Green Human Resource Management Practices: Driving Sustainable Innovation and Performance in Manufacturing SMEs

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ABSTRACT

This study investigates the impact of green human resource management (HRM) practices on sustainable business performance in manufacturing SMEs in industrial cities in Pakistan. Employing a positive approach and quantitative research design, the study focuses on primary HRM practices such as green recruitment selection and green training and development, investigating their impact on green innovation and, subsequently, on sustainable business performance. Researchers surveyed a sample of 350 managers and identified significant relationships through data analysis using SmartPLS software and structural equation modeling (SEM). The results indicate that both Green Recruitment & Selection and Green Training and Development positively influence Green Innovation, with subsequent positive impacts on sustainable business performance. The mediation analysis confirmed the crucial role of Green Innovation in linking Green HRM practices with sustainable outcomes. This study contributes valuable insights to the existing literature by offering a comprehensive understanding of the intricate relationships between these variables. The findings provide practical implications for HR professionals and organizational leaders, emphasizing the strategic importance of integrating environmentally friendly HRM practices to foster innovation and enhance overall business sustainability in the context of Manufacturing SMEs.

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1.0 Introduction

A new paradigm of sustainability has emerged in global business throughout the last decade, driven by rising awareness of the effects of humans on the environment and intensifying environmental concerns. According to Kanan et al. (2023), green HRM is seen as a crucial area of concentration due to the increased effect of human resource management methods brought about by this revolutionary trend. G-HRM instead of integrating only sustainable considerations into conventional HRM functions such as recruitment, selection, training, and development (Setyaningrum & Muafi, 2023). However, this two-pronged approach to green HRM practices that focuses on green recruitment and selection and green training and development is expected to stimulate green innovation, which in turn will improve sustainable business performance (Awan et al., 2023). The main factors that are considered are green HRM practices, green training and development, green recruitment and selection, sustainable business performance, and green innovation. Green HRM practices are geared towards encompassing recruitment and training procedures that are environmentally friendly (Altassan, 2023). Sustainable business performance, however, is another concept that stands for a company's ability to make money while limiting its activities that might be harmful for nature and society. Green innovations are those that enable environmentally friendly approaches, technologies and strategies to become part of business processes (Albloushi et al., 2023).

Although green HRM is gaining popularity, there is a well-known gap in both theoretical and practical knowledge on the impact of green HRM on sustainable business performance via its green innovation mediating role. The existing body of evidence fails to provide a clear enough investigation into the specific means by which these factors interact (Aldaas et al., 2022). On top of the fact that there are few comprehensive theories that integrate green HRM practices, green innovation, and sustainable operations, another difficulty is the lack of a unified conceptual framework for green HRM practices, green innovation, and sustainable operations (Khan & Liu, 2023). On the other hand, there is a lack of research providing clear directions on how firms can effectively implement and utilize green HRM practices to promote sustainability in their operations (Esthi & Setiawan, 2023).

The present study aims to explore the interconnection between green human resource management practices and the performance of sustainable businesses with respect to the mediating role of other green factors. The research aims at enriching the already existing knowledge by forging a nuanced understanding of these interrelationships. The value of this study is well reflected in its power to increase the level of consciousness among both researchers and practitioners regarding the crucial role of green HRM practices in ensuring environmental sustainability by boosting green innovation (Khan et al., 2023). The complex interconnections among these variables, along with the possibility of gaining priceless ideas on how modern organizations can embed environmental practices into the business strategies they follow, may be a good reason to carefully consider the processes of aligning green personnel policies to the corporate plans. HR officials, company executives, and policymakers are expected to derive operational implications from the research findings to build and execute sustainable HR

policies. As a result, this study is intended to contribute essentially to the ongoing discussion about eco-friendly business practices and the fact that the HR department is hugely instrumental in stimulating favorable environmental effects.

2.0 Literature Review

The environmentally conscious selection process and recruitment strategy include putting up sustainable criteria for recruitment in the hiring process. Companies all over have begun to understand the importance of having employees who are environmentally conscious and work to meet the organization's sustainability criteria (Shah & Soomro, 2023). Green recruitment practices that are looked into by Kramar, among others, have proven to not only attract environmentally aware candidates but also positively affect employee engagement and commitment to sustainability (Shahzad et al., 2023). Besides this, the research done by Obeidat et al. (2023) has shed light on green recruitment and its positive impact on the environmental performance of organizations. The research results show that organizations that give more weight to environmental thinking during the hiring process tend to reduce their carbon footprint and other key environmental indicators. It is consistent with the resource-based view, which suggests that talent with a strong emphasis on environmental sustainability counts among the key sources of competitive advantage (Jamil et al., 2023).

Nevertheless, it becomes evident that green recruitment procedures are effective in terms of attracting environment-oriented talent. However, the influence of this approach on sustainable long-term business performance is still a question to be addressed in the future. Further research is likely to focus on the correlation between green recruitment practices and specific sustainability metrics in order to make them more convincing (Ba & Cao, 2023). Eco-oriented training and development provide employees with information and competencies necessary for their participation in the environmental sustainability goals of an organization. According to a study carried out by Kanan et al. (2023), it is crucial to embed sustainability into training programs to boost employees' environmental consciousness and shape ecologically conscious behavior within the organization.

In addition, research by Almeer and Almaamari (2022) one more evidence that green training and development enhance the competitiveness of business in the context of sustainability. Such data indicates that organizations that are going green by means of implementing green training programs achieve better performance on the environmental front, since employees are provided with the skills and knowledge necessary to incorporate green practices into their daily tasks. It is exactly in this that the competence and knowledge that the employees have are thought to be of great importance to the organization's efforts to implement green initiatives (Ba & Cao, 2023). Nevertheless, the challenge of the effectiveness of green training and development programs is a barrier to the implementation of the green strategy. The work by focuses on the key issues of green training programs which are context-dependent and comprise of cultural and managerial aspects. Organizations will have to create an environment that nurtures sustainability and sustained assistance for employees to deploy all the information acquired from green training (Veerasamy et al., 2023).

The inclusion of green recruitment and selection, as well as green training and development, in the Green HRM is the role that the holistic approach of the process plays. Mahmood and Nasir (2023) present this idea by highlighting how aligning HR practices with sustainability targets paves the way for organizational success. The result of their many researches pointed out that these 2 steps working together, indeed, can lead to higher level of sustainable business performance as compared to the ones that were implemented only one aspect of Green HRM. In the same response, Afzal et al. (2023) have suggested the creation of a "Green HRM Scorecard" for organizations to help them measure and monitor the effectiveness of their green HRM practices. The scorecard (KPI's) includes green recruitment/selection and green training/ development, in addition to green performance monitoring as a core component.

H1: Green HRM practices (Green Recruitment & Selection and Green Training and Devolpement) has significant effect on Sustainable Business Performance

2.2 Green Innovation as a mediator

Green innovation, which is one of the central topics of modern literature, is seen by the researchers as the key to achieving desirable sustainability. The scholars are of the view that integrating environmentally friendly innovations into the company might be most effective in decreasing the environmental effect, with the aim of saving costs and enhancing the corporate image ((Afzal et al., 2023). The data support the idea that green recruiting, selection, and training in human resource management are often found to enhance environmental management (Baeshen et al., 2021). Green HR practices are an important tool for developing a corporate culture that promotes an environmentally conscious attitude among the employees and makes them loyal to the sustainability goals of the company. According to the academicians, green HRM practices should be given more attention, as they are one of the functions that mediate the connection between green innovation and sustainable performance. Research has revealed a straight-line tendency between green HR practices and innovation success (Asadi et al., 2020). Organizations that are interested in engaging in green innovation and product creation can bring about an eco-conscious workforce through green recruiting, selection, training, and development. The proposals assist firms to design and deliver green products and services, obtain competitive advantage and adapt to the regulations; as a result, sustainability would be improved (Shahzad et al., 2020). Green innovation bridges the gap between green HRM philosophies and sustainable performance.

H2: Green Innovation mediate the relationship between Green HRM practices and sustainable business performance

3.0 Methodology

The study employed a quantitative research design to establish a causal relationship between Human Resource Management (HRM) practices, green innovation, and sustainable performance through systematic research. The statistical data was used for trend analysis and correlation examination, and the research followed a positivist research philosophy. Positivism that focused on objective quantifiable facts aimed to establish the empirical reality within the social reality. In line with positivist principles, the study formulated and tested the hypotheses addressing

the observable data, not subjective. It gives way to the scientific study of the bond between ecologically friendly HRM practices, green innovation, and sustainable performance.

Through this study, which focused specifically on SME manufacturers in industrial cities like Faisalabad and Gujranwala, the study highlighted the importance of SMEs both as businesses and to the economies of these cities. The sample consisted of 350 managers from SMEs, chosen through stratified random sampling. Classification was based on variables like the type of industry, size, and geographical area, to create a diverse and balanced dataset. Within each category, random sampling was used to increase the population diversity and make the results more relevant. The method of data collection used a survey instrument that was distributed to the sample of 350 managers. The carefully designed questionnaire, which was in line with the main objectives, obtained information on green HRM practices, green innovation, and green operations. Surveys turned out to be useful in getting qualitative information from a big number of participants. The results were evaluated with Structural Equation Modeling (SEM) applying SmartPLS software. SEM is a robust statistical method that helped to dig deeper into complex interrelationships between variables. SmartPLS, which is a user-friendly tool for SEM, enables an integrated scrutiny of green HRM practices, green innovations, and the sustainable business performance. This included hypothesis testing, model fit analysis, and the magnitude and direction of the relationship.

4.0 Results

4.1 Measurement Model

Tabel 1: Reliability analysis

|	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Green Innovation	0.8101	0.8087	0.8628	0.5131
Green Recruitment & Selection	0.7636	0.7803	0.8355	0.5024
Green Training and Devolpement	0.7365	0.7514	0.8252	0.6386
Sustainable Business Performance	0.7517	0.7603	0.8134	0.5055

The reliability and validity of the study constructs were assessed using internal consistency measures, including Cronbach alpha, rho_A, overall reliability, and average variance extracted (AVE). The results showed strong reliability for each dimension, with Cronbach alpha values ranging from 0.7365 to 0.8101, indicating high internal consistency (0.7514). The overall reliability, ranging up to 0.8628, further supports the reliability of the dimensions. The AVE values

ranging from 0.5024 to 0.6386 indicate the convergent validity of the constructs. This conceptual rigor provides confidence in the measurement model of the study and ensures that the selected variables represent theoretical dimensions of green innovation, recruitment and selection equally on green, green training and development, and sustainable employment.

4.2 Validity Analysis

Tabel 4.2 Validity analysis (HTMT)

	Green Innovation	Green Recruitment & Selection	Green Training and Devolpement	Sustainable Business Performance
Green Innovation				
Green Recruitment & Selection	0.4142			
Green Training and Devolpement	0.4283	0.4528		
Sustainable Business Performance	0.3661	0.4398	0.3535	
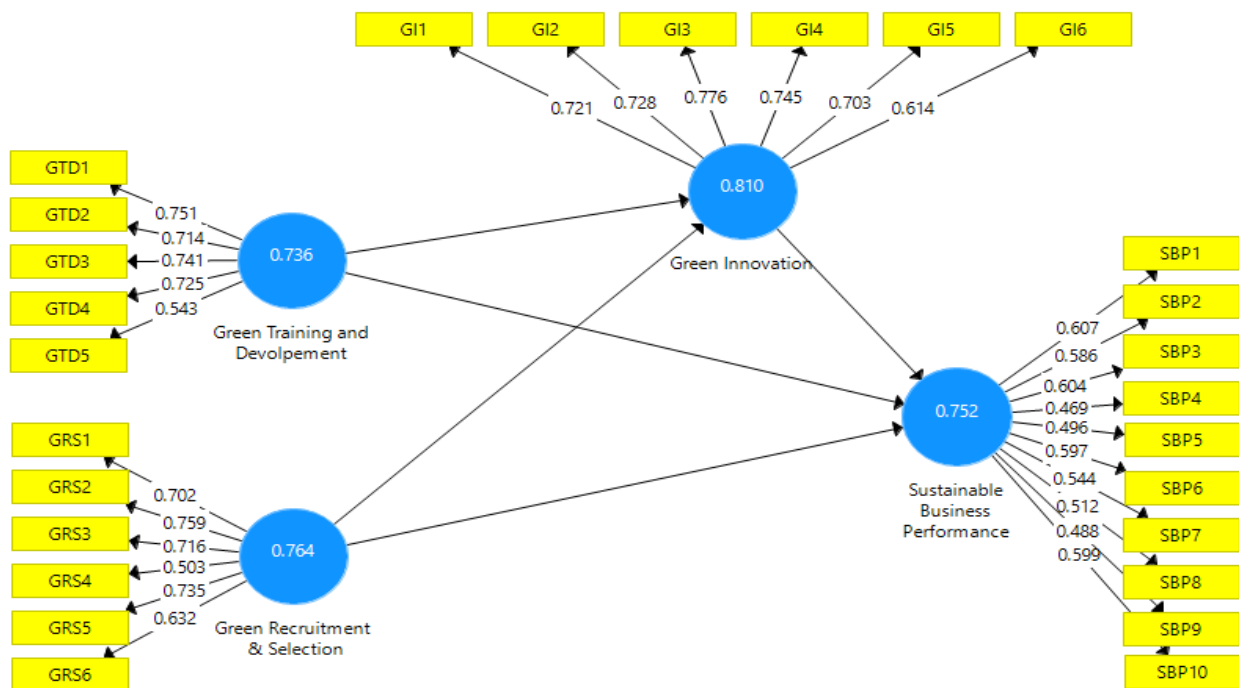
Validity analysis, as shown in Table 4.2, uses the heterotrait-monotrait (HTMT) ratio to evaluate discriminant validity. The results show that the diagonal elements (highlighted in bold) always have higher values than their transverse elements, indicating that satisfactory

discrimination is particularly true for green innovation, green recruitment and selection, and green training development, and the HTMT ratios for sustainable business performance are all below the recommended threshold of 0.85, confirming that these constructs differ from each other. This enables the reliability of the measurement model and confirms that the selected variables adequately capture their intended constructs as distinct parts of the study.

4.3 Structural Equational Model

Tabel 4.3 Direct Effect

	Original Sample (O)	Sample Mean (M)	T Statistics (|O/STDEV|)	P Values
Green Innovation -> Sustainable Business Performance	0.2153	0.2191	6.4251	0.0001
Green Recruitment & Selection -> Green Innovation	0.2479	0.2365	5.3968	0.0003
Green Recruitment & Selection -> Sustainable Business Performance	0.2295	0.2389	7.908	0
Green Training and Devolpement -> Green Innovation	0.2481	0.2702	4.0516	0.0023
Green Training and Devolpement -> Sustainable Business Performance	0.1319	0.1401	4.0215	0.0024

The statistical analysis presented in Table 4.3 reveals several significant direct effects within the study. Notably, Green Innovation exhibits a positive and statistically significant impact on Sustainable Business Performance, with a coefficient of 0.2153 ($p < 0.0001$). This underscores the crucial role of innovative environmentally friendly initiatives in driving overall business sustainability. Furthermore, both Green Recruitment & Selection and Green Training and Development significantly contribute to Green Innovation, with coefficients of 0.2479 ($p < 0.0003$) and 0.2481 ($p = 0.0023$), respectively. These results emphasize the importance of integrating green principles into HRM practices as they directly influence the organization's capacity for eco-friendly innovation. Additionally, both Green Recruitment & Selection (0.2295, $p < 0.0001$) and Green Training and Development (0.1319, $p = 0.0024$) exhibit direct positive effects on Sustainable Business Performance, suggesting that adopting environmentally conscious recruitment and training practices can lead to enhanced overall business sustainability. Overall, these findings provide empirical support for the study's hypothesis, highlighting the integral role of Green HRM practices in fostering innovation and sustainable business performance.

The mediation analysis presented in Table 4.4 demonstrates the significant impact of Green HRM practices on Sustainable Business Performance through the mediating role of Green Innovation. For both Green Recruitment & Selection and Green Training and Development, the path coefficients (0.0534) indicate a positive influence on Green Innovation. The T Statistics of 3.6764 and 2.9158 for Green Recruitment & Selection and Green Training and Development,

respectively, reveal statistically significant relationships. The P values of 0.0043 and 0.0154 further supports these findings. These results suggest that organizations implementing eco-friendly recruitment and training practices are more likely to foster Green Innovation, ultimately contributing to enhanced sustainable business performance.

Tabel 4.4 Mediation Analysis

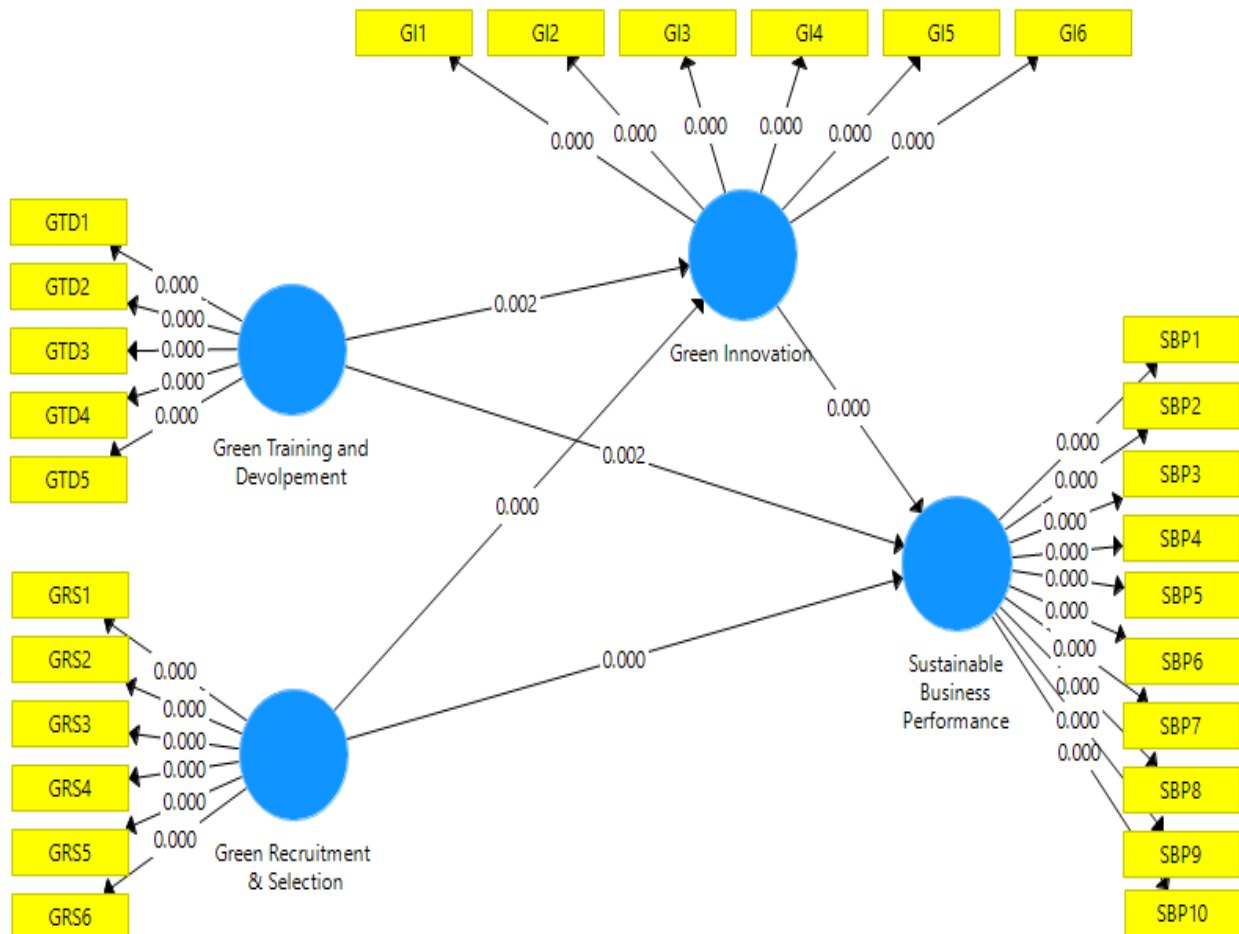|	Original Sample (O)	Sample Mean (M)	T Statistics (|O/STDEV|)	P Values
Green Recruitment & Selection -> Green Innovation -> Sustainable Business Performance	0.0534	0.0524	3.6764	0.0043
Green Training and Devolpement -> Green Innovation -> Sustainable Business Performance	0.0534	0.0598	2.9158	0.0154

Figure 2: Structural Equational Model

5.0 Discussion and Conclusion

A structural equation model (SEM) approach was applied to establish significant relationships among green HRM practices, green innovation and the sustainable performance of small or medium manufacturing enterprises (SMEs) situated in industrial cities like Faisalabad and Gujranwala. The results of the research reveal an evident and direct association between the implementation of green HRM practices and the generation of green innovation within the organizational setting. To put it simply, these firms are more likely to favor green innovation, integrate environmental concerns into their business structures, and promote green innovation activities. The research shows that companies with green HRM practices have an overall performance improvement, thus creating sustainability and innovation in accordance with environmentally friendly values. First off, these findings are in line with previous studies, which highlight the positive impact of sustainable HR policies on organizational performance. Green HRM impacts sustainable business outcomes, with green innovation serving as the intervening variable. Environmental considerations in the Human Resource Development (HRD) strategy are one of the most effective means of innovation and sustainability growth. Recognizing the profound influence of HR practices on sustainable growth, organizations reap the rewards of embracing green principles in recruitment, selection, training, and development processes. Earlier studies indicate that these integrations foster a culture deeply rooted in sustainability and innovation (Baeshen et al., 2021; Esthi & Setiawan, 2023; Jamil et al., 2023; Kanan et al., 2023). Therefore, HR professionals and organizational leaders should focus more on recruiting and retaining environmentally conscious employees and implementing green HR strategies to drive continuous organizational innovation.

This research provides practical implications regarding the link between green HRM practices, green innovation, and sustainable business success in manufacturing SMEs. Through quantitative research, positive philosophy and a sample of 350 managers from industrial cities, the connection was examined in detail. Researchers highlighted the positive effects of green HRM practices and determined that green innovation served as a mediator between green innovation practices and sustainable performance. The practical implications of the study highlight the strategic importance of green human resource practices for sustainable business success and encourage HR professionals, business leaders, and policymakers to consider this relevance. The study provides practical guidance on human resource development strategies and sustainability goals, thereby helping firms stay competitive and be environmentally friendly in the current environmentally sensitive environment.

Salma Faizan: Problem Identification and Model Devolpement, Introduction
Nida Tanveer: Results and Drafting
Ahtisham UL Haq: Literature search, Methodology

Conflict of Interests/Disclosures

The authors declared no potential conflicts of interest in this article's research,authorship, and/or publication.

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