

Effect Of Green Human Resource Management, Green Marketing On Environmental Performance In Higher Education Institutions

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Abstract

This study investigates the relationship between Green Human Resource Management (GHRM), Green Marketing (GM) and Environmental Performance (EP) in Pakistan's Higher Education Institutions (HEIs). The researcher collected data from 251 employees working in different HEIs in Khyber Pakhtunkhwa, Pakistan and tested the hypotheses using Smart PLS and JASP. GHRM and GM have a positive impact on Environmental performance. To maximize the benefits of GHRM practices, HEIs should adopt GHRM practices and GM strategies to enhance their environmental sustainability and increase their employees' ecological awareness. These results can inform the development of policies and procedures to promote ecological sustainability in HEIs in Pakistan and other similar contexts.

Keywords: Green Human Resource Management, Green Marketing, Higher Education Institutions, Environmental Performance.

1. Introduction

Environmental sustainability has become critical for all organizations, including HEIs (Fuchs et al., 2020; Gilal, Gilal, & Gilal, 2014; Maltais & Nykvist, 2020). HEIs are responsible for educating future leaders and promoting sustainable practices that help preserve the planet for future generations (Dangelico & Vocalelli, 2017; Silva, 1996). Thus, it has been concluded that HEIs must incorporate green practices and strategies to enhance environmental sustainability (Singh, Chen, Del Giudice, El-Kassar, & Change, 2019). It is emphasized by Álvarez Jaramillo, Zarthá Sossa, Orozco Mendoza, and Environment (2019) that HEIs should become "Green Campuses," integrating environmental issues such as energy efficiency, the conscious use of resources and commitment to environmental quality. Furthermore, Niu, Jiang, and Li (2010) argue that promoting environmental awareness through a green campus system contributes to society since universities are incubators for new leaders in many sectors. One such approach is adopting (GHRM) practices that focus on developing employees' environmental awareness and skills, motivating green behavior and providing green opportunities (Álvarez Jaramillo et al., 2019). GHRM refers to managing human resources, focusing on environmental sustainability. This includes employee training on environmental issues, incorporating green practices into performance evaluations, motivating employees and incorporating sustainability goals into job descriptions (Renwick, Redman, & Maguire, 2013; Roscoe, Subramanian, Jabbour, & Chong, 2019). GHRM is a relatively new concept that gained traction recently due to the increasing importance of environmental sustainability. GHRM practices have enhanced environmental sustainability in various organizations, including HEIs (Jabbour, de Sousa Jabbour, Govindan,

Teixeira, & de Souza Freitas, 2013; Úbeda-García et al., 2022).

Another approach is adopting GM strategies that promote environmentally friendly practices and products (Chung & Management, 2020). GM helps HEIs increase environmental awareness and motivate stakeholders to adopt sustainable practices (Chung & Management, 2020; Kozak, 2018) and promote environmentally friendly products and services (Dangelico & Vocalelli, 2017; Elemeen, 2015). This can include marketing campaigns highlighting a product's environmental benefits, using eco-friendly packaging, or promoting recycling and waste reduction (Mishra, Sharma, & Education, 2010; Prakash et al., 2019). GM has become increasingly popular as consumers have become more environmentally conscious (Panda et al., 2020). GHRM and GM have become increasingly important in promoting environmental sustainability in HEIs. Combining GHRM and GM can be a powerful tool for HEIs to promote environmental sustainability. Organizational culture, leadership and communication are critical factors in promoting GHRM and GM and enhancing environmental sustainability in HEIs.

GRHM practice is a practical way for an organization to develop human capital to improve EP and sustainable development (Jaramillo, Sosa, & Mendoza, 2019; Elziny, 2019). Many universities and colleges worldwide have reduced their environmental impact and promoted sustainability. Two approaches that have gained attention are GHRM and GM. HRM is the activities of HRM that result in positive environmental outcomes (Kramar, 2014; Maltais & Nykvist, 2020; Renwick et al., 2013). Similarly, GHRM refers to adopting environmentally friendly workplace policies, practices and training, while GM involves using eco-friendly messaging to promote sustainable behavior among stakeholders. The three primary elements of GHRM are developing green employee capabilities, motivating green employees and providing green opportunities (Renwick et al., 2013). Environmental sustainability has emerged as a critical issue in HEIs, with growing recognition of the need to reduce greenhouse gas

emissions, conserve resources and promote sustainable development (Wong, Wong, Boon-itt, & Environment, 2018). In addition, Human resource (HR) activities such as recruitment, selection, training, and leadership development can help develop employees' green abilities (Roscoe et al., 2019). A performance measurement and reward system focused on providing opportunities for EP improvement will encourage the trained and hired employees to remain motivated. Therefore, this article will examine GHRM and GM's role in enhancing environmental sustainability in HEIs. Specifically, this article proposes a mediation model that explores the relationship between GHRM and GM on ecological sustainability in HEIs.

2. Literature Review

This study section will investigate the concepts and relationship of GHRM, GM, and EP. Furthermore, the section will mention the study relevant to HEIs of the world, especially in Pakistan.

GHRM is an emerging field that highlights integrating environmental concerns into HRM practices. Several studies have shown that GHRM practices can positively impact EP in organizations (Renwick et al., 2013). GHRM refers to integrating environmental management goals into HRM practices, policies and procedures (Yusoff, Nejati, Kee, & Amran, 2020). According to Ojo and Raman (2019), GHRM practices include recruitment and selection, training and development, performance management, compensation and benefits, employee participation, and involvement in environmental initiatives. In HEIs, GHRM practices can include industries such as green training and development, eco-friendly procurement policies and energy conservation programs (Islam, Khan, Ahmed, & Mahmood, 2021). Several studies have investigated the relationship between GHRM and EP. For instance, Saeed (2021) found a positive relationship between GHRM practices and EP through the mediating role of **GCMS**. Similarly, Zaid, Jaaron, and Bon (2018) and Singh, Del Giudice, Chierici, Graziano, and Change (2020) reported

that GHRM practices positively impact the sustainability performance of manufacturing firms.

H1: GHRM practices positively affect EP in HEIs.

Sustainability and environmental considerations are increasingly important in today's environment-conscious world. As part of GM, products, practices and values that are environmentally friendly are promoted to appeal to environmentally conscious consumers (Dangelico & Vocalelli, 2017). In GM, companies adopt sustainable business practices to improve their image, reputation and EP. An environmental marketing strategy may include product-oriented, process-oriented, or societal-oriented elements. Product-oriented environmental marketing promotes environmentally friendly products with a reduced environmental impact. In contrast, process-oriented environmental marketing promotes ecologically responsible production processes, such as reducing waste, conserving energy and using eco-friendly technologies. A socially-oriented environmental marketing campaign promotes environmentally responsible behavior among consumers, including recycling and resource conservation.

GM will use the targeting approaches and further classify how appropriate targeting approaches consider firm Characteristics. Several studies have shown that GM can positively affect an organization's EP. GM practices are more effective in promoting environmental management practices (Ottman, 2011; Peattie, 2001), such as implementing pollution prevention measures, preserving resources and reducing waste. According to Polonsky et al. (2011) and Sharma & Vredenburg (1998), GM can drive product and process design innovation. Furthermore, GM can boost brand recognition and increase customer loyalty (Hartmann et al., 2005; Menon et al., 1999).

H2: GM practices positively affect EP in HEIs.

Employees who possess green skills are better equipped to understand and implement environmental policies and procedures, which can lead to improved EP. Moreover, a question arises about how GM affects EP; several theoretical frameworks have been proposed.

Economic, social and EP are interconnected in the Triple Bottom Line (TBL) approach (Elkington, 1997). By improving a company's social and financial performance, GM can improve its EP. GM can improve a company's economic performance by conserving resources and reducing waste.

Additionally, it enhances a company's reputation and social standing by meeting consumer expectations for environmentally responsible products and practices. Moreover, the Resource-Based View (RBV) is another theoretical framework for explaining the relationship between GM and EP (Barney, 1991). Several factors can influence a company's performance, including its marketing strategies, according to the RBV. Environmentally responsible products and practices can contribute to a company's competitive advantage as a unique resource (Peattie, 2016). An organization that effectively communicates its GM initiatives and offers innovative, environmentally friendly products can gain a competitive advantage.

It is also important to note that some studies have pointed out possible limitations and challenges of GM in improving EP. According to Ottman (2011) and Peattie (2003), GM may be perceived as greenwashing or superficial efforts to appear environmentally responsible. In addition to skepticism, some consumers may question the legitimacy of GM claims or are less willing to pay a premium for green products.

3. Materials and Methods

The population for this study consists of all higher education institutions (HEIs) in Pakistan. A sample of HEIs was selected using Stratified Random Sampling. The strata were defined based on the type of HEIs (public and private universities). A random sample of HEIs was selected within each stratum based on the list of HEIs available on the website of the Higher Education Commission of Pakistan. Data was collected using a self-administered online survey questionnaire. The survey questionnaire comprised three sections: GHRM practices, GM, and EP. In the first section, the questionnaire was demographic factors. The second

section consists of GHRM calculated by six items adopted from Renwick et al. (2013), while the last section consists of EP calculated based on Montabon, Sroufe, and Narasimhan (2007).

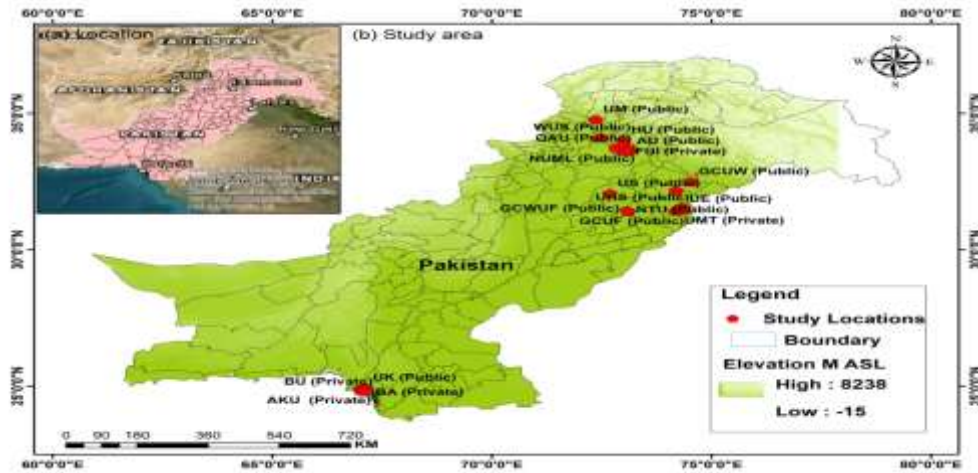


Figure 1: Population Map

3.1 Data Analysis

The data collected from the survey were analyzed using Structural Equation Modeling (SEM) techniques. The analysis was performed in two stages. In the first stage, the measurement model was assessed to ensure the validity and reliability of the survey instrument. The second stage was estimating the structural model to test the proposed hypotheses. Confirmatory factor analysis (CFA) was conducted to examine the measurement model. The fit of the measurement model was evaluated using several goodness-of-fit indices such as chi-square, Comparative Fit Index (CFI), Tucker-Lewis index (TLI) and Root Mean Square Error Of Approximation (RMSEA). The criteria for a good fit will be CFI and TLI values greater than 0.90 and RMSEA values less than 0.08. The current study used smart PLS 4 and JASP (Ver. 0.17) software.

4. Results

Based on the table, we can see that the average score for GHRM practices is 4.112 out of 5, while the average score for GM is 4.693 out of 5. The average score for EP is 4.671 out of 5, which is a positive sign that the HEIs are performing well. Looking at the standard deviations, we can see that the scores for GHRM and GM have relatively

low variability, with standard deviations of 0.879 and 0.925, respectively. However, the standard deviation for EP is 0.801, which is also relatively low. The skewness values for all constructs are negative, indicating that the distributions are slightly skewed to the left. The kurtosis values for GHRM and GM are negative, showing a somewhat flatter distribution than average. The kurtosis value for EP is close to 0, showing a reasonably normal distribution.

Table 1: Results of the Descriptive Statistics

	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
GHRM	4.112	0.879	-1.179	0.170	1.247	0.338
GM	4.693	0.925	-0.710	0.170	0.643	0.338
EP	4.671	0.801	-0.667	0.170	0.126	0.338

Table 2 shows the results of a factor analysis on a set of constructs and their associated factors. The factors are identified based on the pattern of correlations that exists between the variables. The constructs GM3, GHRM4, GM2, EP4 and GM3 all show high factor loadings on Factor 1, ranging from 0.788 to 0.498, which indicates that these questions are strongly related to the underlying factor of general management. This indicates that these questions are strongly related to the underlying factor of global awareness. GHRM1, GHRM2 and GHRM3 show a very high factor loading of 0.941 to 0.548 on Factor 2, indicating that this construct is strongly related to the underlying global human resource management factor. EP3, EP4, and EP5 also have a moderately high loading of 0.899 to 0.403 on Factor 3.

Table 2: Factor Loadings (Structure Matrix)

Construct	Factor 1	Factor 2	Factor 3
GHRM1		0.941	
GHRM2		0.790	
GHRM3		0.548	
GHRM4	0.726		
GM1	0.577		

Table 2: Factor Loadings (Structure Matrix)

Construct	Factor 1	Factor 2	Factor 3
GM2	0.664		
GM3	0.788		
GM4			
EP1			
EP2			0.403
EP3			0.899
EP4	0.498		
EP5			0.545

Note. The applied rotation method is varimax.

KMO = 0.814, Bartlett's sphericity test 1000.818, $p < 0.001$

Table 3 presents the results of the CFA for two models with different numbers of factors that are best fitted. Model 1 includes four items (GHRM, GM, EP), while Model 2 combines GHRM and GM into one factor. The fit indices of the models are compared based on the following criteria: χ^2 (chi-square), CFI (comparative fit index), TLI (Tucker-Lewis index), GFI (goodness of fit index), SRMR (standardized root mean square residual) and RMSEA (root mean square error of approximation).

Table 3: Results of Confirmatory Factor Analysis for the Two Models
Factor Characteristics

	Unrotated solution			Rotated solution		
	SumSq. Loadings	Proportion var.	Cumulative	SumSq. Loadings	Proportion var.	Cumulative
Factor 1	4.295	0.330	0.330	2.563	0.197	0.197
Factor 2	1.244	0.096	0.426	2.200	0.169	0.366
Factor 3	0.838	0.064	0.490	1.614	0.124	0.490

The results show that Model 1 fits the data well ($\chi^2 = 2.245$, CFI = 0.995, TLI = 0.922, GFI = 0.998, SRMR = 0.013, RMSEA = 0.052), indicating that the four-factor structure is appropriate for the data as shown in figure 2. On the other hand, Model 2 has poor fit indices ($\chi^2 = 4.167$, CFI

= 0.811, TLI = 0.646, GFI = 0.813, SRMR = 0.070, RMSEA = 0.135), indicating that the combination of GHRM and GM into one factor is not suitable for the data.

Table 4: CFA Results

Model	Factor	X ²	CFI	TLI	GFI	SRMR	RMSEA
1: 4 factors	GHRM GM EP	2.245	0.995	0.922	0.998	0.013	0.052
2: 3 factors	GHRM/ GM EP	4.167	0.811	0.646	0.813	0.070	0.135

The correlation analysis results indicate a significant positive correlation between GHRM practices and EP in HEIs, with a correlation coefficient of 0.06. Additionally, there is a positive correlation between GM and EP, with a correlation coefficient of 0.02.

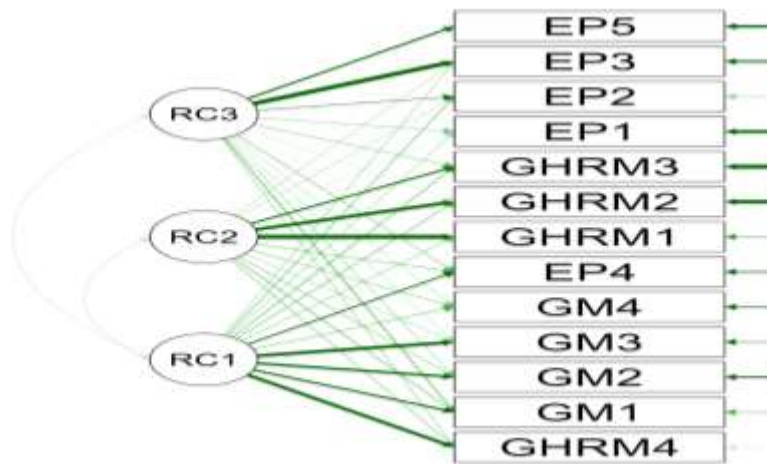


Figure 2: Confirmatory factor analysis

The results suggest adopting GHRM practices and GM in HEIs can improve EP. It is worth noting that there is no significant correlation between GHRM practices and GM, indicating that these two constructs may operate independently. These findings suggest that implementing GHRM practices and GM and developing employees' green abilities may be effective strategies for enhancing environmental sustainability in HEIs.

Table 4: Reliability and validity

Construct	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	The average variance extracted (AVE)
EP	0.619	0.699	0.743	0.383
GHRM	0.803	0.8	0.872	0.63
GM	0.73	0.726	0.828	0.547

Table 4 shows the results of the reliability and validity analysis for four constructs: EP, GHRM and GM. The results indicate that Cronbach's alpha coefficients for all three constructs are above the commonly accepted threshold of 0.6, indicating good internal consistency. The highest Cronbach's alpha coefficient is observed for GHRM, at 0.803.

The composite reliability (rho_a) and composite reliability (rho_c) coefficients for all four constructs are also high, ranging from 0.65 to 0.872, indicating high internal consistency and reliability levels. The highest composite reliability coefficient is observed for GHRM, at 0.872.

All constructs' Average Variance Extracted (AVE) ranges from 0.383 to 0.547. While the AVE for EP is below the commonly accepted threshold of 0.5, the AVE values for GHRM and GM are above 0.5, indicating good convergent validity. Overall, the reliability and validity analysis results suggest that the four constructs have good internal consistency, reliability and convergent validity, except EP, which has a lower AVE value. These findings support the use of these constructs in further research.

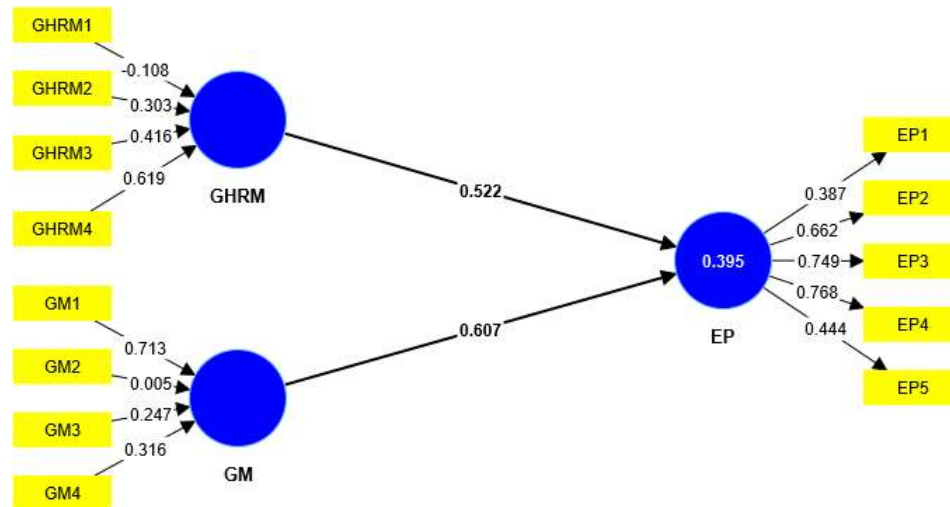


Figure 3: A Regression Analysis

5. Discussion and Conclusion

The current study investigated the impact of GHRM and GM on EP. It explores the role of GHRM and GM in enhancing environmental sustainability in HEIs in Pakistan. The findings indicate that GHRM practices significantly positively affect employees' GM, enhancing the EP of HEIs (Wong et al., 2018). The results explained that by implementing GRHM practices, organizations could develop human capital to enhance EP and sustainable growth. Moreover, GHRM practices have a more significant effect on EP for employees. The implementation of GHRM practices in HEIs engages and retains talented employees. They can also promote sustainability, enhance their reputation, reduce costs, and meet regulatory requirements. GHRM will attract and hire qualified employees: Employees today are increasingly concerned about the environmental impact of their organizations. Using GHRM practices, HEIs can attract and retain talented employees committed to sustainability. Promoting sustainability has a significant role to play in higher education institutions. By adopting GHRM practices, these institutions can lead by example and promote sustainable practices among their students, employees and the wider community.

Further, GHRM enhances the reputation of institutions prioritizing sustainability and implementing GHRM practices as responsible and environmentally

conscious organizations. In addition, implementing this plan will attract funding, partnerships and collaborations with like-minded organizations. Another significant reason for GHRM is Reducing costs: Adopting GHRM practices, especially energy-efficient buildings, reducing paper usage and sustainable transportation can reduce costs for higher education institutions. It can free up resources to invest in other sectors, like research and development. A last but not least aspect of GHRM in HIEs is meeting regulatory requirements. Countries have regulatory requirements for sustainable practices. By using GHRM practices, higher education institutions can ensure compliance with these regulations.

On the other hand, the study explained that GM promotes sustainable and environmentally friendly products and services. GM is an essential component of HEI sustainability efforts. It can help attract environmentally conscious students and staff, enhance the institution's reputation, meet regulatory requirements, promote sustainability, and support sustainability initiatives.

This study has certain limitations. Firstly, the data were collected from a single country, limiting the generalizability of the findings to other contexts. Secondly, the study used cross-sectional data, which restricts causality establishment. These limitations could be addressed by conducting longitudinal studies across multiple countries to validate this study's findings. Overall, this study contributes to the growing body of literature on the role of GHRM and GM in promoting environmental sustainability. It provides insight into specific practices HEIs can implement to enhance their EP and emphasizes employees' ecological awareness.

Based on the findings and limitations of this study, the following recommendations can be made: The researchers recommend that HEIs in Pakistan adopt GHRM practices and GM strategies to enhance their environmental sustainability. HEIs can incorporate ecological sustainability into their HR policies and procedures. They can also adopt sustainable practices across their campuses, such as reducing energy consumption, using renewable energy and promoting

recycling and waste reduction. Secondly, HEIs should focus on increasing environmental awareness to maximize the benefits of GHRM practices. This can be done by providing training and development opportunities that increase employees' ecological knowledge and skills. Thirdly, future studies should use longitudinal designs to establish causality and generalize the findings to other contexts.

Additionally, future studies could explore the role of other factors, such as institutional culture and stakeholder engagement, in enhancing HEIs' EP. Fourth, HEIs should collaborate with stakeholders, such as industry partners and government agencies, to develop sustainable practices. This will promote environmental sustainability in the broader community. Finally, policymakers and regulatory bodies should incentivize HEIs to adopt sustainable practices and promote environmental sustainability. This can be done through funding initiatives, regulatory frameworks and accreditation requirements that prioritize environmental sustainability.

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