

1-1-2021

The effect of green human resource management on environmental performance: The mediating role of employee eco-friendly behavior

Atif Ali Gill
University of Sahiwal

Balqees Ahmad
Zayed University

Shiza Kazmi
University of Management and Technology Lahore

Follow this and additional works at: <https://zuscholars.zu.ac.ae/works>



Part of the [Business Commons](#)

Recommended Citation

Gill, Atif Ali; Ahmad, Balqees; and Kazmi, Shiza, "The effect of green human resource management on environmental performance: The mediating role of employee eco-friendly behavior" (2021). *All Works*. 4119.

<https://zuscholars.zu.ac.ae/works/4119>

This Article is brought to you for free and open access by ZU Scholars. It has been accepted for inclusion in All Works by an authorized administrator of ZU Scholars. For more information, please contact Yrjo.Lappalainen@zu.ac.ae, nikesh.narayanan@zu.ac.ae.

The effect of green human resource management on environmental performance: The mediating role of employee eco-friendly behavior

Atif Ali Gill^{a*}, Balqees Ahmad^b and Shiza Kazmi^c

^aFaculty of Department Business Administration, University of Sahiwal, Pakistan

^bAssistant dean for Research and Outreach, Zayed University, United Arab Emirates

^cResearch Associate, University of Management and Technology, Pakistan

CHRONICLE

Article history:

Received: December 12, 2020

Received in revised format:

December 29 2020

Accepted: February 17, 2021

Available online:

February 17, 2021

Keywords:

Green human resource management

Environmental performance

Eco-friendly behavior

Higher education institutes

Ability Motivation Opportunity theory

ABSTRACT

The current study examines the change in environment performance through green human resource management in a developing country's higher education institutes. The data were collected by survey using a reliable and valid instrument adopted from the literature. The unit of analysis in the current study is an individual consisting of employees working in higher educational institutions of Pakistan. Three hundred questionnaires were distributed while 220 questionnaires were found completely filled for statistical analysis. The current study utilizes the multiple regression techniques through structural equation modelling using second-generation software SmartPLSv3.0. The results indicate the positive influence of green human resource policies on environmental performance and provide significant insights on the partial mediating effect of employee eco-friendly behavior between green human resource management and environmental performance. The present study provides numerous theoretical and practical implications through the extension of Ability-Motivation-Opportunity theory by constituting the employee behaviors for the implementation of environmental strategies in the organization context. The findings of the present study suggest guidelines for human resource managers and management of educational institutes to implement green human resource policies that are likely to improve institutes environmental performance.

© 2021 by the authors; licensee Growing Science, Canada

1. Introduction

The twenty-first century has shown great interest on improving environmental concerns all over the globe as organizations are currently facing environmental ramifications such as irreversible pollution, global warming, depletion of natural resources, climatic change and electricity shortages that pose a serious threat to environmental sustainability (Saeed et al., 2018). The recent interest in environmentalism has compelled organizations to adopt environmentally friendly green strategies to cope up with environmental issues (Ahmad, 2015; Ahmed & Ahsan, 2011). To minimize the environmental damage, manufacturing and service industries are adopting green practices to reduce environmental pollution and save the existing natural resources. The service industry such as hotels, educational institutions and banks are also implementing environmental management policies to create awareness among employees (Hsiao et al., 2014; Rahman et al., 2012). Given the present condition, education institutions are inclined to implement green initiatives and make their HR department operations less harmful for the environment through electricity savings, reducing carbon footprints, less office material usage and recycling resources (Wang, 2019). Green human resource management is considered as a vital element of an organization in managing the environmental concerns and facilitates the sustainable use of resources to attain competitive advantage. Many organizations consider human resources as a strategic imperative in the company's vision and goals. The conceptual definition of green human resource

* Corresponding author.

E-mail address: atifali@uosahiwal.edu.pk (A. A. Gill)

management (GHRM) is given by Zoogah (2011), the integration of HRM policies that encourage the sustainable use of resources which further helps in reducing the potential environmental hazards. Traditionally, human resources management is considered as a communication agent to transfer the top management vision toward the middle and line management to achieve the corporate objectives. However, Paillé et al. (2014) stated that HRM involvement in environmental success is very crucial and has a direct impact on the implementation of these green initiatives. In this regard, the Ability-Motivation-Opportunity (AMO) theory guides this research by providing a theoretical framework of how human resource practices develop the environmental skills and motivation of employees and also provides the opportunity for improving environmental performance (Yu et al., 2020). Existing literature primarily focus on the manufacturing sector regarding the influence of green human resource practices including green staffing, online recruitment, environmental training and benefits on the environmental performance of firms (Kim et al., 2019). Besides that, prior literature discussed more about the service industry in two different aspects; customer perspective and employee perspective. There is limited research that focuses on employee perspective about the awareness and attitudes of employees towards the implementation of green practices. However, the present study examines the green human resource practices in higher educational institutions, which have been less investigated in previous studies (Fawehinmi, Yusliza, Mohamad, Faezah, & Muhammad, 2020). Higher education institutes (HEIs) are being operated as huge enterprises that consume more energy, carbon emissions from vehicles, physical space and cooling equipment. HEIs produce a large chunk of waste including papers, plastic and waste materials that contaminate the environment (Fawehinmi et al., 2020). Educational institutes are required to boost the environmental performance by focusing on the development of environmental skills, abilities and behavior of employees. The attainment of environmental objectives is ensured by developing employee eco-friendly behavior through green human resource policies (Mishra, 2017). Employee eco-friendly behavior demonstrates high commitment towards organizations by creating awareness through lectures, seminars and workshops. It can be postulated from the literature that the importance of employee behavior is gaining attention in developing countries which needs more investigation (Kim et al., 2019). Thus, the objective of the current study is to examine the role of green human resource management on eco friendly behavior of employees that would ultimately improve environmental performance in Pakistani higher education institutes.

The present research has multiple contributions: Firstly, this is one of the pioneer studies to examine the green human resource practices in higher education institutes of Pakistan. Therefore, this is an addition to the existing literature on green HRM in the management field. Secondly, this study bridges the gap by focusing on the mediating role of ecofriendly behavior of employees which is a less studied area in developing countries (Mishra, 2017). Practically, this study contributes by providing guidelines for practitioners to implement green HR management policies at the university level to make their workforce environmentally responsible and deliver the awareness among employees to save energy, water and natural reserves. Teixeira, Jabbour, Jabbour, Latan, and De Oliveira (2016) claimed that the implementation of green practices in emerging economies is still a challenge for employers and organizations. Further sections of this article describe the literature review, research framework, methodology, following discussion, limitations and future study suggestions.

2. Literature Review

The emerging global concern for environment protection has great influence on organizations to adopt preventive measures against environmental ramifications, global warming, wastage of materials, climatic change and depletion of natural reserves. In a United Nations Sustainable Development Summit (2015), the global focus has been shifted to environmental sustainability through the collaborative partnership of government, NGOs and the corporate sector to protect the environment from degradation (Klarin, 2018). The increasing environmental concerns require the implementation of green environmental management to cope with environmental issues (Mishra, 2017). Given the present condition, corporate firms strive to incorporate green initiatives to address the destructive effects and improve corporate environmental performance. Organizations explore economic facets for the attainment of green environmental objectives within the corporate community, besides financial factors (Ahmad, 2015). For this purpose, the successful implementation of green initiatives requires the collaboration of an organization's HR, marketing, operations and finance departments and creates awareness to incorporate green policies (Ahmad, 2015). The integration of green policies into human resource management (HRM) is a major contribution in resolving environmental issues at the corporate level (Roscoe et al., 2019). Keeping in view the global environmental issues, Pakistan is currently experiencing air pollution, climatic changes, deforestation due to increasing pollution (Wang, 2019). In Pakistan, the service industry is the fastest-growing sector of the economy that contributes 59 percent to GDP with a growth rate of 5.98% in the last decade (Ahmed & Ahsan, 2011). Pakistan's service industry is the backbone of economic development as it provides services including education, health, water and transportation. Despite the rapid growth, green human resource management is considered a new avenue to reduce harmful emissions and improve environmental problems in the service sector (Wang, 2019). The current study investigates the implementation of green human resource practices in Pakistani educational institutes that need to adopt sustainable strategies to deliver the best quality of its services to potential customers.

2.1 Green Human Resource Management

Human resources are considered as valuable assets of an organization to promote the integration of green practices with environment management (Ahmad, 2015). Human resource management helps organizations to create a workforce that understands and promotes green behavior to enhance environmental performance and sustainable development of firms. Renwick et al. (2013) proposed the conceptualization of green human resource management (GHRM) as a combination of green

recruitment, training, performance management and employee involvement in the process of attaining environmental objectives. The emergence of GHRM refers to systems and policies involving the friendly use of resources to achieve benefits for individuals, society and the natural environment (Mishra, 2017). The conventional perspective regarding GHRM predicts that increases in the investment on environmental concerns will ultimately increase the organizational costs and reduce the profitability of the firm. Now, it has been observed that green strategies can be profitable in terms of economic, social and financial outcomes. In an organization, human resource policies enable human capital to play a substantial role in the implementation of green strategies at the workplace. Prior studies discussed green human resource practices including the hiring of eco-friendly employees, provide environmental training or workshops, reflect employee's contribution in performance appraisals and provide them rewards and benefits based on the achievement of environmental goals (Chaudhary, 2019; Kim et al., 2019; Mishra, 2017). The successful implementation of environmental management is based on various green human resource policies (Saeed et al., 2019). As for GHRM, green recruitment strategies attract candidates with green awareness and consciousness to ensure a good fit with organizational values. Firms involved in green employer branding, online advertisement and paperless culture to attract employees who are willing to contribute towards environmental sustainability (Roscoe et al., 2019). Green training refers to pro-environmental activities that promote employee awareness regarding conserve energy, eradicate pollution and reduce waste for a sustainable environment. The training aims to facilitate environment-friendly behaviors and develop the responsible staff for positive ecological impact (Ahmad, 2015). During the appraisal process, HR managers evaluate employee's performance based on the achievement of environmental objectives and community services. Employee remuneration and compensation are contingent on environmental contributions. From this viewpoint, employees' eco-friendly behavior is reinforced through incentives and rewards to ensure employee's involvement (Mishra, 2017).

Implementing green human resource practices may lead to operational efficiency, cost-saving, preventing pollution and saving scarce resources to achieve a better environment. The study by Mishra (2017) found that green policies not only improve sustainable development but also benefit the organizations with improved sales, brand image, employer marketing and green metrics. Chaudhary (2019) stated that organizations collaborate with all the stakeholders in implementing green strategies and ultimately enhance environmental performance in the context of developing countries.

2.2 Green Human Resource Management and Environmental performance

There is a great number of researchers examining the influence of green human resource practices on environmental performance in manufacturing companies (Chaudhary, 2019; Kim et al., 2019; Mishra, 2017). The literature revealed that green human resource practices have reduced waste, educated the employees or staff to conserve water and energy supply that positively impact environmental performance (Paillé et al., 2014). Kim et al. (2019) asserted that green human resource management improves the hotel's environment by enhancing efficiency, reducing cost factor and energy conservation in Thailand. The recent study by Roscoe et al. (2019) identified the significant relationship of green human resource practices and environmental performance in Chinese manufacturing companies. Jabbar and Abid, (2015) further reinforce the previous findings that GHRM significantly enhances environmental management and further helps to achieve higher performance of corporate firms. However, in the Asian context, Gilal et al. (2019) examined the educational institutes to assess the influence of green practices (recruitment, training, appraisal and compensation) on environmental performance. Green human resource management tends to serve corporate survival by integrating the environmental policies in strategic planning at the organizational level including environmental safety, efficient processes and green policies for quality improvement. Previous scholars suggested that organizations enable green practices such as attracting and hiring an environmentally-friendly workforce that tend to engage themselves in environmental activities. Environmental training increases employee awareness in implementing ecofriendly policies. Green compensation and rewards facilitate the employees in reducing the excessive usage of office material, disposing of waste, conserving energy and water, turning off the lights. The firm's environmental management hinges upon employee's environmental behavior to achieve sustainable environmental performance (Kim et al., 2019). With respect to the above literature, the following hypothesis has been proposed:

H₁: *Green human resource management has a significant influence on environmental performance.*

2.3 Mediating role of Employee ecofriendly Behavior

It is widely acknowledged that employees are an integral part of an organization in the attainment of corporate greening by performing pro-environmental behaviors. Green human resource policies support employee environmental behaviors through attitudes and environmental awareness to achieve corporate goals (Lülfes & Hahn, 2013). HR not only communicates the strategic environmental vision but also reflects the employee's contribution through their eco-friendly behavior. When employees are concerned about environmental problems, they will contribute through environmental skills, abilities and behaviors to put an extra effort beyond job responsibilities (Kim et al., 2019). Employee eco-friendly behavior is an emerging field of research that can be defined as the willingness or intentional behavior exhibited by an employee that potentially protects the environment from the negative effect of human activities (Saeed et al., 2019). Ecofriendly behavior refers to activities or behavior of employees that contribute to green environmental goals within organizational constraints. It may involve water conservation, reducing carbon footprints, recycling the natural reserves, paperless environment, less usage of plastic and reduced wastage (Scherbaum et al., 2008). Literary studies revealed that several activities involve employee participation to protect the environment from degradation. Green human resource practices promote an environmentally-friendly environment

by engaging employees and providing feedback to participating in green suggestion schemes. Organizations also encourage frequent training and rewards to aware employees regarding littering, conservation methods and recycling resources for environmental protection (Saeed et al., 2019). The study by Kim et al., (2019) revealed that HRM practices have a significant influence on an individual's eco-friendly behavior for reducing the harmful effects on the environment. Based on the above discussion, the hypothesis for the proposed relationship between GHRM and employee eco-friendly behavior is:

H₂: *Green human resource management has a significant influence on employee's eco-friendly behavior.*

Employee's eco-friendly behavior increases the willingness of employees to perform extra duties beyond their job responsibilities. It focuses on developing specific employees' behaviors which are related to energy conservation, water usage and recycling of materials and resources for their efficient utilization to contribute towards environmental performance (Kim et al., 2019). According to HRM literature, Vicente-Molina et al. (2013) stated that employee's environment-friendly behavior directly contributes towards environmental performance. Supporting the positive relationship, Gilal et al.(2019) found that GHRM develops consciousness among employees and stimulates the environment responsive behavior to protect the environment from hazards. Such environmental actions help firms to achieve environmental goals and ultimately increase environmental performance. Research has consistently found that organizational members who are environment friendly, are more likely to attach themselves with the implementation of an environmental system that results in positive environmental performance (Dumont et al., 2017). The proposed hypothesis for the current study is:

H₃: *Employee eco-friendly behavior has a significant influence on environmental performance.*

Organizations involved in green human resource management aim to resolve environmental concerns and efficient utilization of limited resources resulting in reduced operational costs and improved environmental performance. Environment-friendly behavior of employees protects the environment and shows their commitment towards the organization (Gilal et al., 2019). Many research studies explained the positive influence of green human resource management on environmental performance with mediating effect of green individual behavior (Chaudhary, 2019), environmental passion (Gilal et al., 2019), organizational citizenship behavior (Paillé et al., 2014) and green organizational culture (Roscoe et al., 2019). However, as stated by Mishra, (2017) there is a dearth of empirical research exists about the influence of environmentally friendly behaviors between green human resource practices and environmental performance (Jabbour et al., 2013; Jackson et al., 2011; Renwick et al., 2013). The importance of eco-friendly behavior of employees construing the environmental performance is limited in previous studies (Mishra, 2017). In developing countries, eco-friendly employees serve as an effective tool that utilizes technological resources to promote the paperless environment, protect the environment against damages and reduce the carbon footprints to pursue the green goals efficiently (Gilal et al., 2019). Based on the literature, the proposed hypothesis for the current study is:

H₄: *Employee eco-friendly behavior significantly mediates the relationship between green human resource management and environmental performance.*

3. Research Methodology

The study is grounded on ability- motivation- opportunity (AMO) perspective which explains that firm's green management develops the abilities and skills of employees, motivates to contribute towards green management and provides opportunities for environmental improvement (Renwick et al., 2013).

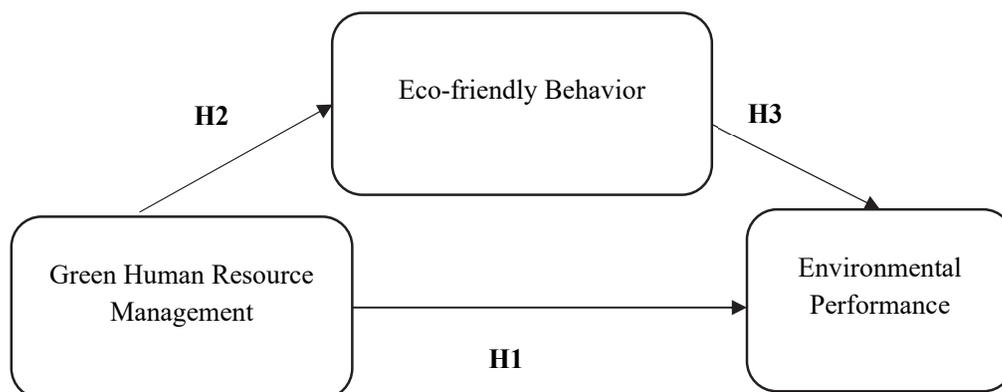


Fig. 1. Theoretical Framework

Organizations develop human resources and develop their ability through recruitment and training that leads them to improve environmental behavior (Yu et al., 2020). HR managers motivate employees through appreciation and reward to adopt environment-friendly behavior and support the wellbeing of an organization. GHRM provides an opportunity to perform their

environmental duties and accomplish green corporate objectives as an outcome (Arulrajah & Opatha, 2016). The research framework shows that green human resource management contributes to better environmental performance in higher educational institutes. The employee eco-friendly behavior is identified as a mediating variable between green human resource practices and environmental performance as shown in Fig. 1.

3.1 Sampling procedure

The study employed a quantitative survey method to examine the hypotheses through self-administered questionnaires. The population of the current study comprises faculty working in higher education institutes (HEIs) of Pakistan. The minimum sample size was 107 calculated using G* Power with a medium effect size of 0.15 and a confidence interval of 95%. Meanwhile, previous literature depicted a low response rate in developing countries using a survey method, that is less than 50% (Yu et al., 2020). Due to this reason, the sample size has been increased and 400 questionnaires sent to the institutes for getting an adequate response rate. Consequently, cross-sectional data was gathered from 230 employees from public and private higher education universities in Pakistan. After initial screening, a total of 220 responses was retained for the analysis of data.

3.2 Research Instrument

The first section of the questionnaire examines the personal information of respondents including gender, age, working experience and qualification. In the next section, all employees were asked to rate green human resource practices, employees' eco-friendly behavior and environmental performance of HEIs. Scale items were adopted from literature with modifications. Six- items scale of Green human resource management was adapted by (Gilal et al., 2019), employees eco-friendly behavior was measured through (Kim et al., 2019a), and environmental performance was measured with an adapted scale of (Singh et al., 2020). The survey instrument followed a 7-point Likert scale ranging from strongly agree (1) to strongly disagree (7). The reliability coefficients of the given scales are 0.913, 0.834 and 0.896 respectively as shown in Table 1.

Table 1
Operationalization of Constructs

Construct	Items	AVE	CR	Cronbach α	Reference
Green Human Resource Management	5 items	0.637	0.819	0.913	(Gilal et al., 2019)
Employee Eco-friendly Behavior	6 items	0.625	0.833	0.834	(Kim et al., 2019)
Environmental Performance	5 items	0.611	0.887	0.896	(Singh et al., 2020)

4. Results and Findings

4.1 Demographic Profile of the Respondents

This section described the profile of the respondents who participated in the present study as mentioned in Table 2. The demographic analysis depicted that male participants had higher response rates with 59% as compared to the females at 41%. The age of respondents illustrated that the majority belonged to the age bracket of 30-40 years (53.6%), about 26.4% of respondents have less than 30 years of age, 17.7% are between the age of 41-50, and the remaining 2.3% have more than 50 years of age. The education reflected that the majority of respondents having a master's qualification comprising 74.5%, and respondents with graduate degrees were 25.5%. Majority of respondents almost 60% had more than five years' experience, while 40% had 1-5 years of experience. Mostly, 66% respondents held the academic position in organizations' hierarchy, while 34% of the respondents were holding administrative positions as shown in Fig. 2.

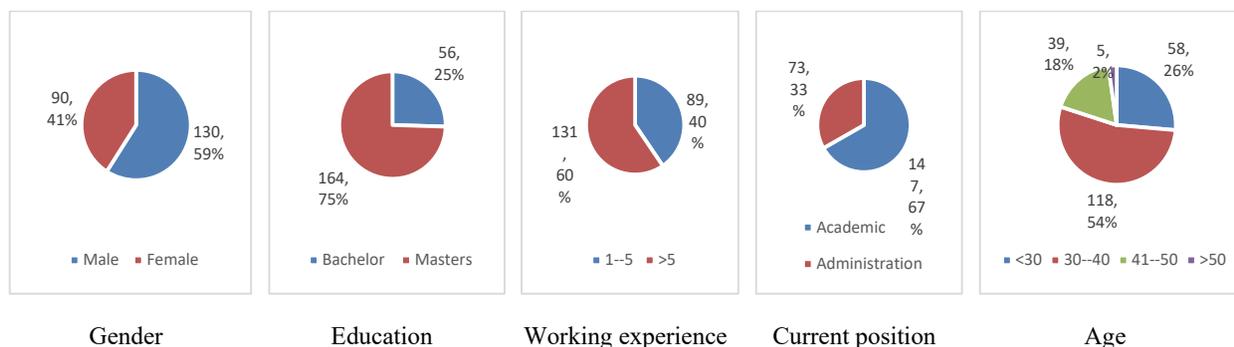


Fig. 2. Demographic Profile of Respondents

4.2 Assessment of Measurement Model

The measurement model is also known as an outer model consisting of items to measure the latent variables used in the model. The items are also known as indicators that are used to measure the latent variables. Hence, the measurement model assesses

the relationship between indicators and latent variables through confirmatory composite analysis as shown in Figure 2 (Hair et al., 2020). However, conducting CFA through PLS-SEM is referred to as confirmatory composite analysis (CCA) in the case of a composite measurement model (Hair et al., 2017; Henseler, 2017). In the present study, the reflective measurement model was used because all constructs were reflective as adapted from sources (Hwang & Min, 2013; Ifinedo et al., 2010; Ruivo, Oliveira, & Neto, 2014). In a reflective measurement model, three main criterias are required at the outset including internal consistency, convergent validity and discriminant validity (Hair et al., 2017).

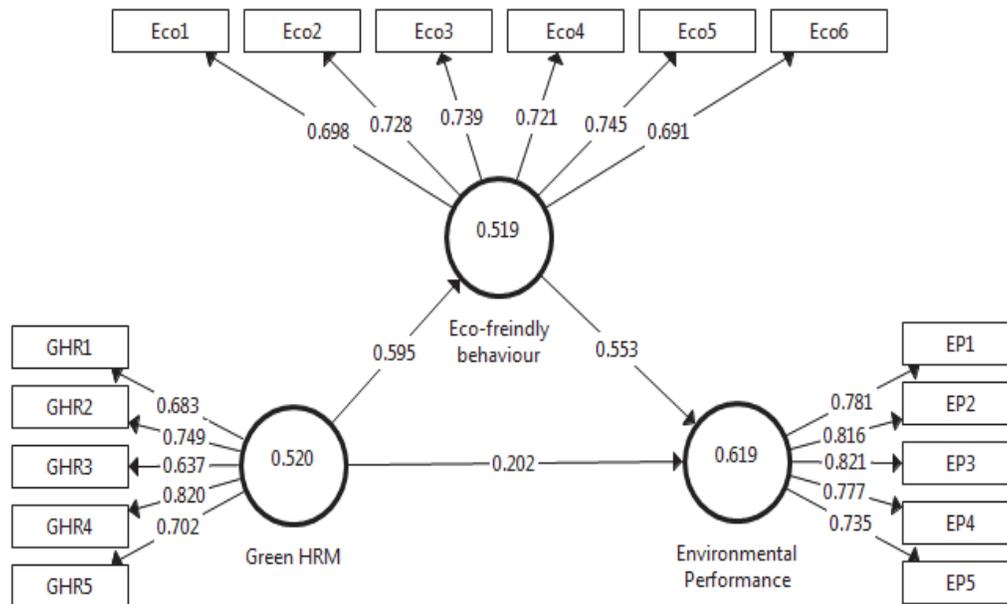


Fig. 3. Measurement Model

4.2.1 Internal Consistency Reliability

Cronbach's alpha has some deficiencies such as assuming all indicators are equally loaded to concerned construct and sensitive to the number of indicators. While composite reliability has overcome these issues. So, CR has been considered as a suitable choice to measure internal consistency in the PLS-SEM technique (Hair et al., 2020). CR value ranges between 0 and 1; the threshold value should not be lower than 0.60 in case of exploratory research, but the value of 0.70 and above is most desirable (Hair et al., 2020). Table 3 indicates that internal consistency values are within an acceptable range as indicated below and the outer model of the present study is consistent and reliable as shown in Fig. 3.

4.2.2 Convergent Validity

Convergent validity represents "the degree to which a latent construct explains the variance of its indicators" (Hair et al., 2017). Furthermore, they stated that at least 50% variance should be accumulated by each construct (AVE 0.50). If the AVE value is less than 0.40 delete the reflective indicator and if greater than 0.70 retain the reflective indicator, but in case greater than 0.40 or less than 0.70 then analyze the impact of indicator in average variance extracted (AVE) and CR. Table 2 depicts the values of loadings, AVE and CR of all variables which are higher than the cut-off values, and witnessed the reliability and convergent validity of the present measurement model.

4.2.3 Discriminant Validity

Finally, discriminant validity specified the differentiation level of indicators across constructs that measured through two types of criteria comprising Fornell and Larcker criterion and Cross loadings. In other words, discriminant validity measures the degree to which variables of the study are distinct from each other. In the present study, the researcher has used all three methods as mentioned above to measure discriminant validity. Fornell and Larcker (1981) criterion depict the variance of a latent variable should be explained better on its indicators rather than other constructs' indicators. To meet the requirements of Fornell and Larcker (1981) criterion, the square root of AVE on the diagonal should be higher than the correlations between the latent variables. However, Chin (1998) stated the cross-loading criterion in which loadings of a particular con-

struct's indicators should be higher than the loadings of all other constructs' indicators. To meet the requirements of criterion, the difference must not be less than 0.1 between loadings across latent variables. Table 3 and 4 depicts that current study outer models have discriminant validity as both Fornell & Lacker and Cross Loading results have met the criteria as mentioned above, so the model is valid and reliable to proceed further for structural model assessment.

Table 2
Indicator Loadings, Internal Consistency Reliability, and Convergent Validity

Constructs	Items	Outer Loadings	Cronbach's Alpha	CR	AVE
Green Human resource management	GHR1	0.683	0.769	0.843	0.520
	GHR2	0.749			
	GHR3	0.637			
	GHR4	0.820			
	GHR5	0.702			
Eco-Friendly Behavior	Eco1	0.698	0.815	0.866	0.519
	Eco2	0.728			
	Eco3	0.739			
	Eco4	0.721			
	Eco5	0.745			
	Eco6	0.691			
Environmental Performance	EP1	0.781	0.846	0.890	0.619
	EP2	0.816			
	EP3	0.821			
	EP4	0.777			
	EP5	0.735			

GHR=Green Human Resource Management, Eco=Eco-friendly behavior, EP= Environmental Performance

Table 3
Discriminant Validity Matrix using Fornell and Lacker's Criterion

Constructs	1	2	3
1.Eco-friendly Behavior	0.721		
2.Environmental Performance	0.674	0.787	
3.Green HRM	0.595	0.531	0.721

4.3 Assessment of Structural Model

In the current study, two models were examined which consisted of direct relationship model and mediation analysis model. The structural model is also known as the inner model in PLS-SEM where it comprises the analysis of the relationship between latent constructs.

4.3.1 Assessment of the structural model for Collinearity issue

After analyzing the vertical collinearity by using the discriminant validity criterion in the measurement model, now lateral collinearity assessment is required in the structural model to avoid any misleading results (Kock & Lynn, 2012). Lateral collinearity is also referred to as predictor-criterion collinearity. Lateral collinearity is measured in PLS-SEM using the index of variance inflation factor (VIF). The guidelines provided by Hair, Ringle and Sarstedt (2011) that the value of VIF should be lower or equal to 5 ascertains that there is no collinearity issue. The results have shown in Table 5 that all values of VIF are less than 5 which witnesses that lateral collinearity is not a concern in the present study.

Table 4
Lateral Collinearity Assessment

Constructs	Eco (VIF)	EP (VIF)	GHRM (VIF)
Eco-friendly behavior (Eco)		1.548	
Environmental Performance (EP)			
Green HRM (GHRM)	1.000	1.548	

4.3.2 Assess the significance and relevance of the structural model relationships

PLS is a non-parametric technique that does not assume the distribution type of data (Hair et al., 2020). In the case of non-normal data, inflated or deflated t-value causes type 1 error and to avoid this error bootstrapping procedure has been adopted in PLS. Bootstrapping procedure involves taking a large number of subsamples from the original data sample with replacement and calculates standard errors which in turn approximates normality. Furthermore, bootstrapping provides t-values for structural path testing (Hair et al., 2017; Streukens & Leroi-Werelds, 2016; Wong, 2013). In the present study, there are three direct relationships examined through the structural model by analyzing the significance level, t-values using bootstrapping function through Smart PLS 3.0. Fig. 4 displays the output results generated with the help of Smart PLS 3.0 illustrated the

path p-value, t-value, coefficient value and standard errors. Based on these values the hypotheses decisions were made regarding each hypothesis's significance level.

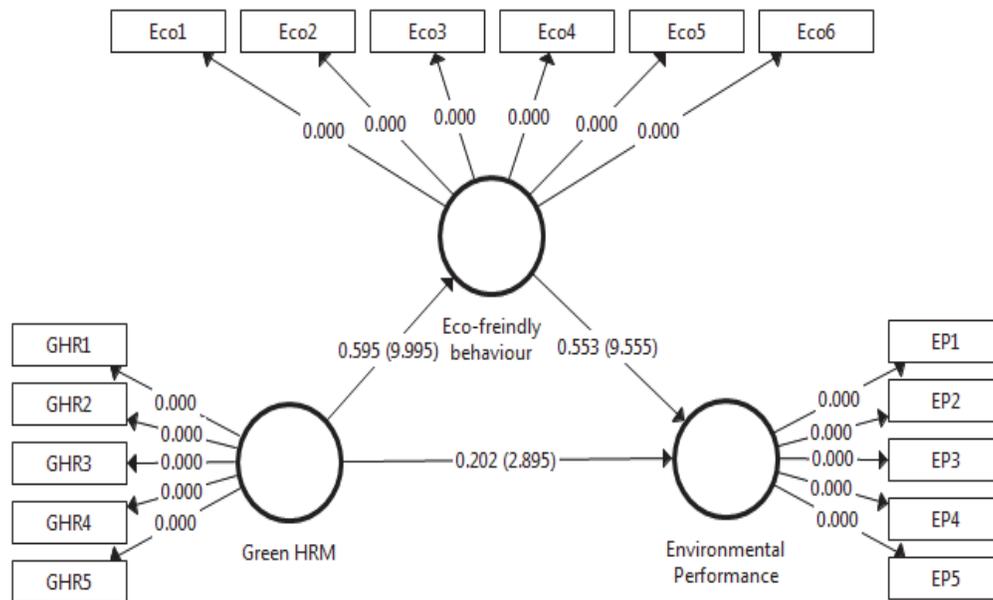


Fig. 4. Structural Model

Based on the assessment of the path coefficient as shown in Table 5, all given hypotheses have t-value ≥ 1.645 at 0.05 level of significance. The R^2 value of 0.50 is higher than 0.26 value as suggested by Cohen (1988) indicates that the current model is substantial and all hypotheses were supported in this current research.

Table 6

Hypothesis Testing (Direct Relationships)

Hypothesis	Relationship	Std. Beta	Std. Error	t-values	p-values	Decision	R^2
H1	GHRM \rightarrow EP	0.20	0.07	2.90	0.00	Supported	0.48
H2	GHRM \rightarrow Eco	0.60	0.06	10.00	0.00	Supported	0.37
H3	Eco \rightarrow EP	0.55	0.06	9.56	0.00	Supported	0.35

Note: GHR=Green Human Resource Management, Eco=Eco-friendly behavior, EP= Environmental Performance

Hypothesis 1 proposed that GHRM is significantly positively associated with environmental performance. Figure 3 and Table 6 demonstrates a significant positive association between GHRM and Environmental performance at ($\beta = 0.20$, $t = 2.90$, $p\text{-value} < 0.05$) supporting hypothesis 1.

Hypothesis 2 postulates that GHRM has a significant positive influence on employee eco-friendly behavior. Fig. 4 and Table 6 demonstrate a positive significant association between green human resource management and Eco-friendly behavior of employees in higher education of Pakistan at ($\beta = 0.60$, $t = 10.00$, $p\text{-value} < 0.05$) supporting hypothesis 2.

Hypothesis 3 articulated that eco-friendly behavior is positively associated with Environmental performance. Fig. 4 and Table 6 demonstrate a positive significant association between Eco-friendly behavior and Environmental performance at ($\beta = 0.55$, $t = 9.56$, $p\text{-value} < 0.05$) supporting hypothesis 3.

4.3.3 Assessment the level of R^2 (coefficient of determination)

In the current study, the research model's predictive accuracy has been determined through a score of the coefficient of determination (R^2). R^2 value illustrates the level of variance in the endogenous variable explained by all the exogenous variables. There are different rules of thumb for acceptable R^2 values as provided by Hair et al. (2017) that 0.75 value describes substantial, 0.50 reflects moderate and 0.25 shows the weak level of predictive accuracy. Falk and Miller (1992) recommended that R^2 values should be equal or greater than 0.10 for adequate variance explained by exogenous variables.

Table 6 presents the R^2 values as an endogenous variable, in which environmental performance and eco-friendly behavior has a substantial level of predictive accuracy and endogenous variable has a weak level of predictive accuracy as per Hair et al. (2017) rule of thumb.

4.4 Mediation Analysis

In the current research applied the bootstrapping the indirect effect recommended by (Preacher & Hayes, 2004) where a single inferential test of indirect effect is required. The bootstrapping analysis results shown in Table 7 represent that the indirect effect ($\beta=0.33$) is significant with a t-value of 6.35. The indirect effect confidence interval bias-corrected [LL=0.24, UL=0.44] does not straddle a zero in between indicating that Eco-friendly behavior has significantly mediated the relationship between Green human resource management and environmental performance which supported the hypothesis 4 of the present study.

Table 7

Hypothesis Testing (Indirect Relationship)

Hypothesis No.	Relationship	Std. Beta	Std. Error	t-value	BCI		p-value	Decision
					LL	UL		
H4	GHRM \rightarrow Eco \rightarrow EP	0.33	0.05	6.35	0.24	0.44	0.00	Supported

GHR=Green Human Resource Management, Eco=Eco-friendly behavior, EP= Environmental

5. Discussion

This is the first paragraph under the secondary heading. The study investigates the relationship of green human resource management with environmental performance via eco-friendly behavior of employees in educational institutes. The results derived from Smart-PLS revealed that organizational green management significantly influences the environmental performance of educational institutes of Pakistan. The findings were consistent with the previous studies as HRM is the key resource in enabling the human capital to achieve the corporate objectives through improvement in environmental performance (Ahmad, 2015; Gilal et al., 2019; Kim et al., 2019; Mishra, 2017). The study extends the AMO theory by examining the effect of green practices on improving the ability and motivation of employees and provides the opportunity to contribute towards a firm's environmental performance (Yu, Chavez, Feng, Wong, & Fynes, 2020). Previous literature revealed that there is a dearth of empirical studies examining the eco-friendly behavior as a mediator between green human resource management and environmental performance (Mishra, 2017). Renwick et al. (2013) also stated that limited studies examined the influence of environment-friendly behavior of employees in the Asian context. However, the current research findings confirm that green recruitment, staffing, training and compensation policies help in the development of environment-friendly behavior of employees and promote pro-environmental concerns among employees. The findings also revealed that integrating the environment-friendly behavior of employees strengthens the relationship of green human resource management and environmental performance of the education sector. The findings reinforce the previous research that active participation and ecofriendly behavior of faculty and staff members enable the positive behavior towards the conservation of energy, water supply and material usage to improve environmental performance. In sum, the study drives employee behaviors to integrate their core values and make them environmentally responsible to pursue the green corporate objectives.

6. Implications and Conclusion

The research findings of this study have several theoretical contributions. GHRM has a substantial scope in research, extensive research has been done in the field of environmental management, but still, there is a dearth of studies that examine the role of eco-friendly behaviors as a mediator influencing green management and environmental performance. Thus, the current study bridges the research gap by supporting the theoretical framework for green initiatives under AMO theory and promotes environment management in higher educational institutes. The research findings contribute to existing literature concerning green environmental concerns, which has not previously been discussed notably in the academic arena.

The main practical implications of this current study for organizations and managers, to conduct workshops and seminars equipped with environmental skills, adequate knowledge to contribute towards environmental issues for Asian countries. The research suggests management to incorporate green recruitment practices to induct new employees who are responsible for green business practices and design online job posting, skype interviewing to save the natural resources from wastage. Training material and compensation must link with environmental objectives that will curtail the waste and carbon emissions. Educational institutes should consider GHRM as a top priority, they must conduct workshops, training sessions and seminars to create awareness among faculty and staff members to promote environment-friendly behaviors for environment protection.

Therefore, the aim of this study is to empirically examine the association between green practices and environmental performance in the service sector of Pakistan to gain insights to achieve better work productivity. Additionally, top management must evaluate and control the paper printing, air conditioning, reduce the carbon footprints, shut down the computer and lights while leaving to improve the environmental conditions of organizations and businesses in Asian context. They must link the performance appraisals and compensation with environment-friendly behavior of employees to promote the green environmental performance of HEIs in Pakistan. This current study also suggests policy-makers and practitioners to adopt various

strategies and guidelines in order to boost up the internal and external environmental performance and successfully address the concerns of different stakeholders through GHRM. Managers need to understand the significance of GHRM to achieve the desired targets for continuous improvement in environmental issues.

7. Limitation and Future Research Directions

There are certain limitations in the present study; however, these shortcomings can serve guidelines for future research. The first issue is the common method biases effect as both green human resource management and environmental performance questionnaires were filled from the same respondents. The predictor and dependent variables must be analyzed from different respondent's perspectives to limit the issue of common method biases in the survey. Further studies may include two levels of responses; one may be supervisors or employees and others are human resource management staff. Secondly, this study collected data from higher education institutes specifically from the developing country, Pakistan. The future researchers may be cautious to replicate or generalize the findings of the present study in other contexts, as it does not contain the cultural differences. Future studies may consider individual and organization level antecedents other than eco-friendly behavior in the corporate sectors such as self-efficacy and supervisory role in establishing the green behavior among employees to get long term sustainable competitive advantage.

References

- Ahmad, S. (2015). Green human resource management: Policies and practices. *Cogent Business & Management*, 2(1), 1030817.
- Ahmed, A., & Ahsan, H. J. (2011). Contribution of Services Sector in the Economy of Pakistan (Working paper No. 79) Retrieved from <https://www.pide.org.pk/pdf/Working%20Paper/WorkingPaper-79.pdf>
- Arulrajah, A. A., & Opatha, H. (2016). Analytical and theoretical perspectives on green human resource management: A simplified underpinning.
- Cain, M. K., Zhang, Z., & Yuan, K.-H. (2017). Univariate and multivariate skewness and kurtosis for measuring nonnormality: Prevalence, influence and estimation. *Behavior Research Methods*, 49(5), 1716–1735.
- Chaudhary, R. (2019). Green human resource management and employee green behavior: An empirical analysis. *Corporate Social Responsibility and Environmental Management*, 27(2), 630–641.
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, 295(2), 295–336.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. (L. Erlbaum Associates, Hillsdale, NJ).
- Dumont, J., Shen, J., & Deng, X. (2017). Effects of green HRM practices on employee workplace green behavior: The role of psychological green climate and employee green values. *Human Resource Management*, 56(4), 613–627.
- Fawehinmi, O., Yusliza, M. Y., Mohamad, Z., Faezah, J. N., & Muhammad, Z. (2020). Assessing the green behavior of academics. *International Journal of Manpower*, 41(7), 879-900.
- Falk, R., & Miller, N. (1992). *A premier for soft modeling*. Akron, Ohio.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.
- Gilal, F. G., Ashraf, Z., Gilal, N. G., Gilal, R. G., & Channa, N. A. (2019). Promoting environmental performance through green human resource management practices in higher education institutions: A moderated mediation model. *Corporate Social Responsibility and Environmental Management*, 26(6), 1579–1590.
- Hair, Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*.
- Hair, Hult, G. T. M., Ringle, C., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. SAGE Publications.
- Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management & Data Systems*, 117(3), 442–458. <https://doi.org/10.1108/IMDS-04-2016-0130>
- Hair, Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning*, 46(1–2), 1–12.
- Hair, Ringle, C., & Sarstedt, M. (2011). *PLS-SEM: Indeed a silver bullet* (Vol. 19). <https://doi.org/10.2753/MTP1069-6679190202>
- Hair, Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced Issues in Partial Least Squares Structural Equation Modeling*. SAGE Publications.
- Henseler, J. (2017). Bridging design and behavioral research with variance-based structural equation modeling. *Journal of Advertising*, 46(1), 178–192. <https://doi.org/10.1080/00913367.2017.1281780>
- Hwang, & Min, H. (2013). Assessing the impact of ERP on supplier performance. *Industrial Management & Data Systems*, 113(7), 1025–1047.
- Ifinedo, P., Rapp, B., Ifinedo, A., & Sundberg, K. (2010). Relationships among ERP post-implementation success constructs: An analysis at the organizational level. *Computers in Human Behavior*, 26(5), 1136–1148.
- Jabbar, M. H., & Abid, M. (2015). A Study of Green HR Practices and Its Impact on Environmental Performance: A Review. *MAGNT Research Report*, 3, 142-154.

- Jabbour, C. J. C., de Sousa Jabbour, A. B. L., Govindan, K., Teixeira, A. A., & de Souza Freitas, W. R. (2013). Environmental management and operational performance in automotive companies in Brazil: The role of human resource management and lean manufacturing. *Journal of Cleaner Production*, 47, 129–140.
- Jackson, S. E., Renwick, D. W., Jabbour, C. J., & Muller-Camen, M. (2011). State-of-the-art and future directions for green human resource management: Introduction to the special issue. *German Journal of Human Resource Management*, 25(2), 99–116.
- Kim, S.-H., & Choi, Y. (2013). Hotel employees' perception of green practices. *International Journal of Hospitality & Tourism Administration*, 14(2), 157–178.
- Kim, Y. J., Kim, W. G., Choi, H.-M., & Phetvaroon, K. (2019). The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance. *International Journal of Hospitality Management*, 76, 83–93.
- Klarin, T. (2018). The concept of sustainable development: From its beginning to the contemporary issues. *Zagreb International Review of Economics and Business*, 21(1), 67–94.
- Kock, N., & Lynn, G. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for Information Systems*, 13(7).
- Lülfes, R., & Hahn, R. (2013). Corporate greening beyond formal programs, initiatives, and systems: A conceptual model for voluntary pro-environmental behavior of employees. *European Management Review*, 10(2), 83–98.
- Mishra, P. (2017). Green human resource management: A framework for sustainable organizational development in an emerging economy. *International Journal of Organizational Analysis*, 25(5), 762–788.
- Paillé, P., Chen, Y., Boiral, O., & Jin, J. (2014). "The impact of human resource management on environmental performance: An employee-level study". *Journal of Business Ethics*, vol. 121, no. 3, pp. 451–466.
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36(4), 717–731. <https://doi.org/10.3758/BF03206553>
- Preacher, K. J., & Hayes, A. F. (2008). *Assessing mediation in communication research*. The Sage Sourcebook of Advanced Data Analysis Methods for Communication Research, pp. 13–54.
- Renwick, D. W., Redman, T., & Maguire, S. (2013). Green human resource management: A review and research agenda. *International Journal of Management Reviews*, 15(1), 1–14.
- Roscoe, S., Subramanian, N., Jabbour, C. J., & Chong, T. (2019). Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development. *Business Strategy and the Environment*, 28(5), 737–749.
- Ruivo, P., Oliveira, T., & Neto, M. (2014). Examine ERP post-implementation stages of use and value: Empirical evidence from Portuguese SMEs. *International Journal of Accounting Information Systems*, 15(2), 166–184.
- Saeed, B. B., Afsar, B., Hafeez, S., Khan, I., Tahir, M., & Afridi, M. A. (2019). Promoting employee's proenvironmental behavior through green human resource management practices. *Corporate Social Responsibility and Environmental Management*, 26(2), 424–438.
- Scherbaum, C. A., Popovich, P. M., & Finlinson, S. (2008). Exploring individual-level factors related to employee energy-conservation behaviors at work. *Journal of Applied Social Psychology*, 38(3), 818–835.
- Shen, J., Dumont, J., & Deng, X. (2018). Employees' perceptions of green HRM and non-green employee work outcomes: The social identity and stakeholder perspectives. *Group & Organization Management*, 43(4), 594–622.
- Singh, S. K., Del Giudice, M., Chierici, R., & Graziano, D., (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change*, 150, 119762.
- Streukens, S., & Leroi-Werelds, S., (2016). Bootstrapping and PLS-SEM: A step-by-step guide to get more out of your bootstrap results. *European Management Research Using Partial Least Squares Structural Equation Modeling (PLS-SEM)*, 34(6), 618–632. <https://doi.org/10.1016/j.emj.2016.06.003>
- Teixeira, A. A., Jabbour, C. J. C., de Sousa Jabbour, A. B. L., Latan, H., & De Oliveira, J. H. C. (2016). Green training and green supply chain management: Evidence from Brazilian firms. *Journal of Cleaner Production*, 116, 170–176.
- Vicente-Molina, M. A., Fernández-Sáinz, A., & Izagirre-Olaizola, J., (2013). Environmental knowledge and other variables affecting pro-environmental behavior: Comparison of university students from emerging and advanced countries. *Journal of Cleaner Production*, 61, 130–138.
- Wang, C.-H., (2019). How organizational green culture influences green performance and competitive advantage. *Journal of Manufacturing Technology Management*, 30(4), 666–683.
- Wong, K.-K., (2013). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin*, 24(1), 1–32.
- Yu, W., Chavez, R., Feng, M., Wong, C. Y., & Fynes, B. (2020). Green human resource management and environmental cooperation: An ability-motivation-opportunity and contingency perspective. *International Journal of Production Economics*, 219, 224–235.
- Zoogah, D. B. (2011). The dynamics of Green HRM behaviors: A cognitive social information processing approach. *German Journal of Human Resource Management*, 25(2), 117–139.



© 2021 by the authors; licensee Growing Science, Canada. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).