

Sustainability-Driven Leadership in Green MSMEs: Transforming Business Performance Through Eco-Friendly Workplace Innovations

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Abstract

Green leadership plays a critical role in promoting sustainable practices within organizations, particularly in micro, small, and medium enterprises (MSMEs) that contribute significantly to national economies. This study examines the influence of environmental transformational leadership (ETL) on organizational sustainability performance (OSP), while also considering the mediating roles of environmental organizational citizenship behavior (EOCB) and green behavior at work (GBW). Using a quantitative method and SEM-PLS analysis of responses from 200 MSME employees in Indonesia, the findings show that ETL significantly enhances both GBW and OSP. However, ETL does not directly impact EOCB, indicating that voluntary environmental behavior may depend more on intrinsic motivation or workplace culture. In contrast, both GBW and EOCB positively affect OSP, highlighting the role of individual environmental initiatives in organizational sustainability. These results suggest that while leadership is essential, fostering a culture that supports voluntary green behaviors is equally important. The study offers theoretical insights and practical recommendations for embedding sustainability into leadership strategies, organizational culture, and employee engagement.

Keywords: environmental leadership, green hrm, sustainability growth

1. INTRODUCTION

Sustainable development has become a central concern across disciplines and sectors, calling for a transformation in leadership models that align environmental, economic, and social priorities. In this context, green leadership emerges as a collective imperative to mitigate the escalating environmental consequences of human activities. In Indonesia, the idea of green leadership continues to gain traction across generations and sectors, reflected in a range of pro-environmental innovations that signal the emergence of future-oriented leadership [1]. Sustainable and efficient human resource (HR) management has become increasingly crucial, especially for micro, small, and medium enterprises (MSMEs), which dominate the Indonesian economy by contributing more than

60% to gross domestic product (GDP) and absorbing over 97% of the workforce [2]. Despite their importance, many Indonesian MSMEs struggle to adopt environmentally sustainable practices due to limited resources, unclear employee roles, and insufficient organizational support for green initiatives [3][4]. These constraints reveal the need for leadership strategies that can catalyze systemic change. Environmental transformational leadership (ETL) offers a strategic pathway by mobilizing environmental values, motivating employees, and fostering institutional change. Within this framework, ETL can play a transformative role in enabling MSMEs to align with sustainability goals.

The relevance of ETL is further highlighted through the lens of the triple bottom line framework proposed by John Elkington, which underscores the interconnectedness of profit, people, and planet [5]. MSMEs, as key economic actors, have the capacity to advance this agenda by promoting ecological responsibility, economic efficiency, and social welfare. Previous studies have confirmed that transformational leadership positively correlates with innovation, organizational performance, and sustainable practices. Bass and Avolio defined transformational leadership based on four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and

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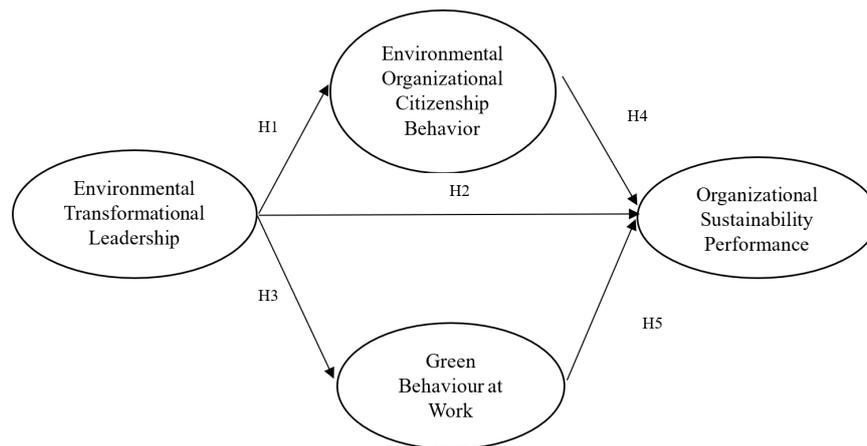


Figure 1. Research Model.

individualized consideration [6]. These dimensions enable leaders to articulate a compelling vision, motivate behavioral change, and cultivate innovation.

Environmental applications of transformational leadership have been demonstrated in various contexts. Egri and Herman found that environmentally oriented leaders can foster employee commitment to sustainability objectives and enhance corporate reputation [7]. Mittal and Dhar observed that such leadership also increases employee engagement and innovation that supports environmental responsibility [8]. These insights confirm that leadership—when embedded with sustainability values—can shape both attitudes and behaviors necessary for green transitions. However, most existing research focuses on technical aspects of sustainability, such as energy efficiency and waste reduction, rather than leadership as a driving force. Moreover, empirical work on transformational leadership within Indonesian MSMEs remains limited, especially in manufacturing and cross-sectoral contexts [9][10]. Prior studies often examine the relationship between ETL and organizational sustainability performance (OSP) through isolated mediators like green innovation or environmental organizational citizenship behavior (EOCB). Yet, there remains a paucity of integrative research examining ETL, EOCB, and green behavior at work (GBW) concurrently in a single model [11].

Additionally, few studies contextualize leadership within the unique challenges faced by Indonesian MSMEs, including regulatory ambiguity, cultural heterogeneity, and institutional

gaps. These factors influence how leadership is enacted and perceived, affecting the efficacy of transformational strategies. There is, therefore, an urgent need to explore these dynamics in a way that bridges theoretical insights and practical relevance. Muthukrishnan et al., research laid out the qualities of a growth mindset that educators must include in their instruction in order to help students develop one [12]. This study aims to address these gaps by developing a conceptual model that investigates the influence of ETL, EOCB, and GBW on OSP within Indonesian MSMEs. By capturing the interrelationships between these constructs, this research seeks to offer a more comprehensive understanding of how leadership impacts organizational sustainability. This contribution is both theoretical and practical—enhancing leadership and sustainability literature while providing evidence-based insights for MSME stakeholders and policymakers in Indonesia. Ultimately, this study aspires to support the design of targeted interventions that strengthen environmental leadership and cultivate pro-sustainability workplace behaviors in developing economies.

2. MATERIALS AND METHODS

2.1. Materials

2.1.1. Environmental Transformational Leadership (ETL)

ETL is a leadership approach that integrates transformational principles with an environmental orientation. This leadership involves a strong vision

for sustainability, the ability to motivate and inspire organizational members, and direct them to adopt environmentally friendly practices [7]. Transformational Leadership Theory is the basis for the ETL concept, which is reinforced by the natural resource-based view (NRBV) approach, which emphasizes that strategic leadership focuses on managing resources that support sustainability [6] [13]. Leaders with an ETL style typically have a strong vision for environmental sustainability and are able to inspire their followers to share that vision. They use their influence to promote sustainability values, create an environmentally conscious organizational culture, and encourage innovation in natural resource management. ETL fosters a sense of community responsibility for environmental conservation, enabling organizations to address global environmental concerns like climate change and biodiversity loss [14]. ETL utilizes the notion of intellectual stimulation to motivate people to find innovative solutions to environmental challenges. For instance, by using sustainable technologies or establishing internal rules that promote recycling and energy efficiency. Furthermore, personalized attention from leaders fosters profound ties with followers, so cultivating trust and dedication to environmental objectives [15]. The significance of ETL is seen in its impact on green innovation and environmental performance. Research indicates that ETL incentivizes employees via green human resource management (green HRM) practices, which

subsequently foster creativity and enhance the organization's environmental performance [16]. The application of ETL in MSMEs can facilitate business transformation towards sustainability. Environmentally conscious executives not only guide business operations but also cultivate staff knowledge regarding the significance of environmental protection [8].

2.1.2. Environmental Organizational Citizenship Behavior (EOCB)

With the introduction of the OCB concept by Organ, EOCB was developed as an enlarged version of the original concept [17]. OCB refers to voluntary individual behavior, not explicitly recognized by a formal reward system, but supports organizational effectiveness. voluntary behavior of individuals in organizations that go beyond their formal duties and contribute to environmental sustainability. The term EOCB refers to acts that are conducted voluntarily by employees in the workplace to support the environmental goals of the firm. This encompasses activities such as reducing energy consumption, recycling materials, and raising awareness about environmental issues among coworkers [4]. EOCB is driven by internal factors such as personal values and environmental awareness, as well as external factors such as leadership and organizational culture [18]. OCBE is influenced by individual and organizational factors. Factors such as personal environmental values, support from leaders, and perceptions of corporate

Table 1. The respondents' social status distribution, according to the distribution of the responses.

Profile		Frequency	Percent (%)
Sex	Male	141	70
	Female	59	30
Marital status	Married	133	66
	Single	67	34
Length of work	1–3 years	88	44
	4–6 years	66	33
	7–10 years	28	14
	>10 years	18	9
Level of education has been completed.	Senior high school	171	86
	Diploma	27	13
	Undergraduate	2	1

social responsibility practices play an important role in enhancing this behavior [4]. Moreover, a corporate climate that fosters green initiatives and an eco-friendly work culture encourages employees to actively participate in OCBE [19]. OCBE substantially influences an organization's environmental performance. Studies indicate that this behavior enhances the efficacy of environmental management via a more decentralized and collaborative methodology [18]. In the context of EOCB, leadership that supports sustainability plays an important role. Studies show that leaders who demonstrate commitment to the environment can motivate employees to take voluntary environmental initiatives [20]. Furthermore, a company culture that promotes sustainability enhances employees' motivation to exhibit EOCB behaviors. EOCB positively influences organizational performance. Boiral found that employee voluntary environmental behaviors increase operational efficiency, reduce waste, and improve organizational reputation [18].

2.1.3. Green Behavior at Work (GBW)

GBW is a set of individual behaviors in the workplace designed to support environmental sustainability. GBW includes actions such as reducing waste, using resources efficiently, and supporting green initiatives in the workplace [21]. GBW contrasts with official employee responsibilities as it is frequently voluntary and may not be explicitly acknowledged within an organization's reward framework. Factors that influence GBW include individual characteristics, such as environmental awareness and personal values, as well as organizational factors, including managerial support, green culture, and sustainability policies [22]. Prior studies indicate that transformative leadership conducive to sustainability significantly contributes to the advancement of GBW. Leaders that actively exhibit pro-environmental activities are likely to motivate colleagues to emulate such actions [23]. GBW profoundly influences organizational sustainability. Pro-environmental acts by employees contribute to decreased operational costs, enhanced resource efficiency, and the fortification of the organization's reputation as a socially responsible business [24]. Organizations can encourage GBW by creating

green policies, providing environmental training, and rewarding green initiatives [25].

2.1.4. Organizational Sustainability Performance (OSP)

The ability of an organization to strike a balance between economic, social, and environmental goals in its operations is what is referred to as OSP. This notion encompasses the incorporation of sustainability concepts into the strategic planning, decision-making, and day-to-day operations of a company. In order to evaluate the organization's long-term impact on the environment, society, and its financial returns, the OSP serves as a framework for review at the organizational level [5]. In addition, the resource-based view (RBV) emphasizes the importance of innovative resource management to improve corporate performance sustainably [26]. The major components of OSP encompass economic, social, and environmental factors [27]. Prior study indicates that OSP is affected by multiple factors, such as corporate culture, managerial dedication, and employee involvement. Epstein emphasized that organizations that have a clear and measurable sustainability strategy tend to perform better in all three dimensions [28]. Moreover, environmentally-focused transformational leadership is crucial in facilitating the adoption of sustainable practices by inspiring and encouraging all organizational stakeholders to dedicate themselves to sustainability objectives. Within the realm of MSMEs, OSP assumes critical importance due to this sector's substantial contribution to the local economy and its considerable environmental impact. By embracing sustainability principles, MSMEs can enhance their brand and generate new market prospects through the production of eco-friendly products and services [29].

2.1.5 Hypothesis Development

In the realm of ETL, leaders who exhibit dedication to environmental stewardship can instill a feeling of duty in employees to engage in pro-environmental actions, such as OCBE. Social exchange theory (SET) explains that a good relationship between a company and its personnel can lead to proactive behavior in environmental management [30]. Wulandaru et al. showed ETL

Table 2. The result of the measurement model.

Constructs	Items	Loading factors	Cronbach's Alpha	Composite Reliability	AVE	Ref.
Environmental Transformational Leadership	My boss motivates subordinates with a viable company strategy. (ETL1)	0.879				
	My leader motivates subordinates to develop sustainable company strategies. (ETL2)	0.869				
	My leader motivates staff to attain sustainable corporate objectives. (ETL3)	0.835	0.919	0.890	0.754	[42] [43]
	My leader inspires subordinates to think and share their green ideas. (ETL4)	0.859				
	My leader articulates a distinct sustainable corporate vision to my subordinates. (ETL5)	0.899				
Green Behaviour at Work	I placed recyclable things (e.g., cans, paper, bottles, and batteries) in the recycling bin. (GBW1)	0.843				
	I carry reusable food items to the workplace, such as a coffee mug, water bottle, reusable containers, and reusable silverware. (GBW2)	0.896	0.847	0.939	0.682	[44] [45]
	I deactivate the lights when they are not in use. (GBW3)	0.741				
	I propose strategies for minimizing our environmental impact. (GBW4)	0.816				
Environmental Organizational Citizenship Behavior	I offer guidance to colleagues on enhancing environmental protection, despite it not being my obligation. (EOC1)	0.802				
	I volunteer for initiatives that tackle environmental concerns inside the organization. (EOC2)	0.897	0.842	0.895	0.669	[46]
	I spontaneously took the time to remind my co-workers to pay attention to environmental protection in the workplace. (EOC3)	0.768				
	I engage in environmental events organized by the group. (EOC4)	0.800				

Table 2. *Cont.*

Constructs	Items	Loading factors	Cronbach's Alpha	Composite Reliability	AVE	Ref.
Organizational Sustainability Performance	Environmentally friendly activities significantly reduce overall costs (OSP1)	0.840				
	Environmentally friendly activities significantly improve product quality (OSP2)	0.895	0.855	0.902	0.698	[47]
	Environmentally friendly activities significantly enhance my organization's reputation (OSP3)	0.838				
	Environmentally friendly activities significantly reduce waste throughout the value chain process (OSP4)	0.764				

positively impacted EOCB, primarily through the mediation of green employee empowerment and the moderation of GHRM [31]. Leaders employing a green transformational strategy cultivate a culture that encourages active employee engagement in environmental projects. ETL also integrates a sustainability vision into the organizational structure, creating a climate conducive to environmental commitment. Sánchez-García et al. confirmed that ETL strengthens an organization's green performance through the mediation of green organizational culture and green engagement [32]. These findings underscore the need of cultivating a company culture centered on sustainability to promote employee engagement in voluntary environmental actions.

Social Learning Theory posits that individuals acquire knowledge by seeing and emulating the behaviors of others [33]. In the context of ETL, leaders who demonstrate commitment to the environment can serve as role models for employees, encouraging them to adopt pro-environmental behaviors. Stakeholder Theory underscores the necessity of addressing the requirements of various stakeholders, encompassing environmental considerations. A study by Butt et al. revealed that green transformational leadership markedly enhances the environmental, social, and financial performance of firms by promoting green innovation as a fundamental mechanism [11]. A study by Althnayan et al. found that ETL influences OSP via the mediation of EOCB, with work passion (WP) serving as a moderator in this relationship [10].

As a result of its impact on employee empowerment, green training, and environmental moral norms, ETL plays a significant part in the process of promoting green behavior at work (GBW). Studies conducted in the past have demonstrated that there is a direct and positive connection between ETL and GBW. This is due to the fact that environmental transformational leaders have the ability to motivate employees to behave in a more environmentally conscientious manner [34]. Saleem et al. showed that the mediation of empowerment and green self-efficacy, as well as the significance of green training as a reinforcement of this link, are the means by which ETL motivates individuals to engage in more environmentally

responsible behavior [14]. The findings of this study highlight the importance of green training in providing employees with the knowledge and skills necessary to effectively contribute to the advancement of the company's environmental goals.

The Stakeholder Theory places an emphasis on the fact that corporations are obligated to fulfill the requirements and expectations of a wide range of stakeholders, including environmental considerations [35]. By encouraging EOCB, organizations can more effectively meet stakeholder expectations regarding sustainability, which in turn enhances OSP. Research by Althnayan et al. substantiates this perspective by demonstrating that EOCB mediates the link between Environmental Transformational Leadership and OSP [10]. Henriques et al. found that green organizational climate fosters EOCB, thus advancing organizational environmental sustainability [36]. These findings underscore the significance of integrating individual and organizational elements to foster managers' pro-environmental actions in pursuit of sustainability objectives.

GBW significantly contributes to organizational sustainability performance (OSP) by promoting environmentally conscious employee actions that align with organizational sustainability objectives. Prior research indicates that employee eco-friendly conduct enhances sustainability performance, particularly in mitigating the organization's carbon footprint [15]. Antara et al. showed that green business practices can be enhanced by managerial support for environmental initiatives, green training, and employee engagement in sustainable practices, hence improving sustainability performance within the hospitality industry [37]. Lubis et al. found that green training, green commitment, and green knowledge management enhanced GBW, which markedly influenced the

company's sustainability performance [38]. The results demonstrate that investment in training and dedication to sustainability are crucial for fostering a work climate that aligns with sustainability objectives. The following is the hypothesis of this study, H1 is ETL affects EOCB. H2 is ETL affects OSP. H3 is ETL affects GBW. H4 is EOCB affects OSP and H5 is GBW affects OSP (Figure 1).

2.2. Methods

This research utilizes a quantitative descriptive methodology in conjunction with structural equation modeling using partial least squares (SEM-PLS). The quantitative descriptive technique facilitates the clear and systematic description, presentation, or summarisation of data, but SEM-PLS yields more dependable results, particularly when the correlations between variables and the underlying theories are not excessively robust [39] [40]. The research focuses on Indonesia because of the significant contribution of MSMEs to the country's GDP growth [2]. A purposive sampling approach was used in the field survey conducted to obtain the required data. The researcher ensured that the respondents were employees working in MSMEs in Indonesia so as to minimize the possibility of bias. This was executed to guarantee that the research topic aligned with the respondents' interests. A total of 200 respondents were employed in micro, small, and medium companies (MSMEs) across Indonesia. To accurately represent micro, small, and medium companies (MSMEs) nationwide, the author categorized the 200 respondents into ten regions in Indonesia with the largest number of MSMEs [41].

To measure these variables, we adapted several questionnaires from previous studies. Specifically, this study utilized a 5-item scale developed by Zhao and Huang [42] and Hameed et al., [43] to measure environmental transformational leadership, a 5-item

Table 3. Discriminant validity of constructs.

	EOCB	ETL	GBW	OSP
EOCB	0.818			
ETL	0.019	0.868		
GBW	0.055	0.224	0.826	
OSP	0.327	0.287	0.264	0.836

Table 4. Variance inflation factor (VIF).

Constructs	Items	VIF
Environmental, Organizational, Citizenship Behavior	EOC1	1.836
	EOC2	2.155
	EOC3	2.243
	EOC4	2.451
Environmental Transformational Leadership	ETL1	2.666
	ETL2	3.028
	ETL3	2.146
	ETL4	3.242
	ETL5	3.496
Green Behaviour at Work	GBW1	2.113
	GBW2	2.536
	GBW3	1.738
	GBW4	1.749
Organizational, Sustainability, Performance	OSP1	2.162
	OSP2	2.619
	OSP3	2.210
	OSP4	1.605

scale by Graves et al. [44] and Li et al. [45] to assess green behaviour at work, a 5-item scale by Mi et al. [46] to assess environmental organizational citizenship behavior, and a 5-item scale by Sobaih et al. [47] to measure organizational sustainability performance. The questionnaire included a total of 17 questions, and all participants were responsible for providing responses and returning the forms.

3. RESULTS AND DISCUSSIONS

3.1. Distribution of the Respondents

Table 1 presents the distribution of respondents based on their social positions and demographic characteristics as obtained from the survey. Out of the total respondents, approximately 59 are female and 141 are male. Additionally, 133 respondents are married, accounting for 66% of the sample. In contrast, about 67 respondents are single, representing 34%. The duration of time employees work in MSMEs is as follows: 88 respondents (44%) have been in business for one to three years, 66 respondents (33%) for four to six years, 28 respondents (14%) for seven to ten years, and 18

respondents (9%) for more than ten years. Furthermore, the data reveals that 171 respondents, which constitutes 86% of the total, have completed their education up to the level of high school, 27 respondents, which constitutes 13% of the total, have obtained a diploma, 2 respondents, which constitutes 1% of the total, hold an undergraduate degree.

3.2. Common Method Bias

The aggregation of data from a single source at a specific point in time may pose the risk of common method bias (CMB), undermining the study's trustworthiness [48]. The authors utilized Hermann's one-factor test to assess the CMB hazard in their study. The evaluation indicated that all items could be classified into 5 variables, with the principal component representing just 25.29% of the variance, well below the 50% threshold. The authors determined that CMB was not a significant issue in this study according to the findings.

3.3. Measurement Model

The measurement model was assessed by confirmatory factor analysis (CFA) as specified by

Hair et al. [49]. This study explicitly evaluated the measuring model by examining content validity, convergent validity, and discriminant validity. Content validity was established by reviewing pertinent literature and conducting preliminary evaluations of the instrument, resulting in the removal of certain questions due to insufficient overall item correlations. Hair et al. recommend evaluating factor loadings, Cronbach’s alpha, composite reliability (CR), and average variance extracted (AVE) before validating convergent validity [49]. The suggested thresholds stipulate that Cronbach’s alpha, composite loadings, and CR values must each surpass 0.7, whereas the AVE should exceed 0.5. All metrics must be within allowable limits [39][49]. Table 2 indicates that both Cronbach’s alpha and composite reliability values above 0.7, while the AVE for all constructs exceeds 0.5. These results exhibit robust convergent validity. However, five indicators must be discarded since their factor loadings are below 0.7.

Additionally, discriminant validity assessment evaluates the extent to which questions differentiate across various conceptions or assess separate concepts. The study assessed discriminant validity by comparing the correlation of each construct with other components to the square root of its average variance extracted (AVE). A measurement model is deemed appropriate if the square root of the AVE

for each construct exceeds its correlation with other constructs, as illustrated in the relevant rows and columns [39][49]. The findings in Table 3 validate that the measurement model attains sufficient discriminant validity. The study assessed the variance inflation factor (VIF) and tolerance for independent variables to confirm that multicollinearity is not an issue. Multicollinearity is not an issue when VIFs are under 10 or when tolerance levels are greater than 0.1 [39][40][49]. The results in Table 4 indicate that the VIF values range from 1.605 to 3.496. Thus, multicollinearity is not a major issue in our analysis.

3.4. Hypothesis Testing

Figure 2 demonstrates the statistical significance of the independent variable, ETL, on the dependent variables of EOCB, GBW, and OSP through t-statistics. Table 4 presents an overview of the p-value outcomes. Table 5 displays the study’s findings, validating hypothesis 1, which asserts that ETL does not affect EOCB ($p = 0.789$). Furthermore, hypothesis 2 indicates that ETL influences OSP ($p = 0.001$). Furthermore, hypothesis 3 is validated, since ETL influences GBW ($p = 0.005$). Hypothesis 4 is confirmed, demonstrating that EOCB influences OSP ($p = 0.000$). Hypothesis 5 is confirmed, demonstrating that GBW influences OSP ($p = 0.003$).

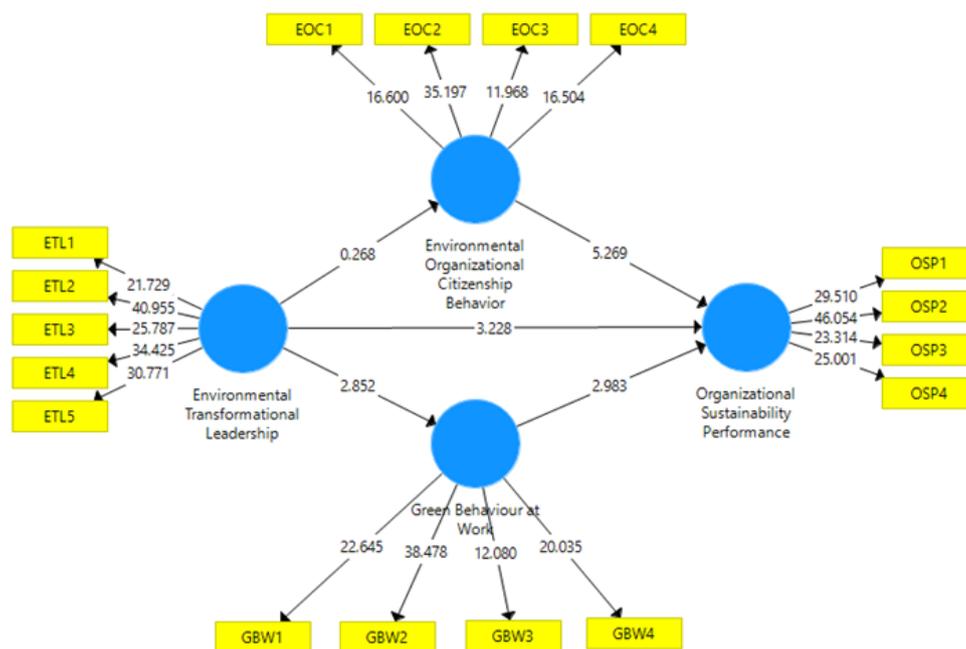


Figure 2. Structural model.

3.5. Discussion

The findings of this study provide nuanced insight into the role of ETL, EOCB, and GBW in shaping OSP within Indonesian MSMEs. Importantly, the study also reflects broader implications for the Sustainable Development Goals (SDGs). The first hypothesis, which posits that ETL significantly influences EOCB, was not supported. This result diverges from prior literature indicating that transformational leaders can inspire employees to adopt discretionary pro-environmental behaviors such as waste reduction, energy conservation, and active recycling participation [18][25][50]. Kurniawati and Margaretha argued that ETL's influence on OCB becomes significant only when mediated by work motivation [51], and Martoyo and Amara emphasize that congruent environmental values and cultural reinforcement are critical [52]. This divergence may be explained by contextual conditions specific to Indonesian MSMEs, including hierarchical organizational structures, resource limitations, and a general lack of embedded sustainability infrastructure. In such settings, even well-intentioned leadership may not translate into voluntary behavior unless supported by an authentic environmental culture. In some cases, employee skepticism toward symbolic environmental efforts (greenwashing) further undermines trust and motivation to engage in EOCB.

While the direct influence of ETL on EOCB is absent, previous research has shown that organizational climate can moderate this relationship. Henriques et al. demonstrate that a positive, green organizational climate fosters managerial and employee EOCB [36]. When the institutional environment supports sustainability, employees perceive alignment between leadership and organizational values, which in turn enhances their discretionary environmental contributions. This aligns with Social Exchange Theory, which explains that perceived organizational support can motivate employees to reciprocate through pro-environmental behavior [30][31]. Hence, the absence of such enabling climate in many Indonesian MSMEs may explain the insignificant relationship found in this study. Given these insights, organizations seeking to strengthen EOCB should implement a suite of supportive

mechanisms. GHRM practices—such as green training programs, inclusion in sustainability planning, and eco-centric appraisal systems—can cultivate employee engagement. Additionally, non-monetary incentives, peer support, and transparency in environmental programs help mitigate employee distrust toward symbolic initiatives. More importantly, organizations must demonstrate consistency between environmental rhetoric and actions to establish authentic leadership credibility and legitimacy.

The second hypothesis is supported: ETL significantly influences OSP ($p = 0.001$). This result confirms previous studies showing that transformational leaders foster green innovation and instill a culture of sustainability [44]. Ramírez-Altamirano et al. found that ETL contributes to sustainability through the mediation of CSR and competitive advantage [53], while Butt et al. confirmed that ETL enhances the environmental, financial, and social dimensions of performance [11]. In the MSME context—often lacking formal sustainability units—leaders play a central role in driving sustainable change. The third hypothesis reveals that ETL significantly influences GBW ($p = 0.005$). GBW encompasses daily workplace behaviors, such as turning off lights, recycling, and using reusable materials. These actions, although informal, significantly contribute to environmental sustainability. Social Learning Theory posits that employees learn and imitate behaviors modeled by leaders [33]. Chen et al. emphasized that ETL increases green self-efficacy and awareness [50], while Robertson and Barling show that leadership behavior shapes organizational norms [20]. In Indonesian MSMEs, where sustainability is often non-institutionalized, leader modeling is critical for cultivating GBW.

The fourth hypothesis is supported, showing that EOCB significantly affects OSP ($p = 0.000$). This aligns with Boiral [18] and Graves et al., who emphasize that voluntary behaviors like minimizing waste and peer encouragement promote sustainability performance [44]. The findings of Henriques et al. [36] and Kumar and Krshunan [54] also reinforce that EOCB enhances environmental and operational performance, particularly when embedded within supportive organizational cultures. In MSMEs, where top-down directives

Table 5. Path coefficients among latent variables.

No	Path	β	T Statistics	p-Value	Significance
1	ETL → EOCB	0.022	0.268	0.789	Not Supported
2	ETL → OSP	0.246	3.228	0.001	Supported
3	ETL → GBW	0.220	2.852	0.005	Supported
4	EOCB → OSP	0.308	5.269	0.000	Supported
5	GBW → OSP	0.196	2.983	0.003	Supported

may be limited, voluntary actions play an outsized role in advancing sustainable operations. The fifth hypothesis confirms that GBW positively impacts OSP ($p = 0.003$). GBW behaviors are intentional, resource-conscious, and rooted in individual initiative. Antara et al. [37] and Lo et al. [55] note that GBW improves internal efficiency and reduces ecological footprints. In smaller firms where operational systems are less formalized, employees’ proactive efforts can compensate for limited structural support, thereby advancing sustainability goals. Robertson and Barling also suggest that GBW fosters organizational legitimacy and stakeholder trust [20].

This study’s findings intersect directly with the SDGs. The demonstrated connection between ETL and OSP supports SDG 12 (responsible consumption and production) and SDG 13 (climate action), while the significance of EOCB and GBW reinforces SDG 8 (decent work and economic growth) and SDG 9 (industry, innovation, and infrastructure). The necessity of participatory organizational climates, transparency, and alignment further contributes to SDG 16 (peace, justice, and strong institutions) and SDG 17 (partnerships for the goals). Thus, this research offers actionable pathways for embedding SDG priorities in MSME operations and leadership practice. In conclusion, this study contributes to the literature on green leadership and sustainability by highlighting the differentiated influence of ETL on EOCB, GBW, and OSP. Although ETL did not significantly affect EOCB, it strongly impacted GBW and OSP. These findings underscore that leadership alone is insufficient to mobilize voluntary behavior unless reinforced by organizational climate and cultural congruence. Indonesian MSMEs must therefore pursue integrative approaches—combining visionary

leadership, authentic organizational commitment, and employee engagement—to fulfill sustainability objectives and contribute meaningfully to the global SDG agenda.

4. CONCLUSIONS

This study concludes that environmental transformational leadership (ETL) significantly influences organizational sustainability performance (OSP) and green behavior at work (GBW), while environmental organizational citizenship behavior (EOCB) and GBW are also strong determinants of OSP. However, ETL does not significantly affect EOCB, suggesting that voluntary environmental behaviors are shaped more by intrinsic factors, social norms, and organizational culture than by leadership influence alone. These findings theoretically contribute to the literature by validating the role of ETL in driving sustainability outcomes while highlighting the contingency of leadership effectiveness on cultural and contextual alignment. They further affirm that both formal and voluntary employee actions play an essential role in strengthening organizational sustainability performance. Practically, the results underscore the need for businesses, particularly MSMEs, to empower leaders with the ability to inspire and communicate sustainability values effectively while simultaneously cultivating a supportive organizational climate through environmental training, institutional policies, incentives, and non-monetary recognition that encourage employee voluntary engagement. To avoid skepticism and enhance trust, organizations must demonstrate authenticity by ensuring that sustainability initiatives yield tangible results rather than symbolic gestures of greenwashing. By integrating leadership vision with authentic cultural

reinforcement, organizations can enhance sustainability performance and strengthen employee contributions toward long-term environmental objectives.

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Conflicts of Interest

The authors declare no conflict of interest.

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