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IMPACT OF GREEN WORK CLIMATE ON PRO-ENVIRONMENTAL BEHAVIOR IN HEI: MEDIATING ROLE OF GREEN HEI LEADERSHIP

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Abstract
The present study focused on identifying the triggers that prompt faculty and staff members at HEI in Pakistan to act pro-environmentally. The research method adopted for data collection was a quantitative research design, with primary data collected using a face-to-face survey instrument with a five-point Likert scale. Convenience and snowball sampling techniques were used to recruit participants from the academic sector. The data were cleaned and initially validated in SPSS and then analyzed using structural equation modeling and hypothesis testing in SmartPLS. The measurement model demonstrated strong internal consistency, reliability, and convergent validity across all latent constructs (green work climate, green leadership, pro-environmental behavior). The results of the structural model analysis confirmed all direct hypotheses, indicating that a green work climate has a strong impact on green leadership and that both green leadership and a green work climate are important, positive factors that stimulate pro-environmental employee behavior. The findings emphasize the importance of fostering an "environmentally friendly" organizational culture and ensuring that the organization has proactive leaders who can meet its institutional sustainability objectives. From a practical point of view, it is suggested that environmental indicators be integrated into leadership development programs and university management to create a "green" university workforce. Future studies should focus on potential mediating and/or moderating factors and use longitudinal designs to increase the generalizability of these results.

INTRODUCTION

In the midst of a global environmental crisis, the need for sustainable development is growing, yet there remains a gap between employees' institutional commitment to the environment and their PEB (Sharif et al., 2024). This is especially problematic in the context of HEIwhose unique position in society can help lead societal transformation, yet many universities maintain high ecological footprints and low discretionary engagement in green actions by faculty and staff (Qureshi et al., 2021).

The issue is not that there are no environmental policies; it's a lack of internal psychological and social climate that naturally and spontaneously generates PEB. When applied to developing countries, the situation is complicated by resource scarcity, inadequate environmental regulation, and a lack of a culture that encourages employees to do the "right" thing (environmentally friendly) as part of their job (Sohu et al., 2024). Therefore, understanding the mechanisms that can close this behavior gap in the context of leadership has emerged as a high priority for scholars and practitioners (Feng et al., 2023).

The notion of GWC shared employee perceptions about the policies, practices and procedures within the workplace that encourage and reward sustainable behaviors provides a useful lens for understanding PEB in the workplace (Junejo, Sohu, Alwadi, Ejaz, et al., 2025). Based on social cognitive theory and the ability-motivation-opportunity (AMO) framework, a high GWC indicates that environmental sustainability is an important value, which influences normative beliefs and may motivate intrinsic motivation to act sustainably(Bashirun et al., 2025). Therefore, from this perspective, GWC can be considered a contextually grounded antecedent that translates abstract environmental objectives into concrete daily actions (Junejo et al., 2022).

PEB is not a product of the presence of a green climate; however, the effect depends on the interpretation and enactment of the green climate by institutional leaders (Junejo et al., 2020). This brings GHEIL as a key intervening factor, as this specific leadership behavior is a communicative, modeling, facilitative, and incentivizing factor for pro-environmental initiatives within HEIs (Mendes et al., 2025). Leaders in HEIs create meaning, allocate resources, and legitimize some behaviors over others. If a GWC exists, then it is the quality of GHEIL that determines whether PEBs occur (Mirani et al., 2021). Therefore, GHL is suggested as a critical intervening variable as the conductor of the climate-behavior connection.

The context of this study in HEI of Pakistan is both contextually relevant and empirical. Pakistan is one of the most climate-vulnerable countries, facing extreme weather events, water scarcity, and rising temperatures, yet its national environmental compliance and awareness are very low. More than 200 HEIs serve around 1.9 million students and 60,000 faculty members, which together are a major contributor to carbon emissions (including energy use, transportation, and waste) and a massive target for behavioral change efforts by the Higher Education Commission (HEC) of Pakistan (Rani et al., 2025). Initial studies indicate that only about 15% of Pakistani HEIs have adopted any formal pro-environmental program in their workplaces, and among those, not more than 30% of employees engage in voluntary PEB (based on HEC green campus assessment reports).

The following are some of the contributions of this study to the body of knowledge. Firstly, it adds to the existing green organizational behavior literature by proposing and empirically testing a new, context-specific organizational behavior mediator: GHEIL(GHL), which extends beyond the general transformational or ethical leadership frameworks and reflects the specific academic governance nature of universities. Second, it presents a more comprehensive process model for intervention design by challenging the prevailing direct-effects paradigm by showing how GWC affects PEB mainly via the pathway of green leadership. Third, this study is one of the first large-scale empirical studies that test the GWC-PEB relation in the context of a developing country in the higher education sector, Pakistan, which is a significant geographical and institutional gap in the literature, as most previous studies have been conducted on corporate firms in the Western or East Asian context. Lastly, the study provides evidence-based recommendations to university administrators and policymakers, demonstrating that investing in green climate action alone is insufficient unless a parallel investment in leadership capacity building is made to support environmental sustainability.

Hypothesis Development

GWC and PEB

Previous research in work psychology has confirmed a positive correlation between a GWC and PEB in the organizational context. Research across sectors, such as manufacturing, services, and education, shows that workers who believe their workplaces have clear policies, procedures, and informal norms that encourage environmental sustainability are much more likely to undertake voluntary green activities (Jiang et al., 2022). These behaviors are all about using less energy, not wasting resources, recycling, using digital tools, and taking part in green campus activities (Junejo, et al., 2025). Longitudinal studies also support the idea that a positive GWC increases workers' intrinsic motivation and moral responsibility for the environment, thereby leading to increased frequency of task and extra-role PEBs (Bai et al., 2024).

H1: GWC is positively related to PEB.

GWC and Green HEI leadership

There's also been substantial empirical evidence supporting the positive relationship between a GWC and green HEI leadership(Junejo, et al., 2025). Research on university organizational climate shows that a prevailing GWC does not automatically arise; rather, it is created and influenced by leadership behaviors towards environmental sustainability (Kanwal et al., 2024). Research based on longitudinal data demonstrates that a supportive green climate (e.g., environmental objectives, availability of resources for green initiatives, peer support for green initiatives) within an institution is associated with an increased likelihood that leaders will engage in and model green leadership behaviors (Junejo, et al., 2025). Preliminary data from HEI show that teachers and department leaders believe their capacity to enact green leadership is higher when they already have green values and practices in their work environments (Aggarwal & Agarwala, 2026).

H2: GWC is positively related to Green HEI Leadership.

GHEIL and PEB

There is also a large body of empirical studies that has shown that the pro-environmental leadership of green HEIs has a tangible positive impact on PEB among HEI employees (Jing et al., 2026). Research on leadership styles in educational institutions regularly shows that leaders who actively promote environmental sustainability (by communicating a green vision, allocating budgets for sustainable projects, acting as green role models, and providing feedback on green performance) significantly increase the likelihood that their subordinates will take pro-environmental measures (Junejo et al., 2024). Practical research in educational environments demonstrates that the presence of green leadership behaviors increases employees' environmental self-efficacy, role clarity, and perceived organizational support for green behavior, all of which are proximal factors influencing green behavior (Özgül & Demir, 2025). Therefore, it is confirmed that GHEIL significantly and positively affects PEB in HEIs.

H3: GHEI Lis positively related to PEB.

Mediating Role of Green HEI leadership

Increasingly, empirical research has found that green leadership (or alternative forms of the concept) serves as a mediator between the GWC and PEBs. Several studies using indirect effect analyses (based on structural equation modeling and bootstrapping) show that the GWC first affects PEB through its effects on green leadership behaviors, and then these behaviors transmit pro-environmental motivational and normative signals to employees (Junejo et al., 2023). That is, the impact of a supportive green climate on individual green actions is mediated by the extent to which leaders, in their actions and attitudes, embody and reinforce the green climate (Tao, 2025). A direct relationship between a GWC and PEB is significantly reduced, or even non-significant, when GHEIL is inserted as a mediator, with the indirect path (via green leadership) remaining strong and significant (Li et al., 2025). Based on these

considerations, the hypothesized mediating role of GHEIL in the relationship between GWC and PEB is supported by empirical evidence (Alam et al., 2023).

H4: GHEIL mediates the relationship between GWC and PEB.

Methodology

The study employed a quantitative research design, using primary data collected from respondents to gather firsthand knowledge of the target variables. The adopted questionnaire was derived from previous studies of (Ahmed & Chatpattananan, 2026), (Aggarwal & Agarwala, 2026) and (Chakraborty et al., 2017) which ensures the validity and reliability of the measurement scales used for data collection, as it had been pre-tested in a similar context. The instrument provided a five-point Likert scale, enabling respondents to indicate the exact degree of their acceptance or rejection. To achieve a high response rate and good data quality, the face-to-face survey method was used to immediately resolve ambiguities during administration. Since no central sampling frame was available, a combination of convenience sampling and snowball sampling was used; this approach enabled the researcher to contact easily accessible respondents and leverage their professional networks to identify additional eligible respondents. In this process, a sample of 213 faculty and staff members from HEI in Pakistan was successfully recruited to ensure that the findings reflect the dynamics of the Pakistani academic sector. Data cleaning in SPSS version 25 was performed before the main analysis to identify erratic values, remove outliers, and ensure the data's statistical integrity. Because of this, the hypothesis testing was conducted using non-distributional, variance-based structural equation modeling, which is particularly effective for the complex models in the current study, using SmartPLS (Patro et al., 2026). The participants' personal details were maintained in full confidentiality throughout the research process, fostering their participation and ensuring the ethical groundwork for their involvement in the study.

Results and Discussion

Reliability and Validity

The measurement model shows good internal consistency and reliability for all variables and good convergent validity, as all statistical values exceed their empirical values. To support the individual indicator reliability, item loadings for all constructs range from 0.781 to 0.906, well above the universally acceptable baseline of 0.70, indicating that each item has a strong association with its assigned construct (Adamson & Prion, 2013). Internal consistency reliability is also supported, as all constructs have Cronbach's alpha and Composite Reliability (CR) values well above 0.70, the recommended level. Specifically, the GWC has a Cronbach's α of 0.914 and a CR of 0.931; the GHEIL has a Cronbach's α of 0.909 and a CR of 0.932; and the PEB has a Cronbach's α of 0.910 and a CR of 0.930. Finally, convergent validity is verified, as all latent variables have an average variance extracted (AVE) greater than 0.50, with the highest value obtained by GHEIL (0.734), followed by PEB (0.689) and GWC (0.658). These co-occurring metrics confirm that the measurement tools are highly consistent and reliable and explain over 50% of the variance in their underlying indicators (Adamson & Prion, 2013). (Refer to Table 1)

Table 1. Reliability and Validity

Variable	Item coding	Item loading	Cronbach's alpha value	Composite reliability	Average variance extraction
Green Work Climate	GWC1	0.791	0.914	0.931	0.658
	GWC2	0.787			
	GWC3	0.831			
	GWC4	0.822			
	GWC5	0.803			
	GWC6	0.795			
	GWC7	0.848			
Green HEI Leadership	GHEIL1	0.837	0.909	0.932	0.734
	GHEIL2	0.813			
	GHEIL3	0.847			
	GHEIL4	0.906			
	GHEIL5	0.879			
Pro-Environmental Behavior	PEB1	0.878	0.910	0.930	0.689
	PEB2	0.781			
	PEB3	0.844			
	PEB4	0.863			
	PEB5	0.794			
	PEB6	0.816			

Hypotheses Testing

The empirical results for the direct effects show that GWC has the highest direct effect on Green HEI Leadership, with a beta of 0.713 (t = 21.895), indicating a highly significant relationship between a green environment and leadership behavior. Furthermore, there was a high and significant direct relation between GWC and PEB with beta = 0.443 and (t = 7.642). Last, but not least, GHEIL also has a significant and positive effect on PEB (beta = 0.407), (t = 6.664). All three direct paths are empirically supported because all calculated t-values are much greater than the 1.96 critical t-value (Winship & Zhuo, 2020). (Refer Table 2 and Figure 1)

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Table 2. Hypotheses Testing

Path Direction (Direct effects)	Beta value	T-value	Remarks
GHEIL -> PEB	0.407	6.664	Supported
GWC-> GHEIL	0.713	21.895	Supported
GWC-> PEB	0.443	7.642	Supported
Path Direction (Indirect effects)	**Beta value**	**T-value**	**Remarks**
GWC-> GHEIL -> PEB	0.290	6.226	Partially Supported

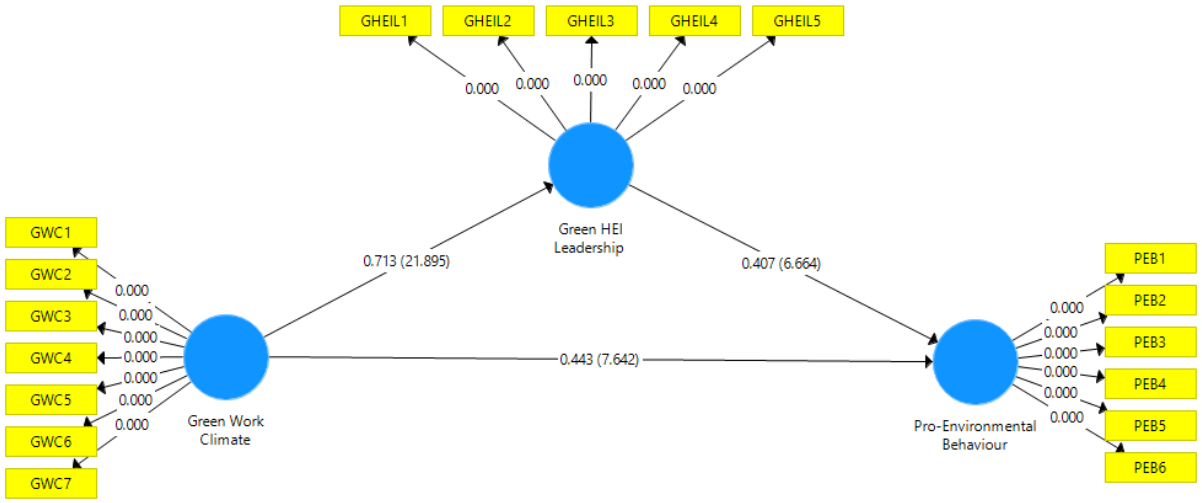


Figure 1. Path Direction

Discussion

Results of this empirical study show that GWC and GHEIL are both crucial factors in promoting PEB among faculty and staff members of HEI in Pakistan. The strong association between the direct pathway of GWC and GHEIL (beta = 0.713, t = 21.895) is consistent with the existing literature, which indicates that an organization's shared environmental values can greatly influence and reinforce leadership practices. Moreover, the strong direct effects of both GWC (beta = 0.443) and GHEIL (beta = 0.407) on PEB indicate that employees are more likely to engage in PEB when they see their workplace and their leaders as pro-environmental. The results align with those obtained at the international level on organizational sustainability and indicate that a dual strategy of fostering a green systemic climate and promoting employees' proactive attitude maximizes environmental compliance and voluntary environmental initiatives in a developing country's academic sector (Mehak & Batcha, 2026).

Conclusion

Based on the above conclusion, this study successfully identified the significance of organizational culture and leadership in the movement towards sustainability in Pakistani HEI. The results of the measurement model indicated that the measures used for Green Work Climate, Green HEI Leadership, and PEB are highly reliable and valid in the local academic setting. Furthermore, the structural model analysis confirms all direct hypotheses: a supportive green climate is the foundation for stimulating green leadership, and both elements separately cause positive environmental behaviors among university staff. In conclusion, the study highlights that implementing green policies is not enough to achieve universities' environmental objectives; it is also important to establish a green institutional climate and to cultivate leaders committed to environmental sustainability.

Practical Implications

From a practical perspective, higher education policy-makers and university administrators in Pakistan should focus on the findings to implement targeted environmental interventions. Management needs to create green policies, invest in visible recycling programs, and manage green activities on campus to institutionalize a green atmosphere, as GWC is a huge stimulus to green leadership and behavior. Further, incorporating green leadership into leadership development programs, where department leaders and administrative deans are trained and sensitized to lead, motivate, reward, and

encourage environmental sustainability among their staff. This can help universities dramatically cut their carbon footprint and build a socially responsible academic community by aligning their institutional culture with their leadership expectations.

Future Research Directions

Future directions for research can be extended by studying specific indirect effects and possible mediating factors, for example, whether GWC acts as a mediator between GHEIL and PEB. Furthermore, the researchers should take into account some moderating factors, such as green intrinsic motivation, age, and organizational ownership type (public versus private universities), to examine whether such factors (moderators) modify the pathways tested in this study. Lastly, the convenience sampling of 213 respondents and the cross-sectional data in this study may be enhanced by using stratified random sampling across other geographic areas in Pakistan and/or longitudinal research designs to further extend the generalizability of the results over time.

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