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The Impact of Green Intellectual Capital on Employees' Pro-Environmental Behavior: A Study on the Mediating Role of Environmental Knowledge

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ABSTRACT

The aim of this paper is to investigate how Green Intellectual Capital (GIC) affects employees' pro-environmental behavior, particularly through the mediation of environmental knowledge in the Indian IT sector. Across-sectional survey design was used to collect data from 273 IT employees in India, and the author applied Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that Green intellectual capital (GIC) can positively affect environmental knowledge and pro-environmental behavior. In this research, the environmental knowledge partially mediated the relationship between GIC and PEB. The results suggest that organizations' investments in green human, structural, and relational capital will increase employees' environmental knowledge and, therefore, encourage them to act in an eco-conscious manner. The study empirically validates environmental knowledge as an important psychological pathway linking GIC to sustainable employee behavior in the knowledge-intensive industry, extending the current literature. On the practical side, the results indicate a need to enhance GIC in the IT sector and to integrate environmental learning activities to develop a sustainability culture that promotes long-term organizational and environmental performance.



Keywords: Pro-Environmental Behavior, Environmental Knowledge, knowledge-intensive industry, Green Intellectual Capital.



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INTRODUCTION

Sustainable development has been part of global political and policy debates since the early 20th century. The Stockholm Conference of 1972 marked an important step in introducing, for the first time, the environmental and development dimensions into an international forum. But conflicts between developed and developing countries over different priorities for protecting the environment and socio-economic development have persisted, reducing the possibility of coordinated global action (Selín & Linnér, 2005). Today, with the creation of institutions such as the United Nations Environment Program and the proliferation of environmental laws, there is still debate over responsibility and development priorities.

The rapid, unplanned urbanization has led to immense environmental degradation, prompting organizations to reflect on their practices. Responding to this, organizations are increasingly expected to take environmental sustainability responsibility. Thus, Green Human Resource Management (GHRM) has become a business strategy to reduce environmental effects by proactively adopting sustainable management practices within the organization, such as conserving natural resources and promoting eco-conscious employee behavior (Shoaib et al., 2022). In this regard, GHRM focuses on building employees' skills, knowledge, and values, which will benefit them both professionally and personally (Senthikumar & Kukururu, 2021).

GHRM has emerged as a tactical approach to promoting environmental responsibility through building an enabling work culture and boosting employee engagement. Despite its increasing importance, GHRM is still in its formative years in both academic research and organizational practice (Sharma et al., 2021; Gill et al., 2021).

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Existing research indicates that GHRM can indirectly affect employees' behavior through contextual and psychological factors that shape their understanding and reactions to organizational efforts ([Saeed et al., 2019](#)). GHRM is premised on the Triple Bottom Line model, which stresses a balanced approach to people, planet, and profit that incorporates social responsibility, environmental sustainability, and economic performance ([Slaper & Hall, 2011](#)). The value of GHRM has grown increasingly important in highly competitive areas like Information Technology (IT) as a way to manage talent, support sustainability objectives, and generate competitive advantage. However, empirical evidence of the link between GHRM-related mechanisms and employees' actual environmental behavior in the Indian IT sector remains limited.

Empirical evidence also shows that environmental benefits can be observed in organizations that practice GHRM and that these benefits can be economically measured. Retailers like Walmart have been able to save high costs by conserving energy and reducing paper consumption. Furthermore, companies with an eco-image tend to attract green-minded employees, thereby enhancing their reputation and competitiveness ([Makarim & Muafi, 2021](#); [Soormo & Soomro, 2024](#)). Alongside efforts towards organizational sustainability, greater focus has been placed on cultivating employees' Pro-Environmental Behavior (PEB). PEB is specified as activities that minimize environmental damage and promote sustainability in the workplace, whether voluntary or role-prescribed ([Saifulina et al., 2020](#)). All of these interdependent behaviors help increase an organization's environmental performance and sustainability.

It is believed that pro-social and Environmentally Responsible Behaviour (ERB) on the part of employees should be encouraged as a prerequisite for the creation of a sustainable organizational system ([Liao et al., 2021](#)). To facilitate such behaviors, organizations are increasingly investing in an intangible asset called Green Intellectual Capital, which comprises environmental knowledge, innovation capability, ethical practices, and stakeholder relationships. GIC has the potential to improve the CSR and promote long-term sustainability by ensuring the organization's goals meet environmental and public demands ([Ahlawat et al., 2023](#)). While the majority of studies on GIC have been conducted in manufacturing sectors due to regulatory pressures and the intensity of pollution, the service sector, especially the IT sector, also has a substantial environmental impact owing to its high energy consumption and e-waste generation ([Arushanyan et al., 2015](#)). The high rate of employee turnover, low engagement, and the growing burden on employees to show environmental responsibility are all obstacles the fast-growing IT industry in India must navigate. Therefore, IT organizations are adopting green practices and innovation-driven strategies, and their impact depends significantly on employees' engagement and environmental behavior ([Sharma et al., 2021](#)). Though the relationship between GIC and employees' PEB has attracted interest, there is less empirical research in the context of Indian IT that takes a psychological perspective, such as environmental knowledge.

Research Gap

While the concepts of Green HRM and Green Intellectual Capital have received extensive research, empirical studies on the relationship between Green Intellectual Capital and employees' Pro-Environmental Behavior remain limited, especially in the Indian IT sector. Furthermore, previous research inadequately focused on the mediating role of environmental knowledge in examining the relationship between organizational green resources and employees' environmental behavior (Figure 1).

Research Questions of the Study

RQ1: What is the impact of Green Intellectual Capital on employees' Pro-Environmental Behavior?

RQ2: How does Green Intellectual Capital influence employees' environmental knowledge?

RQ3: What is the effect of environmental knowledge on employees' Pro-Environmental Behavior?

RQ4: Does environmental knowledge mediate the relationship between Green Intellectual Capital and employees' Pro-Environmental Behavior?

Green Intellectual Capital (GIC) is a strategic non-physical resource grounded in the Resource-Based View (RBV) that enables the organization to achieve sustainable competitive advantage through environmentally sustainable operations. The GIC model is composed of three components: "Green Human Capital", "Green Structural Capital", and "Green Relational Capital", which respectively reflect the employees' environmental competencies,

organizational systems, and relationship with stakeholders, all of which contribute to long-term value creation ([Anwar et al., 2018](#); [Muhammad & Ismail, 2009](#)).

Previous studies have suggested that companies with a powerful GIC are more likely to translate environmental strategies into pro-environmental employee behaviors (PEB). GIC builds an enabling atmosphere by fostering environmental knowledge and values into organizational routines and relationships, which promotes eco-friendly employee behavior ([Dakhan et al., 2020](#); [Wei et al., 2023](#)). Empirical study also indicates that investments in green training, systems, and stakeholder engagement lead to greater awareness, ethical responsibility, and employee engagement in sustainability initiatives ([Saeed et al., 2019](#); [Soormo & Soomro, 2024](#)).

Green Human Capital (GHC)

Green Human Capital is about employees' environmental knowledge, skills, creativity, and desire to learn. In line with the expertise-Based View, employees' cognition and skills are key drivers of organizational value. Previous research indicates that GHC is an important influence on green innovation and that, in terms of environmental proactivity, it has a greater impact on employees' environmental perceptions and attitudes ([Yusliza et al., 2020](#)).

Green Structural Capital (GSC)

Green Structural Capital is the organization, processes, technologies, and cultures that embed environmental knowledge. Formal measures such as green performance management systems and reward systems can also play a crucial function in reinforcing eco-conscious actions by providing guidance and motivation, thereby helping convert intentions into actions in the workplace. Measures such as green performance management systems and reward systems can also be critical for reinforcing sustainable actions by providing guidance and motivation, thereby facilitating the transition of intentions into acts in the workplace.

Green Relational Capital (GRC)

Green Relational Capital is an organization's links with stakeholders who contribute to environmental goals. Strong green-oriented relationships build trust and shared values among employees, helping them adhere to the organization's green values, build a positive organizational image, and enhance the company's legitimacy ([Liao et al., 2021](#)).

Pro-Environmental Behavior (PEB)

Pro-environmental behavior is known as any employee behavior that contributes to sustainable resource management, pollution reduction, and environmental protection ([Tian & Liu, 2022](#)). PEB is shaped by cognitive and contextual factors, including knowledge of the surrounding environment, values, the cultural and organizational climate, and leadership support within the organization. The study concludes that environmental policy formulation alone is insufficient; it is necessary to have policies that can be translated into behavior supportive of the environment within the organization. ([Asiaei et al., 2023](#)).

Mediating Role of Environmental Knowledge

Environmental knowledge is a key determinant of employees' perceptions of environmental problems and their appropriate solutions. A Key Mechanism from a Knowledge-Based View is the way in which knowledge is used as an organizational resource to impact an individual's behavior. When employees have greater knowledge of the environment, they are better able to understand and adhere to green policies, increasing the possibility of engaging in pro-environmental behavior ([Saeed et al., 2019](#)). Previous research indicates that workforce knowledge and continuous learning play a more important role in environmental performance than physical assets ([Muhammad & Ismail, 2009](#); [Shoaib et al., 2025](#)). Hence, environmental knowledge is a mediating variable between GIC and employees' PEB ([Soomro & Soomro, 2024](#)).

Hypotheses Development

The hypotheses are proposed:

H1: Green Intellectual Capital is positively associated with Pro-Environmental Behavior.

H2: Green Intellectual Capital is positively associated with Environmental Knowledge.

H3: Environmental Knowledge is positively associated with Pro-Environmental Behavior.

H4: Environmental Knowledge mediates the relationship between Green Intellectual Capital and Pro-Environmental Behavior.

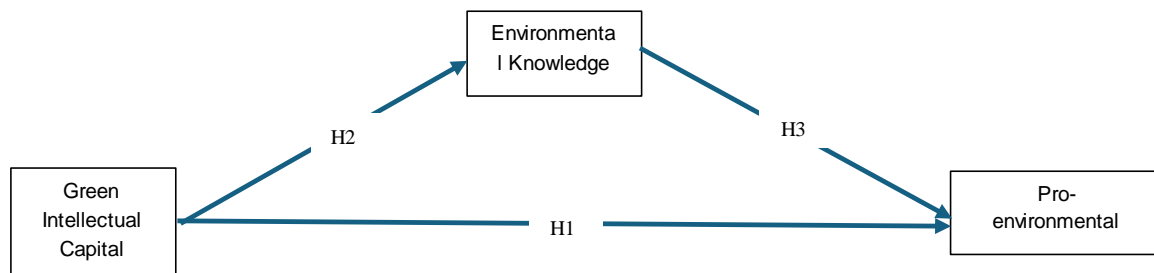


Figure 1. Conceptual model

METHODOLOGY

Questionnaire and pre-testing:

Constructs were assessed using multiple items that were previously developed and tested. Responses were on a 5-point Likert type scale ranging from strongly disagree to strongly agree. The number of items used to measure Green intellectual capital (GIC) was adopted from [Yusliza et al. \(2020\)](#), with 19 items. Nine items from [Saeed et al. \(2019\)](#) were employed to measure environmental knowledge. Thirteen items were adapted from [Graves et al. \(2013\)](#) to assess the PEBs construct. A pretest of the questionnaire was conducted with 30 IT employees to assess and improve the questionnaire design. Some minor changes were made in the questions in the pre-testing process.

Sample design and collection of data:

A priori power analysis was performed to calculate the number of cases and controls needed, using GPower. To be conservative, assuming a small effect size ($f^2 = 0.05$), a significance level of $\alpha = 0.05$, a statistical power of 0.95, and two predictors, the analysis suggested a minimum sample size of 262. A total of 273 responses were received, and 267 were used. The data were collected through a cross-sectional survey of employees in IT firms in India. The survey was conducted online via social media and professional networking sites from September through November.

Demographics

Basic demographic details of the respondents are summarized in Table 2. The study sample comprised mostly males (67.79%) and females (32.20%). In the case of age distribution, 21.34% of the respondents were in the age range of up to 20 years, 44.94% of their age range was 21-30 years, 23.59% age range of 31-40 years, 8.23% age range of 41-50 years, and 1.87% age range of above 50 years. When asked about educational qualifications, 17.6% of respondents had a diploma, and 52.43% had a graduate degree. Also, 25.84% had a PG-level degree or higher, and 4.11% were in the other group. Regarding organizational roles, 26.21% of respondents were frontline employees or individual contributors, and 22.84% were team leads or supervisors. In addition, 13.1% and 11.23% held middle- and senior-level management positions, respectively, and 26.59% said they held other positions. In terms of field experience, the largest percentage (43.44%) of respondents had less than 2 years of experience. This was followed by 34.83% with 3–6 years, 14.23% with 7–10 years, and 7.49% with more than 10 years of experience. As for residential areas, most respondents (71.16%) lived in metropolitan cities, and 28.83% in non-metropolitan areas. The distribution of respondents by city shows that the majority were from Delhi (43.82%), followed by Chennai (8.61%), Kolkata and Bengaluru (7.11% each), and Mumbai, Hyderabad, and Pune (5.24% each). Lastly, the respondents' organizations were diverse, with IT services and consulting companies accounting for the largest share (38.57%), followed by software product companies (16.85%), multinationals (12.35%), startups (8.23%), and others (23.97%) (see Table 1).

FINDINGS

Common Method Bias (CMB)

The data were obtained from a single source, which could pose a threat of common method bias in this model. According to [Kock & Lynn \(2012\)](#), CMB can be assessed using a full collinearity test with the variance inflation

factor (VIF) value of PLS-SEM. Common method bias may be a concern if VIF values exceed 3.3. Results showed no common-method bias, as all values were below the suggested threshold of 3.3. Thus, the data were found to be suitable for analysis.

Table 1. Demographic Details of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	181	67.79
	Female	86	32.20
Age	Up to 20 years	57	21.34
	21- 30 years	120	44.94
	31- 40 years	63	23.59
	41- 50	22	08.23
	Above 50 years	05	01.87
Education	Diploma/ Associate degree	47	17.60
	Bachelor's degree	140	52.43
	Master's degree or higher	69	25.84
	Other	11	04.11
Job role	Front-line/ Individual contribution	70	26.21
	Team lead/ Supervisor	61	22.84
	Middle manager	35	13.10
	Senior manager	30	11.23
	Other	71	26.59
Type of organization	Software product company	45	16.85
	IT service/ Consulting	103	38.57
	Startup	22	08.23
	MNC	33	12.35
	Other	64	23.97
Work experience	Less than 2 years	116	43.44
	3-6 years	93	34.83
	7-10 years	38	14.23
	More than 10 years	20	07.49
Reside in a metropolitan city	Yes	190	71.16
	No	77	28.83
City	Delhi	117	43.82
	Mumbai	17	06.36
	Chennai	23	08.61
	Kolkata	19	07.11
	Bengaluru	19	07.11
	Hyderabad	14	05.24
	Pune	14	05.24
	Other	44	16.47

Multivariate normality

The multivariate normality was tested using WebPower. The results showed that P_{v1} was below 0.05, which means that it deviated from the normal distribution. The data were thus determined to be non-multivariate normal, and CB-SEM could not be applied; therefore, PLS-SEM was used for this empirical analysis (Cain et al., 2017).

Table 2. Mardia's multivariate skewness and kurtosis

	b	z	p-value
Skewness	932.0519	5592.31133	1
Kurtosis	963.0592	-40.41457	0

Source: Author's estimation

Reliability and validity

The reliability and validity of the measurement model were assessed. Cronbach's alpha for the items ranged from 0.943 to 0.988, indicating good internal consistency ($\alpha \geq 0.70$). The alpha value for pro-environmental behavior (PEB) was very high (0.988), which may be explained by the use of an existing scale and the similarity of its items, leading to inflated alpha values (Hair et al., 2019). All constructs were found to be reliable, with composite reliability (ρ_c) ranging from 0.957 to 0.989 (see Table 3).

Average Variance Extracted (AVE) was employed to assess the convergent validity. Convergent validity exceeded 0.765, with values of 0.946 for green intellectual capital, 0.765 for environmental knowledge, and 0.874 for pro-environmental behavior, indicating adequate results. The outer loadings for all indicators were above 0.874 and statistically significant ($p < 0.01$), indicating high reliability.

Multiple criteria were used to assess discriminant validity. All constructs' AVEs were higher than their squared inter construct correlations. Besides, the ratio between the Heterotrait and the Monotrait (HTMT) indicated that the constructs were empirically distinct and within acceptable limits (see Table 4) (Ab Hamid et al., 2017; Henseler et al., 2015). Discriminant validity was also supported by the Fornell Larcker criterion, which demonstrates that the square root of the average variance extracted (AVE) for each construct exceeded the correlations between the constructs.

Fairly high correlations were found among lower-order constructs (LOCs), as expected, since they are related dimensions of a common higher-order construct (HOC). Such associations do not reflect the inappropriateness of discriminant validity in hierarchical models. In summary, the results showed that the measurement model was valid (Figures 2 and 3).

Table 3. Measurement model results

First order	Second order	Items	Loadings	Cronbach's Alpha	CR	AVE
Environmental Knowledge (ENVKNOW)		ENVKNOW1	0.850	0.962	0.967	0.765
		ENVKNOW2	0.880			
		ENVKNOW3	0.878			
		ENVKNOW4	0.861			
		ENVKNOW5	0.863			
		ENVKNOW6	0.887			
		ENVKNOW7	0.896			
		ENVKNOW8	0.877			
		ENVKNOW9	0.880			

Green Human Capital (GHC)	GHC1	0.925	0.949	0.961	0.830
	GHC2	0.921			
	GHC3	0.885			
	GHC4	0.917			
	GHC5	0.906			
Green Relational Capital (GRC)	GRC1	0.888	0.943	0.957	0.816
	GRC2	0.910			
	GRC3	0.904			
	GRC4	0.905			
	GRC5	0.909			
Green Structural Capital (GSC)	GSC1	0.890	0.966	0.971	0.786
	GSC2	0.872			
	GSC3	0.878			
	GSC4	0.894			
	GSC5	0.897			
	GSC6	0.881			
	GSC7	0.889			
	GSC8	0.902			
	GSC9	0.873			
Green Intellectual Capital (GIC)	GHC	0.969	0.971	0.981	0.956
	GRC	0.968			
	GSC	0.981			
Pro-Environmental Behavior (PEB)	PEB1	0.929	0.988	0.989	0.874
	PEB2	0.939			
	PEB3	0.923			

PEB4	0.947
PEB5	0.931
PEB6	0.937
PEB7	0.945
PEB8	0.944
PEB9	0.936
PEB10	0.942
PEB11	0.935
PEB12	0.923
PEB13	0.920

Abbreviations: GIC, green intellectual capital; ENVKNOW, environmental knowledge; PEB, pro-environmental behavior.

Items Source: [Kim et al. \(2016\)](#), values: Author's estimation

Table 4. Results of the HTMT ratio of correlations

	EK	GIC	PEB
EK			
GIC	0.770		
PEB	0.797	0.797	

Source: Author's estimation

Inner model collinearity statistics

This means that the variance inflation factor (VIF) values are within an acceptable range (1.000 – 3.000) for all paths. Since all values are very low, below the critical level of < 3 and up to 5, multicollinearity does not pose a problem, and the estimations of the structural model are stable and reliable ([Kock & Lynn, 2012](#)) (Table 5).

Table 5. Inner-model collinearity statistics: Confidence intervals.

	Original sample (O)	2.5%	97.5%	f2
GIC -> ENVKNOW	0.745	0.670	0.815	1.250
ENVKNOW -> PEB	0.442	0.305	0.585	0.287
GIC -> PEB	0.452	0.305	0.588	0.300

Source: Author's estimation

Model fit tests

We used multiple criteria to assess the relevance and fitness of our conceptual model, including the coefficient of determination (R^2), effect size (f^2), predictive relevance, and model fit ([Hair et al., 2019](#)). Firstly, R^2 is an important measure of the model's explanatory power. It reflects the variation in the endogenous constructs that can be accounted for by the predictor constructs. Also known as the coefficient of determination. As shown in the output (Table 7), the R^2 value of the dependent variables ENVKNOW was 0.555, and PEB was 0.698. So, this means moderate to big predictions.

Table 6. Coefficient of determination R² and R² Adjusted, and Q² Predict

Endogenous latent variables	(R ²)	R ² Adjusted	Q ² Predict
ENVKNOW	0.555	0.554	0.551
PEB	0.698	0.695	0.606

Source: Author's estimation

Secondly, the effect size (*f*²) was also determined, indicating *f*² (effect size) shows how much influence an exogenous construct has on an endogenous construct. According to the guidelines of Hair et al. (2019), *f*² values greater than .02, .15, and .35 indicate weak, moderate, and strong effect sizes, respectively.

The model's predictive performance was assessed using PLS predict. The results indicate that the Q²predict values for Environmental Knowledge (Q²_predict = 0.551) and Pro-environmental Behavior (Q²predict = 0.606) are greater than zero, demonstrating strong predictive relevance of the model (Table 6).

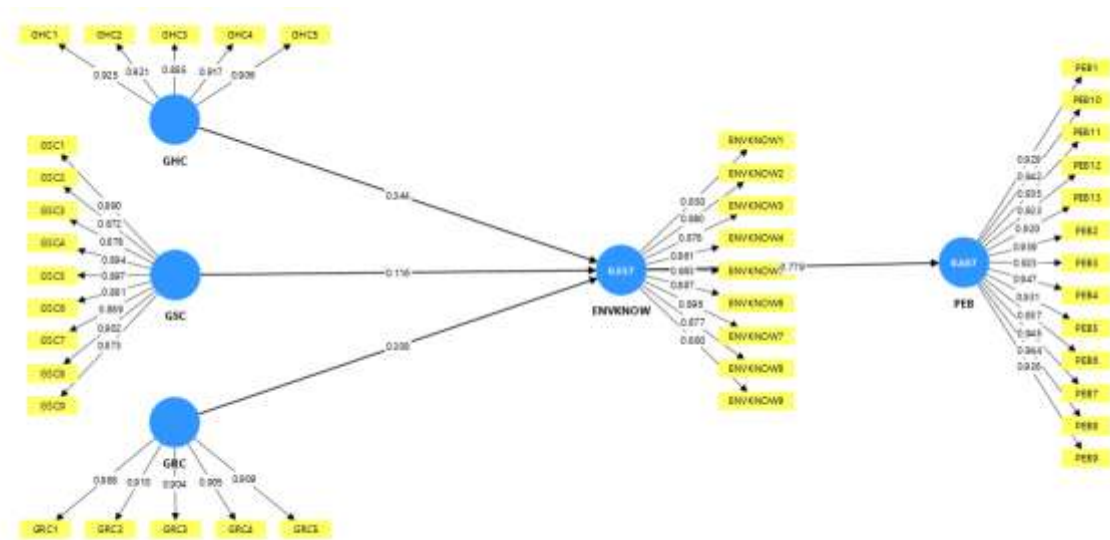


Figure 2. Conceptual model with lower-order constructs (LOCs)

Model source: Developed by the authors.

Note: GHC = “Green Human Capital”; GSC = “Green Structural Capital”; GRC = “Green Relational Capital”.

Table 7. Path coefficients (complete)

Paths	Original sample	t-statistics	p-values	Result
GIC -> ENVKNOW	0.745	16.931	0.000	Supported
ENVKNOW -> PEB	0.442	5.194	0.000	Supported
GIC -> PEB	0.452	5.265	0.000	Supported

Note: t-values and C.I values were obtained by 5,000 Bootstrap runs and one-tailed significance at 5%.

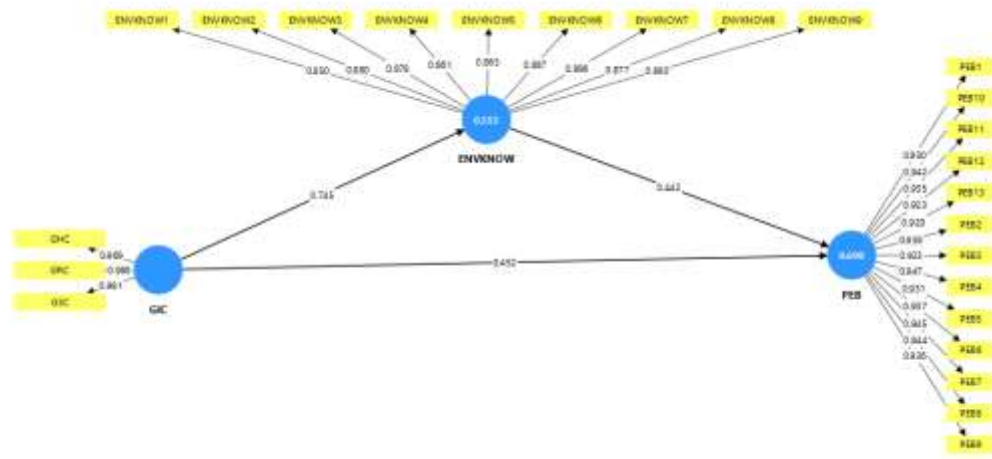


Figure 3. Conceptual model with higher-order construct (HOC)

Model source: Developed by the authors.

Note: GIC represents a higher-order construct formed by GHC, GSC, and GRC.

DISCUSSION

The results supported the hypothesis and indicated a significant positive relationship between GIC and PEB ($\beta = 0.452$; $t = 5.265$). The finding confirms that organizations with high GHC, supportive green structural systems, and external environmental relations aligned with environmentally responsible principles are likely to foster employees' external environmentally responsible behaviors, aligning with previous research that identified the behavioral impacts of green organizational resources (Nisar et al., 2021). Previous studies also suggest that values held by employees are more likely to be furthered into sustainable workplace activities if they become part of their competencies and organizational habits (Yusliza et al., 2020; Huynh & Hoang, 2024).

The results also showed that GIC was significantly correlated with Environmental Knowledge (ENVKNOW), with a positive correlation ($\beta = 0.745$; $t = 16.931$), which is consistent with H2. This finding aligns with the available information, which indicates green intellectual capital serves as one of the mechanisms within the organization for developing employees' environmental understanding and awareness. Those organizations that invest in green training programs, knowledge-based programs, and eco-friendly practices offer opportunities for ongoing learning and knowledge transfer on environmental issues, thereby enhancing employees' environmental knowledge, as noted in previous empirical research (Rehman et al., 2021).

Moreover, Environmental Knowledge is positively correlated with Pro-Environmental Behavior ($\beta = 0.442$; $t = 5.194$), providing support for H3. Fewer employees exhibit eco-friendly behaviors at work when they have lower levels of environmental knowledge. This result is similar to previous studies that have demonstrated that environmental knowledge increases employees' capacity to identify environmental issues and the impacts they will have if they act irresponsibly (Naz et al., 2023; Huynh & Hoang, 2024; Liu et al., 2020). The same is evident in the literature on green behavior and sustainability, which shows that knowledge is a crucial antecedent of pro-environmental behavior (Kim et al., 2016; Saeed et al., 2019).

Lastly, results confirmed H4, suggesting that the link between GIC and PEB can be partially explained by EW. The results indicated that GIC has a significant direct impact on pro-environmental behavior and a significant indirect impact through increased employees' environmental knowledge, similar to previous mediation-based studies in the field of green management (Naz et al., 2023; Rehman et al., 2021). The partial mediation suggests that knowledge is a crucial mechanism for explaining how organizational green resources are translated into sustainable employee behaviors, while direct organizational influence remains important (Tamar et al., 2021).

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In general, the results confirm the importance of Green Intellectual Capital as a key factor in environmental learning and sustainable behavior in organizations, a finding also reported in earlier studies ([Rehman et al., 2021](#)). Organizations can do so by developing green knowledge, skills, and organizational systems to effectively cultivate employees' environmental knowledge and promote pro-environmental conduct, thereby helping them achieve sustainability. Results build on the current literature of green management by empirically testing the relationship between sustainable employee behavior and the knowledge-based route of GIC. The results complement the current green management research by providing empirical proof of the link between sustainable employee behavior and the knowledge-based pathway of GIC.

Theoretical implementation

This study is an original contribution to GHRM and sustainable development research, as it highlights Green Intellectual Capital (GIC) as an intangible asset with a positive impact on employees' pro-environmental behavior (PEB), specifically in the IT industry. The study fills a gap in the literature, which largely neglected the psychological and cognitive mechanisms, that is, environmental attitude and knowledge embedded in GIC–PEB, while integrating them. This research addresses an important gap in the existing literature by addressing psychological and cognitive factors, such as environmental attitudes and knowledge, within the GIC–PEB framework ([Akter et al., 2025](#)). The results indicate that GIC affects employees' actions and behavior at both organizational and individual levels, influencing knowledge and value alignment.

Further, the results reinforce the role of intrinsic drivers, such as environmental knowledge and attitudes, in promoting voluntary, sustainability-oriented behavior, extending behavioral and cognitive perspectives in sustainability research. This paper agrees that employees' internal beliefs play a pivotal role in meaningful and sustainable PEB ([Shoaib et al., 2022](#)). This study is the first to be empirically validated in KII, which buttresses the theoretical connection between intellectual capital, environmental learning, and sustainable workplace behavior ([Asiaei et al., 2023](#)).

Practical Implications

The results have important implications for policymakers and others seeking to promote PEB through the strategic application of GIC, particularly in the IT industry. [Asiaei et al. \(2023\)](#) suggest that organizations need to incorporate environmental knowledge and values into employees' attitudes to foster a robust culture that promotes sustainability. Incorporating green structural capital (policies, systems, and routines) with daily activities can strengthen the eco-conscious behavior and long-term sustainability ([Akter et al., 2025](#)).

Also, with effective stakeholder collaboration, green relational capital can be strengthened, thereby building employee responsibility and commitment towards the environment. The intervening role of environmental knowledge indicates that sustainability programs should not focus solely on policy implementation but also on putting knowledge into action. Organizations can achieve greater environmental performance by engaging and developing their employees' attitudes towards the environment and fostering positive attitudes that will boost innovation, resilience, and long-term sustainable competitiveness ([Shoaib et al., 2022](#); [Akter et al., 2025](#)).

LIMITATIONS

Although the contributions are significant, this study has some limitations. First, the results are associative due to the cross-sectional design. Longitudinal or experimental research designs could be used in the future to develop more definitive causal relationships. In addition, common method and social desirability biases may arise when using personally evaluated data. The results of this study were strengthened by the use of validated scales, but future studies can further strengthen the present findings by using multi-source data.

Moreover, this paper focuses solely on environmental knowledge as the mediator, which may not fully explain the relationship between GIC and employees' PEB. There is a need for further research on other psychological or organizational mechanisms to gain further insight. Lastly, the study used a single sector, and the findings cannot

be generalized to other industries. Replicating the model in other sectors and situations would increase external validity and enhance the overall validity of the higher-order structure of Green Intellectual Capital.

CONCLUSION

The study concludes that Green Intellectual Capital (GIC) is a significant factor in promoting pro-environmental behavior among employees in the Indian IT sector. The results show that a partial mediation effect exists between GIC and employee sustainable behavior through environmental knowledge. Organizations that invest in green human, structural, and relational capital can enhance employees' environmental awareness and promote eco-friendly behaviors in the workplace. Therefore, creating green knowledge and a sustainable organization can enhance the organization's environmental performance and long-term sustainability.

AUTHOR DECLARATIONS

CRedit author statement / Author contributions

Rakeeba Chaudhary: Conceptualization; Writing – Original Draft; Methodology Software; Validation; Formal Analysis; Investigation.

Sarah Ahtesham: Conceptualization; Writing; Methodology; Analysis; Visualization.

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