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The Influence of Green Human Resource Management on Enhancing Green Innovative Work Behavior: The Mediating Role of Green Work Engagement

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Abstract

Objective – The purpose of the current study was to examine the effect of Green Human Resource Management (GHRM) on Green Innovative Work Behavior (GIWB), with the mediating effect of Green Work Engagement (GWE). Using multi-industry data allows for increased generalizability of the findings. This study contributes to the understanding of the psychological underpinnings of the relationship between GHRM and sustainable innovation in organizational settings.

Design/Methodology/Approach – The research uses a quantitative approach with data collection through questionnaires from respondents in various organizations that implement GHRM practices. Data analysis was conducted using the Partial Least Squares Path Modeling (PLS-SEM) method to test the relationships between variables.

Findings – The research results that GHRM practices such as recruitment, training, and green performance management significantly enhance green work engagement. Furthermore, green work engagement positively mediates the relationship between GHRM and green innovative work behavior. In other words, GHRM encourages employees to become more emotionally and cognitively engaged in environmentally oriented work, which in turn enhances green innovation in the workplace.

Implications – The implementation of GHRM is effective in building an organizational culture that supports innovation and environmental responsibility among employees. The practical implication is that organizations aiming to enhance green performance and competitiveness must integrate environmentally conscious HRM practices and actively promote green work engagement.

Keywords: Green Human Resource management, Green Work Engagement, Green Inovative Work Behavior

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INTRODUCTION

The aggravating environmental problems across the globe have compelled organizations to incorporate sustainability into their core business strategies, demanding a shift in paradigm towards environment-friendly practices (Saeed et al., 2019). Green human resource management has emerged as a strategic enabler in this transformation, with the intent to align HRM practices and environmental objectives to create a workforce that is not just environmentally aware but actively participates in sustainable practices (Jnaneswar, 2024). Green HRM adopts various practices such as green recruitment, green training, green performance management, and green compensation that can inspire the employees to behave in a manner that is environmentally sustainable (Aboramadan, 2022; Chen & Chang, 2013). Proper application of these green practices can establish a green organizational culture, and this results in better environmental performance and sustainable development (Zhang et al., 2020). Incorporating environmental concerns in HRM practices not only improves the environmental performance of an organization but also helps in its reputation, cost savings, and attraction and retention of talent (Zhang et al., 2020). One of the most significant outcomes of effective Green HRM is the development of Green Innovative Work Behavior, or employees' proactive generation, promotion, and implementation of innovative ideas for environmental sustainability (Huang et al., 2024)

Green innovative behavior is extremely valuable for organizations ready to develop new solutions to environmental issues and achieve a competitive edge in the green market. Employees' innovative behavior, which comes from their own initiative rather than being directed by the organization, needs to be understood in terms of the personal and situational factors that encourage them to act in an environmentally friendly way (D. Song et al., 2023). Green HRM practices have also been established to have a role in improving employees' retention and the company's public image, as well as the attraction of higher-quality prospective employees (Mwita & Mwakasangula, 2020). The relationship between employees and the environment is gaining more traction, more so how employees contribute towards improving environmental quality through a shift in behavior. When firms adopt greener practices, it positively affects employee relations, influencing their mindset and instilling them with a sense of ownership to save the environment (Townsend et al., 2024) Additionally, Green HRM practices are key to empowering employees to advocate for environmental sustainability in their firms, prioritizing companies' human environmental obligations (Naz et al., 2023). Through the provision of adequate resources, training, and support to employees, Green HRM empowers them to be agents of change, fostering innovation and environmental stewardship. Green HRM also aims to create an environmentally friendly, resource-saving, and socially equitable work setting that is aligned with the overall human resource management practices in the context of the firm's environmental objectives (M. Ali et al., 2022). This study also applies empirical evidence to various industry sectors, enabling contextual richness as well as enhancing the generalizability of the findings. This study thus contributes towards the lacuna in the area of the study with respect to the psychological processes involved in the effectiveness of GHRM in enhancing sustainable innovation in the organization.

Theoretical Background

Green Human Resource Management

Green human resource management is a strategic approach to human resource management that incorporates environmental concerns into all HRM practice areas. This entails the basic reconceptualization of employee management within an organization to support environmental

sustainability objectives (Hewapathirana et al., 2020). Green HRM seeks to reduce an organization's activities' environmental footprint by encouraging pro-environmental behavior among employees and building a sustainable culture (Gill et al., 2021). Green recruitment involves selecting individuals who are interested in environmental matters and are also endowed with the knowledge and skills that would help the organization attain sustainability. Green benefit packages and compensation plans can be devised to reward environmentally friendly behavior, such as public transport or bicycle use. Green HRM practice transcends normal HRM function to facilitate broader organizational sustainability. This may involve implementing energy-saving technologies, reducing waste, and promoting recycling programs. Green HRM also has an important role in involving employees in environmental activities and making them feel responsible for the sustainability of the organization (Janali et al., 2020). By incorporating environmental factors into every function of HRM, organizations can build a workplace that is not only environmentally sustainable but also economically viable (Dimitrov, 2021).

Effective adoption of Green HRM needs a firm commitment from the top leadership and an openness to invest in green initiatives. It needs an all-stakeholders' joint effort, including the employees, managers, and external collaborators. Green HRM is not the introduction of a few ad hoc green practices; rather, it is an organizational cultural transition to one that believes in environmental sustainability. Organizations in developing countries have begun embracing the concept of Green HRM, integrating it into their human resource management activities, although with a requirement for more effort to support organizations in green policy execution (Ramasamy et al., 2017). Globalization, increased environmental issues, and stakeholder pressure motivate the adoption of Green HRM.The employees' green movement significantly affects their organizational behavior in a way that they become more engaged in environmental activities. Green HRM practices can make employees environmentally aware citizens who become active contributors to assisting the organization in achieving its environmental goals (Hameed et al., 2020; Mehta & Chugan, 2015)

Green Innovative Work Behavior

Green innovative work behavior is the purposeful creation, enhancement, and implementation of new and beneficial ideas concerning environmental sustainability by workers within the workplace. This advanced behavior includes not just thinking of new ways to minimize environmental footprint, but also advocating for them in earnest and implementing them in practical terms. Green innovative work behavior is motivated by a set of individual-level variables, including environmental values and beliefs, as well as organizational-level variables, including the presence of an innovative climate that supports environmental sustainability. Organizations have come to understand the significance of employee green behavior in supporting corporate social responsibility as well as natural resource conservation (Hussain et al., 2023). Organizations, by facilitating workplace green behavior, can inculcate employees' sense of accountability for mitigating environmental influences (Lu et al., 2024). Employee green behavior implies actions such as recycling and the prevention of pollution, leading to ecological efficiency enhancement (M. Wang, 2022; X. Wang et al., 2018). Green innovation at the employee level, or employee green innovative behavior, is defined as employees generating new ideas, taking new methods, and implementing innovative systems to enhance environmental protection and conservation of resources (Yang & Li, 2023). Green innovative work behavior is the generation of new ideas, championing them, and implementing them to enhance environmental sustainability within the workplace (D. Song et al., 2023).

Green Work Engagement

Green work engagement can be described as a positive, work-related, and meaningful mental state of vigor, commitment, and absorption in the context of environmental sustainability. Vigor is defined as having high energy levels and psychological toughness at work, the readiness to put in effort at work, and the ability to persist despite challenges (Jnaneswar, 2024). Dedication is marked by a feeling of importance, passion, inspiration, pride, and challenge. Absorption, on the other hand, is being completely focused and highly immersed in one's work such that time flies, and one is not able to detach himself from work (Tran, 2023). Green work engagement is not merely being content with one's work; rather, it is being dedicated and passionate about one's work in the environmental sustainability context. Green work engagement is one of the most significant predictors of employee green behavior and environmental performance (Hussain et al., 2023). Employees with high work engagement are more inclined to walk the extra mile towards environmental objectives. Engaged employees are more efficient, creative, and committed to organizations (Zacher et al., 2023). Several determinants, including organizational culture, leadership, and job design, influence Green Work Engagement.

Green Human Resource Management Affecting Green Innovative Work Behavior with Green Work Engagement as Mediation

Green human resource management is the key to employees' green innovative work behavior development, and green work engagement serves as a crucial mediator (W. Song et al., 2021). Green HRM practices establish an organizational culture that motivates and empowers employees in the development of creative solutions to enhance environmental sustainability. Moreover, green employee empowerment and individual green values significantly contribute to the relationship between GHRM and organizational citizenship behavior for the environment by employees (Hameed et al., 2020). GHRM practices, by providing resources in the form of green production technology, skill training, and a green working environment, promote employees' trust and commitment to integrating green elements in their work (Yang & Li, 2023). GHRM practices, by providing resources in the form of green production technology, skill training, and a green working environment, promote employees' trust and commitment to integrating green elements in their work. Green employee empowerment as a mediator indicates the extent to which GHRM policies facilitate employees in maintaining environmental sustainability within their organizations, highlighting the human environmental roles of companies (Sarfo et al., 2024).

Furthermore, the development of a green organizational climate using GHRM practices has a significant impact on employees' pro-environmental behavior, also corroborating the influence of GHRM on environmental sustainability activities (Rubel et al., 2020). That is, GHRM practices set the stage for employees to get involved and contribute towards the environmental sustainability of the firm, developing a green innovation and environmental stewardship culture (Khan et al., 2022). Green HRM practices facilitate the improvement of a firm's environmental performance (Roscoe et al., 2019). Green employee empowerment is a mediator between environmental performance and green HRM practices and indicates its strong influence on dependent and independent variables (Sarfo et al., 2024). Green work engagement is a significant mediator between green HRM and green innovative work behavior. These workers are also expected to be more motivated and committed to developing and implementing green innovations. Green HRM practices can facilitate Green Work Engagement by rendering employees' work meaningful and purposeful. Employees who feel that

they, through their job, are contributing something positive to the environment are more likely to be engaged at work. Green HRM practices create a conducive and empowering working culture that empowers employees and makes them feel empowered to come up with innovative ideas that enhance environmental sustainability (Karatepe et al., 2022).

Green human resource management has a role in ensuring that the green efforts of an organization are acceptable to the employees. Green training and development is among the most suitable GHRM practices through which the continuous evolution of green management is ensured within most organizations (Yafi et al., 2021). Green HRM practices facilitate employees' skill, motivation, and opportunity improvement (Mustafa et al., 2022). Green HRM practices can also improve employee attitudes, promote ecological behavior, and improve employee satisfaction by improving the safety and health of employees (Khan et al., 2022). Organizations must provide particular emphasis on GHRM practices for delivering better sustainable performance along with operational performance to achieve a competitive edge (Ong et al., 2022). GHRM has gained heightened importance due to growing environmental protection issues (Sobaih et al., 2020). GHRM is a dynamic tool in reducing environmental problems through the successful execution of green policy and environmental management practices.

Conceptual Framework and Hypotheses

Green HRM's Influence on Green Innovative Work Behavior

Green human resource management practice has a direct impact on developing green innovative work behavior among employees (M. Wang, 2022; Z. Wang & Makhbul, 2024). The practices of Green HRM, i.e., green training and development, green performance management, and green employee participation, provide an organizational culture that facilitates and motivates the employees to develop new concepts for enhancing environmental sustainability. Green recruitment and selection draw individuals with environmental values, and training programs add to their knowledge about sustainability. Green performance management rewards environmentally friendly behaviors, and a supportive green culture additionally stimulates creative sustainability actions (Dimitrov, 2021). GHRM practices, through the provision of resources such as green production technology, skills training, and green work environments, create employee trust and commitment towards incorporating green aspects in their work. This impact is based on the reality that GHRM practices increase the competencies, motivation, and opportunity of employees to take part in green innovation. Organizations are becoming aware that they should combine ecological manageability and human resource management to render them sustainable (M. Ali et al., 2022).

Green HRM is an organization's commitment to integrate environmental management into their HRM functions, including recruitment, selection, training and development, performance management, and reward systems. The study uses documented strategies to observe, collect, and disseminate contemporary surveys of green human resource management (Md. C. Ali et al., 2020). The relationship between green HRM and sustainable performance is mediated through an organization's environmental strategy. When workers notice that their company is invested in green sustainability, they will be more inclined to be motivated to play their role and assist with this objective. By incorporating environmental issues within HRM activities, organizations are capable of building a workforce that is not only environmentally aware but also actively engaged in generating and executing innovative solutions (Sobaih et al., 2020). Additionally, incorporating environmental management within the HRM process allows organizations to connect their employees to their sustainability objectives, building an environmental stewardship culture. Besides, firms that involve

workers in environmental activities and decision-making are also likely to instill a sense of responsibility and ownership among workers. Employee green behavior and environmental performance are supported by an integration of organizational environmental management practices and employee green behavior (Ong et al., 2022). Green HRM practices also support the creation of a shared mental model of the organization's environmental goals and objectives, which in turn encourages teamwork and innovation. Thus, we have the following hypothesis:
H1: Green HRM positively influences Green Innovative Work Behavior

Influence of Green HRM on Green Work Engagement

Green human resource management practices play a role in building green work engagement among workers and thereby establishing a workforce that is highly connected with and devoted to the environmental initiatives of the organization. Organizations have to give emphasis to GHRM practices in order to provide improved sustainable performance along with operational performance to attain competitive advantage. Green HRM practices, through the provision of resources such as green production technology, skills training, and green work environments, help to develop employee trust and commitment towards incorporating green aspects into their jobs. When workers believe that their company is seriously dedicated to environmental sustainability, they will be more engaged in the workplace and take pride in what they do. Further, GHRM practices can increase workers' knowledge of environmental concerns and their capacity to assist in viable solutions. Furthermore, GHRM practices can promote among workers a sense of community and common purpose as they collaborate towards a shared end of environmental sustainability. In addition, companies that invest in green training and development programs provide their employees with the knowledge and expertise to recognize and establish innovative solutions to environmental problems. Workers who are interested in their jobs are more productive, innovative, and dedicated to the organizational objectives. Therefore, we hypothesize as follows:
H2: Green HRM has a positive influence on green work engagement

Green Work Engagement on Green Innovative Work Behavior

Green work engagement plays an important role in facilitating green innovative work behavior in organizations to create a reinforcing and positive innovation and environmental responsibility cycle. Green work engagement can ensure an innovative culture where employees feel free to try new things and new methods of addressing environmental issues. In addition, green work engagement can foster employees' intrinsic motivation to participate in green innovative work behavior. Workers who are concerned about environmental sustainability will be intrinsically motivated to devise innovative solutions to environmental problems. Therefore, we put forward the following hypothesis:
H3: Green work engagement has a positive influence on green innovative work behavior

Green Innovative Work Behavior the Mediating Role of Green Work Engagement

Green work engagement serves as a significant mediator between green HRM and green innovative work behavior. Green HRM practices induce green work engagement by giving purpose and meaning to the work of employees. Employees, when they find that their work is helping the environment, are more likely to be work-engaged. Green work engagement, which is marked by vigor, dedication, and absorption in green work activities, is an important connection between GHRM and green innovative work behavior (Le & Tham, 2024). Green training, green performance

management, and green communication are some GHRM practices that establish an organizational climate in which employees are empowered and motivated to labor towards the organization's environmental objectives. Organizations that focus on employee well-being and offer development and growth are likely to have an engaged workforce, which, in turn, can generate innovation and sustainability (Wang & Makhbul, 2024). Work engagement is important because it is associated with high levels of energy and enthusiasm, which lead to involvement with the work that is being done. Green HRM practices can also increase employees' perception of organizational support, which in turn increases their engagement and willingness to perform extra effort for the organization. Additionally, Green Work Engagement creates a feeling of shared goal and collective responsibility among workers and forces them to work together and exchange ideas for environmental performance improvement. Thus, we make the hypothesis:

H4: Green work engagement is a mediator of the relationship between green HRM and green innovative work behavior.

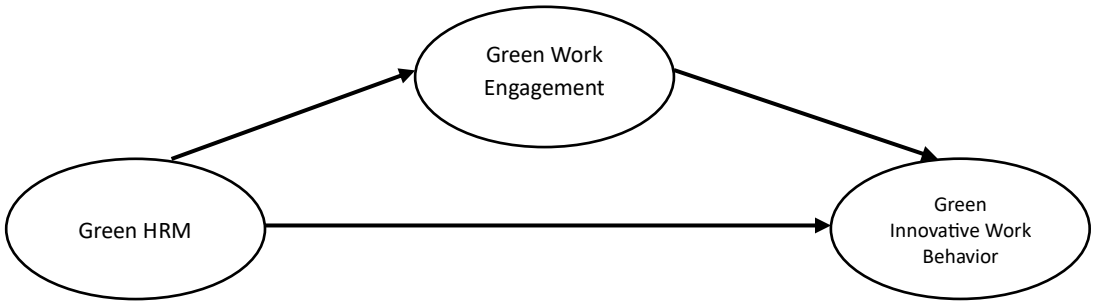

Figure 1. Research Framework

METHODS

Sample and Data Collection

This research adopts a quantitative approach, and a survey questionnaire is used to collect information from a sample of employees working in organizations representing various industries. This research achieves comprehensive data representation through the use of saturation sampling techniques that involve all members of the relevant population (Sekaran & Baougie, 2016). This method enhances the validity and applicability of the research findings by preventing selection bias and ensuring that all perspectives within the target population are represented. The target population consists of employees working in small and medium enterprises and micro businesses in the rattan craft sector in Central Kalimantan who are directly involved or knowledgeable about their organization's environmental activities and sustainability initiatives. To achieve a representative sample of 114 respondents, a stratified random sampling method was used, considering factors such as organization size, industry type, and employee job level. Data were collected using an online survey tool that provided confidentiality and anonymity to the respondents.

Measurement

The questionnaire adopted existing measures for the assessment of the study's main constructs, such as Green HRM, Green Work Engagement, and Green Innovative Work Behavior. A questionnaire for the survey was developed to collect data on study variables. Existing scales that were reliably and validly sufficient were modified to assess Green HRM, Green Work Engagement, and Green Innovative Work Behavior. Green HRM was assessed using a multi-item scale that

reflected employees' perceptions of the green HRM practices of their organization, including green recruitment and selection, green training and development, green performance management, and green reward systems. Green work engagement was measured through a scale that measured the vigor, dedication, and absorption of employees for environmental sustainability (Tierney & Farmer, 2002). Green Innovative Work Behavior was measured through a scale that measured the involvement of employees in activities such as coming up with new ideas to improve the environment, implementing new green programs, and disseminating environmental sustainability in the company (D. Song et al., 2023). Specifically, the Green HRM scale involved items for green recruitment, training, performance management, and compensation practices (Shah, 2019). The Green Work Engagement scale involved measuring vigor, dedication, and absorption dimensions for environmental work, while the Green Innovative Work Behavior scale involved the generation, promotion, and implementation of green ideas (Rashid et al., 2023; Tang et al., 2017)

RESULTS AND DISCUSSION

Model evaluation in PLS is carried out using a two steps approach, namely two steps where evaluating the measurement model to obtain adequate requirements and continuing with structural model evaluation to evaluating model quality.

Table 1. Result of Model Constructs

Construct	Indicator	Item reliability	Convergent validity		
		Loadings	CR	Alpha	AVE
Green Human Resources Management (GHRM)	GHRM1	0,851	0,918	0,912	0,740
	GHRM2	0,857			
	GHRM3	0,910			
	GHRM4	0,853			
	GHRM5	0,828			
Green Work Engagement (GWE)	GWE1	0,834	0,925	0,912	0,764
	GWE2	0,880			
	GWE4	0,910			
	GWE5	0,858			
	GWE6	0,886			
Green Innovative Work Behavior (GIWB)	GIWB1	0,895	0,912	0,925	0,789
	GIWB2	0,890			
	GIWB3	0,895			
	GIWB4	0,874			

Note: CR = Composite Reliability; AVE = average variance extracted

Factor Loading (LF) or outer loading is the correlation between each measurement item and a variable. Rule of thumb, (Hair Jr et al., 2022; Henseler et al., 2014) use LF ≥ 0.70 as acceptable. The LF research results are all above 0.7. One indicator, namely GWE3, was removed from the model because it had an LF value <0.7. Internal consistency reliability shown by composite reliability (CR) is all with a value greater than 0.7. Apart from Composite Reliability, other measures that describe the level of reliability or internal consistency of reliability are Cronbach's Alpha and Rho A. The research results all have values above 0.7. Average variance extracted (AVE) is the average variation of each measurement item contained by the variable. How far as a whole the variables can explain variations in measurement items, research results show an AVE value ≥ 0.50.

Table 2. Discriminant Validity of Constructs

Variables	GHRM	GIWB	GWE
Discriminant Validity: Fornnel–Larcker Criterion			
GHRM	0,860		
GIWB	0,503	0,888	
GWE	0,719	0,630	0,874
Heterotrait–Monotrait Criterion (HTMT)			
GHRM			
GIWB	0,551		
GWE	0,777	0,685	

We also report discriminative validity (DV) based on the Fornell-Larcker criterion and the Heterotrait-Monotrait criterion. The Fornell-Larcker criterion indicates that the square root of the AVE of each construct is higher than the highest correlation of the construct with other constructs in the model. The results show that the correlation between constructs has a greater value than other constructs. Compared with the Heterotrait-Monotrait (HTMT) correlation criterion ratio, it is better than the traditional approach on discriminative validity assessment due to much lower values of both the Fornel-Larcker criterion and cross-loading using 0.85 as the appropriate threshold level (Hair et al., 2017). Although this method is often used in applied research, it does not allow to reliably detect discriminative validity problems. (Hair et al., 2017) stated that the HTMT measure is better used than the Fornell and Lacker criterion methods in detecting discriminant validity. Therefore, Discriminant Validity (DV) is better assessed using HTMT (Henseler et al., 2015). DV is used to measure how other constructs differ using empirical standards (Latan et al., 2017). To achieve a satisfactory level of DV, the results show that all constructs have HTMT scores <0.90, and the 97.5% bootstrap confidence interval shows all values are in good agreement, thus indicating that all research constructs (GHRM, GWE and GIWB) are conceptually and empirically different from each other.

Table 3. Testing for Potential CMB Based on Full Collinearity

Construct	Inner VIF
GHRM -> GIWB	2,071
GHRM -> GWE	1,000
GWE -> GIWB	2,071

Note. VIF = variance inflation factor.

If inner VIF > 5 then there is suspicion of multicollinearity. However, in (Hair et al., 2017) a VIF value between 3-5 has the potential for multicollinearity to occur and the ideal is if VIF < 3. Multicollinearity examination in this study with a VIF value < 3 means there is no multicollinearity.

Assessment of Structural Modeling Path Coefficients

Table 4. Path Coefficients for Direct Effects

Hypotheses	Original sample	T statistics	P values	Report
Green HRM -> GIWB	0,104	0,860	0,390	No Supported
Green HRM -> GWE	0,719	12,509	0,000**	Supported
GWE -> GIWB	0,555	5,082	0,000**	Supported

*Note P values** < 0,01, *< 0,05*

The results in the table above show that two of our path coefficients are significant and one path is rejected. The results show that two paths are statistically significant. The structural path of the significant construct is based on a two-tailed test at $p < 0.05$. In Hypothesis 1, we predict that GHRM has a positive effect on GIWB. As shown in the table above, this is statistically significant at ($t = 10.860$, $p < 0.390$). This indicates that GHRM does not directly affect GIWB and the hypothesis is rejected. Hypothesis 2 also predicts that there is a positive and statistically significant relationship between GHRM and GWE. This is also shown by the value ($t = 12.509$, $p < 0.000$) that supports the proposed effect in Hypothesis 2; therefore, GHRM is capable of enhancing GWE from the accepted hypothesis. Hypothesis 3 also predicts that GWE statistically and significantly has a positive effect on GIWB. This is also shown by the value ($t = 5.082$, $p < 0.000$) which supports the proposed effect in Hypothesis 3; therefore, GWE is capable of increasing GIWB, and the hypothesis is accepted.

Table 5. Path Coefficients for Indirect Effects

Hypotheses	Original sample	T statistics	P values	Report
Green HRM -> GWE -> GIWB	0,399	4,728	0,000*	Supported

Note: P values < 0,01*

Table 5 above shows that the t-value and p-value ($t = 4.728$, $p < 0.000$); Therefore, the estimate that GWE mediates the relationship between GHRM and GIWB is proven to be positive and significant, which means the hypothesis is accepted. These results indicate that the direct influence of GHRM on GIWB is not significant, thus in the GWE study, it is referred to as full mediation. To see whether the influence of the exogenous latent variable on the endogenous latent variable has a mediating effect, we use the values recommended by Cohen in (Ogbeibu & Gaskin, 2023), which are 0.175 (high mediation), 0.075 (medium mediation), and 0.01 (low mediation). To explain the value of the mediation effect influence, the upsilon statistic (Ogbeibu et al., 2021) is used as follows:

Table 6. Statistik Upsilon (v)

Path	**Mediation**	**upsilon (v)**	**mediation effect**
GHRM → GWE GWE → GIWB	GHRM ->GWE-> GIWB	0,159	medium mediation influence

Based on the mediation value above GHRM ->GWE-> GIWB with a value of 0.159 (mediation influence leads to high), Menurut Ogbeibu et al., (2021) is 0.01 (low mediation influence), 0.075 (medium mediation influence) and 0.175 (high mediation influence).

Evaluation of model quality can be seen from several measures:

R square, according to Sarstedt et al., (2019), R square values of 0.75, 0.50 and 0.25 mean substantive (high), moderate and weak influence. Another opinion is according to Chin (1998) in Henseler et al (2009) where the R square value is 0.67 (high), 0.33 (moderate), 0.19 (weak); The research results show that R square for GIWB is 0,402 (40,2%) meaning that the influence of GHRM, GWE on GIWB is moderate, the influence of GWE on GIWB is 0.517 (51,7%) moderate. Q square is how much the model's predictive accuracy (PLS path model's predictive accuracy) is described in Q Square redundancy or Q square, which is a measure that describes how well the model has predictive relevance. If Q square is greater than 0, it shows that the exogenous variable has predictive relevance to the constructed endogenous variable. This value is obtained through a procedure called the blindfolding procedure. The results show that Q2 for GHRM is 0.000, GWE is 0.384 and, GIWB is 0,303. This means that GHRM has a low relevant predictive value, while GWE and, GIWB have moderate values. In Hair et al., (2019), if Q square has a value of 0 (low), 0.25

(moderate), 0.50 (high) then the meaning of Q Square is predictive accuracy. F Square, the f square effect size measure, which describes how big the influence of the variables in the structural model is. The results showed that the influence of GHRM on GIWB was 0.009 (low), GHRM on GWE was 1,071 (Large) and, GWE on GIWB 0,249 (medium). The interpretation of the f square effect size value in Hair Jr et al., (2022) and Henseler et al., (2016) is 0.02 (low) 0.15 (medium) 0.35 (large). The effect size value of f2 only explains the magnitude of the direct effect. Based on the Standardized Root Mean Square Residual (SRMR), which is a tool for measuring model fit, the average value of all standardized residuals is 0,061 < 0,10, meaning it has a good model fit value. The condition used is that an SRMR value below 0,08 indicates a fit model, while an SRMR value between 0,08 to 0, 10 is still acceptable (Hu et al., 2022).

CONCLUSION

This paper responds to the need for the effect of Green Human Resource Management on Green Innovative Work Behaviour with the mediator of Green Work Engagement. environmental sustainability. GIWB refers to the innovative behaviour of the workers with regard for the environment, and GWE refers to the involvement of the worker in work with regard for environmental issues. Evidence indicates GHRM affects GIWB positively, and GWE acts as a mediator, suggesting the effect of GHRM practices in organizations will make workers more engaged in innovative and green behaviour at work. There is evidence to support this by indicating GWE strengthens the motivation and commitment of workers towards the organizational goal of sustainability. To this purpose, the first finding of this paper is that GHRM is a determining factor in triggering GIWB among workers. With the effective use of GHRM practices, organizational engagement in the environment can be promoted, and this, in turn, will spur sustainable innovative behaviour.

This paper also verifies the mediating effect of GWE in the relation between GHRM and GIWB, suggesting the need for the building of a work environment in which workers are encouraged to engage in the values for sustainability. Its practicality lies in the fact that organizations need to embed the values for sustainability in their HRM practices. This can be done in a range of ways, such as environmental concern training, rewards for environmentally friendly works, and organizational culture building in a supportive manner of the values for sustainability. While doing this, the organizations can have a more innovative, sustainable, and capable force. This study provides empirical evidence of the relationship between GHRM, GWE, and GIWB, refining the understanding of the effect of green HRM practices on behaviour towards sustainability among employees. It also identifies GWE as the mediator between GHRM and GIWB. These findings can be used by organizations for the effective implementation of GHRM practices, such as training in environmental sustainability, which can enhance GWE and GIWB. HR managers can use the insights of this study for the identification and preparation of change agents among employees.

The study's weaknesses are its cross-sectional design, limiting the test of causality between the variables, and the study's one-site setting, limiting the generalizability of the sample. Measurement issues may be present for GHRM, GWE, and GIWB, since response biases in questionnaires are possible. Future studies can use longitudinal approaches in multiple settings test the causality between the variables and the generalizability of the sample outcomes. It discusses how innovative culture and transformational leadership influence the GHRM, GWE, and GIWB relationship. Mixed methods will enhance comprehension from the employee's side concerning GHRM practices.

REFERENCES

Aboramadan, M. (2022). The effect of green HRM on employee green behaviors in higher education: the mediating mechanism of green work engagement. *International Journal of Organizational Analysis*, *30*(1), 7–23. https://doi.org/10.1108/IJOA-05-2020-2190

Ali, M., Puah, C. H., Ali, A., Raza, S. A., & Ayob, N. (2022). Green intellectual capital, green HRM and green social identity toward sustainable environment: a new integrated framework for Islamic banks. *International Journal of Manpower*, *43*(3), 614–638. https://doi.org/10.1108/IJM-04-2020-0185

Ali, Md. C., Islam, K. M. A., Chung, S.-J., Zayed, N. M., & Afrin, M. (2020). A Study of Green Human Resources Management (GHRM) and Green Creativity for Human Resources Professionals. *International Journal of Business and Management Future*, *4*(2), 57–67. https://doi.org/10.46281/ijbmf.v4i2.857

Chen, Y. S., & Chang, C. H. (2013). The Determinants of Green Product Development Performance: Green Dynamic Capabilities, Green Transformational Leadership, and Green Creativity. *Journal of Business Ethics*, *116*(1), 107–119. https://doi.org/10.1007/s10551-012-1452-x

Dimitrov, K. (2021). Green Human Resources Management: Linking and Using Green Practices for Sustainable Business Organizations. *Trakia Journal of Sciences*, *19*(Suppl.1), 276–281. https://doi.org/10.15547/tjs.2021.s.01.040

Gill, A. A., Ahmad, B., & Kazmi, S. (2021). The Effect of Green Human Resource Management on Environmental Performance: The Mediating Role of Employee Eco-Friendly Behavior. *Management Science Letters*, 1725–1736. https://doi.org/10.5267/j.msl.2021.2.010

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, Marko. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (second edtion). Sage.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. In *European Business Review* (Vol. 31, Issue 1, pp. 2–24). Emerald Group Publishing Ltd. https://doi.org/10.1108/EBR-11-2018-0203

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) Third Edition* (Third Edition). SAGE Publications.

Hameed, Z., Khan, I. U., Islam, T., Sheikh, Z., & Naeem, R. M. (2020). Do green HRM practices influence employees' environmental performance? *International Journal of Manpower*, *41*(7), 1061–1079. https://doi.org/10.1108/IJM-08-2019-0407

Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., Ketchen, D. J., Hair, J. F., Hult, G. T. M., & Calantone, R. J. (2014). Common Beliefs and Reality About PLS: Comments on Rönkkö and Evermann (2013). *Organizational Research Methods*, *17*(2), 182–209. https://doi.org/10.1177/1094428114526928

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Henseler, J., Ringle, C. M., & Sarstedt, M. (2016). Testing measurement invariance of composites using partial least squares. *International Marketing Review*, *33*(3), 405–431. https://doi.org/10.1108/IMR-09-2014-0304

Hewapathirana, R., Opatha, H. H. D. N. P., & Gamage, P. N. (2020). Identification of Some Research Gaps in Green Human Resource Management. *International Business Research*, *13*(12), 63. https://doi.org/10.5539/ibr.v13n12p63

Hu, X., Li, R. Y. M., Kumari, K., Belgacem, S. B., Fu, Q., Khan, M. A., & Alkhuraydili, A. (2022). Relationship Between Green Leaders' Emotional Intelligence and Employees' Green Behavior: A PLS-SEM Approach. *Behavioral Sciences*, *13*(1), 25. https://doi.org/10.3390/bs13010025

Huang, Y.-C., Gong, T.-J., & Shih, L.-T. (2024). Examining the impact of green human resource management on green innovative work behavior: A multilevel analysis. *Corporate Social Responsibility and Environmental Management*, *31*(6), 6401–6418. https://doi.org/https://doi.org/10.1002/csr.2932

Hussain, N., Zakuan, N., Yaacob, T. Z., Hashim, H. I. C., & Hasan, M. Z. Bin. (2023). Employee Green Behavior at Workplace: A Review and Bibliometric Analysis. *International Journal of Academic Research in Business and Social Sciences*, *13*(3). https://doi.org/10.6007/ijarbss/v13-i3/16847

Janali, M., Kaffashpoor, A., Rahimpour, A., & Samanian, M. (2020). *Designing a Paradigm Model for Green Human Resource Management Using Data-Based Method (Case Study on Municipality of Mashhad)*. https://doi.org/10.21203/rs.3.rs-64777/v1

Jnaneswar, K. (2024). Demystifying the relationships among green HRM, green work engagement, green innovation and environmental performance: a serial mediation model. *Social Responsibility Journal*. https://doi.org/10.1108/SRJ-08-2023-0457

Karatepe, T., Ozturen, A., Karatepe, O. M., Uner, M. M., & Kim, T. T. (2022). Management commitment to the ecological environment, green work engagement and their effects on hotel employees' green work outcomes. *International Journal of Contemporary Hospitality Management*, *34*(8), 3084–3112. https://doi.org/10.1108/IJCHM-10-2021-1242

Khan, K., Shams, M. S., Khan, Q., Akbar, S., & Niazi, M. M. (2022). Relationship Among Green Human Resource Management, Green Knowledge Sharing, Green Commitment, and Green Behavior: A Moderated Mediation Model. In *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2022.924492

Latan, H., Hair, J. F. J., & Richard Noonan Editors, J. (2017). *Partial Least Squares Path Modeling* (Second Edition). Springer.

Le, T. T., & Tham, D. H. (2024). Nexus of Green Human Resource Management and Sustainable Corporate Performance: The mediating Roles of Green Behavior and Green Commitment. *Journal of Trade Science*, *12*(2), 100–116. https://doi.org/10.1108/jts-11-2023-0028

Lu, Y., Bashir, H., Ayub, A., Hasnain, A., & Akhtar, F. (2024). Green Knowledge Sharing and Green Innovative Behavior: The Roles of Transformational Leadership and Green Shared Vision. *Journal of the Knowledge Economy*. https://doi.org/10.1007/s13132-024-02377-y

Mathews, J. (2017). Promoting Green HRM in Business Organisations: A Transformative Approach. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3074357

Mehta, K., & Chugan, P. K. (2015). Green HRM in Pursuit of Environmentally Sustainable Business. *Universal Journal of Industrial and Business Management*, *3*(3), 74–81. https://doi.org/10.13189/ujibm.2015.030302

Mustafa, M. J., Zainal Badri, S. K., & Melanie Ramos, H. (2022). Linking middle-managers' ownership feelings to their innovative work behaviour: the mediating role of affective organisational commitment. *Journal of Management and Organization*. https://doi.org/10.1017/jmo.2021.67

Mwita, K. M., & Mwakasangula, E. (2020). The Role of Green Human Resource Management Practices on Environmental Management in Tanzanian Industries: Lessons from Mohammed Enterprises Tanzania Limited. *Science Journal of Business and Management*, *8*(2), 57–63. https://doi.org/10.11648/j.sjbm.20200802.12

Naz, S., Jamshed, S., Nisar, Q. A., & Nasir, N. (2023). Green HRM, psychological green climate and pro-environmental behaviors: An efficacious drive towards environmental performance in China. *Current Psychology*, *42*(2), 1346–1361. https://doi.org/10.1007/s12144-021-01412-4

Ogbeibu, S., & Gaskin, J. (2023). Back from the Future: Mediation and Prediction of Events Uncertainty through Event-Driven Models (EDMs). *FIIB Business Review*, *12*(1), 10–19. https://doi.org/10.1177/23197145221121084

Ogbeibu, S., Jabbour, C. J. C., Gaskin, J., Senadjki, A., & Hughes, M. (2021). Leveraging STARA competencies and green creativity to boost green organisational innovative evidence: A praxis for sustainable development. *Business Strategy and the Environment*, *30*(5), 2421–2440. https://doi.org/10.1002/bse.2754

Ong, J. O., Djamil, M., Ariyanto, E., & Sugiyono, S. (2022). A Literature Review of Green Human Resource Management for Gaining a Competitive Advantage. *Mix Jurnal Ilmiah Manajemen*, *12*(3), 458. https://doi.org/10.22441/jurnal_mix.2022.v12i3.007

Ramasamy, A., Inore, I., & Sauna, R. (2017). A Study on Implications of Implementing Green HRM in the Corporate Bodies With Special Reference to Developing Nations. *International Journal of Business and Management*, *12*(9), 117. https://doi.org/10.5539/ijbm.v12n9p117

Rashid, W., Ghani, U., Khan, K., & Usman, M. (2023). If You Care I Care: Role of Green Human Resource Management in Employees Green Behaviors. *Cogent Business & Management*, *10*(1). https://doi.org/10.1080/23311975.2023.2189768

Roscoe, S., Subramanian, N., Jabbour, C. J. C., & Chong, T. (2019). Green Human Resource Management and the Enablers of Green Organisational Culture: Enhancing a Firm's Environmental Performance for Sustainable Development. In *Business Strategy and the Environment*. https://doi.org/10.1002/bse.2277

Rubel, M. R. B., Kee, D. M. H., & Rimi, N. N. (2020). The influence of green HRM practices on green service behaviors: the mediating effect of green knowledge sharing. *Employee Relations*, *43*(5), 996–1015. https://doi.org/10.1108/ER-04-2020-0163

Saeed, B. Bin, Afsar, B., Shahjehan, A., & Shah, S. I. (2019). Does Transformational Leadership Foster Innovative Work Behavior? The Roles of Psychological Empowerment, Intrinsic Motivation, and Creative Process Engagement. *Economic Research-Ekonomska Istraživanja*. https://doi.org/10.1080/1331677x.2018.1556108

Sarfo, P. A., Zhang, J., Nyantakyi, G., Lassey, F. A., Bruce, E., & Amankwah, O. (2024). Influence of Green Human Resource Management on Firm's Environmental Performance: Green Employee Empowerment as a Mediating Factor. *Plos One*, *19*(4), e0293957. https://doi.org/10.1371/journal.pone.0293957

Sarstedt, M., Hair, J. F., Cheah, J. H., Becker, J. M., & Ringle, C. M. (2019). How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australasian Marketing Journal*, *27*(3), 197–211. https://doi.org/10.1016/j.ausmj.2019.05.003

sekaran, U., & Baougie, R. (2016). *Research Methods for Business; A skill-building approach: Vol. Seventh Edition* (S. Uma, Ed.; Sevent). John Wiley & Son Ltd. www.wileypluslearningspace.com

Shah, M. (2019). Green Human Resource Management: Development of a Valid Measurement Scale. *Business Strategy and the Environment*, *28*(5), 771–785. https://doi.org/10.1002/bse.2279

Sobaih, A. E. E., Hasanein, A. M., & Elshaer, I. A. (2020). Influences of Green Human Resources Management on Environmental Performance in Small Lodging Enterprises: The Role of Green Innovation. *Sustainability*, *12*(24), 10371. https://doi.org/10.3390/su122410371

Song, D., Bai, Y., Wu, H., & Wang, X. (2023). How Does the Perceived Green Human Resource Management Impact Employee's Green Innovative Behavior? —From the Perspective of Theory of Planned Behavior. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.1106494

Song, W., Yu, H., & Qu, Q. (2021). High involvement work systems and organizational performance: the role of knowledge combination capability and interaction orientation. *International Journal of Human Resource Management*, *32*(7), 1566–1590. https://doi.org/10.1080/09585192.2018.1539863

Tang, G., Chen, Y., Jiang, Y., Paillé, P., & Jia, J. (2017). Green Human Resource Management Practices: Scale Development and Validity. *Asia Pacific Journal of Human Resources*. https://doi.org/10.1111/1744-7941.12147

Tierney, P., & Farmer, S. M. (2002). Creative Self-Efficacy: Its Potential Antecedents And Relationship To Creative Performance. In *B Academy o/Moiiqgpiniiiil Journal* (Vol. 45).

Townsend, P., Kruse, D., & Blasi, J. (2024). Why do firms adopt employee ownership? An industry perspective. *Journal of Participation and Employee Ownership*, *7*(1), 66–91. https://doi.org/10.1108/JPEO-03-2022-0003

Tran, N. K. H. (2023). An Empirical Investigation on the Impact of Green Human Resources Management and Green Leadership on Green Work Engagement. *Heliyon*, *9*(11), e21018. https://doi.org/10.1016/j.heliyon.2023.e21018

Wang, M. (2022). A Review of Research on Influencing Factors and Result Effects of Emloyee Green Behavior. *BCP Business & Management*, *20*, 613–625. https://doi.org/10.54691/bcpbm.v20i.1039

Wang, X., Zhou, K., & Liu, W. (2018). Value congruence: A study of green transformational leadership and employee green behavior. *Frontiers in Psychology*, *9*(OCT). https://doi.org/10.3389/fpsyg.2018.01946

Wang, Z., & Makhbul, Z. K. M. (2024). Green Human Resource Management as a Catalyst for Sustainable Performance: Unveiling the Role of Green Innovations. *Sustainability*. https://doi.org/10.3390/su16041453

Yafi, E., Tehseen, S., & Haider, S. A. (2021). Impact of Green Training on Environmental Performance Through Mediating Role of Competencies and Motivation. *Sustainability*, *13*(10), 5624. https://doi.org/10.3390/su13105624

Yang, M., & Li, Z. (2023). The influence of green human resource management on employees' green innovation behavior: The role of green organizational commitment and knowledge sharing. *Heliyon*, *9*(11). https://doi.org/10.1016/j.heliyon.2023.e22161

Zacher, H., Rudolph, C. W., & Katz, I. M. (2023). Employee Green Behavior as the Core of Environmentally Sustainable Organizations. *Annual Review of Organizational Psychology and Organizational Behavior*, *10*(1), 465–494. https://doi.org/10.1146/annurev-orgpsych-120920-050421

Zhang, W., Xu, F., & Wang, X. (2020). How green transformational leadership affects green creativity: Creative process engagement as intermediary bond and green innovation strategy as boundary spanner. *Sustainability (Switzerland)*, *12*(9). https://doi.org/10.3390/su12093841