaders can create a shared organizational identity based on ecological responsibility that could increase employee engagement and long-term sustainability plans (Arshad & Qadir, 2023).

5.3 Limitations and Future Research Recommendations.

To start with, causal inference is hampered by the fact that cross-sectional survey data are used in the study. The studies of the future must be made in the form of longitudinal studies or experimentation to capture the temporal and causal relationship in a better way (Hair et al., 2017). Secondly, the generalizability may be limited by the study's geographical and industrial setting. The research in the future must replicate the model in various cultural contexts and various industries like healthcare, manufacturing, and education to confirm the strength of the results (Alkhadra et al., 2023). Thirdly, a mediator that was analyzed in the study is environmental awareness. Subsidiary mediators like green self-efficacy, organizational commitment, or psychological empowerment may be examined in future studies (Kim & Stepchenkova, 2020). Fourthly, the analyzed style of leadership was only servant leadership. In future studies, it might be advisable to use a comparative perspective and evaluate transformational, ethical, or authentic leadership and servant leadership in terms of relative efficacy in achieving sustainability results (Batool et al., 2022). Fifthly, the research used self-reported perceptual data, and this could result in common method bias. To provide a more valid study, future research must combine objective performance indicators (e.g., energy savings, waste reduction, etc.) and multi-source data (managerial and employee data) (Podsakoff et al., 2024).

References

- Adekoya, O. (2022). *Responsible management: Promoting work-life balance through social sustainability and Green HRM*. University of East London.
- Alwan, S. Y., Hu, Y., Al Asbahi, A. A. M. H., Al Harazi, Y. K., & Al Harazi, A. K. (2023). Sustainable and resilient e-commerce under the COVID-19 pandemic: a hybrid grey decision-making approach. *Environmental Science and Pollution Research*, 30(16), 47328-47348.
- Alkhadra, W. A., Khawaldeh, S., & Aldehayyat, J. (2023). Relationship of ethical leadership, organizational culture, corporate social responsibility, and organizational performance: a test of two mediation models. *International Journal of Ethics and Systems*, 39(4), 737-760.
- Aman, S., Hassan, N. M., Khattak, M. N., Moustafa, M. A., Fakhri, M., & Ahmad, Z. (2021). Impact of tourists' environmental awareness on pro-environmental behavior with the mediating effect of tourist's environmental concern and moderating effect of tourists' environmental attachment. *Sustainability*, 13(23), 12998.
- Amjad, F., Abbas, W., Zia-UR-Rehman, M., Baig, S. A., Hashim, M., Khan, A., & Rehman, H.-u.-. (2021). Effect of green human resource management practices on organizational sustainability: the mediating role of environmental and employee performance. *Environmental Science and Pollution Research*, 28(22), 28191-28206.
- Anjum, T., Díaz Tautiva, J. A., Zaheer, M. A., & Heidler, P. (2024). Entrepreneurial intentions: entrepreneurship education programs, cognitive motivational factors of planned behavior, and business incubation centers. *Education Sciences*, 14(9), 983.

- Arshad, M., Yu, C. K., & Qadir, A. (2023). Leadership and Sustainable Innovation: A Systematic Literature Review. *Leadership for Sustainable and Educational Advancement: Advancing Great Leaders and Leadership*, 6, 11.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual review of psychology*, 52(1), 1-26.
- Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology*, 27(1), 14-25.
- Batool, F., Mohammad, J., & Awang, S. R. (2022). The effect of servant leadership on organisational sustainability: the parallel mediation role of creativity and psychological resilience. *Leadership & Organization Development Journal*, 43(1), 71-95.
- Canavesi, A., & Minelli, E. (2022). Servant leadership: A systematic literature review and network analysis. *Employee responsibilities and rights journal*, 34(3), 267-289.
- Dabbous, A., Horn, M., & Croutzet, A. (2023). Measuring environmental awareness: An analysis using Google search data. *Journal of Environmental Management*, 346, 118984.
- Darnall, N., Henriques, I., & Sadorsky, P. (2010). Adopting proactive environmental strategy: The influence of stakeholders and firm size. *Journal of Management Studies*, 47(6), 1072-1094.
- Darvishmotevali, M., & Altinay, L. (2022). Green HRM, environmental awareness, and green behaviors: The moderating role of servant leadership. *Tourism Management*, 88, 104401.
- Febrian, W. D., & Sani, I. (2023). Analysis of work environment, attitude, coaching, and servant leadership on job satisfaction mediated by career development (Literature Review Study). *Indonesian Journal of Business Analytics*, 3(4), 1089-1104.
- Francoeur, V., Paillé, P., Yuriev, A., & Boiral, O. (2021). The measurement of green workplace behaviors: A systematic review. *Organization & Environment*, 34 (1), 18-42.
- Gotsis, G., & Grimani, K. (2016). The role of servant leadership in fostering inclusive organizations. *Journal of Management Development*, 35(8), 985-1010.
- Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial management & data systems*, 117(3), 442-458.
- Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of Management Review*, 20(4), 986-1014.
- Hoang, G., Wilson-Evered, E., Lockstone-Binney, L., & Luu, T. T. (2021). Empowering leadership in hospitality and tourism management: a systematic literature review. *International Journal of Contemporary Hospitality Management*, 33(12), 4182-4214.
- Hussain, Z., Mehmood, B., Khan, M. K., & Tsimisaraka, R. S. M. (2022). Green growth, green technology, and environmental health: evidence from high-GDP countries. *Frontiers in Public Health*, 9, 816697.
- Khan, D., & Chaudhry, H. K. (2023). An Empirical Review of Servant Leadership and Organizational Citizenship Behavior: A Case of Higher Education Institutes of Pakistan. *Journal of Development and Social Sciences*, 4(2), 568-578.
- Khan, I. U., Khan, S. U., & Khan, S. (2022). Residents' satisfaction with sustainable tourism: The moderating role of environmental awareness. *Tourism Critiques: Practice and Theory*, 3(1), 72-87.

- Kim, M. S., & Stepchenkova, S. (2020). Altruistic values and environmental knowledge as triggers of pro-environmental behavior among tourists. *Current Issues in Tourism*, 23(13), 1575-1580.
- Kodua, L. T., Xiao, Y., Adjei, N. O., Asante, D., Ofosu, B. O., & Amankona, D. (2022). Barriers to green human resources management (GHRM) implementation in developing countries. Evidence from Ghana. *Journal of Cleaner Production*, 340, 130671.
- Liden, R. C., Wayne, S. J., Zhao, H., & Henderson, D. (2008). Servant leadership: Development of a multidimensional measure and multi-level assessment. *The leadership quarterly*, 19(2), 161-177.
- Li, Z., Yu, H., & Xing, L. (2023). The impact of green culture on employees' green behavior: The mediation role of environmental awareness. *Corporate Social Responsibility and Environmental Management*, 30(3), 1325-1335.
- Mansoor, A., Farrukh, M., Jahan, S., Lee, J. K., & Abd Wahab, S. (2022). Promoting green performance through green human resource practices and green servant leadership. *Asia Pacific Journal of Human Resources*, 60(4), 900-918.
- Nasir, M., Asad, N., Hashmi, H. B. A., Fu, H., & Abbass, K. (2023). Analyzing the pro-environmental behavior of pharmaceutical employees through Green HRM practices: the mediating role of green commitment. *Environmental Science and Pollution Research*, 30(3), 7886-7903.
- Ng, T. W., & Feldman, D. C. (2010). The relationships of age with job attitudes: A meta-analysis. *Personnel psychology*, 63(3), 677-718.
- Omarova, L., & Jo, S. J. (2022). Employee pro-environmental behavior: The impact of environmental transformational leadership and GHRM. *Sustainability*, 14(4), 2046.
- Peng, J., Samad, S., Comité, U., Ahmad, N., Han, H., Ariza-Montes, A., & Vega-Muñoz, A. (2022). Environmentally specific servant leadership and employees' energy-specific pro-environmental behavior: evidence from the healthcare sector of a developing economy. *International Journal of Environmental Research and Public Health*, 19(13), 7641.
- Podsakoff, P. M., Podsakoff, N. P., Williams, L. J., Huang, C., & Yang, J. (2024). Common method bias: It's bad, it's complex, it's widespread, and it's not easy to fix. *Annual Review of Organizational Psychology and Organizational Behavior*, 11(1), 17-61.
- Roberts, G. (2021). Fostering workplace well-being through servant leadership. *The Palgrave handbook of workplace well-being*, 211-238.
- Sadiq, M., Bharti, K., Adil, M., & Singh, R. (2021). Why do consumers buy green apparel? The role of dispositional traits, environmental orientation, environmental knowledge, and monetary incentive. *Journal of Retailing and Consumer Services*, 62, 102643.
- Sahoo, S., Kumar, A., & Upadhyay, A. (2023). How do green knowledge management and green technology innovation impact corporate environmental performance? Understanding the role of green knowledge acquisition. *Business Strategy and the Environment*, 32(1), 551-569.
- Sarstedt, M., Hair Jr, J. F., Cheah, J.-H., Becker, J.-M., & Ringle, C. M. (2019). How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australasian marketing journal*, 27(3), 197-211.
- Shamsi, M., & Siddiqui, Z. (2017). Green product and consumer behavior: An analytical study. *Pertanika Journal of Social Sciences and Humanities*, 25(4), 1545-1554.

- Siddiquei, A., Asmi, F., Asadullah, M. A., & Mir, F. (2021). Environmental-specific servant leadership as a strategic tool to accomplish environmental performance: a case of China. *International Journal of Manpower*, 42(7), 1161-1182.
- Ying, M., Faraz, N. A., Ahmed, F., & Raza, A. (2020). How does servant leadership foster employees' voluntary green behavior? A sequential mediation model. *International Journal of Environmental Research and Public Health*, 17(5), 1792.
- Yousaf, Z., Radulescu, M., Nassani, A., Aldakhil, A. M., & Jianu, E. (2021). Environmental management system towards environmental performance of hotel industry: Does corporate social responsibility authenticity really matter? *Engineering Economics*, 32(5), 484-498.
- Zafar, H., Tian, F., Ho, J. A., & Zhang, G. (2022). Environmentally specific servant leadership and voluntary pro-environmental behavior in the context of green operations: A serial mediation path. *Frontiers in psychology*, 13, 1059523.
- Zorlu, Ö., Baytok, A., Avan, A., & İnci, E. (2021). How servant leaders psychologically empower their followers: The case of five-star hotels. *Tourism: An International Interdisciplinary Journal*, 69(4), 505-526.