



# Leadership Styles and Organisational Citizenship Behaviour for the Environment: A Systematic Literature Review

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## Abstract

**Research purpose:** This study aims to synthesise the current state of knowledge on how different leadership styles influence Organisational Citizenship Behaviour for the Environment (OCBE), with particular attention to the underexplored role of green and environmentally specific authentic leadership.

**Research motivation:** Although prior studies have examined responsible, transformational, servant, ethical, empowering, and sustainability-oriented leadership in relation to OCBE, findings remain fragmented and inconsistent. Authentic leadership, despite its emphasis on moral perspective, transparency, and value congruence, has rarely been tested as a direct antecedent of OCBE. Addressing this gap is crucial to strengthen theoretical clarity and support organisations in achieving sustainability objectives and the Sustainable Development Goals (SDGs).

**Research design, approach, and method:** Following the PRISMA framework, we conducted a systematic literature review of 45 peer-reviewed studies indexed in ISI and Scopus up to September 2025. Content analysis and coding were applied to classify leadership styles, mediating and moderating variables, contextual factors, and effect strengths.

**Main findings:** The review reveals that responsible and transformational leadership are the most extensively studied, but their effects on OCBE range from weak to strong depending on mediators such as psychological ownership, affective commitment, and green organisational climate. Servant, ethical, spiritual, and empowering leadership also demonstrate positive but variable associations. Authentic leadership remains underexamined, with existing studies positioning it primarily as a mediator or moderator rather than a direct predictor of OCBE.

**Practical/managerial implications:** The findings highlight the potential of authentic leadership to mobilise employees' pro-environmental behaviours by bridging the value and behaviour gap. Organisations are encouraged to cultivate leaders who demonstrate transparency, moral consistency, and environmental sincerity, thereby creating climates that stimulate voluntary ecological contributions and strengthen corporate sustainability performance.

**Keywords:** Organisational Citizenship Behaviour for the Environment (OCBE); responsible leadership; transformational leadership; sustainability-oriented leadership; servant leadership; ethical leadership, empowering leadership, spiritual leadership, authentic leadership.

## 1. INTRODUCTION

In an era of deepening globalisation and intensifying competition, firms are increasingly required to move beyond a narrow focus on profit maximisation and orient their strategies toward sustainable development. The United Nations' Sustainable Development Goals (SDGs) articulate sustainability across three mutually reinforcing pillars economic prosperity, social equity, and environmental stewardship which organisations are urged to integrate coherently into strategy and operations (United Nations, 2015). Because strategy is ultimately anchored in the convictions and choices of senior leaders, the pursuit of sustainability begins with leadership: leaders frame a long-term vision, translate that vision into actionable priorities, and mobilise collective effort to realise sustainable outcomes across the triple bottom line. Yet strategy cannot be executed by leadership fiat alone. Employees who enact policies, make innumerable day-to-day trade-offs, and innovate at the coalface constitute the decisive link between espoused sustainability intentions

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and realised organisational practice. Alignment and shared understanding between leaders and employees are therefore essential, with concrete behaviours inside the organisation serving as the most visible evidence of that alignment.

Within this behavioural domain, the concept of Organisational Citizenship Behaviour (OCB) captures employees' discretionary, extra-role actions that are not directly recognised by formal reward systems yet contribute to organisational effectiveness (Smith et al., 1983). Embedding the environmental pillar of the SDGs into this notion yields Organisational Citizenship Behaviour for the Environment (OCBE)—voluntary, prosocial actions oriented toward ecological improvement, such as energy saving, waste sorting, and green idea generation, which collectively strengthen the firm's environmental performance and credibility (Daily et al., 2009). Because OCBE manifests the everyday enactment of sustainability at the employee level, it has attracted sustained scholarly attention as a behavioural lever for organisational greening.

Over the past decade, research on leadership antecedents of OCBE has expanded markedly across multiple leadership traditions. Studies of responsible leadership report links to OCBE through ethical role-modelling and stakeholder sensitivity (e.g., Han et al., 2019); (Abbas et al., 2022a); (Sahar et al., 2023); (Alwheshi et al., 2024). Work on transformational leadership has evolved into environmental and green variants that emphasise inspiring pro-environmental vision and creativity (Graves et al., 2013); (Robertson & Barling, 2013); (Mittal & Dhar, 2016); (Mi et al., 2019); (Kim et al., 2020); (Chen & Chang, 2013); (Liu et al., 2022). Parallel streams examine servant leadership including green and environmentally specific forms highlighting employee-centred empowerment for sustainability (Javed et al., 2024); (Zafar et al., 2025), alongside ethical leadership (Khan et al., 2019); (Islam et al., 2021); (Su et al., 2023), spiritual leadership (Anser et al., 2021), empowering leadership (Jiang et al., 2019a), and authentic leadership in green-focused adaptations (Luu, 2023); Collectively, this scholarship underscores leadership's centrality in cultivating climates, norms, and motivations that enable OCBE.

A second, complementary line of enquiry probes how leadership influences OCBE by testing psychological and contextual mechanisms. Reported mediators and moderators include environment-related corporate social responsibility (Noor-E-Sahar et al., 2024), employees' harmonious environmental passion (Alwheshi et al., 2024), green organisational climate (Iqbal & Piwowar-Sulej, 2023), employees' felt responsibility for the environment (Tuan, 2022), psychological ownership (Mi et al., 2019); (Jiang et al., 2019a), perceived environmental justice (Iqbal et al., 2025), environmental justice orientation (Anser et al., 2021), and employees' green creativity (Zafar et al., 2025). While these studies collectively show that leadership can shape OCBE directly and indirectly, effect magnitudes vary from weak to moderate across settings, constructs, and measures, reflecting notable fragmentation in operational definitions and research designs.

Despite the growing body of research on leadership and sustainability, a significant gap remains concerning the role of authentic leadership in this domain. Existing studies have only begun to examine green authentic leadership, primarily positioning it as a mediating or moderating factor influencing outcomes such as employees' environmental passion, green job crafting, and other related behaviours (Luu, 2023, 2024). Nevertheless, empirical evidence directly linking authentic leadership particularly in its green and environmentally specific forms to OCBE remains limited. Bridging this gap is both timely and important, as authenticity grounded in self-awareness, moral conviction, and relational transparency may constitute a unique, values-driven pathway for encouraging employees' voluntary pro-environmental behaviours in the workplace. Such an approach has the potential not only to complement but also to exceed the contributions of responsible, transformational, or servant leadership models.

Accordingly, this study systematically reviews peer-reviewed evidence on the relationships between leadership styles and OCBE, synthesising findings across responsible, transformational (including environmental/green forms), sustainability-oriented, servant/green servant, ethical, spiritual, empowering, inclusive/green inclusive, and authentic leadership traditions. By integrating results up to September 2025 and examining the mechanisms through which leaders influence employee green citizenship, the review aims to clarify conceptual boundaries, adjudicate mixed findings, and identify promising directions particularly the under examined authentic leadership pathway for theory development and managerial practice in pursuit of the SDGs.

## 2. METHODS

This study followed established guidance for systematic literature reviews in management and organisation studies and complied with the PRISMA reporting framework (Page et al., 2021), complemented by domain appropriate procedures for evidence synthesis in management research (Denyer & Tranfield, 2009) and good practice guidance on rigorous review designs (Snyder, 2019). A review protocol specifying research questions, search strategy, eligibility

criteria, screening and coding procedures, and quality appraisal was developed a priori. The protocol and full codebook are available upon request.

We searched Web of Science (ISI) and Scopus to ensure comprehensive coverage of high quality, peer-reviewed outlets. Searches were conducted initially in May 2025 and updated through 30 September 2025. Search strings combined leadership terms with OCBE/pro-environmental behaviour constructs using titles, abstracts, and keywords. A representative strategy (adapted per database syntax) was:

("organisational citizenship behavior for the environment" OR OCBE OR "pro-environmental behavior-PEB" OR "green behavior" OR "environmental citizenship") AND (leadership OR "transformational leadership" OR "green transformational leadership" OR "environmental transformational leadership" OR "responsible leadership" OR "sustainable leadership" OR "sustainability-oriented leadership" OR "empower leadership" OR "servant leadership" OR "green servant leadership" OR "ethical leadership" OR "spiritual leadership" OR "authentic leadership" OR "inclusive leadership" OR "green inclusive leadership"). The time window extended from database inception to September 2025.

#### Eligibility criteria

**Inclusion:** (a) peer-reviewed journal articles; (b) empirical studies (quantitative, qualitative, or mixed methods); (c) conceptualise and measure at least one leadership construct; (d) report employee pro-environmental outcomes with an OCBE focus (e.g., OCBE scales or closely aligned employee extra-role green behaviours at work); (e) provide sufficient detail to extract study characteristics and leadership–OCBE relationships.

**Exclusion:** conference papers, editorials, dissertations, book chapters, non-organisational settings (e.g., community activism without a workplace), outcomes unrelated to employee green citizenship (e.g., firm-level emissions without employee behaviours), or articles lacking empirical data.

#### Study selection (PRISMA flow)

All records were exported to a reference manager and deduplicated automatically and manually. Titles/abstracts were screened against inclusion criteria, followed by full text assessment. Two reviewers independently screened all records; disagreements were resolved through discussion, with a third reviewer consulted when necessary.

**Eligibility:** 113 full texts assessed; 68 excluded (no OCBE-type outcome, non-organisational samples, insufficient data). **Included:** 45 studies met all criteria and were included in the synthesis.

#### Data extraction

A structured extraction template captured: bibliographic details (journal, year, country), theoretical lens, leadership construct(s) and operationalisation (scale/source), OCBE (or equivalent) measure, sample and sector, research design and analysis, mediators/moderators, and direction and strength of the leadership–OCBE relationship.

#### Coding approach and content analysis

We conducted directed qualitative content analysis (Elo & Kyngäs, 2008; Krippendorff, 2018), combining a theory-informed codebook with inductive refinement. The codebook (Miles, Huberman, & Saldaña, 2014; Saldaña, 2021) specified:

**Construct codes:** leadership styles (e.g., responsible; transformational; green/environmental; sustainability-oriented; empowering; spiritual; servant/green servant; ethical; inclusive/green inclusive; authentic/green authentic/environmentally specific);

**Outcome codes:** OCBE, PEB

**Mechanism codes:** mediators/moderators (e.g., psychological ownership, green climate, affective commitment, meaningful work...);

**Relationship strength:** Following your requirements, we categorised effect strength as weak, moderate, or strong without reporting betas or p-values in the synthesis. When quantitative effect sizes were available, we mapped standardised associations to qualitative bins (heuristics:  $|b| < .20$  = weak;  $.20-.50$  = moderate;  $>.50$  = strong). When only narrative results were reported, we coded based on authors' language and comparative magnitude across

variables, triangulated with reported statistics where possible. Ambiguities were flagged and resolved during adjudication.

Two coders independently piloted the codebook on five studies, refined definitions, and then coded all 45 included papers independently. We assessed inter-coder agreement using Cohen's  $\kappa$  for categorical fields and resolved discrepancies through discussion until consensus (Cohen, 1960). For continuous fields (e.g., effect sizes when extractable), we compared entries and reconciled differences via joint review of the original text.

#### Synthesis strategy

Given heterogeneity in constructs, contexts, and measures, we employed configurational, narrative synthesis structured by leadership styles and triangulated across mechanisms and contexts (Denyer & Tranfield, 2009; Snyder, 2019). Where leadership variants were conceptually overlapping (e.g., green vs environmental transformational leadership), we retained the authors' labels but documented measurement sources to preserve comparability and noted overlap explicitly. We integrated quality signals by giving greater interpretive weight to higher-quality studies and to convergent findings across independent samples and settings. Sensitivity analyses examined whether conclusions changed when excluding lower quality or high CMV risk studies.

### 3. FINDINGS

#### 3.1 Responsible Leadership (RL) and OCBE

Responsible Leadership (RL) has emerged as a distinctive paradigm that transcends traditional leadership frameworks by incorporating social, ethical, and ecological dimensions into managerial practice. Unlike transactional or purely performance-oriented models, RL is characterised by moral integrity, stakeholder engagement, and an explicit orientation toward sustainable outcomes (Maak & Pless, 2006; Pless & Maak, 2011). Responsible leaders are expected to prioritise employee well-being, ecological stewardship, and community development, thereby aligning corporate strategies with broader societal expectations (Han et al., 2019).

A central feature of RL is its dual responsibility to internal and external stakeholders, which requires balancing economic objectives with ethical and environmental imperatives. Leaders must frequently navigate competing demands, acting simultaneously as managers, visionaries, negotiators, and spokespersons (Voegtlin, 2011; Abbas et al., 2022b). This multi-faceted orientation distinguishes RL from other leadership constructs by placing equal emphasis on values-driven change and sustainable organisational development (Stahl & Sully de Luque, 2014). Moreover, RL has been linked to the institutionalisation of green norms, the articulation of long-term sustainability visions, and the cultivation of employees' intrinsic sense of environmental responsibility (Afsar et al., 2020).

#### Theoretical Foundations

The relationship between RL and OCBE has been explained through several theoretical perspectives. Social Learning Theory-SLT (Bandura, 1986, Nabavi & Bijandi, 2012) suggests that employees adopt behaviours by observing leaders who serve as role models. In the RL context, leaders' ecological decisions and moral integrity act as powerful cues, prompting employees to emulate pro-environmental practices (Rego et al., 2019). This modelling process is reinforced through verbal and behavioural signals that communicate organisational priorities (Gu et al., 2020; Wang et al., 2022).

Social Exchange Theory (SET) complements this view by emphasising reciprocity in leader–follower relationships. When leaders demonstrate responsibility toward stakeholders, employees are likely to reciprocate by engaging in voluntary sustainability behaviours, thereby reinforcing trust and mutual obligation (Abbas et al., 2022a).

A third perspective, Stewardship Theory, portrays leaders as caretakers committed to organisational and societal well-being (Block, 1993). By removing barriers, providing resources, and fostering openness, responsible leaders encourage innovative and proactive employee contributions to sustainability (Jasir et al., 2023). In such contexts, employees develop loyalty and willingly engage in ecological initiatives (Lee et al., 2020).

Together, these theories illustrate that RL influences OCBE through modelling, reciprocity, and stewardship. This multidimensionality suggests that RL is not only a behavioural style but also a relational and institutional approach that embeds sustainability into organisational life.

#### Empirical Findings

Empirical research on RL and OCBE has generated divergent findings. Han et al., (2019) reported that RL exerted only a weak influence on OCBE, mediated by employees' felt obligation for constructive change (FOCC), with supervisor-subordinate relationships moderating this effect. Similarly, Afsar et al., (2020) identified a weak to moderate relationship, mediated by a green shared vision (GSV). Abbas et al., (2022a) confirmed these findings, showing that while RL fostered psychological ownership, its translation into OCBE was limited.

Other studies have documented moderate effects. For instance, Sahar et al., (2023) demonstrated that RL's effect on OCBE was partially mediated by environmental corporate social responsibility, while Zhao & Liang (2023) highlighted the mediating role of the employment relationship atmosphere. Alwheshi et al., (2024) also found moderate outcomes, but the relationship was moderated by employees' harmonious environmental passion.

More recent evidence points toward stronger effects (Wang et al., 2025) concluded that RL strongly predicted OCBE, although co-worker exchange served only as a weak mediator. Similarly, Maqsoom et al., (2025) reinforced the strong association between RL and OCBE. Contextual comparisons further illustrate variability: (Tuan, 2022) reported that RL exerted a moderate effect on OCBE in Vietnam but only a weak effect in China, with employees' felt responsibility for the environment acting as a mediator in both cases.

#### Research gaps

Overall, findings on RL and OCBE reveal inconsistencies across contexts, mediators, and measurement approaches. Earlier studies tended to report weak relationships (Han et al., 2019; Abbas et al., 2022), whereas more recent studies identify stronger effects (Wang et al., 2025; Maqsoom et al., 2025). This divergence may stem from cultural differences, temporal changes in sustainability awareness, or variations in research design.

Moreover, the diversity of mediators and moderators, such as felt obligation for constructive change, psychological ownership, affective commitment, and environmental passion, suggests that the RL and OCBE link is highly contingent on psychological and organisational conditions. These discrepancies underscore the need for longitudinal and cross-cultural studies to clarify the boundary conditions under which RL most effectively fosters OCBE.

### 3.2 Transformational Leadership (TFL) and OCBE

Transformational leadership (TFL) is one of the most extensively studied leadership theories and is recognised for its ability to inspire followers to transcend self-interest and strive toward higher levels of performance and moral purpose. Burns (1978) first articulated the concept, describing transformational leadership as a process through which leaders and followers raise one another to higher levels of morality and motivation. Bass (1985) subsequently extended this framework into organisational contexts, identifying four key components including idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration that have since become the foundational dimensions of TFL. Unlike transactional leadership, which relies on exchanges and contingent rewards, TFL aims to instil intrinsic motivation and long-term commitment to shared visions (Yukl, 1989).

As global sustainability challenges have become more pressing, scholars have adapted TFL to incorporate environmental objectives. Concepts such as Environmental Transformational Leadership (E-TFL) and Green Transformational Leadership (GTL) have emerged, highlighting the role of leaders in embedding ecological values into organisational culture and practices (Graves et al., 2013; Robertson & Barling, 2013). These adaptations align closely with Organisational Citizenship Behaviour for the Environment (OCBE), which refers to employees' voluntary, discretionary actions that contribute to ecological sustainability without direct rewards or formal requirements (Daily et al., 2009; Boiral, 2009).

#### Theoretical Foundations

The relationship between TFL and OCBE has been explained through several theoretical perspectives.

First, Self-Determination Theory (SDT) posits that human motivation can be autonomous, driven by internalised values and intrinsic interests, or controlled, shaped by external rewards and constraints (Ryan & Deci, 2000). Transformational leaders foster autonomous motivation by aligning sustainability goals with employees' personal values, thereby encouraging voluntary pro-environmental actions (Graves et al., 2013; Kim et al., 2020).

Second, Social Learning Theory (SLT) suggests that individuals model behaviours they observe in role models (Bandura, 1986). When transformational leaders demonstrate visible commitment to sustainability, employees are

likely to imitate these behaviours, internalise organisational values, and adopt pro-environmental practices (Robertson & Barling, 2017).

Third, the Transformational Leadership Theory itself provides the core explanatory framework, emphasising leaders' ability to inspire followers to embrace higher-order values and collective goals (Burns, 1978; Bass, 1985). Applied to sustainability, TFL highlights how leaders can articulate compelling environmental visions, stimulate prosocial creativity, and nurture innovation in green initiatives (Robertson, 2018; Riva et al, 2021).

#### Empirical Findings

Empirical investigations reveal both convergences and divergences in the link between TFL and OCBE. Mi et al. (2019) found that among the four dimensions of transformational leadership, only vision motivation exerted a moderate effect on OCBE, partially mediated by psychological ownership. In contrast, Kim et al. (2019) reported that E-TFL demonstrated only a weak effect on OCBE, with employees' environmental beliefs serving as a weak mediator. Similarly, Gurmani et al., (2021) identified perceived meaningful work as a mediator, while Omarova & Jo (2022) highlighted environmental awareness as another weak mediating mechanism. Asghar et al., (2022) also observed weak effects, mediated through leader-member exchange and psychological empowerment.

In contrast, research on GTL shows stronger results. Liu et al., (2022) demonstrated that GTL had a moderate to strong effect on OCBE, fostering green product innovation through voluntary pro-environmental behaviours. This effect was further moderated by organisational green climate. Lathabhavan & Kaur (2023) also found that GTL moderately influenced OCBE, partially mediated by green employee creativity.

Further studies have examined TFL as part of broader frameworks. Deng et al., (2022) showed that E-TFL mediated the relationship between corporate social responsibility and OCBE, while Alweshi et al., (2024) identified E-TFL as a moderator between responsible leadership and OCBE.

#### Research Gaps

The empirical evidence reveals inconsistencies in the strength and direction of the TFL-OCBE relationship. While studies on E-TFL often point to weak or indirect effects (Kim et al., 2019; Asghar et al., 2022), GTL appears to yield comparatively stronger associations (Liu et al., 2022; Lathabhavan & Kaur, 2023). These discrepancies may be explained by conceptual overlaps between E-TFL and GTL, differences in measurement scales (e.g., Chen & Chang, 2013; Robertson, 2018), and contextual factors such as organisational climate or national culture.

Another source of inconsistency lies in the mediating and moderating variables. Whereas some studies highlight psychological ownership and creativity as strong mediators (Mi et al., 2019; Lathabhavan & Kaur, 2023), others emphasise weaker mechanisms such as environmental awareness or leader-member exchange (Omarova & Jo, 2022; Asghar et al., 2022). This fragmented picture suggests that the effect of TFL on OCBE is highly contingent upon psychological, relational, and contextual factors.

Taken together, the literature suggests that generalised transformational leadership exerts variable effects on OCBE, with environmental adaptations such as GTL yielding more robust outcomes than E-TFL. Nonetheless, inconsistencies in conceptualisation and measurement, combined with diverse mediating pathways, call for greater theoretical integration and cross-contextual research. Future studies should also compare TFL with other leadership styles to determine whether it represents a uniquely effective approach to fostering OCBE or whether its outcomes overlap significantly with responsible, authentic, or servant leadership.

### 3.3 Sustainability-Oriented Leadership (SOL) and OCBE

Sustainability-Oriented Leadership (SOL) has gained increasing scholarly attention as organisations grapple with the triple bottom line of environmental, social, and economic sustainability. Unlike traditional leadership paradigms, SOL explicitly integrates these three dimensions into leadership practices, positioning leaders as key agents in advancing sustainable futures (Haldar, 2019; Iqbal et al., 2025). Leaders adopting this orientation recognise that organisations not only contribute to economic growth but also play a critical role in addressing ecological degradation and social inequality. Accordingly, SOL emphasises ethical decision-making, ecological stewardship, and long-term societal welfare.

SOL leaders actively embed sustainability into organisational vision and strategy, thereby fostering an environment in which employees are encouraged to act responsibly toward the planet and society (Chen & Bliese, 2002; Sikand &

Saxena, 2022). They advocate for ethical labour practices, environmental protection, and innovation while balancing the pursuit of profitability with the preservation of ecological systems (Xuecheng et al., 2022; Armani et al., 2020). In doing so, they cultivate trust-based organisational cultures grounded in empowerment, teamwork, and knowledge sharing (Avery & Bergsteiner, 2011; Gerard et al., 2017).

#### Theoretical Foundations

The relationship between SOL and OCBE is underpinned by several theoretical perspectives. Social Learning Theory (SLT) posits that employees learn by observing and imitating leaders' behaviours. When leaders demonstrate authentic concern for sustainability, employees are more likely to replicate pro-environmental actions in their day-to-day work (Iqbal et al., 2025)

Social Exchange Theory (SET) explains that employees reciprocate supportive and respectful treatment from leaders through discretionary actions. SOL, by fostering trust, openness, and reciprocity, motivates employees to engage in voluntary pro-environmental behaviours that contribute to OCBE (Cropanzano et al., 2017; Gould-Williams, 2007).

Person–Organisation Fit Theory highlights the importance of alignment between employees' green values and organisational sustainability values. While employees with strong ecological values are predisposed to engage in sustainable behaviour, organisational culture and leadership often determine whether these values translate into concrete actions, thereby bridging the well-documented value–behaviour gap (Kollmuss & Agyeman, 2002; Bellou & Andronikidis, 2009).

#### Empirical Findings

Empirical studies generally affirm the positive influence of SOL on OCBE, though findings vary in strength and mechanism. Leaders provide both affective support (e.g., respect, trust, empowerment) and instrumental support (e.g., resources, training, technical tools), enabling employees to participate in environmental initiatives such as waste reduction, green purchasing, and awareness campaigns (Paillé et al., 2022; Gjerde & Ladegård, 2019).

Iqbal & Piwovar-Sulej (2023) demonstrated that SOL indirectly fosters OCBE via green organisational climate (GOC), with this relationship further moderated by P–O Fit. Similarly, Iqbal et al., (2025) found that SOL influences OCBE through perceived environmental justice (PEJ) where fair recognition and reward policies act as mediators. Moreover, employee job embeddedness was shown to moderate both the direct SOL–OCBE link and the mediating effect of PEJ.

Han et al., (2019) revealed that employees' affective commitment to supervisors was enhanced under SOL, reciprocally strengthening OCBE. Other studies suggest that SOL overlaps with transformational, authentic, and ethical leadership, which have themselves been shown to influence pro-environmental behaviours (Iqbal & Piwovar-Sulej, 2023b).

#### Research Gaps

Despite a growing consensus on SOL's positive role, inconsistencies remain. Some studies portray SOL as a strong direct driver of OCBE (Sikand & Saxena, 2022), whereas others report that its influence is primarily indirect, mediated by organisational climate or perceptions of justice (Iqbal et al., 2023, 2025). Moreover, the moderating role of P–O Fit remains contested: in some contexts, strong alignment enhances OCBE, while in others, employees' ecological values fail to manifest in behaviour due to structural constraints (Kollmuss & Agyeman, 2002).

Another complication is conceptual ambiguity. Some scholars equate SOL with related constructs such as Sustainable Leadership (SL) or Sustainability-Oriented Leadership (SOL), often using McCann and Holt's (2010) scale interchangeably (Avery & Bergsteiner, 2011; Iqbal & Piwovar-Sulej, 2022a). This lack of terminological precision complicates comparisons across studies and raises questions about the distinctiveness of SOL relative to other leadership styles.

The literature suggests that SOL promotes OCBE both directly and indirectly, with effects strengthened by supportive organisational climates and congruence between personal and organisational values. However, inconsistencies in conceptualisation, measurement, and mediating pathways highlight the need for theoretical refinement and empirical standardisation. Cross-cultural and longitudinal designs could further clarify the conditions under which SOL is most effective in promoting pro-environmental behaviour.

### 3.4 Empowering, Spiritual, and Green Servant Leadership and OCBE

#### 3.4.1 Empowering Leadership and OCBE

Empowering leadership is characterised by decentralisation of decision-making and the delegation of responsibility to employees. Leaders adopting this style encourage autonomy, make confidence, and create conditions for employees to proactively carry out their tasks (Jiang et al., 2019a). Leach et al. (2003) defined empowering leadership as a set of managerial behaviours that enhance employee autonomy by granting decision-making authority and reducing unnecessary constraints. Similarly, Ahearne et al. (2005) emphasised that empowering leaders communicate the meaningfulness of work, encourage participation, and strengthen employees' belief in their capacity to perform effectively.

##### Theoretical Foundations

The link between empowering leadership and OCBE is often framed through Social Exchange Theory (SET), which posits that employees reciprocate trust and autonomy by engaging in discretionary pro-environmental behaviours (Blau, 1964; Cropanzano & Mitchell, 2005). Psychological Ownership Theory (Pierce et al., 2001, 2003) further explains that when employees feel a sense of ownership over their work, they are more likely to go beyond formal duties, including contributing to sustainability initiatives (Zhang & Bartol, 2010). Empowering leadership fosters this ownership by providing control, access to information, and opportunities for self-investment.

##### Empirical Findings

Findings remain mixed. Jiang et al., (2019b) observed only a weak effect of empowering leadership on OCBE, but this effect strengthened when mediated by psychological ownership. More recent evidence by (K. Mankgele & Fatoki, 2024); (K. P. Mankgele & Fatoki, 2025) showed that green empowering leadership exerted a moderate effect on OCBE, with green learning orientation and psychological ownership acting as mediators. These findings suggest that the ecological orientation of empowerment plays a critical role in determining outcomes.

#### 3.4.2 Spiritual Leadership and OCBE

Spiritual leadership is an intrinsically value-driven approach in which leaders inspire followers through a sense of calling and membership within the organisation. It is grounded in values such as hope, faith, and altruistic love, which extend beyond organisational performance to embrace broader societal and ecological well-being (Fry, 2003; Fry & Slocum, 2008). By demonstrating compassion, gratitude, and empathy, spiritual leaders respond to employees' deeper needs for meaning and connectedness (Yang et al., 2019).

##### Theoretical Foundations

Spiritual leadership is frequently analysed through Social Learning Theory (SLT), which highlights leaders' role as value models whose behaviours employees internalise (Afsar, Shahjehan, & Shah, 2018). Additionally, it promotes value congruence between employees and organisations, reducing tensions between personal and organisational priorities (Fry, Vitucci, & Cedillo, 2005). Environmental ethics, framed within this leadership model, motivate employees to voluntarily engage in pro-environmental practices (Shrivastava, 1994; Pandey & Gupta, 2008).

##### Empirical Findings

Empirical studies suggest limited influence. Anser et al., (2021) found that spiritual leadership had only a weak effect on OCBE, with environmental justice orientation mediating the relationship. This indicates that while spiritual values may enhance awareness, they do not directly translate into consistent pro-environmental actions unless reinforced by fairness perceptions and organisational structures.

#### 3.4.3 Green Servant Leadership and OCBE

Green servant leadership builds on the philosophy of servant leadership but explicitly incorporates environmental concerns. Unlike transactional models, it prioritises the needs of employees while aligning empowerment with ecological objectives (Luu, 2018; Tuan, 2021). By role-modelling pro-environmental behaviours, green servant leaders foster a climate where employees are intrinsically motivated to contribute voluntarily to sustainability initiatives (Eva et al., 2019; Mansoor et al., 2021).

### Theoretical Foundations

Green servant leadership has been examined through Conservation of Resources (COR) Theory (Hobfoll, 2001), which posits that leaders provide valuable resources such as guidance, organisational support, and opportunities that employees seek to conserve and expand. Leaders' ecological actions act as proximal resources, while green HRM practices serve as distal ones, with potential substitution or compensation effects (Chuang et al., 2016; Li et al., 2017). Mediators such as psychological empowerment, organisational support, green identity, and self-efficacy have been highlighted as pathways linking leadership to OCBE (Mughal et al., 2022; Peng et al., 2022).

### Empirical Findings

Faraz et al., (2021) found that green servant leadership had a moderate effect on OCBE, mediated by green intrinsic motivation. By contrast, Zafar et al., (2025) reported weak effects, with no significant mediation via green psychological climate. Javed et al., (2024) demonstrated that environmentally specific servant leadership exerted moderate influence on environmental commitment and organisational support but only weak indirect effects on OCBE. Other studies highlight mediators such as green organisational support (Peng et al., 2022), creativity climate (Aboramadan et al., 2021) and environmental commitment (Gu & Liu, 2022) though results vary in strength and consistency.

### Research Gaps

Although empowering, spiritual, and green servant leadership styles all demonstrate positive associations with OCBE, their effects vary considerably depending on leadership specificity, mediating mechanisms, and contextual conditions. Empowering leadership shows weak to moderate effects, spiritual leadership tends to exert weak direct influence, and green servant leadership produces mixed results ranging from weak to moderate. Variability in measurement scales (general vs. environmentally specific leadership), industry contexts, and cultural settings complicates comparisons across studies.

Overall, these leadership styles share a common focus on employee empowerment, values alignment, and supportive climates, all of which are conducive to OCBE. However, inconsistencies in their empirical outcomes point to the need for comparative and longitudinal studies. Future research should explore under what contextual and cultural conditions each style is most effective, and whether hybrid approaches that combine empowering, spiritual, and servant elements may yield stronger and more consistent pro-environmental behaviours.

## **3.5 Green Inclusive Leadership (GIL), Ethical Leadership (EL), and Authentic Leadership (AL) and OCBE**

### **3.5.1 Green Inclusive Leadership (GIL) and Green Leadership (GL)**

Green Inclusive Leadership (GIL) emphasises inclusivity by engaging employees collectively in environmental decision-making, thereby encouraging ownership of sustainability initiatives. By contrast, Green Leadership (GL) focuses more narrowly on the leader's personal example and commitment to environmental values (Aboramadan et al., 2022); (Patwary et al., 2023); (Asante, 2024). While both share an ecological orientation, GIL highlights participatory processes, whereas GL is more leader-centric.

### Theoretical Foundations

GIL and GL can be understood through Social Learning Theory (SLT) (Bandura, 1986), where employees observe leaders' sustainable behaviours and internalise them, and through Psychological Climate Theory (Norton et al., 2012), which posits that leaders' values create shared perceptions of a green organisational climate.

### Empirical Findings

Aboramadan et al. (2022) found that GIL had a moderate effect on green innovative work behaviour, with perceived green organisational support acting as a weak mediator. Patwary et al. (2023) reported that GIL exerted a strong influence on pro-environmental behaviour, though the mediation of green HRM was weak. By contrast, Asante (2024) observed that GL produced only a weak effect on pro-environmental behaviour, with moral consciousness providing partial explanation. These findings suggest that inclusivity in decision-making (GIL) tends to generate stronger employee engagement than leader-centred approaches (GL).

### **3.5.2 Ethical Leadership (EL) and OCBE**

Ethical leadership is defined as a leadership style rooted in integrity, fairness, and accountability (Brown, Treviño, & Harrison, 2005). Ethical leaders act both as moral persons, embodying honesty and altruism, and as moral managers, embedding ethics into policies, decision-making, and sanctions (Mayer et al., 2012; Byun et al., 2018). By modelling moral conduct and enforcing ethical standards, ethical leaders encourage followers to align behaviours with organisational and societal values, including sustainability.

#### Theoretical Foundations

The EL–OCBE link is supported by Social Identity Theory (Tajfel & Turner, 1986), which suggests that employees identify with ethical leaders and adopt environmental values as part of their self-concept. Supply–Value Fit Theory (Edwards, 1996) also applies, proposing that congruence between employees’ green values and organisational ethics fosters voluntary pro-environmental actions.

#### Empirical Findings

Khan et al., (2019) reported that supervisors’ ethical leadership had only a weak effect on OCBE, mediated by green psychological climate. (Islam et al., 2021) found similarly weak results, with GHRM serving as a weak mediator. However, (Su et al., 2023) provided stronger evidence, showing that both individual-level and team-level EL had moderate effects on OCBE, mediated by leadership identity and team environmental atmosphere. These results indicate that the impact of EL may vary depending on whether it is exercised at the individual or group level, and whether contextual moderators strengthen its influence.

### 3.5.3 Green Authentic Leadership (GAL) and Environmentally Specific Authentic Leadership (ESAL)

Authentic leadership emphasises self-awareness, relational transparency, balanced processing, and moral grounding (Avolio & Gardner, 2005; Walumbwa et al., 2008). In its ecological adaptations, Green Authentic Leadership (GAL) and Environmentally Specific Authentic Leadership (ESAL) integrate these principles into sustainability domains. Such leaders transmit strong signals of sincerity and moral commitment to environmental causes, thereby fostering employees’ harmonious passion for green initiatives (Han et al., 2019; Wang et al., 2022).

#### Theoretical Foundations

GAL and ESAL are often examined through Conservation of Resources (COR) Theory (Hobfoll, 2001). Authentic leaders provide interpersonal “green resources,” such as support and trust, while organisational green HRM systems function as structural resources. These may either complement or substitute for one another depending on context.

#### Empirical Findings

Evidence for GAL is relatively consistent. (Luu, 2023) showed that GAL had a strong effect on employees’ harmonious environmental passion, which mediated a moderate indirect effect on OCBE. Findings were validated across Vietnam and South Korea, indicating cross-cultural robustness.

Building on this, (Luu, 2023) as a green-specific form of authentic leadership. ESAL demonstrated moderate to strong effects on employees’ passion and green product innovation, particularly when green HRM was weak, though diminishing returns occurred when both were strong. Earlier work by (Tuan, 2019) introduced Environmentally Specific Charismatic Leadership (ESCL), which showed moderate effects on OCBE, mediated by employees’ environmental commitment.

#### Research Gaps

While GIL generally shows stronger results than GL, inconsistencies exist in the ethical leadership literature, where effects range from weak (Khan et al., 2019; Islam et al., 2021) to moderate (Su et al., 2023). GAL and ESAL exhibit more consistent positive outcomes, though much of this evidence originates from Asian contexts, raising concerns about generalisability. Additionally, reliance on self-reported data may overestimate effects. Comparative studies across leadership styles remain scarce, making it difficult to determine whether authentic, ethical, or inclusive forms of green leadership are most effective in driving OCBE.

This stream of research suggests that inclusive and authentic leadership approaches may provide more consistent pathways to OCBE than leader-centric or purely ethical models. GIL’s participatory emphasis and GAL’s authenticity appear particularly effective in fostering voluntary environmental behaviours. Nonetheless, the literature remains

fragmented, with contradictions in ethical leadership research and a lack of comparative studies across contexts. Future research should employ multi-level, longitudinal, and cross-cultural designs to assess how inclusivity, morality, and authenticity interact in shaping pro-environmental organisational citizenship behaviours.

#### 4. CONCLUSION

The literature on leadership and OCBE emphasizes that leadership is a critical enabler of voluntary pro-environmental behaviour, yet the evidence base is fragmented and inconsistent. Responsible and transformational leadership highlight the importance of role-modelling and vision; sustainability-oriented leadership integrates the triple bottom line into organisational practice; empowering, spiritual, and servant leadership stress employee autonomy and values; while ethical, inclusive, and authentic leadership emphasise morality, participation, and transparency.

Despite their differences, these leadership approaches share a common thread: they foster supportive climates, value alignment, and employee empowerment, which are conducive to OCBE. However, inconsistencies in findings reveal the importance of contextual, cultural, and methodological factors. To advance the field, future research must pursue conceptual clarification, cross-contextual comparison, longitudinal designs, and integrated theoretical frameworks. By addressing these gaps, scholars can provide clearer guidance for organisations seeking to leverage leadership as a tool for embedding sustainability into their core practices.

Ultimately, the promise of leadership lies not merely in directing employee behaviour but in cultivating a shared moral responsibility for the environment, transforming OCBE from a discretionary act into an embedded cultural norm.

#### 5. FUTURE RESEARCH AGENDA

Despite a growing body of evidence linking leadership and Organisational Citizenship Behaviour for the Environment (OCBE), the current literature remains fragmented and inconsistent, leaving significant opportunities for theoretical development and empirical refinement. Several avenues warrant attention.

First, conceptual clarity and measurement consistency are urgently needed. Studies of transformational leadership often oscillate between environmental and green variants, while constructs such as sustainability-oriented leadership and responsible leadership are sometimes used interchangeably. This ambiguity not only complicates cross-study comparisons but also risks conceptual redundancy. Future research should prioritise the development and validation of standardised measurement instruments for leadership constructs and OCBE, ensuring that items reflect consistent dimensions across cultural and industrial contexts. Comparative validation studies employing multi-sample confirmatory factor analysis would help establish discriminant validity between overlapping constructs such as environmental transformational leadership and green transformational leadership.

Second, mediating and moderating mechanisms require greater integration. Current studies identify a wide range of psychological, relational, and organisational mediators, including psychological ownership, meaningful work, affective commitment, environmental passion, and green organisational climate. Yet these mechanisms have largely been tested in isolation, producing fragmented insights. Future research should employ comprehensive, multi-mediator models to compare the relative strength of different mechanisms simultaneously. Moreover, moderators such as cultural values, industry type, and national sustainability policies remain underexplored. Longitudinal and multi-level designs would be valuable in capturing how these mechanisms evolve over time and across organisational layers.

Third, contextual and cultural contingencies deserve systematic exploration. Much of the evidence originates from Asian contexts, particularly China, Pakistan, and Vietnam, raising questions about the generalisability of findings to Western, African, or Latin American contexts. Cross-cultural comparative studies are needed to examine whether leadership–OCBE relationships are universal or shaped by institutional, cultural, and sectoral factors. Theoretical integration with institutional theory and cultural dimensions frameworks (e.g., Hofstede's power distance) could illuminate why certain leadership styles are more effective in specific contexts.

Fourth, direct comparisons of leadership styles are rare. Although responsible, transformational, servant, ethical, empowering, spiritual, and authentic leadership have all been linked to OCBE, most studies examine one style in isolation. Future research should conduct comparative analyses across leadership styles within the same dataset, assessing not only relative effectiveness but also potential complementarities. For example, hybrid models integrating authentic and sustainability-oriented leadership may reveal synergistic effects in fostering OCBE.

Fifth, methodological limitations hinder causal inference. The dominance of cross-sectional and self-report survey designs introduces risks of common method variance and restricts understanding of temporal dynamics. Longitudinal studies could uncover how leadership behaviours influence the development and persistence of OCBE over time, while field experiments and intervention studies would permit stronger causal claims. Multi-source data, incorporating supervisor and peer ratings, as well as objective indicators of environmental performance, would further enhance validity.

Sixth, underexplored leadership styles merit closer attention. While transformational and responsible leadership dominate the field, other styles such as green inclusive leadership, ethical leadership, and environmentally specific servant leadership remain relatively under-investigated. In particular, authentic leadership in its green and environmentally specific forms is underdeveloped, with only a handful of studies examining its role as a mediator or moderator rather than as a direct predictor of OCBE. Future research should systematically test authentic leadership as a primary antecedent, given its emphasis on moral perspective, transparency, and relational trust, qualities that align closely with sustainability imperatives.

Although the literature on leadership and Organisational Citizenship Behaviour for the Environment (OCBE) has grown substantially, the role of authentic leadership particularly its green and environmentally specific forms remains underdeveloped. Only a limited number of studies (e.g., Luu, 2021, 2022) have examined green authentic leadership (GAL) and environmentally specific authentic leadership (ESAL), often as mediating or moderating variables rather than as direct antecedents of OCBE. This presents an important research frontier.

First, direct testing of GAL/ESAL–OCBE relationships is required. Authentic leadership, with its emphasis on self-awareness, relational transparency, balanced processing, and internalised moral perspective (Avolio & Gardner, 2005; Walumbwa et al., 2008), is conceptually aligned with sustainability values. Yet existing studies have rarely positioned GAL or ESAL as primary drivers of OCBE. Future research should design empirical tests where authentic leadership is the focal independent variable, exploring whether its moral clarity and transparency create stronger employee identification with environmental goals compared to other leadership styles.

Second, mediating mechanisms specific to authenticity must be examined. While responsible and transformational leadership studies emphasise mechanisms such as psychological ownership, meaningful work, and affective commitment, authentic leadership may operate through distinct pathways. These could include employees' perceptions of leader sincerity, trust in green organisational purpose, and harmonious environmental passion (Luu, 2022). Testing these mediators in multi-mediator models would clarify the psychological mechanisms unique to GAL/ESAL.

Third, contextual moderators may amplify or constrain the impact of authentic leadership. Authenticity is likely to resonate more strongly in cultures valuing relational transparency and integrity, while in high power-distance contexts its impact may be diluted. Organisational-level moderators, such as green HRM practices, sustainability reporting systems, and reward structures, could either strengthen or substitute for authentic leadership. Future studies should incorporate multi-level analyses to capture how authentic leadership interacts with organisational climate and national culture in shaping OCBE.

Fourth, comparative analyses are needed to assess whether authentic leadership is uniquely effective relative to other leadership styles. While transformational and responsible leadership inspire employees through vision and ethics, authentic leadership emphasises consistency between values, words, and actions. Testing authentic leadership side by side with responsible, transformational, and servant leadership in predicting OCBE would reveal whether authenticity offers incremental explanatory power or synergistic effects when combined with other leadership approaches.

Fifth, methodological innovation can strengthen causal claims. Most evidence to date relies on self-reported, cross-sectional surveys. To capture how authenticity fosters enduring pro-environmental behaviours, future research should employ longitudinal panel studies, field experiments, and experience sampling methods. Collecting multi-source data (from leaders, peers, and objective environmental performance indicators) would reduce bias and provide a richer understanding of GAL/ESAL's influence on OCBE.

Finally, integrating GAL/ESAL into sustainability frameworks. Few studies have connected authentic leadership to the Sustainable Development Goals (SDGs) or to integrated models of corporate sustainability. Embedding GAL/ESAL into broader responsible management and CSR frameworks would demonstrate how authenticity not only fosters employee-level OCBE but also supports organisational legitimacy in achieving global sustainability targets.

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APPENDIX

No	Authors	Theory	Independent Variable	Dependent Variable	Mediator	Moderator	Result
1	Han et al, 2019				felt obligation for constructive change (FOCC)	supervisor-subordinate guanxi	RL → OCBE ( $\beta = -0.112, p < 0.05$ ) RL → FOCC → OCBE ( $\beta = 0.266, p < 0.001$ )
2	Abbas et al, 2022				psychological ownership	employee environmental commitment	RL → OCBE ( $\beta = 0.298, p < 0.001$ ) RL → PO → OCBE ( $\beta = 0.156, p < 0.001$ )
3	Shah S et al, 2023				affective commitment (AC)	N/A	RL → OCBE ( $\beta = 0.57, p < 0.001$ ) RL → AC → OCBE ( $\beta = 0.289, p < 0.017$ )
4	Noor e Sahar et al, 2023	social learning, stewardship, social cognitive,			Environmental Corporate Social Responsibility (CSR)	N/A	RL → OCBE ( $\beta = 0.432, p = 0.000$ ) RL → CSR → OCBE ( $\beta = 0.300, p = 0.000$ )
5	Ahmed Alweshi et al, 2024	social exchange, stakeholder, leader-member	Responsible leadership	OCBE	Employee Harmonious Environmental Passion (EHPEP)	Environmental Transformational Leadership	RL → OCBE ( $\beta = .370, t = 9.366, p < .001$ ) RL → EHPEP → OCBE ( $\beta = .105, SE = 0.025, CI [0.061, 0.150]$ )
6	Wang G et al, 2025				Co-worker exchange (CWE)	Employee Goal Orientation, Green Organizational Climate, Supervisor Support	RL → OCBE ( $\beta = 0.512, t = 7.539, p < 0.001$ ) RL → CWE → OCBE ( $\beta = 0.183, t = 4.623, p < 0.001$ )

No	Authors	Theory	Independent Variable	Dependent Variable	Mediator	Moderator	Result
7	Afsar et al., 2019				Green share vision (GSV), Organizational commitment (OC)	Internal environmental locus of control	RL → OCBE ( $\gamma = 0.397, p < .001$ ) => supported RL → OC → OCBE => not supported RL → GSV → OCBE ( $\gamma = 0.249, 95\%$ ) => supported
8	Zhao & Liang, 2023				employment relationship atmosphere (ERA)	social distance	ERL → EPEB ( $\beta = 0.391, p < 0.001$ ) ERL → ERA → EPEB : total effect
9	Miaqsoom et al., 2025				Green shared vision (GSV) Green management (GM) Environmental consciousness (EC)	N/A	RL → PEB ( $\beta = 0.34, p < 0.001$ ) RL → GSV → PEB ( $\beta = 0.03, p < 0.1$ ) RL → GM → PEB ( $\beta = 0.06, p < 0.05$ ) RL → EC → PEB ( $\beta = 0.11, p < 0.001$ )
10	Luu Trong Tuan, 2022		Green HRM practices		<b>Responsible leadership (RL)</b> Employee's felt responsibility for the environment (EFRE)	HRM system strength	RL → OCBE: ( $\beta = 0.35, p < .01; \beta = 0.23, p < .001$ ) RL → EFRE → OCBE: ( $\beta = 0.12, p < .05; B = 0.09, p < .05$ )

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11	Hongdan Zhao Qiongyao Zhou, 2020		SRHRM (Socially responsible human resource management)		Moral Reflectiveness	Responsible leadership	RL moderates the positive relationship between SRHRM and moral reflectiveness. The lower the responsible leadership, the stronger the positive relationship between SRHRM and moral reflectiveness will be. => supported ( $\beta = -0.21, p < 0.01$ ). RL moderates the mediated relationship between SRHRM and employee OCBE via moral reflectiveness. The mediated relationship is stronger at a low level of responsible leadership than at a high level. => supported ( $\beta = -0.06, BC\ 95\% CI = [-0.10, -0.02]$ ).
12	Xuhong Liu et al, 2022	social learning, transformational leadership,		green product innovation (GPI)	OCBE	Green organizational climates	GTL → OCBE ( $\beta = 0.680, p < 0.001$ ) GTL → OCBE → GPI ( $\beta = 0.2226, p < 0.001$ )
13	Lathabhavan & Kaur, 2023	Environmental-transformational, Self-determination, theory of planned behavior,	Green Transformational leadership (GTL)	GEB *	Green Employee Creativity (GEC)	N/A	GTL → GEB ( $\beta = 0.310, p < 0.05$ ) GTL → GEC → GEB : partially mediates
14	Lingyun Mi et al.2019	social exchange	Transformational leadership (TL)		psychological ownership (PO)	N/A	TL (vision motivation → OCBE (eco-civic engagement; $\beta = 0.384, p < 0.000$ ), TL (vision motivation → OCBE (eco-helping; $\beta = 0.214, p = 0.017$ )) TL → PO → OCBE : partly supported

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15	Kim et al, 2019		Environmental Transformational leadership (ETL)	OCBE	environmental belief (EBF)	level up organizational environmental support	ETL → OCBE ( $\beta_4=0.160, t_4=2.549, p < 0.05$ ) ETL → EBF → OCBE: $\beta=0.092, t=3.011, p=0.003$
16	Gurmani et al, 2021				perceived meaningful work (PMW)	N/A	ETL → OCBE ( $\beta_4=0.217, t_4=4.443, p=0.000$ ) ETL → PMW → OCBE ( $\beta_4=0.257, p=0.000$ )
17	Omarova & Jo, 2022	job-characteristics, social information processing, self-determination,	Environmental Transformational leadership (ETL)	EPEB *	employee environmental awareness (EEA)	Green HRM	ETL → EPEB ( $\beta = 0.16, p < 0.001$ ) ETL → EEA → EPEB ( $z = 2.66, p < 0.01$ ) : full mediation
18	Asghar et al, 2022	transformational leadership, theory of planned behavior,		OCBE	Leader-member exchange (LMX) psychological empowerment (PE)	N/A	ETL → OCBE ( $\beta = 0.19, t=4.292, p < 0.001$ ) ETL → LMX → OCBE ( $\beta = 0.33 ; p < 0.001 ; \beta = 0.29 ; p < 0.001$ ) ETL → PE → OCBE ( $\beta = 0.35 ; p < 0.001 ; \beta = 0.21 ; p < 0.001$ )
19	Deng et al, 2022	Leader-member exchange	CSR	PEB *	Environmental Specific Transformational leadership (ESTL)	Altruistic values	ESTL → PEB ( $\beta_3=0.476, p < 0.05$ ) => accepted CSR → ESTL → PEB ( $\beta_3=0.194, p < 0.05$ ) => accepted

No	Authors	Theory	Independent Variable	Dependent Variable	Mediator	Moderator	Result
20	Qaisar Iqbal et al., 2025	social exchange, leadership theory, social learning, person- organization fit	Sustainability-oriented leadership (SOL)	OCBE	Perceived environmental justice (PEJ) Affective commitment towards supervisor (ACS)	Employee Job Embeddedness (EJE)	SOL → OCBE ( $\beta=0.197$ , $p<0.05$ ) SOL → PEJ → OCBE ( $\beta=0.076$ , $p<0.05$ ) SOL → ACS → OCBE: not supported
21	Qaisar Iqbal et al., 2023	person- organization fit	Sustainable Leadership (SL)	OCBE	Green organizational Climate (GOC)	Person – organization Fit	SL → OCBE ( $\beta=0.166$ ; $p < 0.05$ ) SL → GOC → OCBE: ( $\beta = 0.292$ and $p < 0.05$ )
22	M Jiang et al, 2019	psychological ownership theory	Empowering Leadership (EL)		psychological ownership	Futuretime perspective	EL → OCBE ( $\beta = 0.223$ ; $p < 0.001$ ) EL → Psy → OCBE ( $\beta = 0.21$ ; $p < 0.001$ )
23	Mankgele and Fatoki, 2024	social exchange theory			N/A	N/A	GEL → OCBE ( $\beta = 0.31$ , $p = 0.001$ )
24	Mankgele, 2025		Green Empowering Leadership (GEL)	OCBE	green learning orientation (GLO)	N/A	GEL → OCBE ( $\beta = 0.31$ ; $t = 7.263$ ; $p < 0.05$ ) GEL → GLO → OCBE ( $\beta = 0.78$ ; $t = 12.597$ and $p < 0.05$ ) => partly mediation
25	Mankgele and Fatoki, 2025	TPB, normative behavior theory	Environmentally specific empowering leadership (ESEL)		Employees' psychological ownership (EPO), green work engagement (GWE)	Environmental concern (EC)	ESEL → OCBE ( $\beta = 0.310$ , $p < 0.01$ ) ESEL → EPO → OCBE ( $\beta = 0.582$ , $p < 0.01$ ) ESEL → GWE → OCBE ( $\beta = 0.534$ , $p < 0.000$ )
26	Answer et al, 2021	social learning	Spiritual Leadership (SL)	OCBE	environmental justice orientation (EJO)	Harmonious environmental passion	SL → OCBE ( $\beta = 0.12$ , $p > 0.05$ ) => not supported ; SL → EJO → OCBE ( $\beta = 0.11$ , $p < 0.05$ )

No	Authors	Theory	Independent Variable	Dependent Variable	Mediator	Moderator	Result
27	Javed M et al, 2024	social learning, organizational support, social exchange, conservation of resources theory, social identity, attachment, self-efficacy, self-determination, servant leadership, social information processing	environmentally specific servant leadership (ESSL)	WPEB *	Environmental commitment (EC) Organizational Support (OS)	N/A	ESSL → WPEB ( $\beta = -0.254$ , sig. value $< 0.05$ , t-value $> 1.645$ ) ESSL → EC → WPEB ( $\beta = 0.261$ , t-value is 4.121, p-value $< 0.05$ ) ESSL → OS → WPEB ( $\beta = 0.078$ , t value = 1.643, p-value $< 0.05$ )
28	Aboramadan et al, 2021			OCBE	climate for green creativity (CLGC)	N/A	ESSL → OCBE ( $\beta = .14$ , $p < .05$ ), ESSL → CFGC → OCBE ( $\beta = .063$ , 95% CI = .017; .117)
29	Zafar et al, 2022			VPEB *	Psychological empowerment (PE) organizational identity (OI)	N/A	ESSL → VPEB ( $\beta = 0.33$ , $p \leq 0.05$ ) ESSL → OI → VPEB ( $\beta = 0.05$ , $p \leq 0.05$ ) ESSL → PE → VPEB ( $\beta = 0.10$ , $p \leq 0.05$ ) ESSL → PE → OI → VPEB ( $\beta = 0.03$ , $p \leq 0.05$ )
30	Islam et al, 2022			OCBE	Corporate social responsibility (CSR)	Attachment Anxiety	ESSL → OCBE ( $\beta = 0.43$ , $t = 12.454$ , $p = 0.00$ ) ESSL → CSR → OEGB ( $\beta = 0.14$ , $p = 0.00$ )
31	Mughal M et al			EPGB *	employees' green self-efficacy (GSE)	N/A	ESL → EPB ( $\beta = 0.286$ , $t = 5.979$ ) ESL → GSE → EPB ( $\beta = 0.1333$ , $t = 3.702$ )
32	Yang L et al, 2023			EVGB *	positive affectivity	workplace anxiety	ESSL → EVGB ( $\beta = 0.286$ , $p < 0.05$ ) ESSL → PA → EVGB ( $\beta = 0.13$ , $p < 0.05$ )

No	Authors	Theory	Independent Variable	Dependent Variable	Mediator	Moderator	Result
33	Peng et al, 2022			EPEB *	Green perceived organizational support (GPOS) green self-efficacy (GSE)	N/A	ESSL → EPEB ( $\beta = 0.429, p < 0.05$ ) ESSL → GPOS → OCBE ( $\beta = 0.102, p < 0.05$ ) ESSL → GSE → OCBE ( $\beta = 0.138, p < 0.05$ )
34	Gu and Liu, 2022			In-role Green behavior Extra-role Green behavior	green role modelling (GRM)	perceived CSR	ESSL → Inrole GB ( $\beta = 0.19, p < 0.05$ ) ESSL → Extra role GB ( $\beta = 0.45, p < 0.001$ ) ESSL → GRM → In-role GB ( $\beta = 0.13, p < 0.05$ ) ESSL → GRM → Extra-role GB ( $\beta = 0.32, p < 0.05$ )
35	Faraz et al, 2021		green servant leadership (GSL)	EPEB *	green intrinsic motivation (GIM)	green self efficacy	GSL → EPEB ( $\beta = 0.316, f_2 = 0.274, f = 6.448$ ) GSL → GIM → EPEB ( $\beta = 0.143, f_2 = 0.135, f = 4.401$ )
36	Zafar et al, 2025			Organizational Green Performance	Voluntary Pro-Environmental Behavior	Green Psychology climate	GSL → VPEB ( $\beta = 0.10, f = 4.45$ )
37	Aboramadan et al, 2022	social exchange, social identity, Perceived OS, social learning, TPB	green inclusive leadership (GIL)	G1WB* (green innovative work behavior) PEB *	perceived green organizational support (GOS)	N/A	GIL → G1WB ( $\beta = 0.41, Z = 8.31, p < 0.01$ ) GIL → Perceived GOS → G1WB ( $\beta = 0.11, z = 3.81, LCf = 0.05, ULCl = 0.16, p < 0.01$ )
38	Patwary et al, 2023			PEB *	Green HRM	N/A	GIL → PEB ( $\beta = 0.713, p < 0.05$ ) GIL → GHRM → PEB ( $\beta = 0.056, p < 0.05$ )

No	Authors	Theory	Independent Variable	Dependent Variable	Mediator	Moderator	Result
39	Asante Kwadwo, 2023	person-organisation fit and norm activation, social learning, social identity	Green leadership (GL)	PEB *	Value congruence (VC) Moral consciousness (MC)	N/A	GL → PEB ( $\beta = 0.284, p < 0.001$ ) GL → VC → OCBE (not supported) GL → MC → OCBE ( $\beta = 0.222, p < 0.005$ )
40	Khan M et al, 2019	Social learning, social role, Psychological Climate theory, Socialization	Supervisor's ethical leadership (SEL)		Green climate (GPC)	Gender	SEL → OCBE ( $\beta = 0.20, p < 0.01$ ) SEL → GPC → OCBE ( $\beta = 0.10, \text{positive}$ )
41	Su X et al, 2023	Theory, Ethical Responsibility Perspective, Social identity, Supply-Value Fit	Individual-level ethical leadership (I-EL); Team-level ethical leadership (T-EL)	OCBE	Leader identity (LI) Team environment atmosphere (TEA)	Team environment atmosphere (TEA)	I-EL → OCBE ( $M3, \beta = 0.29, p < 0.001$ ) T-EL → OCBE ( $M8, \beta = 0.54, p < 0.01$ ) I-EL → LI → OCBE ( $M5, \beta = 0.13, p < 0.01$ ) T-EL → TEA → OCBE ( $M10, \beta = 0.36, p < 0.01$ )
42	Islam T et al, 2021		Ethical leadership	ESCB *	Green Human Resources Management	Individual Green Values	EL → OCBE ( $\beta = 0.17, p = 0.00, t = 4.068, LL = 0.127, UL = 0.138$ ) EL → GRHM → OCBE ( $\beta = 0.20, p = 0.001, LL = 0.232, UL = 0.297$ )
43	Luu T, 2022	social information process, authentic leadership	Green HRM practices, Manager shared green vision	OCBE	Green authentic leadership (GAL) Employee's harmonious environmental passion (EHEP)	Manager shared green vision	GRHM → GAL → EHEP → OCBE (Korean sample: $\beta = 0.07, p < 0.05$ ) => supported; (Vietnam sample: $\beta = 0.14, p < 0.05$ ) => supported GAL → EHEP → OCBE

No	Authors	Theory	Independent Variable	Dependent Variable	Mediator	Moderator	Result
44	Luu T, 2023	COR theory	Perceived green HR practices	Employee green creativity	Green crafting, harmonious environmental passion	<b>Perceived environmentally-specific authentic leadership (ESAL)</b>	(Korean sample: $\beta = 0.1, p < 0.05$ ) $\Rightarrow$ supported; (Vietnam sample: $\beta = 0.11, p < 0.05$ ) $\Rightarrow$ supported  The negative and significant interaction term of perceived green HRM practices $\times$ perceived environmentally-specific authentic leadership was found ( $B = -1.8, p < 0.05$ ) in predicting green crafting. The interaction term of perceived green HRM practices $\times$ perceived environmentally-specific authentic leadership in predicting harmonious environmental passion was significant and negative ( $B = -2.3, p < 0.05$ ).
45	Luu T, 2019	social identity, social learning, attitude theory	Environmentally specific charismatic leadership (ESCL)	OCBE	employee environmental commitment (EEC)	organizational justice for pro-environmental behaviors	ESCL $\rightarrow$ OCBE ( $\beta = 0.27, p < 0.01$ ) ESCL $\rightarrow$ EEC $\rightarrow$ OCBE ( $\beta = 0.1; 0.12, p < 0.01$ )

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