Environmental Science and Pollution Research (2023) 30:115882–115895
https://doi.org/10.1007/s11356-023-30644-z

RESEARCH ARTICLE

Does green HRM really matter for sustainable performance? The role of environmental consciousness and green intellectual capital

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Received: 15 May 2023 / Accepted: 19 October 2023 / Published online: 28 October 2023

Abstract

The purpose of this study is to investigate the impact of a set of green human resource management (HRM) practices on sustainable performance in Pakistani higher education institutions (HEIs), while also taking into account the mediating influence of environmental consciousness and green intellectual capital. Furthermore, the study aims to assess the association between environmental consciousness and green intellectual capital, along with the sustainable outcome. The study data was collected from 250 HR managers and executive officers who were responsible for implementing green HRM practices and sustainable performance in the education sector of Pakistan. Smart PLS-4 software was used to perform the statistical analysis of the data. According to the results of this study, green HRM practices play a substantial role in enhancing sustainable performance. The study also identified a link between green HRM practices and sustainable performance via environmental awareness and green intellectual capital. The research contributes to the theoretical paradigm's social cognitive theory by offering information on green HRM practice bundles and sustainable performance. The research also demonstrates that green intellectual capital and environmental consciousness operate as a bridge between green HRM practices and long-term sustainable performance. The study's findings have real-world applications for education, policymakers, and human resource managers at the highest levels. In order to achieve sustainable performance, the study emphasizes the significance of developing green intellectual capital and implementing green HRM practices.

Keywords Green human resource management practices · Environmental consciousness · Green intellectual capital · Sustainable performance

Introduction

There has been a dramatic increase in the adoption of environmentally sustainable practices, with scholars and specialists paying considerable attention to this issue (do Paço et al. 2019; Su & Swanson 2019). Research in this area has evolved from the concept of "Green Business" to "Greening" organizations' functional units, which includes various aspects like as green sustainable performance, green HRM, green sourcing, green financing, green innovation, and green IT, as well as green administration (Mastini et al. 2021; Hickel & Kallis 2020; Khan & Liu 2022; Niazi et al. 2023). The act of preserving and protecting our planet's natural resources has long been a crucial concern. Howard-Grenville

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et al. (2014) suggest that protecting the natural ecosystem requires collaboration between key decision-makers and top management from various organizations. Businesses today need to offer incentives and behave responsibly if they want to survive in the marketplace. The management of human resources (HRM) operations may benefit greatly from the incorporation of green systems, according to the findings of recent studies (Colding et al. 2020; Ali et al. 2022).

According to Afum et al. (2021), businesses in the service industry are making concerted efforts to improve environmental consciousness, social responsibility, and financial results. They see it as part of their business responsibility to achieve social, economic, and environmental milestones, which can promote sustainable development and environmental protection. Rubel et al. (2021) and Sharma et al. (2022) stated that GHRM techniques are crucial to promoting sustainable behavior and resource management activities in workplace. As time goes forward, this can aid in preventing damage to the natural world because of global warming and other environmental damage. According to the research conducted by Dumont et al. (2017), individual performance knowledge significantly affects in-role and out-of-role green workplace practices. Alam et al. (2021) and Balasubramanian et al. (2021) emphasized the importance of intellectual capital management and strategy development for higher management to increase the organization's intellectual capabilities. According to Alam et al. (2021), intellectual capital can provide senior directors with a wealth of knowledge, which can support informed strategic decisions in HRM practices, especially in dealing with potential organizational hierarchy issues in the future.

Mansoor et al. (2021) highlighted that the increase in pollution caused by work practices has resulted in the deterioration of environmental resources, compelling firms and businesses to implement green practices bundles to enhance their sustainable environmental performance, gain economic benefits, and achieve competitive advantage. Governments have also imposed the adoption of these practices. Studies by Tze San et al. (2022), Remar et al. (2022), Kerber et al. (2023), and Vohra and Vishnoi (2022) have highlighted the importance of environmental consciousness and performance, as well as top management maturity, in adopting GHRM activities. For the service industry to attain sustainable performance, it is essential to switch from conventional HR methods to GHRM methods. Better results in sustainable performance are predicted by the implementation of GHRM practices, as proposed by Mousa and Othman (2020). GHRM practices are important, but they need more research in both the developed and developing worlds.

Implementing GHRM practices, as stated by Hameed et al. (2020), significantly affects the environmental performance of employees, which ultimately helps to sustainable performance. Similarly, Ojo et al. (2022) suggest that these practices impact employees' willingness to engage in environmentally conscious activities, resulting in long-term success. However, Al-Ghazali (2021) points out that there has been a lack of research into the significance of environmental consciousness, personal green values, and the intent to take ecologically responsible action behaviors. As a result, research into the connection among GHRM and environmentally friendly awareness is essential. Minelgaitė and Liobikienė (2021) as well point out that significant changes in environmental consciousness occurred between 2011 and 2020. Education awareness programs have been implemented to address these changes and promote sustainable performance. These results demonstrate that GHRM practices, especially when considered in terms of environmental awareness, can have a positive effect on workers' environmental performance as well as warrant further investigation.

Kim et al. (2019) described that Higher Education Institutes (HEIs) aim to employ individuals who are environmentally conscious and implement GHRM strategies to protect the environment from threats. The implementation of GHRM strategies has been found to enhance employee dedication, environmental performance, and eco-friendly behavior. Furthermore, Hameed et al. (2020) emphasize that the relevance of GHRM strategies and sustainable performance is widely recognized among companies. In an effort to better themselves and long-term, sustainable performance in terms of the environment, society, and economy, many companies are implementing "GHRM practices." As a result, these practices foster individual green values and a culture of green employee empowerment within companies.

Green HRM practices incorporate ecologically sustainable practices and principles into organizations that refer to GHRM policies, plans, and processes (Liu et al. 2023). These practices attempt to raise environmental consciousness and encourage employees to engage in sustainable behaviors, ultimately contributing to the overall sustainability goals of the firm (Ziyadeh et al. 2023). The ability of a company to fulfill its goals and maintain its success over time while limiting negative effects on the environment, society, and future generations is referred to as sustainable performance. Environmental consciousness and the creation of green intellectual capital establish the link between green HRM practices and sustainable performance (Sarwar & Mustafa 2023). Green HRM approaches raise employee environmental consciousness by fostering a culture of sustainability. Green consciousness raises awareness about concerns such as climate change, resource depletion, and pollution. Organizations can improve their employees' understanding of the importance of sustainable practices and encourage them to implement eco-friendly habits into their everyday work routines by educating them on these problems.

Green HRM approaches also help generate green intellectual capital, which refers to employees' knowledge, skills,

and competencies in sustainability and environmental management. Organizations can develop green intellectual capital through training programs, workshops, and information-sharing sessions centered on environmental challenges and sustainable practices (Gharib et al. 2023). Organizations can improve their ability to handle environmental concerns and drive sustainable performance by investing in their workers' green intellectual capital. Combining environmental consciousness and green intellectual capital improves organizational performance in numerous ways. These methods include identifying and implementing environmentally friendly processes and technologies, enhancing the organization's reputation and stakeholder relationships by demonstrating its commitment to sustainability, and hiring employees in organizations that align with their values and provide opportunities to contribute to sustainable development.

Social Cognition Theory (SCT) assists as the conceptual framework for the present study (Albert Bandura 1986). The SCT concerns socio-cultural issues that influence internal and external determinants (Sharmin et al. 2015). SCT entails the active and equal input and interaction of individuals, behaviors, and the environment to produce a good effect. The study indicates that sustainable performance can be achieved by focusing on internal determinants like GHRM practices and green intellectual capital and external determinants such as environmental consciousness. Therefore, the research question emphasizes the importance of examining the intermediary structure of green intellectual capital and environmental consciousness in order to comprehend the influence of bundles of GHRM practices on sustainable performance. There are three primary goals of this research. The primary goal of this study is to learn how sustainable performance in Pakistan's higher education institutions is affected by GHRM practices. The second goal is to look at how GHRM practices affect green IC and environmental consciousness. Third, we hope to draw attention to the role that GIC, alongside environmental consciousness, plays as a mediator among GHRM bundle strategies and sustainable performance in Pakistani HEIs. The study's findings may be used to help Pakistani higher education institutions (HEIs) determine which administrative regulations concerning GHRM practices are necessary for achieving sustainable performance.

Literature review

Theoretical underpinning

Social cognitive theory (SCT)

Albert Bandura's Social Cognition Theory (SCT) serves as the conceptual framework for the present study (Albert Bandura 1986). The social cognitive theory concerns socio-cultural issues that influence internal and external determinants (Sharmin et al. 2015). SCT entails the active and equal input and interaction of individuals, behaviors, and the environment to produce a good effect. SCT is based on three elements: cognitive psychological, behavioral, and external environmental variables. It shows how personal, environmental, and behavioral elements are intertwined and continually influenced by one another (Dace et al. 2020). The reciprocal triadic determinism may explain various behavioral changes, including personal and environmental changes. Changes in human behavior impact environmental circumstances and are also affected in comparable scenarios, according to (Albert Bandura 2009).

It is also the adoption of sound change due to seeing other people's behavior; it can be learned through individuals, groups, societies, or institutions. In one of the studies, the researcher utilized SCT to examine how to build a public policy involving people of various value systems and encouraging them to embrace pro-environmental awareness (Helm et al. 2018). The study indicates that sustainable performance can be achieved by focusing on internal determinants like GHRM practices and green intellectual capital. Sustainable performance can also be influenced by external determinants of the organization, such as environmental consciousness. In order to achieve long-term success in performance, HR managers must implement GHRM practices. In sum, the findings of this study model the value that GHRM practices can bring to the infrastructures of universities and colleges.

Hypothesis development

Green HRM practices and sustainable performance

Green HRM practices incorporate ecologically sustainable practices and principles into organizations that refer to GHRM policies, plans, processes, and training (Liu et al. 2023). The ability of a company to fulfill its goals and maintain its success over time while limiting negative effects on the environment, society, and future generations is referred to as sustainable performance. Cultivating green HRM practices in firms positively impacts employee work satisfaction and environmental awareness. Green training is relevant and sufficient to elicit professionals' interest in environmentally friendly actions. This training works as a catalyst for instilling intelligence in drive-in employees, encouraging them to adopt green practice bundles. The executives have been permitted to apply practical green training to increase the organization's sustainability (Pinzone et al. 2019). According to the research, the educational sector is thoroughly evaluated regarding the components of GHRM exercises' direct, indirect, and interaction. The direct and indirect responsibilities of GHRM are used to improve

environment-based organizational performance (Darvazeh et al. 2022). The research looks at GHRM-based strategies literature and its influence on sustainable performance and highlights and recommends major green HR initiatives (Alzyoud 2021; Amjad et al. 2021a, b). The GHRM practices bundle is a distinctive emerging trend of practical managerial activities or management that combines environmental and sustainable performance to maintain organizational performance (Úbeda-García et al. 2021; Naseer et al. 2023). The environment is among the most pressing managerial concerns (Opatha & Arulrajah 2014). However, firms' efforts to find strategies in the shape of green HRM activities limit the detrimental impact on performance. Green HRM practices package has arisen in the recent decade as a vital consideration for the future, aiming for sustainable performance. It is growing tougher shortly as COVID-19 affects the whole globe, enterprises, and society (Paulet et al. 2021). Thus, the study hypothesizes that:

H1: Green HRM practices have a significant positive impact on sustainable performance.

Green HRM practices and green intellectual capital

Accordingly, Yong et al. (2019), the Brundtland Report (1987) urged corporate organizations to act responsibly towards green HRM activities to remain competitive and environmentally friendly in a global market. Additionally, Yusliza et al. (2020) argued that increasing environmental awareness through green HRM is necessary for developing green intellectual capital, given the growth of global environmentalism in the past decade. Sustainability, as Secundo et al. (2020) pointed out, is concerned with a company's future rather than its current performance. To address sustainability challenges through intellectual capital knowledge, Xu and Wang (2018) and Ullah et al. (2022) suggested the idea of "green intellectual capital," which takes into account both corporate and personal environmental concerns when allocating resources. According to Alam et al. (2021) and Balasubramanian et al. (2021), management of intellectual capital and strategy development can help senior directors make the most of their organization's intellectual resources. Moreover, Alam et al. (2021) argued that senior directors can benefit from intellectual capital by having a clearer picture of potential organizational hierarchy problems from which to make strategic decision-making in HRM practices. Hence, the study hypothesis that:

H2: Green HRM practices have a significant positive impact on green intellectual capital.

Green HRM practices and environmental consciousness

Pham et al. (2020) endorsed that the interaction between employees' training and involvement has an impact on the business's total contribution to environmental performance. GHRM is considered the ultimate service industry business strategy in today's corporate world, with the primary goal of increasing and improving organizational sustainability (Amjad et al. 2021b, a). According to Muisyo and Qin (2021), a company's green performance is tied to its GHRM practices, and vice versa; fostering a green culture can boost a company's green standing. Long-term performance is greatly affected by GHRM practices like "green" hiring, "green" training and development, "green" performance management and appraisal, "green" reward and payment, and "green" employee involvement and leadership. Gull and Idrees (2021) explain that GHRM practices involve the use of human resources to adapt GHRM practices that maximize the value of environment. These practices address social responsibility, waste reduction, ownership, and environmental goals and strategies that are entirely linked with organizational operations.

Employees that are engaged and cooperative are always the source of successful sustainable development implementations in an organization (Piwowar-Sulej, 2021). The value-added contribution of policies for the execution of the GHRM practices bundle should be a value-added contribution where employees are extra encouraged to take part in green pieces of training as well as involvement activities, green performance managing, and greening compensation, through the intervening effect of environmental consciousness (Farooq et al. 2021). The critical HRM operations, such as recruitment or staffing, training, green performance management appraisals, and compensations, impact GHRM practices by considering the HEIs' green aims. The human resources department is critical to the organization's green culture. The article focuses on the many GHRM techniques used by firms worldwide. It simplifies the basic concept of GHRM and suggests future paths for businesses (Ahmad 2015). Consequently, the study hypothesis that:

H3: Green HRM practices have a significant positive impact on environmental consciousness.

Environmental consciousness and sustainable performance

According to Zareie and Navimipour (2016) and Pinheiro and Pasquier (2023), environmental consciousness means taking responsibility for one's actions in order to safeguard the planet and encouraging others to adopt a green way of thinking, especially in the realm of human resources. People who value the environment tend to occur more often make eco-friendly choices, such as buying green products, recycling, and taking part in eco-friendly events (Sevencan et al. 2017). Suganthi (2019) argues that modifying an organization's culture can change employees' behavior to be less wasteful of natural resources. However, there has been less research done on, and less of an emphasis on, environmental

consciousness in developing nations, and overconsumption by consumers due to rapid economic expansion is a critical problem on Earth (Alzubaidi et al. 2021). Lange and Dewitte (2019) suggest using tolls in multidisciplinary studies to track environmental awareness.

According to Grilli and Curtis (2021), in order to achieve a success rate of over 70% for waste or energy-related behavior change, environmental consciousness must be integrated into practitioner policies. On the other hand, water-related programs only have a success rate of 60%. To encourage environmental consciousness among employees, education, rewards, behavioral insights, and awareness raising are necessary. Sustainable performance in the context of an environmental outlook, according to Naz et al. (2021), can be shown through actions like printing on both sides of paper, reusing plates and cups, turning off lights when leaving a room, and joining groups that employ green strategies to safeguard the environment. The triple bottom line—environmental, social, and economic—can all benefit from such sustainable performance. Hereafter, the study hypothesis that:

H4: Environmental consciousness has a significant positive impact on sustainable performance.

Mediating role of green intellectual capital

According to Alvino et al. (2021) and Secundo et al. (2020), intellectual capital referred the knowledge that an organization can utilize to accomplish green environmental management practices and gain a competitive and sustainable advantage. Allameh (2018) and Bayraktaroglu et al. (2019) stated intellectual capital is a complex concept that comprises practical competencies, experience, and knowledge, which enhances the organization's value in achieving sustainable performance. Green intellectual capital knowledge can be found in various areas within the organization, such as corporate internal or external relationships, business processes, and systems, as highlighted by Yong et al, (2019), Khan et al. (2021), and Nisar et al. (2021). The mechanism through which green HRM practices promote sustainable performance by increasing the organization's green intellectual capital is referred to as the mediating role of green intellectual capital between green HRM practices and sustainable performance (Chawewong & Naipinit 2023). According to Alam et al. (2021) and Balasubramanian et al. (2021), managing as well as developing intellectual capital can assist senior directors in optimizing the organization's intellectual resources. Additionally, Alam et al. (2021), intellectual capital can give senior directors access to a plethora of information and help strategic decision-making in HR practices to prevent future organizational hierarchy problems. Thus, the study hypothesizes that:

H5: Green intellectual capital has a significant positive impact on sustainable performance.

H6: Green intellectual capital mediates the relationship between green HRM practices and sustainable performance.

Mediating role of environmental consciousness

According to Lange and Dewitte (2019), environmental consciousness involves managing an individual's or an organization's actions to conserve and preserve the environment, as well as holding each individual accountable for adopting a green mindset while engaged in HR operations. Esfandiar et al. (2019) suggest that environmental awareness is more successful in enhancing sustainability and connections. As per research, a firm's approach and operations have a significant impact on how its employees behave (Suganthi 2019; Sulaymonovna 2023), and a solid corporate culture can encourage employees to operate in a way that is more considerate of the environment (Suganthi 2019; Sulaymonovna 2023). This behavior can be influenced by offering staff a stable environment where they can adhere to GHRM guidelines and motivating stakeholders to take part in green initiatives (Sawitri et al. 2015). Furthermore, The organizational leadership tiers must contribute to increased environmental performance and other long-term effects, and psychological green culture instills GHRM practices and performance linked with organizational values (Ren et al. 2021; Sawitri et al. 2015). Shafaei et al. (2020) stated GHRM package helps firms and organizations achieve sustainable performance by recognizing social and economic obligations and contributing to the environment, economy, and social performance. Umrani et al. (2020) define green management, commonly called ecological management, as being concerned with environmental performance. Consequently, the study hypothesis that:

H7: Environmental consciousness mediates the relationship between green HRM practices and sustainable performance.

After a detailed discussion of the literature review, the study proposed the following mentioned theoretical model in Fig. 1:

Methodology

Sample design and data collection

In this study, a quantitative approach was utilized to determine the implementation of green HRM practices in the education sector of Pakistan (Gorard 2001). The study took a deductive approach, starting with a pre-existing theory or hypothesis tested using empirical evidence (Kennedy & Thornberg 2018). The study also employed a descriptive research design, describing and documenting a given event's traits, behaviors, or patterns (Williams 2007). The study used the data collected from Higher Education Institutions (HEIs) in Pakistan that

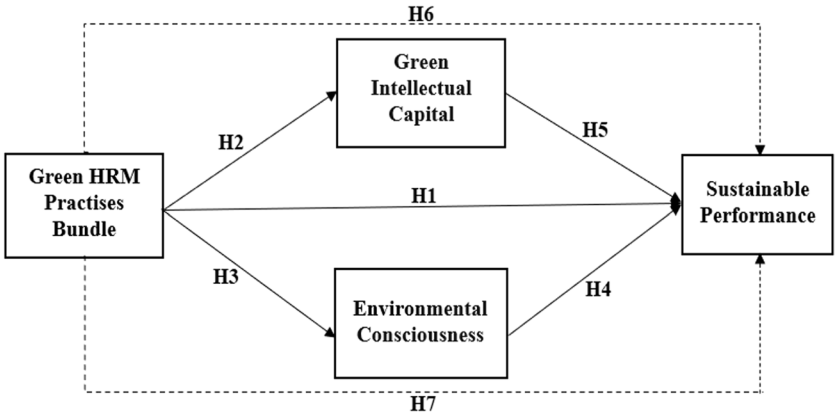

Fig. 1 Theoretical framework

followed green activities and regulations. Accordingly, as defined by Higher Education Commission (HEC, Islamabad, Pakistan), the 253 public and private HEIs and their 130 sub-campuses are working in Pakistan (https://www.hec.gov.pk/english/universities/pages/recognized.aspx). In each institution and sub-campus, the human resource department is working to implement green HRM practices to build sustainable performance in the manner of a healthy environmental shield.

The study targeted HR directors who directly engaged in implementing the GHRM practices bundle in HEIs and executive officers who direct dealt with implementing sustainable performance in respective HEIs of Pakistan. Questionnaires were distributed to the designated HEIs using a systematic sampling approach where every nth number was selected (Mostafa & Ahmad 2018). The total sampling frame was 383; accordingly, Israel (2009) if the sample frame consists of 400, approximately 196 samples could be collected to run the analysis. In this scenario, with the help of interval formula (population size/sample size) – (383/196), 1.95 means to say 02 was the nth number calculated (Buckland 1951). Further, with utilization of every nth through systematic sampling, data was gathered from the respective audience. The data was collected through the survey strategy (Hinkin 1998), and 250 individuals participated in the study survey. Ultimately, the data was analyzed using 210 valid responses.

Measures

The study employed established measures from previous literature to evaluate several constructs. Specifically, green HRM practices were determined using a 15-item scale adopted from Renwick et al. (2013) that encompassed aspects such as green hiring, compensation, performance, innovation, training, and green development. The green intellectual capital consisted of five items adapted from components of green human, relational, and structural capital proposed by (Chen 2008). Environmental consciousness consisted eight-item that were adapted from (Sanchez & Lafuente 2010), which assessed factors such as awareness of environmental issues, knowledge, and pro-environmental manners and behavior. Finally, sustainable performance was evaluated using seven-item derived from a mixture of environmental as well as economic performance and adapted from (Zhu et al. 2008, 2005).

Empirical findings

This study evaluated analyzed variables and assessed the hypotheses using Smart PLS-4 statistical software by focusing on (PLS-SEM) technique partial least square structural equation modeling. The software is widely used in research and is regarded as a modern measurement tool with a flexible estimating technique (Ali et al. 2018; Ringle et al. 2005). PLS-SEM is also well-regarded because it requires less data and is more conventional (Hair et al. 2016). Similar to that study, the proposed outcomes were identified as the most appropriate study outcomes in social science using a two-step method (Henseler et al. 2009; Hair et al. 2016). The initial stage in determining the discriminant and convergent validity assessment model was confirmatory factor analysis. The second step, meanwhile, focused on path analysis using the SEM approach to assess the structural model. Concerning the path analysis and mediation analysis, the four-factor model (GHRM, GIC, GC, SP) performed well in PLS-SEM.

Demographic profile

As mentioned earlier, the study targeted HR managers and executive officers who played a direct role in implementing GHRM practices bundle and sustainable performance in HEIs across Pakistan. To collect data, 250 questionnaires were circulated, and after that 210 responses were received. The demographic profiles of the respondents are listed below in Table 1:

Descriptive statistics

These descriptive statistics summarize the distribution, central tendency, and variability of the data for each construct in

Table 2. They help to understand the range and characteristics of the variables under investigation in the study. The "*N*" column represents the number of observations for each construct. There are 210 observations or respondents for each of the four constructs. The "minimum" column represents the lowest score or measurement recorded in the dataset. Similarly, the minimum value for the "GHRM practices bundle" was 1.94, for "green intellectual capital" was 1.00, for "environmental consciousness" was 2.25, and for "sustainable performance" was 1.71. The "maximum" column indicates the highest score or measurement recorded in the dataset. For instance, the maximum value for the "GHRM practices bundle" was 4.89, and for "green intellectual capital," "environmental consciousness," and "sustainable performance," it was 5.00. The "mean" displays the average or arithmetic mean of the values for each construct. It represents the central tendency of the dataset. Likewise, the mean value for the "GHRM practices bundle" was 4.262, "green intellectual capital" was 2.171, "environmental consciousness" was 4.189, and "sustainable performance" was 4.141. The "Std. deviation" measures the dispersion or variability of the data around the mean. A higher standard deviation indicates greater variability in the scores. Additionally, the SD for the "GHRM practices bundle" was 0.337, "green intellectual capital" was 0.974, for "environmental consciousness" was 0.406, and for "sustainable performance," it was 0.522. The descriptive statistics results can be seen below table:

Table 1 Demographic profile

Constructs	Classifications	Frequency	Percentages
Gender	Male	124	59%
	Female	86	41%
Age	Up to 25 years	13	6.2%
	26–45	179	85.22%
	46–55	18	8.6%
	56+	0	0%
Education	Bachelor's	115	54.8%
	Master's	89	42.4%
	PhD	6	2.9%
Nature of employment	Permanent	141	67%
	Contractual	67	31.9%
	Others	2	1%
Length of service	Up to 1 year	29	13.8%
	2–5	114	54.3%
	5–10	52	24.8%
	10+	15	7.1%

Source: Author's Design

Correlation analysis

Correlation analysis can be utilized to confirm the degree of relationship between two categorical variables, which is an important step. The Pearson correlation approach was used in this study to evaluate the relationship between the variables. The range of the correlation coefficient is from − 1 to + 1, with + 1 denoting a robustly positive connection and − 1 denoting a robustly negative relationship between the variables. There is no association between the two variables, as indicated by a value of "0." Table 3 presents the findings of the correlation study and displays positive relationships. For instance, there is a favorable correlation between environmental awareness (EC) and GHRM. GIC, the study's intermediary variable, has a positive correlation with each measure as well. Additionally, there is a favorable correlation between sustainable performance (SP) and environmental consciousness (EC).

Measurement model assessment

Convergent and discriminant techniques were employed in this work to evaluate the validity and reliability of the measurement model (Hair et al. 2017). The average variance extracted (AVE) value, loadings, reliability, alpha, and other indicators were used to evaluate the convergent validity (Hair et al. 2017). As indicated in Table 4 and Fig. 2, the loadings were assessed to make sure that each outer loading was larger than 0.70 and significant in accordance with the threshold criterion (Hair et al. 2017). Table 4 also includes data for alpha as well as reliability (CR) values, with findings showing that an alpha and CR value of 0.70 or higher for each construct was considered acceptable (Hair et al. 2014). Additionally, the AVE value for each of the constructs was assessed; the findings revealed that the AVE value was higher than 0.50, which was considered acceptable (Cheung & Wang 2017).

Table 2 Descriptive statistics

Constructs	*N*	Minimum	Maximum	Mean	Std. deviation
GHRM practices bundle	210	1.94	4.89	4.262	0.337
Green intellectual capital	210	1.00	5.00	2.171	0.974
Environmental consciousness	210	2.25	5.00	4.189	0.406
Sustainable performance	210	1.71	5.00	4.141	0.522

Source: Author's Design

Table 3 Pearson correlation analysis

Variables	GHRM	EC	GIC	SP
GHRM practices	1			
Environmental consciousness	0.280**	1		
Green intellectual capital	0.091	0.035	1	
Sustainable performance	0.235**	0.644**	0.035	1

GHRM green HR management practices bundle, *GIC* green intellectual capital, *EC* environmental consciousness, *SP* sustainable performance

**Correlation is significant at the 0.01 level (2-tailed)

The Heterotrait-Monotrait ratio was used to evaluate the discriminant validity, and the results showed that each construct's value was smaller than 0.85 and was considered significant, as presented in Table 5 (Kline 2015). The results demonstrated that the HTMT ratio of constructed objects was valid (Kline 2015). Overall, this study used convergent and discriminant methods to evaluate the measurement model's validity and reliability, and the results indicated that the model had acceptable validity and reliability indicators (Hair et al. 2017, 2014; Cheung & Wang 2017; Kline 2015).

Structural model assessment

In order to investigate the relationships between the constructs, structural equation modeling was used. The Smart Partial Least Square (PSL) method was used to validate the structural model. The structural model reveals the latent variables' relationship patterns. It provides information on how the study's conceptual model anticipates the hypothesis. The bootstrapping approach (500 resamples) was utilized to calculate the standard deviation and *t*-statistics to estimate the significance of the path coefficient for each construct. *P*-values are significant in this analysis. *t*-statistics should also be significant to support the model, with values more than 1.65, 1.96, or 2.58 for alpha levels of 0.1, 0.5, and 0.01. The output of the model analysis, which includes the path coefficient as well as the *P*-value for dependent construct, is analyzed, and the research hypothesis is examined. We first investigated the link between the proposed variables and the indirect relationship. Table 6 and Fig. 3 indicate that GHRM had a noteworthy influence on SP at a 1% significance level. The findings also show that, at a 1% level of significance, GIC and SP have a favorable and substantial influence on GHRM. We also discovered that EC is not significant, respectively. As a result, at various levels of significance, all of the hypotheses are accepted other than H4, which is not accepted. The study outcomes also revealed that GIC and EC are performing a mediating role between GHRM and SP as well as significant.

Table 4 Convergent validity

Variables	Items	Loading	Alpha	CR	AVE
Green HRM practices	GHRM1	0.744	0.945	0.951	0.551
	GHRM2	0.744			
	GHRM3	0.751			
	GHRM4	0.732			
	GHRM5	0.695			
	GHRM6	0.713			
	GHRM7	0.779			
	GHRM8	0.773			
	GHRM9	0.709			
	GHRM10	0.730			
	GHRM11	0.787			
	GHRM12	0.558			
	GHRM13	0.828			
	GHRM14	0.833			
	GHRM15	0.752			
	GHRM16	0.708			
Green intellectual capital	GIC1	0.658	0.783	0.852	0.537
	GIC2	0.758			
	GIC3	0.783			
	GIC4	0.703			
	GIC5	0.753			
Environmental consiousness	EC1	0.598	0.867	0.896	0.521
	EC2	0.712			
	EC3	0.719			
	EC4	0.629			
	EC5	0.766			
	EC6	0.801			
	EC7	0.785			
	EC8	0.741			
Sustainable performance	SP1	0.828	0.899	0.921	0.624
	SP2	0.796			
	SP3	0.760			
	SP4	0.783			
	SP5	0.810			
	SP6	0.786			
	SP7	0.763			

Source: Author Design using Smart PLS-4

Discussion and implications

The findings showed that GHRM practices have a major impact on environmental awareness and green intellectual capital. Yong et al. (2020) state that businesses that invest in green training for their staff have a greater chance of success when it comes to increasing their organizations' green capabilities. Both Baah et al. (2021) and Meijerink and Bondarouk (2023) highlight how this environmentally conscious collaboration leads to decreased waste and enhanced organizational performance. GHRM techniques, as proposed by

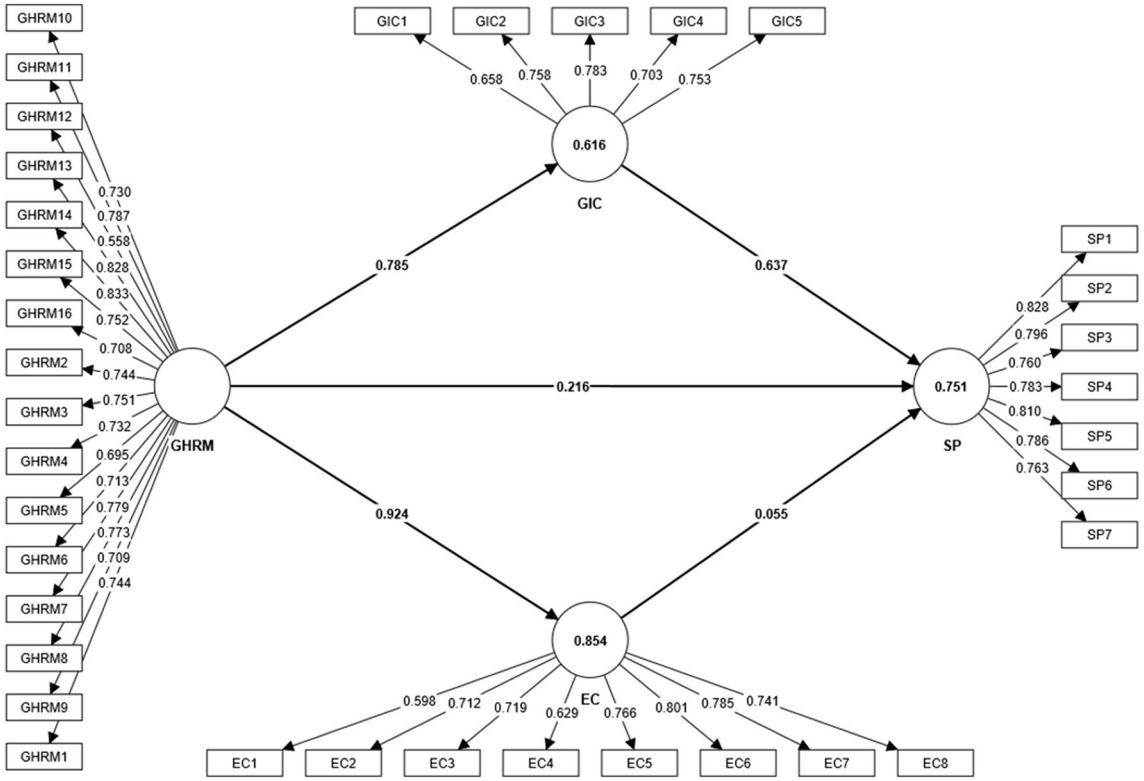

Fig. 2 Measurement model assessment

Table 5 Discriminant validity

Constructs	EC	GHRM	GIC	SP
Environmental consciousness				
Green HRM	1.013			
Green intellectual capital	0.972	0.913		
Sustainable performance	0.863	0.831	1.005	

GHRM green HR management practices bundle, *GIC* green intellectual capital, *EC* environmental consciousness, *SP* sustainable performance

Khalid et al. (2021) and Yong et al. (2020), can also improve an organization's environmental performance. Empowering workers to make decisions for themselves may also boost environmental awareness and productivity. The influence of GHRM methods on the long-standing problem of environmental protection can be broken down into three categories: green capital structural, green human assets, and green relational capital.

The results of the study also showed a favorable and statistically significant connection between practice bundles

Table 6 Structure equation modeling (SEM)

Hypothesis	Path relationship	Beta	SD	*T*	*P*-values	LL	UL	Remarks
H1	GHRM—> SP	0.216	0.091	2.366	0.009	0.064	0.370	Accepted
H2	GHRM—> GIC	0.785	0.073	10.762	0.000	0.639	0.865	Accepted
H3	GHRM—> EC	0.924	0.024	38.701	0.000	0.874	0.951	Accepted
H4	EC—> SP	0.055	0.086	0.637	0.262	−0.086	0.197	Rejected
H5	GIC—> SP	0.637	0.062	10.278	0.000	0.526	0.731	Accepted
H6	GHRM—> GIC—> SP	0.500	0.063	7.946	0.000	0.385	0.590	Accepted
H7	GHRM—> EC—> SP	0.051	0.080	1.638	0.002	0.079	0.183	Accepted

GHRM green HR management practices bundle, *GIC* green intellectual capital, *EC* environmental consciousness, *SP* sustainable performance

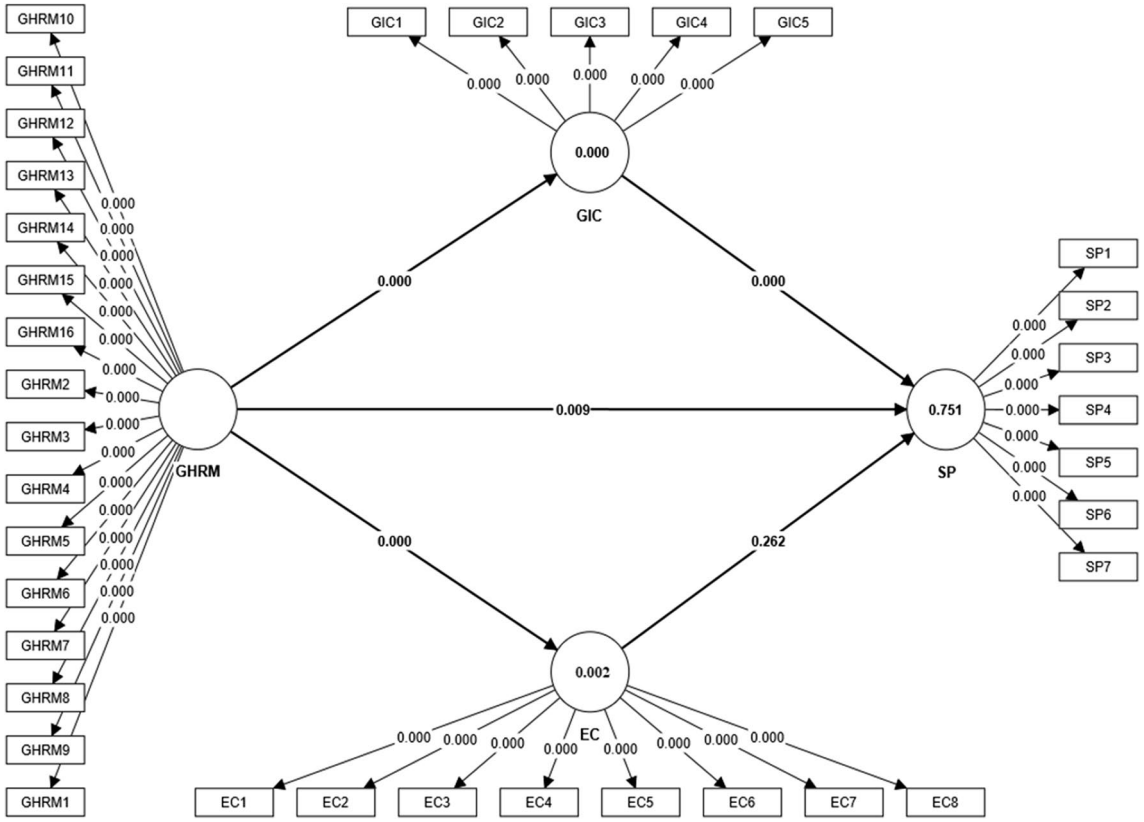

Fig. 3 Structural model assessment

and eco-awareness, GHRM practices, and green intellectual capital. It was found in a previous study (Naz et al. 2021) that green HRM practices boosted both ecological and intellectual capital performance. One of the most important indicators of environmental consciousness and performance is a company's environmental plan. Waste reduction and enhanced company efficiency (Baah et al. 2021; Meijerink & Bondarouk 2023; Khan et al. 2023), as well as better environmental outcomes (Khalid et al. 2021; Yong et al. 2020), have all been linked in the literature to environmental conscious cooperation. Finally, research has linked employee self-empowerment to improved environmental awareness and performance.

For indirect relationships, environmental consciousness and GIC mediate the affiliation between GHRM and sustainable practices. Since the last decade, GHRM practices have changed, and with the passage of time, they have become a problem with the new change world in pandemics. To establish green HRM practices that improve long-term performance or are aimed at a blockade (Paulet et al. 2021). Implementing GHRM strategic practices can enhance long-term performance and help organizations comply with strict international environmental standards and consumer environmental consciousness, thus gaining a competitive edge. Organizations that invest significantly in green intellectual capital can attract top talent, gain a competitive edge, and contribute to a sustainable environment. This is particularly relevant for businesses in underdeveloped countries seeking to maintain sustainable practices.

GHRM practices operate under the framework of the social cognitive theory. Based on the result, this theory explores how HR managers' understanding of environmental awareness as well as sustainable performance can shape their influence. By implementing green HRM practices, managers and top executives can align their cognition and expertise to achieve sustainable performance while also considering the mediating role of environmental consciousness and green intellectual capital. The study concludes that there is a dearth of literature on how GHRM strategies, intellectual capital, as well as environmental consciousness, can boost universities' environmental, social, occupational, and economic sustainability.

Theoretical contribution

Theoretically, this study imparts knowledge of green HRM practice bundles and sustainable performance by several means, first to connect with the research gap of current theoretical research, which adds to test the relationships among the scholarly work construct under the social cognitive theory

of the theoretical paradigm. This research's proposed conceptual model is based on the social cognitive theory, which offers a comprehensive view of the suite of GHRM practices that fosters long-term success. The theoretical foundations of the SCT wordlist are strengthened by this research. It offers hard data on how the green HRM practices package contributes to long-term success in Pakistan's academic institutions. Sustainable performance that considers the environment, society, and the economy is aided by GHRM practices that aim to lessen their impact on the natural world.

Furthermore, conducted research in Pakistan's education industry to address research gaps and provide specific information on the complex phenomena of environmental consciousness and its relationship to green HRM practices and long-term performance. Based on social cognitive theory, the results of this study highlight the value of GHRM in boosting long-term performance. The findings indicate that HR experts and upper management in the academic sector can play a significant role in advancing environmental awareness and GHRM practices by encouraging current and future employees to adopt a more eco-friendly worldview.

Improved environmental performance can result from a company's workforce embracing green intellectual capital at the executive and managerial levels. Mediating the relationship between GHRM practices and long-term performance, the study provides further support for the SCT hypothesis (Naz et al. 2021). The study's objective is to learn whether or not GHRM strategies may improve long-term performance by raising students' awareness of environmental issues and increasing the country's stock of green intellectual capital.

The study's findings emphasize the significance of green HRM in improving long-term performance within the framework of social cognitive theory. The results suggest that HR professionals and top management in the education sector can play a vital role in promoting environmental consciousness and green HR practices by engaging the existing or new workforce to develop their green mindset. Through these efforts, employees can embrace green intellectual capital at the highest tiers and managerial levels, leading to enhanced environmental performance. The study further contributes to the SCT theory by demonstrating the mediating effect of environmental consciousness and green intellectual capital on green HRM practices and long-term performance (Naz et al. 2021).

Practical implications

Fundamentally, HEIs must present a framework based on strategic performance management, which can be related to green habits and employee remuneration and advancement. By incorporating it in annual appraisals, management can further entice staff. It allows them to involve personnel in environmentally approachable activities. Employee engagement will rise, resulting in extra environmentally responsible business practices (Hameed et al. 2020). Concerns about sustainability and environmental awareness must be incorporated into HR policies, with managers being held accountable for implementing green HRM rules. As a result, management will be responsible for implementing the GHRM practices bundle with immediate attention (Naz et al. 2021).

Furthermore, HEIs must implement corporate sustainability strategies to measure sustainable performance by setting performance goals governed by the green performance management and compensation policy and system. These regulatory regulations align with HEI's social, environmental, and societal goals. Green HRM practices, environmental consciousness, and intellectual capital can help achieve sustainable performance on the government side and other associated organizations. The government can design a green HRM strategy with the help of this study and create a strategy that combines environmental sustainability goals with HR practices. Align the plan with the organization's overarching sustainability objectives and ensure that it is communicated throughout the country to achieve long-term performance.

Limitations and future research directions

There are certain limits to the current research study's goals. To begin, data was collected using a systematic sampling technique from HEIs in Pakistan. As a result, future research can be executed on another sector of Pakistan for implementing GHRM practices to understand the function of the GHRM better practices bundle and long-term performance in Pakistan. Secondly, future research can also be conducted on other economies developed and underdeveloped for implementing GHRM practices to understand the function of the GHRM with environmental protection for comparison purposes. Thirdly, future studies in GHRM and sustainable performance in Pakistan can employ mixed-methods research. Fourthly, future researchers might investigate the relationship between awareness of sustainable performance and environmental protection legislation and their consequences. Finally, using corporate social responsibility as a moderating variable will provide fresh insights to eminent education experts (Niazi et al. 2023).

Conclusion

This research delves into the connection between GHRM methods, eco-friendly actions, and long-term sustainable success. The data was gathered from Higher Education Institutes (HEIs) in Pakistan and analyzed using Smart PLS software. The findings point to a positive correlation between GHRM practices and long-term sustainable performance.

The study also concludes that green intellectual capital and environmental consciousness mediate the connection between GHRM practices and sustainable performance success.

Acknowledgements The authors would like to thank all the participating banks for their support in this study.

Author contribution "All authors contributed to the study conception and design. Material preparation, data collection, analysis, and overall review were performed by HA, WK, Dr. QAN, Dr. AKP, and Dr. SZ. The first draft of the manuscript was written by HA and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript."

Data availability The data that support the findings of this study are available from the corresponding author upon request.

Declarations

Ethics approval and consent to participate Not applicable.

Consent for publication Not applicable.

Competing interests The authors declare no competing interests.

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