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Servant Leadership for Sustainability: A Serial Mediation Model of Empowerment, Creativity, and Pro-Environmental Behavior

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Abstract

This study examines the impact of Environmentally Specific Servant Leadership (ESSL) on employees' pro-environmental behavior (PEB) by proposing a serial mediation model that incorporates green psychological empowerment and green creativity as central mechanisms. Guided by social exchange theory (SET), survey data from managers in Saudi Arabia were analyzed using PROCESS Model 6 with bootstrapping to test direct, indirect, and serial mediation effects. The results show that ESSL has a significant positive influence on PEB, with both psychological empowerment and green creativity acting as partial mediators. Moreover, the serial mediation analysis confirms that empowerment enhances creativity, which in turn drives employees' pro-environmental actions. The findings support the social exchange theory, SET, in the contextual environmental settings of the rapidly developing economy of Saudi Arabia. These findings highlight the critical role of psychological empowerment and creativity in translating leadership values into sustainable behaviors. Practically, the study suggests that organizations can advance sustainability goals by fostering servant leadership practices, empowering employees with autonomy and resources, and encouraging innovative solutions for environmental challenges. Within the context of Saudi Vision 2030, the findings provide valuable insights for aligning leadership development with national sustainability objectives.



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Keywords: environmentally specific servant leadership; pro-environmental behavior; psychological empowerment; green creativity; Saudi Vision 2030

1. Introduction

Organizations worldwide face mounting pressure to align their operations with sustainability imperatives. Despite growing awareness, many firms still struggle to translate sustainability goals into concrete employee behaviors that meaningfully support environmental objectives. Research shows that leadership plays a pivotal role in shaping such behaviors, yet existing leadership approaches often fall short in addressing the dual challenge of employee empowerment and environmental responsibility. This gap underscores the need to explore leadership paradigms that can both inspire and sustain pro-environmental behaviors at the workplace.

Environmentally Specific Servant Leadership (ESSL) has emerged as a promising response to this challenge, as it merges two critical domains: servant leadership, which emphasizes empowering and serving others, and environmental stewardship, which focuses on the sustainable management of ecological resources. Leaders are the role models

and their commitment to sustainability improves employee's awareness and orientation with corporate sustainability goals (Gu & Liu, 2022). Environmentally Specific Servant Leadership (ESSL) is one of the emerging leadership paradigms that incorporates the core principles of servant leadership while focusing on environmental stewardship and sustainability at the same time. Unlike traditional leadership models, ESSL strongly emphasizes encouraging employees to engage in pro-environmental behaviors (PEBs) in addition to meeting their developmental needs. By empowering employees and demonstrating environmental stewardship, ESSL can cultivate a culture that supports and encourages environmental responsibility throughout the organization (Afsar et al., 2018; Tuan, 2020).

The environmental-specific servant leadership style is a merger of two theoretical fields, servant leadership, which has focus on serving others by empowering them, and environmental stewardship, which highlights the sustainable management of ecological resources. It is a leadership style that encourages and motivates employees to proactively follow environmentally friendly practices. The literature supports ESSL for successfully encouraging pro-environmental behavior among workers in a variety of industries, such as manufacturing, hospitality, and energy (Patwary et al., 2025; Moreno et al., 2021; Yuan & Li, 2022; Ansari & Khan, 2024; Mughal et al., 2022). For instance, Patwary et al. (2025) discovered that green leadership in the hotel sector encourages employees to adopt sustainable practices and proactive environmental attitudes. Bahmani et al. (2021) also found servant leadership promoting positive behavior in military cadets through empowerment and trust, which highlights the applicability of servant leadership principles in different contextual settings.

The psychological factors, such as psychological empowerment, acts as an essential mechanism through which servant leaders can influence the positive environmental behavior of employees (Mughal et al., 2022). The servant leadership style is one of the leadership styles that can build employees' confidence through effective empowerment and by helping them take ownership of organizational sustainability initiatives. This allows them to advance organizational environmental objectives and make employees more environmentally friendly. Servant leaders' commitment to environmental goals has been identified as an important factor in developing work-related and non-work-related pro-environmental initiatives by their followers/employees (C. H. Wu & Parker, 2017).

ESSL is not only essential for the overall organizational performance related to environmental sustainability—it also has a profound impact on how employees address the sustainability issues. It is a multi-level framework that enhances individual green performance at employee level and collective organizational sustainability performance at the organizational level (Siddiquei et al., 2021; Zafar et al., 2022a). Furthermore, ESSL fosters the green creativity of employees, enabling organizations to address emerging environmental challenges through innovative solutions (Hou et al., 2023; Alyahya et al., 2023). Additionally, when environmental-specific servant leaders foster an emotionally supportive and psychologically empowering work environment, based on reciprocity principles of social exchange theory, voluntary green behavior from employees is the outcome (Yang et al., 2023). Employees try to reciprocate the leader's supportive behavior by actively participating in creative green solutions to environmental challenges and pro-environmental behavior.

This study aims to contribute to the growing body of research on ESSL by investigating its influence on PEB through the mediating roles of psychological empowerment and green creativity. Using the social exchange theory, the norms of reciprocity between servant leaders and subordinates are investigated in green behavioral context. This research situates its inquiry within Saudi Arabia, one of the emerging economies with strong sustainability ambitions under its Vision 2030 initiative. This contextual setting provides a valuable

extension beyond the predominantly Western and European research settings, offering insights into how ESSL operates in a region undergoing rapid economic transformation and environmental policy evolution. The context of Saudi Arabia provides a compelling backdrop for this investigation. As part of Vision 2030, Saudi Arabia has prioritized sustainability, diversity, and inclusion as key pillars of its national transformation agenda (Nurunnabi, 2017). Yet, limited empirical research has examined how leadership models such as ESSL operate within this rapidly evolving socio-economic environment. Studying ESSL in this context therefore addresses two critical needs: (1) advancing theoretical understanding of how leadership fosters PEB through psychological mechanisms such as empowerment and green creativity, and (2) extending the predominantly Western evidence base into an emerging economy undergoing ambitious sustainability reforms. While Saudi Arabia is one of the wealthiest countries globally, it faces challenges like many other economies, such as workforce localization, skills development, and balancing growth with sustainability. Studying these dynamics provides lessons that are applicable to other emerging and resource-dependent economies.

2. Theoretical Foundation and Literature Review

2.1. Social Exchange Theory (SET)

According to SET (Blau, 1964), relationships between individuals are regulated by norms of reciprocal behavior, which means that people try to reciprocate the positive behaviors. Hence, when leaders offer resources, care, and support, employees feel obliged to return the favor by acting positively. The Environmentally Specific Servant Leadership (ESSL) style naturally fosters such reciprocal dynamics, which focuses on providing followers with empowerment, stewardship, and development centered on environmental goals.

When leaders exhibit environmental stewardship while focusing on serving the followers through empowerment and development, employees see fairness, support, and trust. They are inspired to reciprocate the leaders' support by following the leader's path toward sustainability. This is more of the social exchange behavior where servant leaders increase followers' commitment, trust and citizenship behavior, by empowering them (Liden et al., 2008). ESSL can significantly improve employees' green behavior through empowerment and this leads toward environmental conscious behavior from employees (Mughal et al., 2022). Similarly, Zafar et al. (2022b) also empirically supported that ESSL fosters a sense of responsibility in workers, motivating them to take proactive measures to achieve sustainability objectives.

When employees feel appreciated and supported by the leaders, one of the major attributes of servant leadership style, they try to reciprocate this favor by actively participating in developing creative solutions that support the organization's environmental objectives. The supportive leadership style lowers the risk, and employees are more inclined to suggest innovative green ideas. Zhang and Bartol (2010) highlighted that empowerment, which is based on social exchange, mediates the relationship between leadership and creativity. Additionally, Tuan (2020) acknowledged that servant leadership encourages green creativity among employees, especially when it aligns with environmental stewardship. According to Hou et al. (2023), green servant leaders foster creativity in sustainability-focused organizations by offering psychological safety and a sense of reciprocity.

Reciprocal norms are frequently used to explain extra-role behaviors, including pro-environmental behavior in organizations. By exhibiting pro-environmental behaviors (PEBs), such as recycling, energy conservation, and waste reduction, employees try to pay back the favor given in form of support, empowerment, and trust to the environmentally conscious leaders. According to Tuan (2020), ESSL raises employees' OCB for environmental activities, which aligns with reciprocity principles. Additionally, according to Ansari

and Khan (2024), leaders' green support improves PEB through social exchange dynamics because employees feel obligated to return the favor.

2.2. Environmentally Specific Servant Leadership (ESSL) and Pro-Environment Behavior (EPEB)

Environmentally Specific Servant Leadership (ESSL) is the integrated concept that highlights leaders' commitment to environmental stewardship while focusing on serving the followers with empowerment, trust and support for their development. Unlike the traditional servant leadership concept which primarily focuses on serving people and helping them develop, ESSL extends this basic orientation to prioritize the sustainability goals of the organization by motivating employees to engage in pro-environmental behaviors (PEBs) (Afridi et al., 2024; Mughal et al., 2022). However, according to Kim et al. (2017), leadership alone is not always a consistent predictor of pro-environmental behavior; coworker influence and individual dispositions also play a critical role.

An emotional connection with followers is essential for leaders as it allows them to connect with their followers personally and encourages them to embrace environmental initiatives as part of their organizational identity. The link between transformational leadership and pro-social behaviors is also observed in the framework presented by Den Hartog and Belschak (2012). It demonstrated that transformational leadership improves employee proactive behavior, particularly when self-efficacy and autonomy are exercised. Furthermore, Tu et al. (2023) found a significant association between ESSL, green human resource management, and environmentally conscious behavior from employees. They also emphasized the need for consistency from leadership regarding the importance of environmental sustainability and stewardship (Tu et al., 2023).

The distinctive focus on environmental protection differentiates ESSL from the conventional servant leadership style. ESSL, while providing support and development to employees, also stresses the care and responsibility toward the natural environment (Afridi et al., 2024; Mughal et al., 2022; Nurul Alam et al., 2023). Environmental-specific servant leaders as role models help employees to embark on a journey of sustainability. They motivate and enhances employees' engagement in environmentally friendly behavior to minimize environmental impact, conserve resources, and reduce waste (Zafar et al., 2022b). By fostering a culture of shared responsibility, ESSL embeds sustainability as a core organizational value and motivates the collective adoption of green practices (Afridi et al., 2024). Additionally, environmentally specific servant leaders empower their teams with autonomy and the necessary tools to initiate and sustain green initiatives, facilitating long-term behavioral change toward environmental sustainability (Afridi et al., 2024). These findings suggest that implementing servant leadership practices can effectively promote pro-environmental behaviors among employees. Hence, the following hypothesis is proposed.

Hypothesis 1: *ESSL has a significant positive impact on EPEB.*

2.3. Psychological Empowerment as Mediator

The psychological empowerment is one of the most significant psychological mechanisms that works behind the success of environmental-specific servant leaders. These leaders empower, support and trust their employees to foster an environmentally conscious organizational culture in the workplace by providing the necessary resources, knowledge, and support (Zafar et al., 2022a; Mughal et al., 2022). This leadership style cultivates a supportive environment that encourages employees to take ownership of sustainability initiatives and helps them to embed environmental responsibility into organizational culture (Mughal et al., 2022). Furthermore, ESS leaders serve as role models by demonstrating ethical and sustainable behaviors, inspiring their teams to adopt similar environmentally

friendly practices (Zafar et al., 2022b). The literature also supports that leaders' environmentally conscious behavior has a significant influence on employees environmentally friendly actions such as waste reduction, energy conservation, and product recycling (Zafar et al., 2022a).

The recent literature has explored the association of servant leadership, psychological empowerment, and environmentally friendly behaviors in various sectors. Servant leadership has been found to significantly influence employees' voluntary green behavior and green innovative work behavior (Ashraf et al., 2022; Zafar et al., 2022a; Harina & Rachmawati, 2024; Ying et al., 2020). Different psychological mechanisms that can mediate ESSL and pro-environmental behavior have been analyzed in the prior literature. For example, autonomous motivation from the environment has been identified as a sequential mediator alongside psychological empowerment (Harina & Rachmawati, 2024; Ying et al., 2020). Similarly, a serial mediation paradigm states that servant leadership is environmentally specialized and fosters organizational identity and psychological empowerment, which in turn stimulates volunteer pro-environmental behavior from employees (Zafar et al., 2022b). And psychological empowerment partially mediates the link between servant leadership and employees' voluntary green behavior (Ashraf et al., 2022). However, the most critical of them is psychological empowerment. These findings are consistent with social exchange theory, supporting the role of servant leadership in encouraging environmentally friendly behaviors. However, some studies argue that psychological empowerment alone may not be sufficient to predict sustained green behavior unless supported by strong organizational structures (e.g., Spreitzer, 2008; Zhang & Bartol, 2010). Spreitzer (2008) notes that psychological empowerment is not a universal predictor of performance outcomes; contextual and structural factors often moderate its effects.

ESSL promotes voluntary pro-environmental behavior through psychological empowerment (Zafar et al., 2022a). The role of psychological empowerment in the relationship of ESSL and PEB cannot be overlooked. When leaders empower employees and employees feel psychologically empowered to think creatively, they are more likely to develop and implement innovative solutions to sustainability problems. These innovative solutions range from energy-saving processes to offering products and services with lower ecological footprints. Sustainable leadership practices, including ESSL elements, can enhance organizational learning and sustainable performance through psychological empowerment (Iqbal et al., 2020). The positive employee emotions can moderate the ESSL effect among the pro-environmental attitudes and behaviors, suggesting that a supportive leadership style can enhance employees' emotional engagement with environmental requirements (Ren et al., 2024) and help in generating creative solutions to environmental problems. Based on the above discussion, the following hypothesis is proposed:

Hypothesis 2: *Psychological empowerment of employees mediates the relationship between ESSL and EPEB.*

2.4. Green Creativity as a Mediator

ESSL promotes the importance of environmental behaviors while extending support to the employees. At the same time, it empowers employees to adopt environmentally friendly practices that help them adopt green behaviors. This leadership style introduces new ways to use the organizational resources, and it aims to reduce waste and promote pro-environmental behavior. Similarly, research has also shown that creativity does not always lead to actionable environmental solutions, as creative ideas can be resisted or underutilized in hierarchical organizations (Anderson et al., 2014).

ESSL encourages employees to adopt environmentally friendly behaviors and cultivate a culture that prioritizes sustainability. Research indicates that ESSL significantly

influences green creativity. [Khattak \(2024\)](#) also found a positive impact of green innovation and creativity on environmental performance of organizations. Green servant leadership positively impacts employee behavior toward the natural environment through environmental passion and climate for green creativity ([Shah et al., 2023](#)). Green creativity, one of the results of ESSL, includes ethical decision making for the protection of the environment and focuses on sustainability ([Hou et al., 2023](#)). [Shah et al. \(2023\)](#) investigated the impact of green servant leadership on pro-environmental behavior in SMEs in Pakistan and found that it significantly influences employee behavior through passion for the environment and climate, which fosters green creativity. ESSL contributes to improved organizational green performance by fostering creativity among employees, which is essential for achieving corporate sustainability goals ([Hou et al., 2023](#)).

Hypothesis 3: *Green creativity of employees mediates the relationship between ESSL and EPEB.*

2.5. Serial Mediation of Psychological Empowerment and Green Creativity

Psychological empowerment, which affects intrinsic motivation and involvement in the creative process, is a crucial link between environmental-specific leadership and creativity ([Zhang & Bartol, 2010](#)). Additionally, it has a significant impact on exploitation, creativity, and exploration; the relationship between psychological empowerment and creativity is mediated by exploration ([Lee & Lee, 2012](#)). Through psychological empowerment and sustainability learning capacities, sustainability control systems in the manufacturing sector encourage green innovation among employees ([Pandithasekara et al., 2023](#)).

Employees are more likely to implement green solutions and behaviors that align their actions with the organization's eco-friendly goals by fostering green creativity and the innovative generation of solutions and ideas that prioritize environmental sustainability. [Shah et al. \(2023\)](#) argued that transformational leadership, which shares similarities with servant leadership, fosters green creativity and contributes to sustainability through the empowerment of employees. Moreover, green transformational leadership improves green creativity by fostering a supportive organizational identity ([Al-Ghazali et al., 2022](#)). Therefore, it is assumed that psychological empowerment can enhance green creativity for sustainability. Moreover, cross-cultural studies highlight that the influence of leadership styles may vary; findings from Western, individualistic settings cannot be assumed to hold in collectivist, hierarchical contexts such as Saudi Arabia ([Hofstede et al., 2020](#)). These inconsistencies underscore the need to re-examine these relationships in unique cultural and policy-driven contexts, particularly under the sustainability transformation agenda of Saudi Vision 2030.

[Ding et al. \(2023\)](#) found green creativity to be an important factor for achieving green behaviors from employees. [Riva et al. \(2021\)](#) illustrated how leadership style and managers' green knowledge can improve the organization's environmental goals through the mediating role of green creativity. They found that ESSL is critical for fostering an environment (through psychological empowerment) where workers feel motivated to contribute to sustainability through innovative job activities. Similarly, [Dinibutun \(2024\)](#) also found that green leadership is necessary to boost employee green creativity and environmental practices. Furthermore, the model of dynamic componential creativity suggests that contextual factors, such as psychological empowerment, can significantly improve employees' intrinsic motivation for adopting creative processes for sustainability ([J. Wu et al., 2021](#)). Therefore, psychological empowerment is instrumental in promoting proactive environmental behaviors through promoting green creativity. Based on the above discussion on psychological empowerment and green creativity as mediators alongside the social exchange theory, where psychological empowerment and green creativity act as the reciprocal behavioral outcomes of ESSL, the following is proposed.

Hypothesis 4: *Psychological empowerment and creativity act as serial mediators.*

All proposed hypotheses are presented in Figure 1.

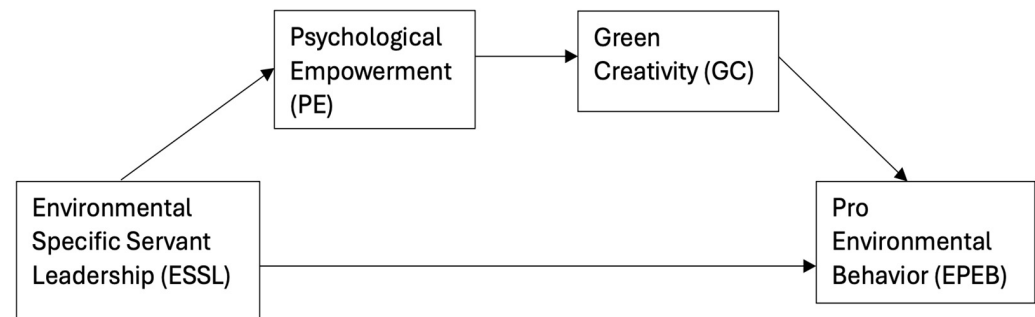


Figure 1. Proposed serial mediation model.

3. Methodology

3.1. Study Context

Saudi Arabia is an unusual yet very relevant setting for investigating how ESSL affects employees' PEB. Under Vision 2030, the kingdom has started a comprehensive transformation program that prioritizes sustainable development, economic diversification, and the incorporation of environmental stewardship across all industries (Saudi Vision 2030). According to this framework, sustainability is seen as both a global necessity and a pillar of sustained national development.

The Saudi Green Initiative (SGI) and the Middle East Green Initiative (MGI) are two strategic initiatives highlighted in the Vision 2030 agenda. They seek to lower carbon emissions, increase renewable energy, support biodiversity, and promote sustainable business practices (Saudi Green Initiative, 2021). These initiatives emphasize aligning organizational goals. Aligning organizational objectives with national sustainability targets is a key component of these initiatives. As a result, Saudi Arabian companies face mounting pressure to implement eco-friendly procedures and develop leadership styles that motivate staff to take an active role in sustainability. Saudi Arabia plays a central role in the global economy and is often seen as a model for other resource-rich countries undergoing transformation. Insights from this study therefore have implications beyond the national context.

3.2. Data Collection and Sample

Data for this study were collected from managers employed at various levels of the corporate sector in Riyadh, the capital city of the Kingdom of Saudi Arabia. Given the absence of an accessible sampling frame, a non-probability convenience sampling approach was adopted. To facilitate participation, an online survey was developed using Google Forms. A snowball sampling strategy was further employed, whereby initial respondents were encouraged to share the survey link with other eligible participants, thereby enhancing the reach and maximizing the response rate. Ethical approval for the study was granted by the Institutional Review Board (IRB). Participation was entirely voluntary, and the survey design ensured anonymity and confidentiality, with respondents explicitly assured that their information would remain private and be used solely for research purposes. In total, 307 completed responses were obtained. Following data screening, 238 usable surveys were retained for the final analysis. The demographic characteristics of the sample are summarized in Table 1.

Table 1. Demographic characteristics of respondents (N = 307).

Category	Sub-Category	Frequency (n)	Percentage (%)
Age	26–35 years	62	20.2
	36–45 years	134	43.6
	Above 45 years	111	36.2
Gender	Male	190	61.9
	Female	117	38.1
Education	14 years	24	7.8
	16 years	131	42.7
	More than 16 years	152	49.5
Organization	Public/Government (Local)	154	50.2
	Private/Non-Govt. (Local)	87	28.3
	International	66	21.5
Experience	4–10 years	80	26.1
	11–20 years	135	44.0
	21–30 years	92	29.9

3.3. Scale

ESSL was assessed with the help of a 12-item scale adopted from [Luu \(2018\)](#). The sample items were “My supervisor emphasizes the importance of contributing to environmental improvement” and “My supervisor cares about my eco-initiatives.”. Green Creativity was measured with the help of 6 items from a previously validated scale adopted from [Chen and Chang \(2013\)](#). The sample items were “I suggest new ways to achieve environmental goals” and “I search out new green technologies, processes, techniques, and/or green product ideas.” Employee green behavior was assessed with the help of six items developed by [Robertson and Barling \(2013\)](#). Four items were derived from [Roscoe et al. \(2019\)](#) to measure psychological empowerment. The sample items were “I clearly know how green operations fit with my daily job” and “I feel a shared sense of responsibility for the work I do”. The final scaled used for data collection is available in Appendix A.

4. Data Analysis and Results

4.1. Demographic Profile

The demographic profile of the respondents is summarized in Table 1. Here, 20% of the respondents were between the ages of 26–35 years, 134 were in the 36–45 years category, and 111 were above 45 years of age. Similarly, the sample consisted of 190 males and 117 females. Regarding educational qualifications, 24 respondents had completed 14 years of education, 131 respondents had 16 years of education, and 152 respondents had more than 16 years of education. Regarding organizational affiliation, 154 respondents were employed in public/governmental organizations, 87 in private/non-governmental organizations, and 66 in international organizations. In terms of professional experience, 80 respondents had 4–10 years of experience, 135 respondents had 11–20 years, and 92 respondents had 21–30 years of experience.

4.2. Common Method Bias

To mitigate concerns regarding common method variance (CMV), we applied Harman’s single-factor test through exploratory factor analysis (EFA). The analysis extracted five distinct factors, with the first factor explaining only 38.6% of the total variance. As this percentage falls below the commonly accepted threshold of 50% ([Podsakoff et al., 2003](#)), CMV was deemed unlikely to pose a significant issue in this study. These results indicate that no single factor disproportionately accounted for the variance, thereby suggesting that common method bias did not substantially affect the findings.

4.3. Measurement Model Results

The measurement model was used to assess the psychometric properties of the collected data. The CFA results are presented in Table 2. The standardized factor loadings of all latent variables ranged from 0.60 to 0.89. Following established guidelines (e.g., [Bagozzi & Yi, 1988](#); [Chin, 1998](#); [Hair et al., 2021](#)), factor loadings of 0.60 or higher were considered acceptable, as they indicate sufficient convergent validity while allowing the retention of theoretically meaningful items. All values were above the recommended threshold of 0.60 ([Hair et al., 2021](#)), thus confirming that the observed variables are reliable. Internal consistency of the constructs in the proposed model was assessed using Cronbach's Alpha (CA) and Composite Reliability (CR). All values exceeded the recommended cutoff of 0.70 ([Nunnally, 1975](#); [Hair et al., 2021](#)), hence confirming the reliability of the scales. Specifically, Cronbach's Alpha ranged from 0.84 to 0.92, while CR values ranged between 0.79 and 0.93, indicating adequate internal consistency across all latent constructs.

Table 2. Results of measurement model (CFA).

Latent Variables	Factor Loadings	CA	CR	AVE
Environmental Specific Servant Leadership (ESSL)	0.60–0.78	0.92	0.90	0.50
Psychological Empowerment (PE)	0.62–0.77	0.84	0.79	0.50
Green Creativity (GC)	0.78–0.89	0.90	0.93	0.68
Employee Pro-environmental Behavior (EPEB)	0.71–0.81	0.89	0.89	0.58

For the assessment of convergent validity, Average Variance Extracted (AVE) values were analyzed. All constructs attained AVE values greater than or equal to 0.50, meeting the threshold criteria suggested by [Fornell and Larcker \(1981\)](#). This indicates that more than half of the variance in the indicators is explained by their respective latent constructs.

4.4. Discriminant Validity

Table 3 demonstrates the discriminant validity of the constructs using the [Fornell and Larcker \(1981\)](#) criterion. The square roots of the AVEs, presented on the diagonal, are higher than the corresponding shared variances (values in parentheses) between constructs. For example, the AVE for Psychological Empowerment (0.50) is greater than its shared variance with ESSL (0.12), GC (0.43), and EGB (0.21). Similarly, the AVE values for ESSL (0.50), GC (0.68), and EGB (0.58) all exceed their respective shared variances with other constructs. These results confirm that each latent variable is empirically distinct, thereby establishing discriminant validity of the measurement model.

Table 3. Discriminant Validity Analysis ([Fornell & Larcker, 1981](#)).

	Variable	No. of Items	Mean	s.d.	ESSL	PE	GC	EPEB
1	ESSL	12	3.71	0.75	0.50			
2	PE	4	5.13	1.12	0.35 * (0.12)	0.50		
3	GC	7	4.69	1.27	0.39 (0.15)	0.66 * (0.43)	0.68	
4	EPEB	6	3.79	0.77	0.27 * (0.07)	0.46 * (0.21)	0.37 * (0.14)	0.58

* correlation significant at 0.01. Shared variance is in parentheses; AVE is on the diagonal. Environmental Specific Servant Leadership (ESSL); Psychological Empowerment (PE); Green Creativity (GC); and Employee Pro-environmental Behavior (EPEB).

4.5. Hypothesis Testing

Table 4 presents the bootstrap results (5000 resamples) for the hypothesized serial mediation model. PROCESS Model 6 (Hayes, 2018) was used as the base model. The direct effect of ESSL on EPEB was positive and significant ($\beta = 0.312$, $p < 0.01$), supporting H1. In addition, ESSL showed significant positive effects on psychological empowerment (PE; $\beta = 0.635$, $p < 0.01$) and green creativity (GC; $\beta = 0.720$, $p < 0.01$). PE significantly predicted both GC ($\beta = 0.319$, $p < 0.01$) and EPEB ($\beta = 0.182$, $p < 0.01$), while GC also positively influenced EPEB ($\beta = 0.095$, $p < 0.05$).

Table 4. The 5000 bootstrap results for PROCESS Model 6.

Direct Effect	Estimate	SE	LL 95% CI	UL 95% CI	Hypothesis
ESSL → EPEB	0.312 *	0.06	0.1947	0.4289	H1 Accepted
ESSL → PE	0.635 *	0.07	0.4830	0.7869	
ESSL → GC	0.720 *	0.08	0.5588	0.8818	
PE → GC	0.319 *	0.05	0.2100	0.4282	
PE → EPEB	0.182 *	0.04	0.1075	0.2562	
GC → EPEB	0.095 **	0.03	0.0212	0.1683	
Indirect Effect	Estimate	SE	LL 95% CI	UL 95% CI	
ESSL → PE → EPEB	0.116 *	0.03	0.0563	0.1837	H2 Accepted
ESSL → GC → EPEB	0.068 *	0.02	0.0163	0.1171	H3 Accepted
ESSL → PE → GC → EPEB	0.019 *	0.01	0.0036	0.0379	H4 Accepted
Control Variables	Estimate	SE	LL 95% CI	UL 95% CI	
Gender	0.062	0.08	−0.0882	0.2116	
Organization Type	−0.013	0.04	−0.1032	0.0786	
Age	0.052	0.07	−0.0951	0.1994	
Education	−0.001	0.06	−0.1202	0.1178	
Experience	−0.080	0.07	−0.2259	0.0646	

* $p < 0.01$; ** $p < 0.05$. Environmental-Specific Servant Leadership (ESSL); Psychological Empowerment (PE); Green Creativity (GC); and Employee Pro-environmental Behavior (EPEB).

The indirect effects further validated the mediation hypotheses. Specifically, the indirect path ESSL → PE → EPEB was significant ($\beta = 0.116$, 95% CI [0.0563, 0.1837]), supporting H2. The indirect effect ESSL → GC → EPEB was also significant ($\beta = 0.068$, 95% CI [0.0163, 0.1171]), confirming H3. Finally, the serial mediation path ESSL → PE → GC → EPEB was significant ($\beta = 0.019$, 95% CI [0.0036, 0.0379]), supporting H4. The control variables (gender, organization type, age, education, and experience) did not exhibit significant effects on EPEB, indicating that the proposed relationships were robust across demographic and organizational differences. Although the control variables were not statistically significant, their inclusion served to rule out alternative explanations, thereby strengthening confidence in the hypothesized relationships (Becker, 2005).

5. Discussion

The current investigation studies the relationship between environmental-specific servant leadership and employee pro-environment behavior. A serial mediation model is proposed, with employee empowerment as the first mediator and creativity as the second mediator. Grounded in social exchange theory, all proposed hypotheses were accepted. The results revealed consistent support for all hypothesized relationships, but beyond statistical significance, the findings yield several important theoretical and contextual contributions.

Taken together, the results offer more than support for individual hypotheses; they reveal a comprehensive framework that explains how ESSL drives employees' pro-environmental behavior. By jointly considering empowerment and creativity as com-

plementary mediating mechanisms, this study demonstrates that ESSL is not simply about modeling ecological concern but about creating the conditions where employees feel both capable and motivated to innovate in addressing sustainability challenges. This integrative perspective advances social exchange theory by showing that reciprocity in a sustainability context is multidimensional: employees respond to servant leaders not only through compliance with green initiatives but also by contributing novel solutions and proactively engaging in environmental goals. Furthermore, situating these findings in the context of Saudi Arabia's Vision 2030 underscores the role of leadership in translating national sustainability aspirations into organizational practice. In this way, the study extends existing leadership and sustainability research beyond confirmation, offering theoretical insights into how leadership behaviors, psychological mechanisms, and contextual factors converge to promote organizational environmental performance.

The first hypothesis focuses on the impact of ESSL on EPMB. The results revealed a positive impact of ESSL on employees' pro-environmental behavior. This result is consistent with the recent findings, including the link between transformational leadership and pro-environmental behaviors observed in the framework presented by [Den Hartog and Belschak \(2012\)](#). It demonstrated that transformational leadership improves employee proactive behavior, particularly when self-efficacy and autonomy are exercised. Furthermore, [Tu et al. \(2023\)](#) found a synergy between ESSL green human resource management and environmentally specific employees' PEB, emphasizing the need for consistent messaging from leadership regarding sustainability ([Tu et al., 2023](#)). These findings suggest that implementing servant leadership practices can effectively promote pro-environmental behaviors among employees. The contribution here lies in extending this evidence to an emerging economy undergoing sustainability-driven transformation under Vision 2030. While existing studies have largely focused on Western or Asian manufacturing and service sectors, this research demonstrates that ESSL is also effective in motivating PEB in the Saudi context, where sustainability is now a central strategic priority. Thus, the study underscores the cross-contextual validity of ESSL and shows its relevance in regions characterized by rapid institutional and environmental change.

The second hypothesis explores the mediating role of psychological empowerment. Psychological empowerment was proposed as a first mediator. The results identified that PE partially mediates the ESSL and EPEB relationship. This result is also consistent with the findings of the recent literature. While exploring ESSL in Pakistan's textile sector, [Zafar et al. \(2022b\)](#) also found that psychological empowerment, green corporate climate, and ecologically focused servant leadership encourage voluntary pro-environmental behavior from employees. Similarly, [Ashraf et al. \(2022\)](#) also found that Servant leadership and psychological empowerment foster employees' voluntary green behavior in the tourism and hotel industry. Theoretical contribution emerges by positioning PE as a mechanism through which servant leaders translate environmental vision into employees' discretionary behaviors, thereby strengthening the explanatory power of social exchange theory in the sustainability domain.

The third hypothesis focuses on the mediating role of green creativity in ESSL and EPEB. The results support this hypothesis, and green creativity was identified as a partial mediator. Green creativity, a combination of environmental consciousness and innovative thinking, emerged as a mediator between ESSL and EPEB. Leadership that fosters a creative and sustainable work environment inspires employees to generate innovative solutions to environmental problems ([Aboramadan et al., 2021](#)). The difficulties call for action to resolve them. ESSL enables its employees to adopt various initiatives ([Mughal et al., 2022](#)). Psychological empowerment fosters green creativity in employees so that they think out of the box with a wide vision, explore novel ideas, and develop innovative strategies for

environmental protection. When employees are backed up by their leaders, they engage in creative problem-solving for environmental problems (Ansari & Khan, 2024). Green creativity plays an active role in translating ethical leadership into tangible PEB (Bashir et al., 2021). This finding highlights that ESSL can spark innovative problem-solving for environmental challenges by cultivating a climate of trust and encouragement. Rather than employees passively following sustainability guidelines, they actively generate novel and context-specific solutions, amplifying the organization's environmental responsiveness.

The fourth hypothesis investigates PE and GC as serial mediators. Employees with empowerment have enhanced creativity, engagement and satisfaction (Ansari & Khan, 2024). Employees with opportunities to contribute to sustainable initiatives can easily achieve environmental protection goals (Aboramadan et al., 2021). This result is consistent with the latest literature findings (Zhang & Bartol, 2010; Lee & Lee, 2012; Pandithasekara et al., 2023). Pandithasekara et al. (2023) found psychological empowerment to be an important driver for green creative solutions in manufacturing sector. Similarly, Lee and Lee (2012) identified the positive impact of psychological empowerment on creativity. The results support that the empowerment of employees plays an important role in making things translate into more creative green solutions from employees. This result is also in line with the recent literature findings of Badar et al. (2023), and Zhang and Bartol (2010). According to Badar et al. (2023), environmentally specific empowering leadership positively influences employee green creativity. Similarly, Zhang and Bartol (2010) also found that empowering leadership positively affects employee creativity through psychological empowerment, intrinsic motivation, and creative process engagement. This reinforces the existing literature on empowerment–creativity linkages (Zhang & Bartol, 2010; Lee & Lee, 2012; Pandithasekara et al., 2023) but makes a novel contribution by situating this dynamic within an Environmentally Specific Servant Leadership framework. In doing so, the study offers a multi-level perspective: leaders empower employees, empowerment triggers creativity, and creativity translates into tangible sustainability behaviors.

Although the control variables were not significant, their inclusion strengthens confidence in the hypothesized effects by eliminating alternative explanations (Becker, 2005). More importantly, the theoretical contribution lies not in the mere significance of paths but in demonstrating how leadership behaviors can simultaneously foster empowerment and creativity to drive sustainability outcomes. Practically, the findings suggest that organizations seeking to operationalize sustainability goals—particularly in emerging economies—should prioritize leadership development programs that integrate servant leadership principles with environmental stewardship.

In sum, the study extends ESSL research into a new socio-economic and policy context, unpacks the psychological mechanisms underlying employee green behavior, and provides actionable insights for organizations aiming to align leadership with sustainability imperatives.

6. Theoretical Implications

This study provides some important theoretical implications for sustainability and leadership literature. The study advances social exchange theory by demonstrating the mechanisms through which ESSL translates into PEB. The identification of psychological empowerment and green creativity as mediating pathways provides explanatory depth, illustrating how leaders cultivate reciprocal sustainability behaviors by empowering employees and stimulating innovative problem-solving. This dual-path mechanism highlights that ESSL not only motivates compliance with environmental initiatives but also fosters proactive, creative engagement. The results also broaden the application of social exchange theory (SET) (Blau, 1964) to the field of environmental management by examining Environ-

mentally Specific Servant Leadership (ESSL) as a factor in employees' pro-environmental behavior (PEB). According to SET, workers respond favorably to leaders' supportive behaviors by taking constructive steps of their own. Our findings support leadership theory in sustainability contexts by demonstrating that when leaders exhibit environmentally oriented servant leadership, employees respond by acting more pro-environmentally.

Similarly, by confirming its mediating function in the ESSL–PEB relationship, the study contributes to the literature on psychological empowerment. This emphasizes empowerment as a crucial psychological process that helps staff members convert leadership cues into environmentally friendly actions. Our findings support earlier research (Zafar et al., 2022b; Ashraf et al., 2022) by showing that empowered employees feel more capable and accountable for environmental outcomes. They also reaffirm empowerment as a crucial link between employee behavior and leadership.

The incorporation of green creativity as an explanatory mechanism enhances theoretical understanding of how ESSL not only help in promoting innovation and creativity but also develop sustainability-oriented solutions and compliance-oriented pro-environmental actions coming from employees. This strengthens the relationship between innovation, creativity and leadership in environmental management context. This is also backed by recent findings that leadership fosters autonomy and empowerment foster creativity (Zhang & Bartol, 2010; Badar et al., 2023). Lastly, the current study presented a holistic framework by combining leadership, empowerment, creativity, and employee behavior in sustainability context. The study provides a framework for serial mediation that links PEB, ESSL, psychological empowerment, and creativity. This multi-mediator model highlights how employees internalize the leadership orientation toward environment into proactive environmental conscious behavior.

This study contributes to the growing body of research on leadership and sustainability in several important ways. First, following Homer and Lim's (2024) call for theory development in a globalized world, we extend existing frameworks. Specifically, we not only replicate the relationship between Environmentally Specific Servant Leadership (ESSL) and pro-environmental behavior (PEB) but also identify why these dynamics are particularly salient in the Saudi Arabian context. By situating our research within the Vision 2030 agenda, a national initiative that places sustainability and inclusion at the center of socio-economic transformation, we show how institutional and cultural settings shape the functioning of leadership models. By examining ESSL within Saudi Arabia's Vision 2030 context, our study tests the applicability of servant leadership principles in a non-Western, rapidly transforming setting. Our findings explain why ESSL fosters PEB through empowerment and creativity in such a unique socio-economic and policy environment. This enriches social exchange theory by illustrating how cultural and institutional contexts shape reciprocity norms between leaders and employees in sustainability practices.

7. Practical Implications

The findings also offer practical advice for managers and legislators looking to improve environmental performance in businesses. First, the findings show that ESSL procedures can effectively encourage employees to take up environmentally friendly practices. Organizational sustainability culture can be strengthened by leaders who set an example of environmental stewardship, offer direction, and show sincere concern for ecological well-being. This implies that companies ought to incorporate the concepts of environmentally conscious servant leadership into their leadership development and training initiatives.

Second, the significance of employee empowerment in environmental initiatives is highlighted by the mediating role of psychological empowerment. Supervisors should give employees freedom, access to resources, and chances to express their opinions. In addition

to increasing employees' sense of control over sustainability objectives, empowerment promotes regular participation in environmentally friendly activities. Organizations and managers can focus on delegating decision-making authority on green initiatives, forming cross-functional sustainability teams, and providing autonomy in designing eco-friendly work practices for enhancing employee empowerment.

Third, the findings demonstrate the importance of green creativity in tackling complex sustainability issues. Organizations can inspire their staff to innovate by creating an environment that is open, encouraging, and rewarding creative ideas for environmental improvement. Mechanisms that foster creativity and produce innovative solutions for lowering environmental footprints include innovation labs, green idea contests, and cross-functional sustainability teams. The actionable practices such as innovation labs, idea-sharing platforms, and structured brainstorming sessions for eco-friendly solutions can be helpful in deriving innovation and creativity in employees.

Fourth, the validated serial mediation model highlights that creativity and empowerment must be fostered in tandem for optimum effect. Innovative environmental solutions that result in concrete pro-environmental actions are more likely to be produced by empowered staff members who are encouraged to think creatively. Therefore, managers should take a two-pronged approach: fostering a creative work environment while offering empowerment structures focusing on autonomy, resources, and decision-making authority. Organizations can foster psychological empowerment by linking environmental goals to employees' roles, offering structured training on sustainability competencies, and recognizing employee-led creative green initiatives through formal reward systems.

Finally, the findings have significant practical implications from the cultural and policy perspectives of developing economies, especially the Kingdom of Saudi Arabia, this study's context. In this sense, environmentally focused servant leadership offers a helpful prism through which to analyze how leadership behaviors impact employees' green, creative, and pro-environmental actions. Since, Saudi Arabia is a collectivist and hierarchical society, leadership behaviors typically have a greater impact on employee attitudes compare to individualistic culture (Hofstede et al., 2020); this additional contextual aspect provides more comprehensive understanding about the influence of leaders in these contextual settings.

It also advances knowledge of how leadership in Saudi Arabia can operationalize the Vision 2030 sustainability goals at the organizational level by emphasizing empowerment and creativity as mediating mechanisms. Policymakers and organizational leaders can use ESSL as a leadership style that aligns with national sustainability visions (Saudi Vision 2030) to ensure that leadership development programs specifically include environmental stewardship. According to this contextual focus, businesses in collectivist or resource-intensive industries may benefit the most from ESSL adoption in order to achieve long-term sustainability objectives. These practical implications move beyond general prescriptions to outline specific pathways including leadership training, empowerment mechanisms, and creativity-enhancing structures through which organizations can cultivate sustainability-oriented behaviors and contribute to national and global environmental objectives.

8. Limitations and Future Directions

While this study offers valuable insights into the role (ESSL) in fostering employee pro-environmental behavior (PEB), several limitations should be acknowledged to guide future research. The first limitation is related to the cross-sectional research design, which limits the inference. Although the findings align with theoretical expectations, longitudinal or experimental studies can capture the temporal sequence of these relationships and strengthen causal inferences. Second, the study relied on self-reported survey data, which

may be subject to biases such as social desirability and common method variance. Despite applying statistical tests, these concerns cannot be fully eliminated. Future research can focus on multi-source data, such as supervisor or peer evaluations of PEB, or objective measures of environmental performance, to validate and triangulate findings. Third, the study's context was limited to Saudi Arabia. While this setting provided a unique opportunity to align findings with the Vision 2030 sustainability agenda, cultural and institutional characteristics, such as hierarchical structures and collectivist orientations, may limit generalizability. Future studies can examine ESSL in other cultural, industrial, and geographic contexts to better understand the boundary conditions of these relationships.

The proposed model focused on two mediating mechanisms, green psychological empowerment and green creativity. Although these proved significant, other psychological and organizational processes, such as green organizational climate, knowledge sharing, environmental passion, or employees' green self-efficacy, could also explain how ESSL fosters PEB. Future research should broaden the framework by incorporating additional mediators or moderators (e.g., organizational culture, leadership styles, or industry type). Finally, the study concentrated on individual-level outcomes. As sustainability often requires collective effort, future research should adopt multi-level perspectives to explore how ESSL influences group-level creativity, organizational environmental performance, or institutionalized sustainability practices.

9. Conclusions

This study extends the understanding of Environmentally Specific Servant Leadership (ESSL) by examining its influence on employees' pro-environmental behavior (PEB) through the mediating roles of psychological empowerment and green creativity. Drawing on social exchange theory, the findings highlight that ESSL not only encourages employees to adopt environmentally responsible practices but also fosters the empowerment and creative capacities necessary to generate innovative green solutions. The results reinforce the value of integrating servant leadership principles with environmental stewardship to enhance both individual and organizational sustainability outcomes. Importantly, by situating the study within the Saudi Arabian context, it provides novel insights into how leadership behaviors can support national transformation agendas such as Vision 2030, thereby broadening the theoretical and practical relevance of ESSL in non-Western, rapidly developing economies.

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Appendix A

Scale used for measurement of variables.

Servant Leadership ([Luu, 2018](#)).

1. My supervisor cares about my eco-initiatives.
2. My supervisor emphasizes the importance of contributing to environmental improvement.
3. My supervisor is involved in environmental activities.
4. I am encouraged by my supervisor to volunteer in environmental activities.
5. My supervisor has a thorough understanding of our company and its environmental goals.
6. My supervisor encourages me to contribute to eco-initiatives.
7. My supervisor gives me the freedom to handle environmental problems in the way that I feel is best.
8. My supervisor does what she/he can do to realize my eco-initiatives.
9. My supervisor holds high environmental standards.
10. My supervisor always displays green behaviors.
11. My supervisor would not compromise environmental principles to achieve success.
12. My supervisor values environmental performance more than profits.

Psychological empowerment ([Roscoe et al., 2019](#))

1. I clearly know how green operations fit with my daily job.
2. I feel a shared sense of responsibility for the work I do.
3. I am free to make decisions regarding environmental issues.
4. I have significant autonomy in deciding how to handle green issues in practices.

Green creativity ([Chen & Chang, 2013](#))

1. I suggest new ways to achieve environmental goals.
2. I propose new green ideas to improve environmental performance.
3. I promote and champion new green ideas to others.
4. I develop adequate plans for the implementation of new green ideas.
5. I would rethink new green ideas.
6. I would find out creative solutions to environmental problems.

Pro-environmental Behavior ([Robertson & Barling, 2013](#))

1. I print double sided whenever possible.
2. I put recyclable material in the recycling bins.
3. I bring reusable eating utensils to work.
4. I turn lights off when not in use.
5. I make suggestions about environmental protection to managers and/or environmental committees, to increase my organization's environmental performance.
6. I effectively complete any job assignments (either in-role or extra-role) in environmentally friendly ways.

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