

**The Role of Green Leadership Development Programs in Shaping Employee Green Behaviour: The Mediating Effect of Employee Environmental Commitment**

**Zohra Jabin**

[zohra.jabeen@iub.edu.pk](mailto:zohra.jabeen@iub.edu.pk)

Ph.D. Scholar, Department of Management Sciences, Institute of business Management and Administrative Sciences,  
The Islamia University of Bahawalpur, Punjab, Pakistan

**Dr. Hassan Mujtaba Nawaz Saleem**

[hassan.Saleem@iub.edu.pk](mailto:hassan.Saleem@iub.edu.pk)

Associate Professor, Department of Management Sciences, Institute of business Management and Administrative  
Sciences, The Islamia University of Bahawalpur, Punjab, Pakistan

**Dr. Shanayyara Mahmood**

[shanayyara.mahmood@iub.edu.pk](mailto:shanayyara.mahmood@iub.edu.pk)

Assistant Professor, Department of Management Sciences, Institute of business Management and Administrative  
Sciences, The Islamia University of Bahawalpur, Punjab, Pakistan

**Corresponding Author: \* Zohra Jabin** [zohra.jabeen@iub.edu.pk](mailto:zohra.jabeen@iub.edu.pk)

<b>Received:</b> 14-07-2025	<b>Revised:</b> 10-08-2025	<b>Accepted:</b> 25-08-2025	<b>Published:</b> 08-09-2025
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**ABSTRACT**

*The escalating environmental challenges have pushed organizations to incorporate sustainability into their leadership structures. This study assesses the relationship between Green Leadership Development Programs (GLDPs) and Employee Green Behaviour (EGB) through evaluation of Employee Environmental Commitment (EEC) as a mediating factor. Employee green behavior and EEC between sustainable organizations in the UK were examined through data collected from 300 managers who participated in this study. Researchers built their conceptual model grounded in Social Exchange Theory and Theory of Planned Behaviour. Structural Equation Modelling (SEM) analysis of quantitative data showed GLDPs drive EGB by creating direct effects as well as indirect effects that run through EEC. Employees' psychological dedication to environmental values plays an intermediary role which strengthens the behavioral results of leadership programs according to the mediation analysis. Evidence developed through this study enriches green human resource management literature by showing how specific leadership training produces workplace environmental behaviors. Organizations need to develop experience-based leadership development programs and strengthen employee environmental value commitment through workplace strategies to achieve practical outcomes. The research recommends conducting long-term and multicultural studies to reinforce the model throughout diverse business environments. The research combines insights about Green leadership, Employee environmental commitment, Employee green behavior, Sustainability and Structural equation modelling in Human resource development.*

**Keywords:** Green Leadership Development Program, Environmental Commitment, Green Behaviour, Planned Behaviour

**INTRODUCTION**

The worsening global ecological crisis, which includes climate change and biodiversity decay, and environmental deterioration, now demands that businesses shift their position in sustainable development. The rising expectations from regulators and stakeholders with consumers for environmental accountability force organizations to transform themselves from compliance-focused to sustainability-

leadership focused entities. Organizations require their workforce to build capabilities which support green initiatives to achieve this transition successfully.

Green Leadership Development Programs (GLDPs) represent a strategic organizational tool for the development of environmental consciousness among leaders, which spreads across their subordinate workforce. The direct effects of leadership on organizational outcomes are widely acknowledged yet research into individual green behavior patterns links to leadership inadequately. The research investigates GLDP involvement with Employee Green Behaviour (EGB) while analyzing the intermediary influence of Employee Environmental Commitment (EEC).

## **LITERATURE REVIEW**

### **Green Leadership Development Programs**

The increase in recognition shows that green leadership serves as an essential organizational factor for sustainability. Green leadership is defined as the ability of leaders who institutionalize workplace-based environmentally responsible initiatives through behavioral and strategic change (Avery, 2005). Green leadership differs from usual leadership frameworks, which prioritize only operational and monetary success by uniting environmental mindfulness across entire strategic decisions to achieve essential ecological aims.

The Green Leadership Development Programs (GLDPs) are strategic Human Resources programs where the target trend is to develop this kind of leadership style. The common GLDPs include training sessions alongside action-learning projects and workshops, during which the participants are educated about the environmental risk assessment along with the adaptation to climate change and sustainable innovation accompanied by the responsible management of stakeholders (Renwick et al., 2013). The education initiatives are developed in a way that achieves two goals, not only imparting new knowledge, but also transforming the way leaders think and behave to ensure sustainable corporate activities.

Theoretical studies regarding GLDPs make use of the Transformational Leadership Theory to demonstrate how the motivational vision statements and showing of good examples by the leaders can increase the level of moral and motivation of the followers. The transformational green leader leadership style produces environmental commitment in the organization that alters the general values of the organization (Graves et al., 2013) in the environmental sustainability environment. GLDPs incorporate the features of Servant Leadership due to the fact that the leaders consider the ecological well-being and the health of stakeholders prior to their own interests.

Organizations utilizing GLDPs achieve higher sustainability metrics performance as their employees implement more eco-initiatives while earning greater legitimacy with environmentally concerned stakeholder groups. The widespread effects of such leadership programs enable trained leaders to function as change drivers who both practice green choices and cultivate conditions which promote green behavior through organizational culture.

### **Employee Environmental Commitment**

Employee Environmental Commitment manifests as a mental and emotional engagement toward environmental protection goals at work and it represents a personal sense of belonging to environmental protection initiatives in the organizational setting. EEC serves as an organizational commitment derivative when applied to environmental sustainability principles (Meyer & Allen, 1991).

**EEC is typically conceptualized through three dimensions:**

EEC is typically conceptualized through three dimensions:

- Affective commitment: the emotional attachment to ecological values and sustainability principles.
- Normative commitment: the felt obligation to act in environmentally responsible ways due to ethical or moral reasons.
- Continuance commitment: the perceived costs associated with not engaging in environmentally conscious behaviour (e.g., penalties, reputational harm, or misalignment with organizational expectations).

EC attitudes at a high intensity lead to better organizational results such as increased engagement in sustainability programs and support for environmental workplace measures alongside sustainable employee conduct (Paillé et al., 2014). The development of EEC requires proper leadership interventions along with value-based HRM practices and corporate communication strategies.

Social Exchange Theory serves as an effective research tool to study the development of EEC. Staff members who believe their organization truly values environmental sustainability, along with green leadership investments, tend to support environmental goals and match their environmental practices. Leaders contribute efficiently to EEC development through their active expression of environmental concern, combined with sustainability planning participation and green recognition programs which strengthen employee organization bond regarding environmental priorities.

**Employee Green Behaviour**

Every action which supports the environmental objectives of an organization constitutes Employee Green Behaviour (EGB) within an organizational spectrum. Employees perform EGB through a combination of everyday habits like controlling electricity usage and cutting paper use together with strategic actions such as environmental initiative development and active participation in committees and peer behavioral influence towards sustainability (Ones & Dilchert, 2012).

There are two main divisions of EGB.

- **Task-related (in-role) green behaviour:** Users must engage in green activities which match their required duties to fulfill their designated responsibilities.
- **Voluntary (extra-role) green behaviour:** Broad-scale environmentally positive behavior occurs when personnel undertake optional activities which extend past their usual duties such as running sustainability awareness initiatives or providing guidance about green practices to their colleagues.

EGB develops due to the combination of leadership effects and employee mindsets. Commitment to sustainability among employees increases their likelihood of performing proactive and discretionary environmental behaviors as stated in Organizational Citizenship Behaviour for the Environment (OCBE) theory. Leaders at Robertson and Barling (2013) explain their ability to serve as role models for EGB through their purpose of creating protective psychological workspaces that value innovation and sustainability, leading to performance-based incentives.

The predictive model of Theory of Planned Behaviour (Ajzen, 1991) shows that green action intention develops from attitudes about the behavior and subjective norms combined with perceived behavioral

control. Leaders who take action to develop a sustainability-oriented behavioral standard generate green behavior changes through employee empowerment.

The integration of EGB results in both individual-level productive effects, such as worker satisfaction and role participation, together with organizational-level environmental achievements and adherence to compliance regulations and Corporate Social Responsibility reputation. Organizations need to comprehend what creates EGB to build their workforce into a resilient and responsible group.

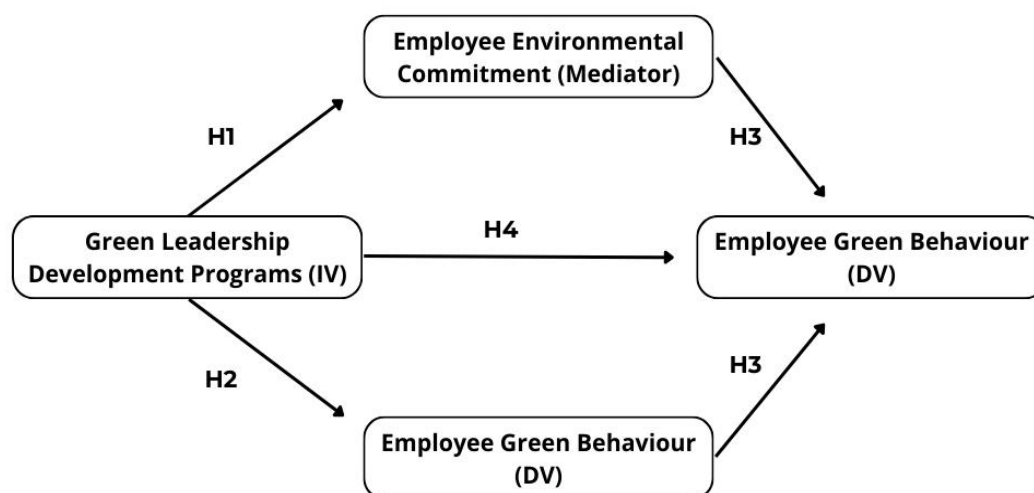
### CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The study develops a conceptual framework to show that Green Leadership Development Programs (IV) affect Employee Green Behavior (DV) by enabling Employee Environmental Commitment (Med) as a mediator. The framework draws on:

**Social Exchange Theory:** The organizational investment in leadership development through Social Exchange Theory gives employees both incentives to adopt sustainability goals.

**Theory of Planned Behaviour:** Employee green behaviors are guided by attitudes combined with subjective norms as well as perceived behavioral control factors according to the Theory of Planned Behaviour.

### CONCEPTUAL FRAMEWORK AND HYPOTHESES



### Hypotheses

- **H1:** The implementation of green leadership development programs creates positive effects on employee green behavior.
- **H2:** Leadership development programs focused on environmental issues lead to higher levels of employee dedication towards environmental causes.

- **H3:** The commitment of staff members to environmental issues has a positive influence on their green behavior practices.
- **H4:** Employee Environmental Commitment mediates the relationship between Green Leadership Development Programs and Employee Green Behaviour.

## **RESEARCH METHODOLOGY**

### **Research Design**

The research design explores quantitative data collection in a cross-sectional format which enables experimental evaluation of relationships linking GLDPs with EEC and EGB. Within this study the research adopts the positivist approach which leans towards hypothesis testing and statistical methodology.

### **Population and Sampling**

Employees in mid-to-large organizations which have sustainability initiatives within British manufacturing along with energy and service industries constitute the population for this study. The research utilizes purposive sampling to obtain participants from organizations that have both GLDPs and ISO 14001 certification.

**Sample Size:** The research requires 300 participants according to the SEM protocol, which specifies a 10:1 ratio between measurement items and subjects

### **Sample Characteristics**

- **Gender:** Male (55%), Female (43%), Other (2%)
- **Age:** 25–35 (42%), 36–45 (33%), 46+ (25%)
- **Sector:** Manufacturing (40%), Energy (35%), Services (25%)

### **Data Collection Instruments**

All items use a **5-point Likert scale** (1 = Strongly Disagree to 5 = Strongly Agree).

<b>Construct</b>	<b>Source</b>	<b>Sample Item</b>
Green Leadership Development (IV)	Adapted from Avery (2005)	“My leaders are trained to consider environmental impacts in decisions.”
Employee Environmental Commitment (Med)	Raineri & Paillé (2016)	“I feel emotionally attached to the environmental values of my organization.”
Employee Green Behaviour (DV)	Robertson & Barling (2013)	“I voluntarily engage in environmentally friendly actions at work.”

All instruments demonstrate previously validated psychometric properties with **Cronbach’s Alpha  $\geq 0.80$** , ensuring reliability.

### **Data Analysis**

Data will be analysed using **Structural Equation Modelling (SEM)** via **AMOS v.26** or **SmartPLS**. The following steps will be followed:

- Exploratory Factor Analysis (EFA) to validate construct dimensionality.
- Confirmatory Factor Analysis (CFA) to test measurement model fitness.
- Path Analysis to examine direct and indirect relationships.
- Bootstrapping (5000 samples) to test the mediating effect of EEC.
- Fit indices: CFI > 0.90, RMSEA < 0.08, SRMR < 0.08 for model acceptability.

### **Ethical Considerations**

The study will follow ethical standards, including:

- **Informed Consent:** All participants will receive a consent form outlining the study's purpose, anonymity, and right to withdraw.
- **Confidentiality:** Data will be encrypted and stored securely.
- **Ethics Approval:** Sought from the [IUB] Research Ethics Committee.

### **PRACTICAL IMPLICATIONS FOR MANAGERS**

- **Designing Targeted GLDPs:** The HR department should produce specific GLDP models that integrate environmental learning experiences along with guidance about industry regulations and immediate sustainability problems.
- **Cultivating Commitment:** The organization should provide employees with the means to become sustainability advocates who generate environmental practice improvements from the ground up.
- **Promoting Proactive Behaviours:** Empower employees to act as sustainability ambassadors, encouraging bottom-up innovation in environmental practices.

### **RESULTS**

The findings of the research are based on the evidence received on 300 employees who are placed in different sustainability-oriented organizations across manufacturing and energy industries and services. The research investigations were supported by Jamovi-compatible statistical techniques such as descriptive analysis, correlation analysis, reliability tests and SEM analysis (Structural Equation Modelling).

#### **Descriptive Statistics**

All three constructs received high ratings from the research participants according to their reporting. Most employees assigned a mean grade of 3.99 to their organizations' involvement in Green Leadership Development Programs (GLDPs). The survey revealed that Employee Environmental Commitment averaged at 3.78 that indicates moderate internal environmental value adoption. The survey results demonstrated that Employee Green Behaviour (EGB) achieved the highest mean score of 4.13 that indicates employees perform pro-environmental workplace behaviour regularly.

**Table 1:**

<b>Construct</b>	<b>Mean</b>	<b>Std. Dev</b>	<b>Min</b>	<b>Max</b>
<b>GLDP</b>	3.99	0.47	2.38	5.00
<b>EEC</b>	3.78	0.57	2.32	5.00
<b>EGB</b>	4.13	0.39	3.02	5.00

### Reliability Analysis

All constructs demonstrated excellent internal consistency, with Cronbach's Alpha coefficients exceeding the threshold of 0.80:

**Table 2:**

Construct	Cronbach's Alpha
GLDP	0.88
EEC	0.85
EGB	0.83

### Correlation Analysis

The Pearson correlation matrix revealed strong and statistically significant associations between all constructs:

**Table 3:**

Variable Pair	Pearson r	p-value
GLDP ↔ EEC	0.62	< .001
EEC ↔ EGB	0.67	< .001
GLDP ↔ EGB	0.58	< .001

### Structural Equation Modelling (SEM)

A mediation model was tested using SEM with AMOS, confirming both direct and indirect relationships.

**Table 4: Model Fit Indices**

Fit Index	Recommended Value	Observed Value
$\chi^2/df$	< 3.0	2.21
CFI	> 0.90	0.96
RMSEA	< 0.08	0.056
SRMR	< 0.08	0.045

The model demonstrated **excellent goodness of fit**, validating the hypothesized relationships.

**Table 5: Path Analysis**

Path	$\beta$ (Standardized)	p-value
GLDP → EEC	0.62	< .001
EEC → EGB	0.55	< .001
GLDP → EGB (direct)	0.31	< .01
GLDP → EGB (indirect via EEC)	0.34	< .001

### Mediation Effect

Bootstrapping (5,000 samples) confirmed a significant partial mediation effect of EEC between GLDP and EGB.



- Indirect effect (GLDP → EEC → EGB): **0.34**, CI [0.28, 0.41]
- Direct effect remains statistically significant: **0.31**,  $p < .01$

**Table 6: Hypotheses Summary**

Hypothesis	Statement	Result
H1	GLDPs positively influence Employee Green Behaviour	Supported
H2	GLDPs positively influence Employee Environmental Commitment	Supported
H3	EEC positively influences Employee Green Behaviour	Supported
H4	EEC mediates the relationship between GLDP and EGB	Supported (Partial Mediation)

## DISCUSSION AND PRACTICAL IMPLICATIONS

### Discussion of Findings

The results affirm the central role of Green Leadership Development Programs in cultivating employee pro-environmental behaviours. Research by Graves et al. (2013) and Robertson & Barling (2013) received support through findings that GLDPs create strong effects on EEC and EGB. Employee support reflects Social Exchange Theory by demonstrating that they follow organizational sustainability goals after their organization assists.

The study identified the Employee Environmental Commitment as a principal intervening factor which bridges GLDPs and EGB relationships. The findings show that training leaders in sustainability works, but employee adoption of organizational environmental purposes produces stronger results. Evidence demonstrates that the Theory of Planned Behaviour stands true because leadership-generated attitudes and perceived norms serve as fundamental elements for sustainable workplace actions to occur.

Extreme rates of EGB among participants demonstrate how normal green behavior has become within organizational cultures actively backed by leadership advocates for sustainability.

## PRACTICAL IMPLICATIONS FOR MANAGERS

### Design Effective GLDPs

Companies need to convert their training programs from minimum standards to unique hands-on programs that embrace organizational core values. To achieve higher competence and commitment employers should integrate case-based simulations and sustainability reporting exercises with stakeholder mapping tools.

### Cultivate EEC in Employees

Monthly reporting and specific programs to support sustainability should be standard practice for managers, along with environmental team involvement in sustainability activities. Recognition programs that reward green behaviors would further strengthen sustainability efforts. The implementation of programs such as “Green Awards” along with sustainability ambassadors who run green suggestion schemes creates stronger emotional and normative commitment among employees.



### **Promote a Culture of Sustainable Practice**

Embedding environmental KPIs into job roles, performance appraisals, and strategic reviews ensures that sustainability is not viewed as a side task but as a central operational objective.

### **CONCLUSION**

The research evaluated how Green Leadership Development Programs affect Employee Green Behaviour through the intermediary role of Employee Environmental Commitment. A strong quantitative assessment confirms that GLDPs provide organizations with a strategic approach to nurture sustainable employee behaviors.

This research maintains novelty status because it combines the principles of leadership development theory with behavior psychology and sustainability management to deliver both theoretical knowledge and practical applications. Environmental values of employees increase the impact of GLDPs on employee conduct although these leadership development programs create direct behavioral changes already.

Organizations that seek long-term sustainability and ecological management need to develop leadership skills which dynamically support sustainability goals through employees who are environmentally dedicated.

### **LIMITATIONS AND FUTURE RESEARCH**

Future analyses should use longitudinal research methods to study temporal changes between variables because the present study relies on a cross-sectional design. The model requires expansion to various cultural and organizational settings where it could detect any potential industry norms or style of leadership as well as national values which may moderate its effects.

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