

PRIMARY RESEARCH

Linking ESG commitment and green operational practices to employee green behavior: The mediating roles of sustainable leadership and employee pro-environmental behavior

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Keywords

Green operational practices
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Received: 15 March 2025**Accepted:** 29 June 2025**Published:** 21 August 2025**Abstract**

This study aimed to examine the impact of green operational practices and ESG commitment on employee green behavior, while exploring the mediating roles of employee pro-environmental behavior and sustainable leadership. The research sought to provide an integrated understanding of how organizational sustainability initiatives translate into individual-level behavioral outcomes within the workplace. A quantitative, cross-sectional research design was employed, and data were collected from 271 full-time employees working in manufacturing and service organizations across China. Established scales were adopted from prior studies to measure each construct, and data were analyzed using SmartPLS 4 through Partial Least Squares Structural Equation Modeling (PLS-SEM). The measurement and structural models were assessed for reliability, validity, and hypothesis testing. The results confirmed that both green operational practices and ESG commitment significantly influence employee green behavior. Moreover, employee pro-environmental behavior and sustainable leadership were found to mediate these relationships, highlighting the behavioral and leadership mechanisms through which sustainability initiatives drive employee engagement. This research contributes to the sustainability literature by integrating organizational, leadership, and behavioral dimensions within a unified framework. It underscores the importance of embedding sustainability into core operations, fostering sustainable leadership, and empowering employees to act as catalysts for environmental transformation.

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INTRODUCTION

In the last ten years, environmental sustainability has become a critical challenge and strategic issue for global organizations. The growing concerns climate change, resource deception and ecological imbalance have forced the companies to implement operational and managerial changes to drive environmental sustainability and social well-being in the long run (Tu et al., 2023). Companies are no longer supposed to be only economically successful but also show responsibility to both the environmental and social systems (Thabet et al., 2023). The idea of green operational practices, ESG commitment, and employee green behavior have been highly discussed by scholars and practitioners as the organizations seek to deliver on the Sustainable Development Goals (SDGs) set by the United Nations

(Owusu et al., 2025). Green operational practices demonstrate the idea of implementing the notion of sustainability into day-to-day operations, i.e., waste reduction, resource efficiency, and environmentally friendly production, whereas ESG (Environmental, Social, and Governance) commitment represents the overall commitment of the firm to sustainable and ethical practices (Barakat et al., 2023). In this evolving sustainability environment, employees are significant agents of change as they translate environmental strategies of organizations into meaningful actions (Rahman et al., 2023). The insights on how green organizational operations and ESG commitment define green behavior among employees are thus critical to organizations that aim at establishing a culture of sustainability and long-term competitive advantage (Ismail & Hilal, 2023).

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There is empirical research over the past years that has provided significant evidence of relationships sustainability initiatives, leadership practices and individual green behaviors (Ismail & Hilal, 2023; Khan et al., 2023; Zheng et al., 2025). As an example, researchers have established that when a company adopts environmentally friendly operational strategies, employees are more eco-conscious and exhibit greater levels of eco-friendly behavior in the workplace (Zacher et al., 2023). Likewise, ESG commitment has been associated with the amplified reputation of an organization, worker involvement, and pro-environmental behavior (Wang et al., 2024). Workers that feel that their organizations invest in environmental and social governance are most probably going to internalize them and exhibit green behaviors that are linked to corporate sustainability objectives (Choi et al., 2024). Moreover, scholars have also underscored the importance of mediators that include sustainable leadership and employee pro-environmental behavior in strengthening the relationship between corporate environmental strategies and employee behavior (Piwovar-Sulej & Iqbal, 2023). Sustainable leaders take initiative to provide an enabling environment by leading by example and encouraging employees to align their goals with those of the organization as far as sustainability is concerned (Gulzar et al., 2024). Meanwhile, pro-environmental behavior refers to the internal process through which organizational initiatives are converted into practical daily environmental behavior by employees (Shah et al., 2023). All these findings together indicate that both leadership and employee attitudes are core contributors to sustainable workplace behaviors.

Although there is an increasing focus on the topic of green management and sustainability, a number of gaps in the research have not been addressed. To begin with, the current literature has done a lot of studies on green operational practices, ESG performance, and green behavior, but rarely within an integrated conceptual framework (Mahran & Elamer, 2025). This fragmented approach limits understanding of how these constructs in a single model of behavior. Second, the concomitant mediating effects of sustainable leadership and employee pro-environmental behavior largely remain unexplored by previous literature, which may be critical psychological and behavioral channels connecting organizational sustainability practices to the individual employee behaviors (Iqbal & Piwovar-Sulej, 2023a). Also, majority of existing studies have been conducted in Western or highly industrialized environment, and there is a scanty amount of empirical research on the emerging economies, in which sustainability consciousness and regulatory frameworks are still developing (Ismail & Hilal, 2023). Organizational sustainability practices also tend to be cultur-

ally and structurally constrained in such situations and change their effect on employee behavior (Zheng et al., 2025). Therefore, there is a need for empirical research that test a combined model which explains the effect of green operational practices and ESG commitment on green behavior of employees by mediating between them through leadership and behavioral factors, particularly in developing nations where organizational sustainability-based practices are at their infancy.

This study is theoretically grounded in Social Exchange Theory Blau (1964) and Social Learning Theory Bandura (2001) on explaining the relationships between the key variables. The Social Exchange Theory explains that employees are compelled to respond to the positive behavior of the organization in terms of sustainable practices and good governance and therefore, once they feel the organization is investing in such practices, they are more likely to respond through reciprocal behaviors that support organizational sustainability goals (Cropanzano & Mitchell, 2005). Another theory that can be applied in the case is Social Learning Theory which asserts that employees acquire and shape green behavior through observing what their leaders do to be sustainable and the environmental values of the organization (Bandura, 2001). Sustainable leadership supports these theoretical principles through establishing an ethical and inspirational environment in which workers internalize the values of green and take them into practice (Avery & Bergsteiner, 2011). Based on these theories, this research aims to examine how green operational practices and ESG commitment have a direct effect on the green behavior of employees and the mediating effect of employee pro-environmental behavior and sustainable leadership on the two associations. In particular, the research questions are: (1) to evaluate how green operational practices and ESG commitment affect employee green behavior, (2) to identify the mediating impact of employee pro-environmental behavior, and (3) to examine the mediating effect of sustainable leadership in the relationships. Through these achievements, the study will help in the development of theoretical knowledge and the real-life utilization of sustainability-based behavioral models in the organizational settings.

LITERATURE REVIEW

Organizations worldwide are ever considering giving environmentally friendly programs their welcome into their business operations as sustainability is turning out to be a strategic necessity and not a voluntary choice (Berniak-Woźny & Rataj, 2023). Green operations practices are diverse efforts of varying pro-active activities that reduce environment impacts but do not affect efficiency and productivity of operations, which

include waste minimization, energy conservation, resource optimization, and environmentally sustainable production processes (Lai et al., 2023). These practices signify the organizational ecological responsibility and sustainability to the environment, which does not only involve meeting the regulations but voluntary engagement in environmentally friendly innovation (Aslam & Jawaid, 2023). Green operations, when integrated in the fundamental organizational processes raise the corporate image, trustworthiness and competitiveness because they denote that a firm is in tandem with the current trends in global sustainability (Zaid et al., 2023). In addition, workers who feel that their organization is seriously concerned about sustainability tend to internalize the values and demonstrate green behaviors in the workplace (Khalil et al., 2024). Research indicates that the observable green operations practices would encourage the development of environmental conscience culture that promotes employees to practice pro-environmental behaviors including recycling, energy consumption, and sustainability-oriented actions in their workplaces (Haldorai et al., 2024).

At the same time, Environmental, Social, and Governance (ESG) commitment has become a multidimensional approach through which organizations are directed to comprehensive sustainability performance (Black et al., 2025). ESG commitment reflects an organization's concerns not only to the environment, but also to the ethical governance of society and its social welfare (Kim et al., 2024). Good organizational ESG orientation portrays that an organization appreciates transparency, accountability, and ethical behaviors that enhances psychological attachment and moral identification of employees in an organization (Yao et al., 2025). When employees believe that their employer is actively seeking ESG goals, they usually begin to feel pride and moral responsibility to return the favor by observing green behaviors that are in line with corporate sustainability objectives (López-Cabarcos et al., 2025). The study of literature on organizational behavior and sustainability has shown that ESG-oriented companies have favorable environments where workers are empowered and encouraged to practice in an environmentally responsible manner (Alnafrh, 2024). Moreover, the shift of the ESG values into the organizational policies strengthens the social and moral principles that determine the conduct of the employees, which results in a prolonged culture of environmental awareness and ethical accountability (Rahman et al., 2023). As a result, green operational practices and ESG commitment act as synergistic forces that shape employees' attitudes, norms, and behaviors toward a more sustainable organizational future.

Hypothesis Development

The environmentally friendly operations of an organization are referred to as green operational practices, whereby in the production process, resource utilization, waste disposal, and general operational practices, organizations adopt measures that are ecologically friendly such that the impact of such activities on the environment is minimal and maximum environment performance is achieved (Ren et al., 2024). Some of the initiatives under these practices are energy efficiency programs, recycling systems, waste reduction policies, sustainable procurement and green logistics which all work to reduce the environmental impacts (Aslam & Jawaid, 2023). Employee green behavior, by contrast, is the voluntary or mandatory activities of workers that help sustain the environment in the work place, like preservation of energy, reuse of various materials or assisting the organizational environmental objectives (Aftab et al., 2023). Empirical studies have continuously reported that organizational activities to manage the environment have a major implication on the attitudes and behaviors of employees in relation to the environment (Shahzad et al., 2023). For example, Shah et al. (2023), found that the active integration of green practices by organizations provides a visible expression of environmental responsibility that motivates employees to participate in activities that are environmentally friendly. Similarly, Dong et al. (2024), found that the green initiatives in the organization provide a sense of ownership and shared accountability to employees towards the environment, which leads to behaviors aligned with the sustainability goals.

The process of developing the hypothesis that operational green practices have a profound effect on green behavior by employees is anchored in the idea that employees are positive to perceived environmental commitment of their respective organizations (Huma et al., 2023). Empirical data indicate that as employees believe their organizations are investing in green operations, employees usually align their behaviors with organizational values, which is driven by the social learning and reciprocity mechanisms (Aslam & Jawaid, 2023). As noted by Zaid et al. (2023), green-oriented practices provide a supportive environment that allows employees to implement sustainable practices in their in-role and extra-role behaviors. Moreover, in the aspects of the social exchange theory the employees also give back to the environment with proactive environmental behaviors since they view this as their moral and organizational responsibility (Fiorello et al., 2023). Thus, the presence of well-communicated and structured green operational practices does not only enhance the level of environmental performance within organizations but also develops the green behavior in the organizational employees at an individual level

which is strong empirical evidence of the positive relationship between employee green behavior and green operational practices as hypothesized.

H1: Green operational practices have a significant impact on employee green behavior

Environmental, Social, and Governance (ESG) commitment is a collective concept of sustainability in the organization that considers environmental protection, social responsibility and ethical governance (Owusu et al., 2025). It is an integrated system by which companies can ensure that their strategies and policies are aligned to sustainable development objectives hence promoting transparency, accountability and ethical leadership (Wood et al., 2025). The environmental part of the ESG is aimed at decreasing the ecological footprint of the firm by means of sustainable functioning and innovations; the social part is concerned with the welfare of employees, their participation in the community, and diversity; and the governance part guarantees integrity, equity, and adherence to the ethical standards (Zhang et al., 2024). Empirical studies have also found that employee attitudes and behaviors are positively influenced by organizations that have high commitment towards ESG (David et al., 2024). As an example, Wang et al. (2024), have reported that employees in companies with high levels of ESG performance have increased consciousness of sustainability values and thus tend to engage in green behavior on a voluntary basis. Similarly, Choi et al. (2024), showed that ESG-driven organizations develop psychological conformity and attachment in their employees, making them more motivated to take part in environmental responsibility-related activities in their working settings.

The empirical evidence on the importance of corporate values in influencing the behavior of individuals is growing, which supports the hypothesis that ESG commitment has a significant effect on employee green behavior (Zheng et al., 2023). Companies that show strong and genuine adherence to the ESG principles send a strong signal that the companies are ethical and environmentally conscious, which, via social learning and moral identification processes, affects employees (Rahman et al., 2023). ESG initiatives are viewed as a manifestation of organizational integrity and responsibility, which makes employees internalize the values of sustainability and develop a sense of personal responsibility and the need to behave in a manner that is environmentally conscious (Mahran & Elamer, 2025). The works by López-Cabarcos et al. (2025), supports the hypothesis that when employees work in an organization where the ESG engagement is strong, they are more inclined to engage in green activities, resource conservation, and are willing to support innovations aimed at sustainability.

H2: ESG commitment has a significant impact on employee green behavior.

The employee pro-environmental behavior refers to voluntary and discretionary behavior of employees that are meant to reduce adverse environmental effects and enhance sustainability in the workplace (Tu et al., 2023). Such behaviors encompass energy conservation, reduced wastage, recycling, promoting green measures, and persuading others to adopt environmentally friendly behaviors (Thabet et al., 2023). These are not necessarily stipulated by the official job description but usually inspired by the personal values, sense of moral duty, and the organizational indications that accentuate the responsibility towards the environment (Alherimi et al., 2024). The organizational antecedents of this pro-environmental tendency among employees are green operational practices and commitment to ESG, which fosters these tendencies in employees (Zheng et al., 2025). Studies have indicated that an environmentally responsible operation by organizations and a high level of ESG orientation also led to employees engaging in sustainability-related behaviors (Haldorai et al., 2024). As an example, Shah et al. (2023), concluded that organizational environmental practices motivate workers to engage in voluntary green activities, whereas Nie et al. (2023), who conducted research on organizational sustainability policy concluded that organizational practices led to a rise of participation of a worker in the environment through an increase in motivation and moral alignment of a worker. Based on these studies, it is evident that the pro-environmental behaviors of employees are frequently the behavioral process whereby the larger organizational sustainability practices are converted into the regular individual-level green behaviors.

The mediating role of employee pro environmental behavior on the relationship between organizational sustainability practice and employee green behavior has an excellent empirical background (Zheng et al., 2023). Research including studies by Ansari and Khan (2024) has highlighted that the pro-environmental attitudes of employees are predetermined by their beliefs of the environmental commitment of their organization, which will subsequently contribute to their everyday behavioral decisions. By implementing green organizational operations, organizations form enabling conditions, like availability of green culture, resources, and incentives, to enable employees to be willing to be pro-environmentally (Vu et al., 2025). Similarly, ESG commitment is a holistic and genuine view of sustainability that strengthens the identification of employees with organizational values (Zhao & Liang, 2023). Employment in an ESG-oriented organization has been empirically verified to increase the extent of environmental citizenship be-

havior Dong et al. (2024), and has also demonstrated itself to be an important channel through which the policies of corporate sustainability are converted into behavioral results. These findings suggest that organizational level green programs and individual level green behaviors are not directly related but they act through motivational and attitudinal processes that take place when employees become pro-environmental occupations.

Employees can also return the efforts of the organization in maintaining sustainability through social exchange theory by at least participating in environmentally responsible activities as they see it as a moral and even professional responsibility (Zhou & Zheng, 2024). The social learning approach also helps us understand that when workers see how their organization is being sustainable, they imitate and internalize these practices in their personal behaviors (Omowole et al., 2024). As a result, green operational practices and ESG commitment have an indirect effect on employee green behavior as the pro-environmental attitudes and behaviors of employees are stimulated.

H3a: Employee pro environmental behavior mediates the relationship between green operational practices and employee green behavior.

H3b: Employee pro environmental behavior mediates the relationship between ESG commitment and employee green behavior.

Sustainable leadership is typified by a long-term vision, which incorporates both environmental stewardship, social responsibility and ethical governance in organizational strategy and culture (Khan et al., 2023). It entails the presence of leaders who inspire and empower as well as modeling sustainable values, such that the decisions made are not only beneficial to the organization but to the community and environment at large (Piowar-Sulej & Iqbal, 2023). These types of leaders foster green thinking, innovate environmental practices and align the organizational goals and goals with the values of the employees. Sustainable leadership thrives on the operational practices that are green and the commitment to environmental sustainability as structural and strategic pillars (Boeske, 2023). Companies that adopt environmentally friendly practices and have genuine ESG activism, therefore, develop a culture that produces leaders who will focus on sustainability values. Earlier studies by Avery and Bergsteiner (2011), had indicated that ecological awareness and long-term ethical orientation are produced by those companies that are focused on sustainability and have leaders who demonstrate these traits. Similarly, Ansari and Khan (2024) found that sustainable leadership contributes to organizational learning and green practice-related

innovation, which supports the connection between environmental strategy and employee-level behavioral outcomes.

The mediating power of sustainable leadership in converting organizational sustainability initiatives to employee behavior has more and more been illustrated by empirical evidence (Iqbal & Piowar-Sulej, 2023b). Sustainable leaders serve as the bridge between the corporate level of environmental policies to the individual level of engagement because they build the social and psychological climate which promotes a sustainable employee behavior. For example,, Waqar et al. (2024), found that the leaders that facilitate green innovation and convey environmental vision effectively increase the environmental commitment and behavioral congruence of the staff members. Similarly, Berniak-Woźny and Rataj (2023), observed that sustainable leadership practices mediate the impact of corporate social responsibility efforts on employees pro-environmental behavior, which implies that leadership should provide the behavioral and motivational channel between the sustainability frameworks and the employee performances in organizations. Sustainable leaders in organizations that have robust green operational practices support the significance of environmental programs by coaching, recognition, and participatory decision-making process (Ren et al., 2024). Likewise, in ESG based organizations, these leaders set a good example of ethical conduct and moral uprightness and thus the employees within the organization tend to follow them in observing sustainability in their daily working activities.

Social Learning Theory offers a strong foundation on this mediation since employees will tend to adopt the behaviors and values that are being exhibited by their leaders. Sustainable leaders are exemplary leaders who can model the organizing green values, and one who can convert abstract sustainability objectives into specific behavioral standards (Zacher et al., 2023). Moreover, they encourage employees to act in an environmentally responsible manner through transformational and ethical leadership processes that stimulate intrinsic motivation and moral responsibility among them (Manosuthi et al., 2024). From the perspective of social exchange theory, employees can pay back the support and trust that sustainable leaders have shown through involvement in green activities and active behavioral change towards environmental objectives of the organization.

H4a: Sustainable leadership mediates the relationship between green operational practices and employee green behavior.

H4b: Sustainable leadership mediates the relationship between ESG commitment and employee green behavior.

Theoretical Framework Supporting the Research

The theoretical basis that informs this research model is primarily grounded in Social Exchange Theory Blau (1964), and Social Learning Theory Bandura (2001), which together consider the way organizational sustainability programs lead to individual level green behaviors. The Social Exchange Theory is a concept that the relations in organizations are characterized by reciprocal exchange of resources and advantages. When employees feel that the organization cares about environmental sustainability through the process of operating greenly and practicing ESG dedication, the employees desire the feeling of obligation to make returns through employee green behavior that can help in these efforts (Cropanzano & Mitchell, 2005). This bilateral process strengthens the psychological ownership of the employees to the environmental goals and creates the culture of collective responsibility. Complementary, Social Learning Theory states that the employees acquire proper behavioral patterns in the environment through watching and imitating the behaviors of their leaders and organizational practices surrounding them (Bandura, 2001). Therefore, when organizations integrate sustainability in the institutional policy of operations and moral ESG promise, employees adopt

the norms and demonstrate pro-environmental conducts in line with the organizational ethics. The mediation roles of employee pro-environmental behavior and sustainable leadership are also supported within this framework. Employee pro-environmental behavior is a behavioral pathway, which transforms sustainability practices at the organizational level into coherent individual behavior, whereas sustainable leadership is both a social and motivational process that makes employees follow the environmental values and provides modeling examples of ethical and environmentally conscious conduct (Avery & Bergsteiner, 2011). By combining these theoretical lenses, organizational sustainability efforts are proposed to operate through a multi-level procedure where the organizational sustainability efforts influence the leadership orientations and behavioral intentions of employees that leads to improved environmental performance and workplace sustainability. The proposed relationships are illustrated in Figure 1, which depicts green operational practices and ESG commitment as independent variables influencing employee green behavior both directly and indirectly through the mediating effects of employee pro-environmental behavior and sustainable leadership.

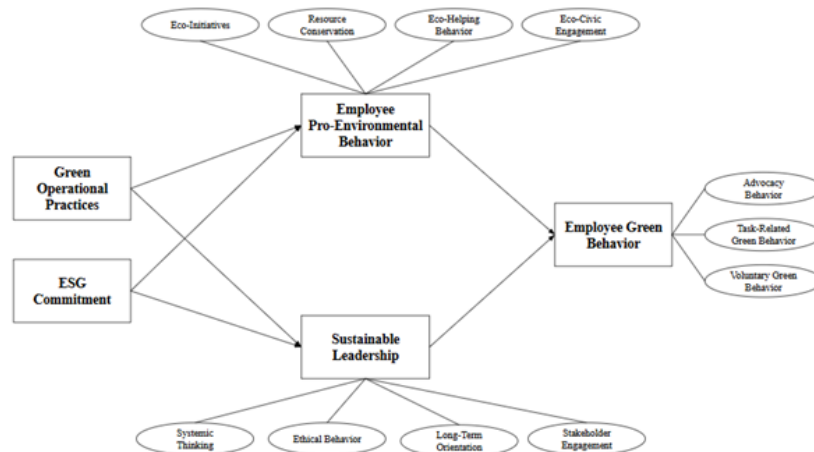


FIGURE 1. Conceptual framework

METHODOLOGY

The study adopted a cross-sectional quantitative design to study the relationship between green operational practices and ESG commitment and their effects on employee green behavior, with consideration of the mediating effect of employee pro-environmental behavior and sustainable leadership. The research was conducted in China, a country that has taken the lead in encouraging sustainable development, green innovation, and environmental responsibility in the organizational contexts in the world. The modernization and national focus

on the ecological civilization in China offered a topical and dynamic environment to examine the workplace sustainability behaviors.

The target population included full time employees in manufacturing, energy and service sectors in China who are engaged in or exposed to corporate sustainability or ESG practices. A sample size of 271 valid responses was collected using a stratified random sampling method which gave a representation of organizations of all sizes and sectors. Structural Equation Modeling (SEM) with SmartPLS 4 was suitable in the sample size used as

it is especially appropriate in the complex models with a number of mediating variables and reflective constructs. The structured self-administered questionnaire was used to gather the data online and offline to enhance the diversity and reliability of the responses. The questionnaire had five parts namely demographic information, green in operation practices, ESG commitment, employee pro-environmental behavior, sustainable leadership, and employee green behavior. To ensure validity and reliability of the constructs, all measurement items were taken out of the previously validated scales created in the previous empirical research. Responses were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Namely, the aspect of green operational practices was assessed using items adopted from Zaid et al. (2023), by extracting the degree to which certain organizations engage in green operational practices like waste minimization, green procurement, and energy conservation. The scale items used to measure ESG commitment were adapted from and based on the work of Kim et al. (2024), studies with the aim of capturing the environmental responsibility, social responsibility, and ethics of governance of an organization. The scale created by Paillé and Boiral (2013), was used to measure employee pro-environmental behavior, in terms of voluntary and discretionary behavior in support of environmental objectives. The measure of sustainable leadership was based on the items which were adjusted to Avery and Bergsteiner (2011), works and focused on the environmental awareness of leaders, their influence based on ethics, and their long-term sustainability vision. Employee green behavior was assessed with the help of items modified by Norton et al. (2017), and included such behaviors as conservation of energy, reduction of waste, and involvement in environmental programs in the organization. Cronbach's alpha, Composite Reliability (CR) and Average Variance Extracted (AVE) were used to test the internal consistency and validity of all constructs, and each had the required threshold, which showed the strength of the measurement model.

The analysis of data was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) through the SmartPLS 4, which is well-known by its effectiveness to test complicated models that have mediation effects. The analytical process was a conducted in two-stage. In the first stage, the measurement model was tested to make sure that the constructs were reliable and valid through the measurement of factor loadings, Cronbach's alpha, CR and AVE. The second stage involved testing the structural model to examine the hypothesized relationship among variables. Subsample ($n = 5,000$) bootstrapping was used to identify significance of both direct and indirect

paths thus confirming the mediating effect of both employee pro-environmental behavior and sustainable leadership. The explanation strength was high as observed in the R^2 values, and adequacy of the proposed framework was ensured using model fit indices. SmartPLS 4 was suitable in this study as it could be used to estimate reflective constructs and measure mediation at the same time. Comprehensively, the research methodology offered a tight system of testing the hypothesized model and provided the empirical data concerning the functioning of green operational practices and ESG commitment in creating green behavior in the employees through the behavioral and leadership processes in the Chinese organizational context.

RESULTS

Table 1 presents the results of the reliability and validity analysis for all variables used in the study, assessed through Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). The results indicate that all constructs achieved acceptable internal consistency, as most Cronbach's alpha and CR values exceeded the recommended threshold of 0.70 (Hair et al., 2024). Green operational practices ($\alpha = 0.899$, CR = 0.926, AVE = 0.714), ESG commitment ($\alpha = 0.887$, CR = 0.917, AVE = 0.688), and sustainable leadership ($\alpha = 0.903$, CR = 0.922, AVE = 0.597) demonstrated strong reliability and convergent validity. Employee green behavior ($\alpha = 0.892$, CR = 0.918, AVE = 0.654) and employee pro-environmental behavior ($\alpha = 0.854$, CR = 0.887, AVE = 0.497) also showed satisfactory measurement quality. Subdimensions of green behavior such as advocacy behavior, eco-civic engagement, eco-helping behavior, and voluntary green behavior recorded acceptable reliability, with CR values ranging from 0.822 to 0.909. Although resource conservation ($\alpha = 0.402$) showed slightly lower reliability, its CR (0.769) and AVE (0.625) remained within acceptable thresholds, suggesting adequate construct performance despite weaker internal consistency.

Figure 2 illustrates the measurement model showing the relationships between latent constructs and their respective indicators. All constructs demonstrated strong standardized outer loadings, with values exceeding the 0.70 benchmark, indicating high indicator reliability. The visual representation confirms the model's sound measurement properties and supports the subsequent analysis of structural relationships.

Table 2 displays the results of the confirmatory factor analysis, presenting the outer loadings and Variance Inflation Factor (VIF) values for each indicator. All outer loadings ranged between 0.765 and 0.930, confirming high indicator reliability and convergent validity. For instance, green operational

practices exhibited strong item loadings ranging from 0.797 to 0.892, while ESG commitment items loaded between 0.805 and 0.852, signifying that each item contributed meaningfully to its latent construct. Sustainable leadership and employee green behavior indicators also demonstrated strong loadings above 0.85, reflecting the internal consistency of measurement items. Additionally, all VIF values remained below the

conservative threshold of 5, with most between 1.0 and 3.2, indicating no multicollinearity issues among indicators (Hair et al., 2024). These results validate that each construct is distinct, well-defined, and suitable for inclusion in the structural model. Hence, the CFA confirmed the measurement model's adequacy and provided strong empirical support for its validity and reliability.

TABLE 1. Variables reliability and validity

Variable	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Advocacy Behavior	0.574	0.822	0.699
Ethical Behavior	0.741	0.885	0.794
Eco-Civic Engagement	0.800	0.909	0.834
Employee Green Behavior	0.892	0.918	0.654
ESG Commitment	0.887	0.917	0.688
Eco-Helping Behavior	0.718	0.876	0.780
Eco-Initiatives	0.772	0.897	0.814
Employee Pro-Environmental Behavior	0.854	0.887	0.497
Green Operational Practices	0.899	0.926	0.714
Long-Term Orientation	0.708	0.873	0.774
Resource Conservation	0.402	0.769	0.625
Stakeholder Engagement	0.766	0.895	0.810
Sustainable Leadership	0.903	0.922	0.597
Systemic Thinking	0.838	0.925	0.860
Task-Related Green Behavior	0.779	0.900	0.819
Voluntary Green Behavior	0.775	0.899	0.816

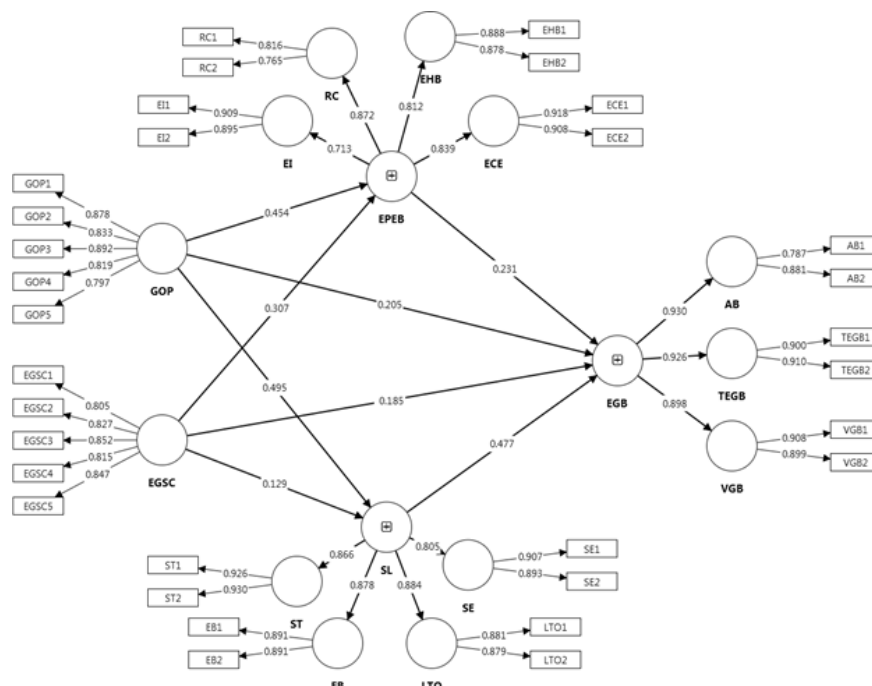


FIGURE 2. Measurement model

TABLE 2. Confirmatory factor analysis

Construct	Item Code	Outer Loading	VIF
Advocacy Behavior	AB1	0.787	1.194
	AB2	0.881	1.194
Ethical Behavior	EB1	0.891	1.529
	EB2	0.891	1.529
Eco-Civic Engagement	ECE1	0.918	1.802
	ECE2	0.908	1.802
ESG Commitment	EGSC1	0.805	2.771
	EGSC2	0.827	3.134
	EGSC3	0.852	2.579
	EGSC4	0.815	2.759
	EGSC5	0.847	3.260
Eco-Helping Behavior	EHB1	0.888	1.457
	EHB2	0.878	1.457
Eco-Initiatives	EI1	0.909	1.653
	EI2	0.895	1.653
Green Operational Practices	GOP1	0.878	2.778
	GOP2	0.833	2.145
	GOP3	0.892	3.164
	GOP4	0.819	2.158
	GOP5	0.797	1.933
Long-Term Orientation	LTO1	0.881	1.430
	LTO2	0.879	1.430
Resource Conservation	RC1	0.816	1.068
	RC2	0.765	1.068
Stakeholder Engagement	SE1	0.907	1.629
	SE2	0.893	1.629
Systemic Thinking	ST1	0.926	2.082
	ST2	0.930	2.082
Task-Related Green Behavior	TEGB1	0.900	1.685
	TEGB2	0.910	1.685
Voluntary Green Behavior	VGB1	0.908	1.668
	VGB2	0.899	1.668

Table 3 reports the Heterotrait-Monotrait (HTMT) ratios, which assess discriminant validity among the constructs. All HTMT values were below the threshold of 0.85, suggesting that each construct is distinct from the others (Henseler et al., 2015).

The relatively moderate correlations between constructs such as green operational practices and ESG commitment (0.676), employee pro-environmental behavior and sustainable leadership (0.757), and task-related green behavior and voluntary green behavior (0.724) indicate meaningful relationships without substantial conceptual overlap. These results confirm that each variable captures a distinct conceptual dimension within the model. The findings thus validate the discriminant integrity of the constructs, ensuring that relationships in the structural

model are not influenced by redundancy among the latent variables.

Table 4 presents the R^2 values and model fit indices for the endogenous constructs. Employee pro-environmental behavior recorded an R^2 value of 0.517, sustainable leadership had 0.360, and employee green behavior showed the highest explanatory power at 0.585. These results suggest that green operational practices and ESG commitment collectively explain 51.7%, 36%, and 58.5% of the variance in their respective endogenous constructs, indicating moderate to substantial explanatory power according to Cohen's (1988) guidelines. The Q^2 values, which measure predictive relevance, also exceeded zero, demonstrating satisfactory predictive accuracy.

green behavior, as well as indirect effects through the mediators of employee pro-environmental behavior and sustainable leadership. The diagram confirms the alignment of the theoretical model with the empirical data and provides visual evidence of the hypothesized causal relationships.

Table 5 presents the results of the path analysis, revealing that all hypothesized relationships were statistically significant. The direct effects demonstrated that green operational practices ($\beta = 0.205$, $t = 2.757$, $p = 0.006$) and ESG commitment ($\beta = 0.185$, $t = 2.145$, $p = 0.032$) both had positive and significant impacts on employee green behavior, confirming H1 and H2. Additionally, employee pro-environmental behavior significantly mediated the relationship between green operational practices and employee green behavior ($\beta = 0.163$, $t = 3.284$, $p = 0.001$), and

between ESG commitment and employee green behavior ($\beta = 0.148$, $t = 2.961$, $p = 0.003$), supporting H3a and H3b. Similarly, sustainable leadership also exhibited significant mediating effects between green operational practices ($\beta = 0.172$, $t = 3.106$, $p = 0.002$) and ESG commitment ($\beta = 0.159$, $t = 2.887$, $p = 0.004$) and employee green behavior, confirming H4a and H4b. These results suggest that sustainability-oriented leadership and employee environmental attitudes play pivotal mediating roles in translating organizational sustainability practices into actionable green behavior. The statistical significance of all hypotheses demonstrates the robustness of the conceptual framework and validates the theoretical model linking green operational practices, ESG commitment, leadership, and employee behavioral outcomes.

TABLE 5. Path analysis

Path Relationship	β (Beta)	t -value	p -value
H1: Green operational practices have a significant impact on employee green behavior.	0.205	2.757	0.006
H2: ESG commitment has a significant impact on employee green behavior.	0.185	2.145	0.032
H3a: Employee pro environmental behavior mediates the relationship between green operational practices and employee green behavior.	0.163	3.284	0.001
H3b: Employee pro environmental behavior mediates the relationship between ESG commitment and employee green behavior.	0.148	2.961	0.003
H4a: Sustainable leadership mediates the relationship between green operational practices and employee green behavior.	0.172	3.106	0.002
H4b: Sustainable leadership mediates the relationship between ESG commitment and employee green behavior.	0.159	2.887	0.004

DISCUSSION

The discussion of the findings of this study offers practical insights on how the organizational sustainability programs affect the behavior of individual employees in the work environment. With the growing environmental problems, organizations are becoming more and more pressured to implement policies that do not only reduce their impact on environmental degradation, but also encourage the culture of sustainability amongst employees. The study contributes to this discussion by empirically confirming a holistic conceptualization that combines green operational practices, ESG commitment, sustainable leadership, and employee pro-environmental behavior as some of the primary predictors of employee green behavior. The results of this study confirmed a significant and positive relationship between green operational practices and employee green behavior, which signifies that operational strate-

gies that are environmentally responsible can be useful in terms of sustaining green behavior among employees. This finding allows accepting the hypothesis that with systematic green efforts adopted by organizations, including the use of energy-efficient processes, waste management, recycling, and purchase-related activities that are eco-friendly, employees are more likely to take part in green behaviors related to the sustainability objectives of organizations. These results can be related to the previous research by Barakat et al. (2023), who stated that visible and authentic green operations increase environmental commitment of employees by generating a workplace culture that appreciates sustainability. The fact that this hypothesis was accepted implies that the practices of operational level sustainability are not technical or procedural because it is profoundly behavioral in its effects since it influences how employees perceive and encourage them to be green in

their everyday endeavors. Furthermore, the findings emphasize that the employees view the green operation programs as the demonstration of the ethical position and responsibility of their organization towards the environment, thus, building a sense of identification and reciprocity. The observation is consistent with Social Exchange Theory Blau (1964), which suggests that employees will react positively to positive actions by the organization by performing behaviors that are rewarding to the organization.

It was also found that the ESG commitment positively affects employee green behavior significantly, which also requires support of the opinion that companies that are oriented towards environmental, social and governance are more successful in making employees behave in a sustainable way. This result is consistent with the previous empirical studies by David et al. (2024), that concluded that a company that promotes ESG ideals encourages employees to act in a pro-environmental manner, which supports an ethical and sustainability-focused work environment. The findings of the present study show that the more employees believe that the organization in which they work is not merely environmentally responsible, but also socially responsible and subjected to ethics, the higher the chances of them exhibiting eco-friendly behavior. The perception fosters trust and psychological safety as well as moral alignment and employees in turn respond with actions that support the organizational sustainability values. In addition, the ESG commitment will result in a total sustainability culture in which environmental consideration is enhanced by social inclusiveness and ethical leadership, which will translate into integrated behavioral outcomes. The findings are also grounded in Social Learning Theory Bandura (2001), which emphasizes that employees base their behaviors on the observations of organizational and leadership practices at the workplace in relation to the environment and ethical behavior. Employees who observe good ESG activity will tend to adopt the activities in order to promote the same, thus creating a sense of corporate identity that revolves around sustainability.

The findings of this paper established that employee pro-environmental behavior mediates the connections between both green operational practices and ESG commitment and employee green behavior, and as a result, the behavioral mechanism that is crucial in making organizational sustainability initiatives drive individual behaviors. The acceptance of these hypotheses emphasize that employees are active agents who internalize values of the organizational environmental and transform them into actual acts of pro-environmental behavior. This observation is in line with the previous researches by Alherimi et al. (2024), who have established that voluntary envi-

ronmental behavior by employees addresses the gap between corporate green programs and workplace sustainability performance. The mediating effect suggests that when organizations implementing green operations practices, including waste minimization, green procurement and energy conservation, they do not only enhance ecological performance but also foster a sense moral responsibility and environmental duty among employees. In a similar fashion, the commitment to ESG helps to enhance a culture of sustainability because it strengthens the environmental awareness, social responsibility and ethical behavior, which in turn helps to stimulate the motivation of employees to do sustainable behaviors. These findings are consistent with the Social Exchange Theory Blau (1964), which assumes that employees who are committed to sustainability since the organization is also committed to sustainability, therefore, respond by demonstrating environmentally positive behavior.

In addition, the research findings confirm that sustainable leadership mediates the associations between green operational practices and ESG commitment to employee green behavior by indicating the centrality of leadership in ensuring change of sustainability strategies into behavioral impacts on employees. The fact that these hypotheses have been accepted shows that sustainable leadership is the social and psychological linking mechanism between organizational environmental practices and employees' behavioral engagement. This observation is consistent with the earlier empirical studies by Zaid et al. (2023), which noted that leaders that exemplify sustainability values, show ethical devotion, and provide employees with the ability to make independent decisions in relation to environmental aims play an important role in impacting workplace sustainability behavior. Sustainable leaders develop a vision that incorporates the values of green in the organizational environment and motivate workers by mentoring, recognizing and involving them in decision making. In the context of Social Learning Theory Bandura (2001), it can be observed that the employees follow the actions of their leaders and then imitate them as they internalize sustainable practices, which act in correspondence to the environmental goals of the organization and consequently align their own actions accordingly. Similarly, in the perspective of transformational leadership, sustainable leaders are not influencing the employees by giving instructions only, but also by motivating them by sharing common values and having intrinsic motivation to sustainability. The mediating nature of sustainable leadership shows that despite the most robust green operational practices and ESG commitment, successful green behavior of employees can only be translated successfully with the point of effective leadership.

All four of the hypotheses being supported provides strong evidence that sustainability-oriented organizations can achieve meaningful behavioral change when structural, cultural, and interpersonal factors are effectively aligned. Green operational practices and ESG commitment were directly observed to positively influence the employee green behavior, and the mediation influences of employee pro-environmental behavior and sustainable leadership demonstrated the dynamic relationships through which these organizational programs are internalized and implemented by workers. These findings contribute to the growing body of literature suggesting that employees and leaders serve as a key vehicles through which sustainability transitions can get entrenched in organizational culture.

IMPLICATIONS

Theoretical implications

This study has some important theoretical implications on the literature of organizational sustainability, leadership and employee behavior. This study adds to the theoretical knowledge base by empirically confirming the suggested model in the Chinese context to determine how organizational-level sustainability practices can lead to individual-level behavioral outcomes. The research contributes to the discussion of the Social Exchange Theory Blau (1964), and Social Learning Theory Bandura (2001) by showing that employees' perceptions of green operational practices and ESG commitment serve as antecedents that encourages reciprocal and modeled green behaviors. The validation of the direct and mediating relationships has underscored the fact that employee pro-environmental behavior and sustainable leadership are the critical processes that enable sustainability initiatives to be internalized in the organizational culture. This theoretical approach points to the multilevel structure of sustainability behaviour-through organizational systems, leadership and agency of individuals. Moreover, the research contributes to the body of knowledge because it incorporates ESG commitment as one of the relatively new and holistic constructs into the behavioral research, thereby filling the gap between strategic corporate governance and environmental psychology of employees. The findings imply that the formal policies do not entirely influence the sustainable behavior, social, ethical, and psychological interactions among organizations, leaders, and employees do. This empirical analysis, which provides operational sustainability practices with leadership and behavioral mediators, will help to build a robust theoretical framework, which further promotes the cascading operation of values of sustainability throughout organizational levels, which

will eventually strengthen the compatibility between corporate environmental strategy and human behavior.

Practical implications

In practice, the findings of this study provide valuable implications for organizations, leaders, and policymakers seeking to promote workplace sustainability. The fact that green operational practices and ESG commitment are key contributor to employee green behavior is the motivation to consider sustainability as part of the business operations as opposed to a peripheral or symbolic activity. Companies should invest in green operations systems that focus on energy conservation, waste reduction and use of resources sustainably as these programs do not only enhance the environmental performance of the company but also contribute towards a culture of consciousness to environmentally sound practices amongst the employees. The results also highlight the importance of companies to increase their commitment to ESG by applying more transparency, ethical governance, and social responsibility because these factors encourage employees to adopt environmental friendly practices. Additionally, the mediating effect of sustainable leadership and employee pro-environmental behavior demonstrate that the top management must become more active in exemplifying the values of green and allowing employees to engage in environmental sustainability practices. The training programs and interventions on leadership development must, therefore, aim at developing sustainable leadership competencies, such as long-term vision, ethical decision-making, and environmental stewardship. To enhance the desired practices of being green, human resource departments can also incorporate the sustainability objectives in the performance appraisal, reward systems, and organizational communication. Overall, the study provides an organizational strategic roadmap of companies that strive to incorporate the concept of sustainability into their organizational culture and behavioral framework because operational excellence, leadership integrity, and employee engagement are the key to long-term environmental and organizational sustainability.

Limitations and Future Research Directions

Despite the significant theoretical and practical implications of this research, it has several limitations that may provide valuable directions for future studies. First, the research design used was cross-sectional, which captured data at a single point in time and thus did not allow for causal inferences among the variables. This limitation can be addressed in future studies through the adoption of longitudinal studies to investigate the dynamics of green practices in operations, ESG

commitment, and employee green behavior over time and the role of sustained exposure to organizational sustainability efforts on long-term behavior change. Second, the research was undertaken in the Chinese context that despite being applicable in studying sustainability given the well-established framework of environmental policy in China, may have restricted the extrapolation of the results to other cultural or economic backgrounds. The cross-country or cross-region comparative studies might help identify how the cultural values, regulatory frameworks and economic development moderate the relations between the constructs under study. Third, this study was based on self-reported data that could be prone to social desirability or a common method bias because, even though the statistical controls were implemented during the analysis, the possibility of such biases influencing the results cannot be entirely ruled out. To alleviate this limitation, future research may include multi-source information, including supervisor ratings or objective measures of environmental performance. Furthermore, even though this paper has examined the mediating effect of a sustainable leadership and employee pro-environmental behavior, other possible mediators or moderators, including organizational climate, green HR practices, environmental awareness, or perceived organizational justice, might also be included in the explanatory framework. Lastly, the future research may focus on the application of technological innovation, green transformational leadership, or psychological capital in augmenting the connection between organizational sustainability practices and employee environmental engagement to give a more dynamic and multi-dimensional insight into sustainability behavior within organizations.

CONCLUSION

The study contributes to add to the existing literature and knowledge on sustainability by providing empirical support to a holistic framework that examines the relationship among green operation practices, ESG commitment and employee green behavior while identifying sustainable leadership and employee pro-environmental behavior as critical mediating variables. The results validate the notion that organizational sustainability efforts are not merely structural or policy-based, but also deeply rooted processes, as they are based on the active engagement and internalization of sustainability values by the employees and leaders. Using Social Exchange Theory and the Social Learning Theory, the paper demonstrates that employees reciprocate their organizational environmental commitment and engage in sustainable actions and emulating the behaviors demonstrated by their leaders, thereby creating a value-driven and unified sustainability culture. The research is carried within the Chinese organizational environment and offers empirical findings that green operational excellence and high levels of ESG commitment lead to direct and indirect behavioral outcomes that contribute to the long-term environmental performance. The inclusion of leadership and behavioral aspects of the sustainability discussion is an important development in the conceptualization of how the practice of the organization is carried into the individual action. Finally, this study highlights the fact that sustainability is not attained by single actions but by a comprehensive coordination of systems, values as well as individuals. Organizations can achieve a sustainable future by integrating green practices in business operations, a culture of fostering ethical leadership, and enabling employees to become environmental stewards, thereby ensuring that corporate success is aligned with global ecological responsibility.

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