Institute of Business Administration Karachi
Leadership and Ideas for Tomorrow

Business Review

Article 4

Volume 19 Issue 1
January-June 2024

8-16-2024

Green Initiatives in Pakistani Universities: Nexus among Human Resource Practices, Employee Environment Behavior, and Innovative Work with Mediating Role of Work Engagement in Pakistani Universities

Kifayat Ali Larik
Aror University of Art, Architecture, Design & Heritage Sukkur Sindh

Marvi Mangi
Sukkur IBA University

Shah Imran Ahmed
Shah Abdul Latif University Khairpur Mirs

Recommended Citation

Larik, K. A., Mangi, M., & Ahmed, S. I. (2024). Green Initiatives in Pakistani Universities: Nexus among Human Resource Practices, Employee Environment Behavior, and Innovative Work with Mediating Role of Work Engagement in Pakistani Universities. *Business Review, 19*(1), 68-86. Retrieved from 10.54784/1990-6587.1579

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

Business Review: (2024) 19(1):68-86
Original Paper

Green Initiatives in Pakistani Universities: Nexus among Human Resource Practices, Employee Environment Behavior, and Innovative Work with Mediating Role of Work Engagement in Pakistani Universities

Kifayat Ali Larik* ·
Marvi Mangi ·
Imran Ahmed Shah

Abstract This study aims to develop a model based on social exchange theory (SET) to elucidate the influence of green human resource management (GHRM) on employee on-the-job, off-the-job, and green innovative work behaviors (GIWB). Drawing from the job demand resource model and SET, the study proposes that green work engagement (GWE) mediates the relationship between GHRM work behaviors. A self-administered survey was conducted among 168 employees within higher education institutions in Pakistan to gather data. The primary statistical analysis employed partial least squares structural equation modeling to test the research hypotheses. The results indicate that GHRM significantly predicts employees' green behaviors both at work and away from work, as well as their GIWB. Furthermore, the study demonstrates that GWE plays a significant mediating role in explaining the relationship between GHRM and the aforementioned work behaviors. The findings offer valuable insights for policymakers in higher education institutions on the potential of GHRM to enhance employees' environmental performance. This study contributes to the understanding of GHRM by expanding its scope and addressing knowledge gaps, particularly in higher education settings. Moreover, it highlights the role of GWE as a mediator in improving GIWB through GHRM initiatives.

Keywords Higher Education, Green, Innovative Work Behaviors, Green Human Resource Management, Green Work Engagement, in-role Green Behaviors.

1 Introduction

The growing emphasis on sustainability and environmental responsibility, often referred to as the green agenda, is reshaping organizational priorities and strate-

Aror University of Art, Architecture, Design & Heritage Sukkur, Pakistan.
E-mail: kifayatalilarik@gmail.com
· Sukkur IBA University, Pakistan. E-mail: marvi.mangi@iba-suk.edu.pk
· Shah Abdul Latif University Khairpur, Pakistan. E-mail: imranshah3117@gmail.com
*Corresponding author

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

gies globally. This shift necessitates that human resource management (HRM) professionals reassess their objectives and integrate green management practices. Green human resource management (GHRM) is pivotal in enhancing employee motivation, raising environmental awareness, and fostering sustainable behaviors within organizations Pham et al (2020). By incorporating GHRM practices, businesses can develop robust environmental policies and drive their workforce towards eco-friendly actions.

Higher education institutions (HEIs) worldwide are increasingly embedding environmental responsibility into their operational frameworks. Given their dual roles as educational and research entities, HEIs are uniquely positioned to address contemporary environmental challenges through innovative strategies and solutions León-Fernández and Domínguez-Vilches (2015). These institutions must not only navigate the evolving demands of environmental management but also exemplify sustainability in practice. By adopting "Go Green" initiatives, HEIs can create environmentally friendly workplaces and set a precedent for sustainability in their daily operations Gilal et al (2019).

This research aims to explore the complex relationships between GHRM initiatives, employees' eco-friendly behaviors, and innovative green practices in the perspective of Pakistan's HE area. While previous studies have examined the impact of GHRM on eco-friendly actions and innovation, the intricate mechanisms underlying these relationships remain insufficiently understood. Our study seeks to fill this gap by elucidating the dynamic interplay between GHRM, staff behaviors, and innovation in Pakistani HEIs. Existing literature highlights the positive influence of GHRM on employee environmental behavior. However, there is a lack of comprehensive research applying these findings to the Pakistani higher education context. Furthermore, while GHRM's role in fostering innovation is acknowledged Paillé and Boiral (2013) the specific mechanisms through which it influences green innovative work behavior in Pakistani HEIs are not clearly defined. The mediation role of green work involvement, while shown to be considerable, remains unexplored in this context. This study attempts to fill these research gaps by offering a more nuanced view of the influence of GHRM on sustainability initiatives in Pakistani higher education institutions.

According to Dumont et al (2017) research indicates green behaviors are the actions taken by employees to support environmental management practices at work. When taking into account employees' green behaviors, it was discovered that green workplace practices could be implemented most successfully. Furthermore, studies have shown that initiatives for environmental management must involve workers practices in Greening Mazzi et al (2016), as doing so improve both competitive advantage and environmental performance Kim et al (2019). The use of green human resource management (GHRM) strategies is acknowledged as a crucial HRM tactic for raising staff environmental consciousness at work and motivating them to adopt green behaviors. The GHRM process includes elements like green hiring, training, rewards, and performance evaluation that are intended to encourage environmental stewardship Dumont et al (2017); Ren et al (2018).

The available literature shows that GHRM has a favourable effect on worker environmental behaviour and creativity, however there has been little research

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

into these dynamics in Pakistani Higher Education Institutions. While previous studies acknowledge the importance of employee engagement in green initiatives, the specific mediating role of GWE within Pakistani HEIs remains underexplored. This research aims to address these gaps by investigating the potential impact of GHRM practices on employee environmental behavior and green innovative work behavior in Pakistani HEIs, while also exploring the mediating role of Green Work Engagement. In recent years, there has been a considerable growth in the quantity of GHRM research conducted in a range of industries, including tourism and hospitality Luu (2017), information and technology Ojo and Raman (2019), and the automotive sector Chaudhary (2019). Green Human Resource Management (GHRM) has emerged as an important field, particularly as businesses seek to incorporate environmental sustainability into their operations. Yet, despite the attention GHRM garners, its influence on Higher Education Institutions (HEIs) is not thoroughly examined. Fawehinmi et al (2020) have pointed out this overlooked area, noting the scarcity of studies on how GHRM is implemented and its success rate in academia, even amid growing eco-consciousness. Fawehinmi et al (2020) made a significant observation when they declared that the once-neglected topic of GHRM in HEI is no longer overlooked. This suggests a pivotal change in academic inquiry or a growing acknowledgment of the value in exploring GHRM within academia. This emergent trend, nevertheless, calls for deeper examination to understand its development and the degree of its integration into higher education practices. Pham et al (2020) reinforced the notion that green human resource management (GHRM) in higher education is not sufficiently explored. Their review urges further inquiry within multiple service sectors, particularly academia, to fill the gap in understanding GHRM's effects and implementation in educational institutions. Investigating GHRM within Pakistan's Higher Education context is crucial, as the country's distinct sociocultural and economic dynamics could shape the success of these practices. It's essential to understand GHRM's effect on staff sustainability actions and eco-friendly innovation in Pakistani universities.

1.1 Significance of the Study

This research aims to address a notable deficiency in GHRM scholarship pertaining to the higher education field. Although studies on GHRM have expanded across sectors like tourism, hospitality, IT, and automotive industries Luu (2017); Ojo and Raman (2019); Chaudhary (2019), comprehensive investigations in academia remain scarce, as highlighted by Fawehinmi et al (2020). This gap is particularly important, as highlighted in the review of literature by Pham et al (2020), who called for greater attention to the service sector, including higher education. Fawehinmi et al (2020) demonstrated that GHRM enhances engagement in eco-friendly activities among academics, with environmental knowledge acting as an intermediary. This research counters Pham et al (2020) stance, underscoring the necessity of embedding staff eco-friendly practices within the managerial ethos of tertiary education bodies to enhance fiscal, environmental outcomes, and secure academic endorsement.

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

This research enhances the domain of human resource management, presenting a framework that depicts the impact of GHRM strategies scheduled worker observations regarding sustainability, encompassing in-role, extra-role, and green innovative behaviors. In academic settings, this framework is essential for grasping GHRM dynamics and fostering sustainability among faculty members. The necessity of this investigation is underscored by the evident scarcity of research connecting Green Human Resource Management (GHRM) to ecological staff behavior, as identified by researchers such as Pham et al (2020); Aboramadan et al (2020); Yong et al (2020) drew attention to the dearth of studies on Human Resource Management (HRM) within academic institutions, while Fawehinmi et al (2020) pointed out the lack of focus on eco-friendly HRM practices, thus stressing the critical need for research in this field. Notably, this research distinguishes itself by integrating Green Work Engagement (GWE) and Green Innovative Behavior into the explored framework, reflecting current growths in GHRM scholarship. Thus, it enriches the dialogue and deepens insight into the dynamics that connect GHRM with environmentally responsible employee actions, Ren et al (2018).

2 Literature Review

2.1 Green outcomes and green human resource management

Some researchers have conceptualized GHRM practices Dumont et al (2017); Ren et al (2018); Pham et al (2020). They are regarded as the foundation of green and hiring with green awareness. Practice and Guidance, "Green Training" to assess workers' "Green Skills, Abilities and Knowledge," and "Green Performance Appraisal" to assess work in accordance with "Green Standards" are all examples of ways to assess employee performance in these areas. The term "green HRM" describes how an organization incorporates environmental sustainability principles into its HR practices and policies. Its main goals are to encourage sustainability in the workplace, advance environmentally friendly practices, and lessen the organization's ecological impact. Green HRM aims to involve and empower employees in environmental initiatives because it understands that they are essential to achieving sustainability goals. The ultimate objective of green HRM is to achieve green outcomes, which are favorable environmental effects brought about by the adoption of environmentally sustainable practices within an organization. Both concrete and abstract results may result from these actions:

1. Adopting green HRM practices can improve an organization's reputation as an environmentally conscious entity, which will increase stakeholder satisfaction. This may result in greater stakeholder satisfaction and draw in clients, partners, and financiers who care about the environment.

2. Cost reduction: Employing green HRM techniques can help organizations cut costs. Reduced operating costs can make the organization more financially viable by way of energy-efficient measures, waste minimization, and resource

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

conservation initiatives.

Organizations can benefit from improved employee engagement, lower costs, and improved reputation by implementing green HRM practices and initiatives in addition to helping to ensure the sustainability of the environment. The environmental benefits attained through these actions are consistent with the overarching objective of creating a future that is more environmentally friendly and sustainable. According to Norton et al (2015), environmentally conscious workplace practices reflect individual environmental awareness. Along with Green's in-role behavior, this also includes voluntary extra-role behavior. The term "role-based green behaviors" refers to formal green tasks that are significant in assessing employee performance. Contrarily, green behaviors extra-role are voluntary actions taken by an employee outside of the scope of their official duties and are not taken into account when evaluating their performance. GHRM is frequently linked to environmental organizational citizenship, eco-friendly task behavior, green worker empowerment, and the creation of green jobs, according to empirical research Chaudhary (2019); Dumont et al (2017); Fawehinmi et al (2020). Employees are expected to act in a way that reflects their employer's dedication to and commitment to protecting the environment. Organizations that offer unambiguous environmental objectives, eco-friendly learning opportunities, eco-friendly performance reviews, and eco-friendly incentive schemes can help to achieve this. Therefore, it is likely to propose the subsequent dual hypothesis:

H1. Employees' in-role green behaviors are positively impacted by GHRM.
H2. Employees' extra-green behaviors are positively impacted by GHRM.

As, Scott and Bruce (1994) says, employee conduct that is associated with the creation, dissemination, and application of ideas is known as innovative behavior at work. To maintain an organization's competitive advantage, innovative work practices are typically regarded as being essential. Additionally, it has been asserted that effective human resource management techniques are essential for organizations to achieve innovative results. Green innovative work behaviors (GIWBs) are actions taken by staff members to develop, promote, and put into practice green ideas. GIWBs are environmental management concepts incorporated into innovative work behaviors Seeck and Diehl (2017). It can be argued that GHRM might help GIWB if they are connected for the following reasons. First, more environmentally conscientious and knowledgeable personnel willpower producing more inventive and real ecological management ideas, thereby contributing to the company's green novelty. According to Chang and Chen (2013), green coaching and training strategies allow employees to learn the information and skills needed to support their creative processes, Third, employee behavior will be in line with the business's environmental goals thanks to environmentally conscious performance reviews and incentive schemes Guerci et al (2016), as eco-friendly performance evaluations are a crucial tool to boost staff members' assurance to the environment, which will ultimately support eco-innovative practices. Fourth, in a previous study McClean and Collins (2011); Wright and Nishii (2006), according to social exchange theory, when employees

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

think that an organisation is committed to environmental protection, it is more likely to prosper. It was revealed that GHRM practices had a positive impact on green innovation at the organisational level.

As a result, how employees perceive GHRM and the environment will have a significant impact on how they approach green innovation. Social Exchange Theory (SET) can help us understand the linkages between the research variables of GHRM, Innovative Work Behaviours (IWB), GWE, and IRGB. Let's see how SET explains these correlations.

1. GHRM is the practice of incorporating environmental sustainability principles into HR procedures. According to SET, when companies use GHRM techniques like raising environmental awareness, offering green training, and rewarding eco-friendly behavior, their employees see it as a sign that the company is behind them. These initiatives are seen by the staff as valuable resources offered by the company, resulting in a beneficial social exchange. Employees may perform admirable work-related behaviors in return, such as IWB and IRGB. Green human resource management (GHRM) is the practice of incorporating environmental sustainability principles into HR procedures. According to SET, when businesses use GHRM techniques like fostering environmental awareness, offering green training, and rewarding eco-friendly behavior, their staff members see it as a sign of company support. These initiatives are viewed favorably by employees as resources the company has provided, which fosters a beneficial social dynamic. Employees may perform admirable work-related behaviors in exchange, such as IWB and IRGB.

2. Innovative Work Behaviors (IWB): IWB refers to the creation and application of fresh concepts, options, or procedures that advance organizational effectiveness. According to SET, when staff members experience high levels of organizational support through GHRM procedures, they grow to feel a sense of reciprocity. Employees may be encouraged to participate in IWB as a form of exchange if they feel that the company will value and reward their efforts to be innovative. In this regard, GHRM practices that foster a positive and environmentally conscious work environment can encourage employees to engage in IWB.

3. The level of employee participation, commitment, and enthusiasm for environmentally friendly workplace practices is known as green work engagement (GWE). Employees are more likely to reciprocate by devoting their time, energy, and skills to supporting green initiatives when they perceive organizational support through GHRM practices, according to SET. Employees are more likely to feel committed to and engaged in green work activities, which results in GWE, if they feel valued and supported in their eco-friendly efforts.

4. In-role Green Behaviors (IRGB) are specific environmental-friendly behaviors carried out by employees as part of their official job duties. According to SET, employees grow a sense of responsibility and reciprocity when they perceive organizational support through GHRM practices. Employee participation

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

in IRGB may be encouraged by this sense of reciprocity as a means of expressing gratitude to the company for the assistance and resources provided. Employees are more likely to engage in IRGB, such as reducing waste, using sustainable practices in their work tasks, or conserving energy, when they feel valued and supported in their green behaviors.

In Summary, the Social Exchange Theory offers a theoretical framework to explain the connections between the research variables. A sense of organizational support is created by GHRM procedures, and this encourages employees to give and receive from one another. Increased IWB participation, increased GWE, and improved IRGB performance are the results of this reciprocity. Understanding these relationships through SET can assist organizations in creating and implementing GHRM plans that encourage fruitful discussions and result in improved employee conduct and environmental sustainability-related outcomes.

The theories listed below can be proposed based on the aforementioned justifications.

H3. Employees' GIWB is positively impacted by GHRM.

Schaufeli et al (2006) research suggests "work engagement" is defined as "an active, fulfilling state of mind related to work and characterized by energy, dedication, and undivided attention. Employee engagement is the level of a person's cognitive, emotional, and physical connection to their work. As a result, GWE can be defined as employees' effort in tasks related to green jobs, their willingness to make green efforts, and their participation in green jobs.

As a rule, elements like job characteristics, leadership. As well-known predictors of job engagement are human resource management practices, and organizational culture. The influence of HRP and classifications on workplace engagement is examined in the main body of literature on HRM. Within Albrecht et al (2015) suggested a model that incorporates organizational, job, motivational, and personal factors to boost job engagement at work Aboramadan et al (2020); Karatepe and Olugbade (2016) are positively correlated.

According to Demerouti et al (2001), the association amongst GHRM and GWE statements forms the basis for the JD-R interpretation of the relationship between the two terms, organizational and job resources, HRM practices, and employment opportunities. Local resources can be utilized to produce incentives to link these possessions to employ. According to this theory, GHRM on exertion aids as a motivator and is consequently positively correlated with employees' job satisfaction. Possessions like the GHRM, which support employee development and the fulfillment of their career goals, can be intrinsically or extrinsically motivating. As a result, they are believed to motivate staff members, particularly GWE, to dedicate themselves to their work. The following theory is suggested in light of this discussion:

H4. The GWE of the workforce is positively impacted by GHRM.

Published by iRepository, August 2024

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

2.2 Green work engagement and green outcomes

According to SET, highly engaged workers seem to have a higher propensity to form secure and rewarding relationships with their employers. Positive work-related outcomes are the outcome. As a result, these presentations not only motivate staff to complete tasks, but also give them the chance to engage in extracurricular activities. In the past, for instance Aboramadan et al (2020); Haynie et al (2016); Rodwell et al (2017). It has been discovered that work engagement significantly predicts job performance as well as extra-role behaviors like innovation and citizenship.

Staffs by better stages of GWE are clearly more likely to collaborate constructively with their employers when it comes to the relationship between GWE and environmental performance. In this case, greater green job outcomes may benefit the GWE. GWE can not only commit to green initiatives and encourage employees to engage in green behaviours, but it can also educate other employees about the importance of such behaviours for the sustainability of the company and its community Luu (2019). Based on the preceding discussion, the theory is presented as follows:

H5. GWE has a positive impact on employees' green in-role behaviors.

H6. The extra-role green behaviors of employees are positively impacted by GWE.

H7. Employees' GIWB is positively impacted by GWE.

2.3 The mediating role of green work engagement

Numerous studies Aboramadan et al (2020), employee involvement is frequently regarded as a significant mediator. Karatepe and Olugbade (2016) have demonstrated that incentives at work can impact performance outcomes. This learning suggests a possible intermediary process that might connect the independent and dependent variables, based on JD-R and SET. The JD-R framework states that having resources (GHRM in this study's case) will make it easier to achieve goals and encourage productive work habits like GWE. As a result, this will promote a positive attitude, enhance employees' capacity to engage in advantageous green behaviors (both on the job and on their own time), and inspire them to try and make new things, which may eventually result in new ideas and alternative green levels. From a SET standpoint, more motivated workers (GWE in this case) are more likely to interact socially favorably with their employers. As a result, employees will produce successful results, including green results. Thus, GHRM will be more positively perceived by employees, which will ultimately result in better green-related outcomes.

The Social Exchange Theory explains how GHRM practices can affect outcomes like IWB and IRGB by the mediating function of GWE. GWE stands for the psychological process by which staff members experience and react to the organizational support offered by GHRM practices. GWE can help businesses foster a culture of open communication among staff members that encourages them to act creatively and sustainably. In conclusion, GWE functions as a mediating variable within SET, explaining how GHRM practices affect IWB and

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

IRGB. Employee motivation, commitment, and engagement in innovative and environmentally friendly behaviors are all boosted by the organizational support communicated through GHRM practices, which in turn leads to GWE. the hypothesis that is presented below is based. H8. The relationships between GHRM and GIWB, a). GHRM and extra-role green behaviors, b). GHRM and in-role green behaviors are all mediated by GWE.

The development of a new theoretical model in this study stems from the existing gaps and deficiencies within the literature on Green Human Resource Management (GHRM) practices and their effects on employees' green behaviors, particularly within higher education institutions. The need for a new model arises due to the infancy stage of understanding the relationship between GHRM and employees' green work-related outcomes, as highlighted by Pham et al (2020); Saeed et al (2019); Yong et al (2020). These studies indicate that the current literature lacks clarity and depth in exploring the intricate dynamics between GHRM practices and their impact on employees' green behaviors within the higher education context. This study addresses gaps in the literature on GHRM practices and their impact on employees' green behaviors in higher education. Existing study by Pham et al (2020); Saeed et al (2019); Yong et al (2020) shows a lack of clarity and depth in understanding the relationship between GHRM and employees' green work results. Furthermore, while HRM research is conducted in higher education, there is less emphasis on Green HRM, as noted by Fawehinmi et al (2020). To address these gaps, this study provides a novel theoretical model that explains how GHRM practices influence employees' green behaviours, such as in-role, extra-role, and green innovative behaviour. The introduction of GWE as a mediating component improves the model by emphasizing the role of employee involvement in encouraging environmentally friendly practices in higher education institutions.

2.4 Research Model

This study set out to create a model that would explain how GHRM in higher education influences GIWB, in-role green behavior, and extra-role green behavior at the individual level. The concept of GWE serving as a transitional mechanism between the aforementioned links is depicted in Figure 1.

3 Research Methodology

This research aimed to investigate the relationship between Green Human Resources Management (GHRM) practices and Green Workplace Behavior (GWB) among employees in Higher Education Institutions (HEIs). The study utilized a quantitative approach, employing a cross-sectional survey design to collect data from HEI employees. This section provides a detailed overview of the research design, participants, measurement instruments, and data analysis techniques employed. Data was collected from a total of 10 higher education institutions across Sindh Pakistan. These institutions were selected to ensure a diverse representation of HEIs, including both public and private universities. The sample selection was based on convenience, where employees who were readily available and willing to participate in the survey were included. This approach was

Published by iRepository, August 2024

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

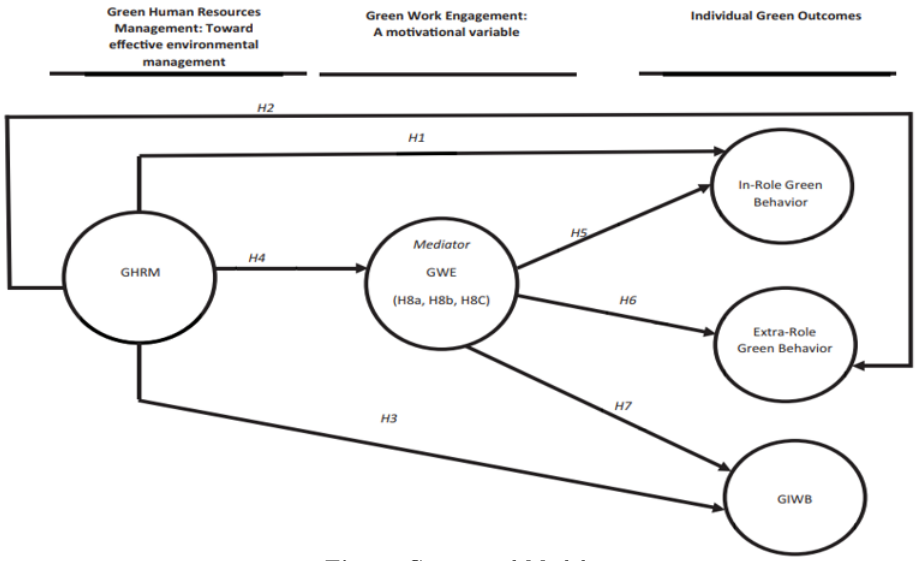

Fig. 1: Conceptual Model

chosen due to time constraints and the ease of access to certain institutions. The minimum sample size was determined using the G*Power software, which is widely used for calculating sample size in social science research. The parameters set for this calculation included an effect size of 0.3, a significance level of 0.05, and a power of 0.80. Ultimately, data was collected from 168 respondents. The sample was divided into two strata based on the type of institution (public and private). This resulted in a total of two strata. The rationale for dividing the sample into these strata was to capture potential variations in green human resource management practices and green workplace behavior across different types of institutions. This stratification allowed for a more comprehensive analysis of how institutional context and location influence the adoption and effectiveness of green initiatives. Efforts were made to mitigate non-response bias by ensuring participation from diverse strata. By including diverse strata, the study aimed to enhance the generalizability and robustness of the findings, providing a more nuanced understanding of the factors that drive green behavior in HEIs. This approach also aligns with the emphasis on sample size determination to minimize sampling error costs and manage statistical power effectively. The larger the sample size, the greater the power of the statistical test.

3.1 Participants

The target population for this study comprised employees in Higher Education Institutions. A total of 168 participants were included in the analysis. Demographic characteristics of the respondents indicated a male 117 (69.64 %) were male and 51 (30.36 %) were female in terms of age, 38 (22.62%) were between 26-35 years, 78 (46.43 %) were between 36-45 years, 39 (23.21 %) were between 46-55 years and 13 (7.74 %) were between 56-65 years. This indicates

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

that people between the ages of 36 and 45 make up the majority of respondents. Regarding work experience, there are 48 people (28.57%) with 1-3 years, 58 people (34.52%) with 4-6 years, 24 people (14.29%) with 7-9 years, and 38 people (22.62%) with more than 10 years.

3.2 Instrumentation

Measurement of Variables The study utilized established scales to measure key constructs:

- Green Human Resources Management (GHRM): Dumont et al (2017) six-item scale was employed the Cronbach's alpha for this measure was 0.793, indicating high reliability.

- Participation in Green Work: Six items from Schaufeli et al (2006) were adapted to measure green work participation. The Cronbach's alpha for this construct was 0.761.

- Green Behavior in Role: A three-item scale by Bissing-Olson et al (2013) was used, with a Cronbach's alpha of 0.577.

- Additional Green Behavior: Another three-item scale Bissing-Olson et al (2013) was used, and the Cronbach's alpha for this construct was 0.577.

- Innovation in Green Workplace Behavior (GIWB): Scott and Bruce (1994) six-item scale was modified, and the Cronbach's alpha was 0.776.

3.3 Measurement model assessment

To examine convergent validity and internal consistency, average variance extracted (AVE) and composite reliability (CR) were calculated. Table 1 shows that all AVE values surpassed 0.5, while CR values were greater than 0.70, showing strong convergent validity and internal consistency. The discriminant validity was established using both the Fornell and Larcker (1981) criterion and the Heterotrait-Monotrait ratio (HTMT).

Table 1: Compound Dependability then Usual Modification Extract

	CR	AVE
GHRM	0.956	0.783
GWE	0.939	0.721
In-role-green behavior	0.895	0.741
Extra-role green behavior	0.870	0.690
GIWB	0.946	0.747

As shown in Table 1, the values for the average variance extracted (AVE) discriminant validity was thus supported.

Published by iRepository, August 2024

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

4 Results

SPSS v.23 was used to calculate descriptive statistics, correlations, and reliability indices. The authors used Partial Least Squares Structural Equation Modelling (PLS-SEM) for hypothesis testing. PLS-SEM is widely used in a variety of fields, including marketing and strategic management.

4.1 Structural Model Assessment: Quality Check

In assessing the structural model, a thorough set of criteria was used to measure its effectiveness. Initially, the R-squared (R2) values for key variables—namely GWE (0.012), in-role green behavior (0.074), out-of-role green behavior (0.109), and GIWB (0.343) were examined. These values, which represent the lowest R-squared figures, are consistent with Chin (1998)'s guidelines for appropriate benchmarks in this analysis.

Next, effect sizes (f-squared, f2) were computed to clarify the impact of Green Human Resources Management (GHRM) on different constructs. GHRM showed moderate effects on GWE, in-role green behavior, and out-of-role behavior. Notably, the effect size of GHRM on GIWB was considerable, with a value of 0.419 (Chin, 1998).

Additional analysis investigated the effects of GWE on GIWB (0.028), out-of-role green behavior (0.050), and in-role green behavior (0.026), showing moderate impacts (Chin, 1998). To assess predictive validity, Stone-Geisser's Q2 values for latent variables were calculated. The results revealed a strong predictive correlation, with Q2 values of 0.037 for GWE, 0.007 for in-role green behavior, 0.002 for out-of-role green behavior, and 0.14 for GIWB. As per HAIR (2018) standards, a Stone-Geisser Q2 value above 0 indicates a robust predictive correlation.

Table 2 displays descriptive statistics, including means, standard deviations, and correlations among the study variables. The variables exhibited significant positive correlations with each other. Specifically, correlations were found between GHRM and GIWB ($r = 0.524$, $p = 0.000$), GHRM and GWE ($r = 0.239$, $p = 0.000$), GHRM and in-role green behavior ($r = 0.166$, $p = 0.000$), and GHRM and out-of-role green behavior ($r = 0.177$, $p = 0.000$). Additionally, significant correlations were observed between GWE and in-role green behavior ($r = 0.271$, $p = 0.000$), GWE and out-of-role green behavior ($r = 0.30$, $p = 0.000$), and GWE and GIWB ($r = 0.273$, $p = 0.000$), indicating positive relationships between GWE and various green behaviors.

Table 2: Correlations, descriptive statistics, and the square root of the AVE along the diagonal

Constructs	Mean	SD	1	2	3	4	5
GHRM	5.51	0.843	**0.707**				
GWE	5.33	1.160	0.239	**0.669**			
In-role-green behavior	5.45	0.870	0.166	0.271	**0.681**		
Extra-role green behavior	5.03	1.080	0.177	0.300	0.227	**0.651**	
GIWB	5.60	0.823	0.524	0.273	0.191	0.266	**0.680**

Published by iRepository, August 2024

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

Table 3: HTMT Ratio

CONSTRUCTS	GHRM	GWE	In-role green behavior	Extra-role green behavior	GIWB
GHRM					
GWE	0.313				
In-role-green behavior	0.277	0.429			
Extra-role green behavior	0.327	0.503	0.461		
GIWB	0.654	0.382	0.314	0.455	

4.2 Hypotheses Testing

The results showed GHRM, GIWB, green behavior outside of the role (β = 0.132, t = 2.37, p = 0.05), and green behavior inside the role (β = 0.104, t = 2.33, p = 0.007). The evidence supports Hypotheses 1, 2, 3, etc. Additionally, the findings support hypothesis H4 (β = 0.269, t = 4.88, p = 0.000), which postulates a positive impact of GHRM on GWE. In support of H5, H6, and H7, it was discovered that GWE significantly influenced GIWB (β = 0.148, t = 3.40, p = 0.001), in-role green behavior (β = 0.279, t = 4.59, p = 0.000), and out-of-role green behavior (β = 0.303, t = 4.79, p = 0.000). Then, on a sample of 5,000 people, the GWE's mediation effect was examined using the bootstrap method. The findings showed a significant relationship between GHRM and GIWB, out-of-role green behavior, and in-role green behavior (β = 0.013, t = 2.84, p = 0.001, p = 0.063, and β = 0.063, t = 3.34, respectively) in GWE.

5 Discussion and Implications

This study enhances the understanding of Green Human Resource Management (GHRM) in higher education by empirically exploring a new mechanism, Green Work Engagement (GWE), and its mediating role in GHRM relationships. The results underscore the necessity for higher education institutions to implement GHRM practices to foster environmentally aware and innovative behaviors among employees. This research presents Green Innovative Work Behavior as a unique outcome and stresses the importance of sustainable green practices in higher education institutions to tackle environmental challenges.

The results of the direct path analysis showed that GHRM significantly predicts both Green Innovative Work Behavior (GIWB) and green behaviors, both within and beyond employees' formal roles. This finding supports the hypotheses of the study, demonstrating that GHRM initiatives have a substantial impact on promoting green practices and innovative behaviors among employees in Pakistani higher education institutions. The study examined the link between GHRM, GIWB, and non-traditional green behaviors through the mediation role of Green Work Engagement (GWE). The findings indicate that GHRM influences both role-related and extra-role behaviors, as suggested by Dumont et al (2017). GHRM positively influences environmental behavior both inside and outside the workplace. According to the reciprocity norm of Social Exchange Theory (SET), employees reciprocate organizational environmental management efforts with task-related and voluntary environmental behaviors.

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

The study's results align with this norm. Additionally, GHRM has a significant and positive impact on employees' GIWB, suggesting that HRM practices influence employees' innovative work behaviors, consistent with the research by Wright and Nishii (2006) and further supported by Larik et al (2023).

The results indicated a positive correlation between GHRM and GWE. These findings align with the Job Demands-Resources (JD-R) framework discussed by Demerouti et al (2001) which highlights the importance of workplace resources in driving employee engagement. The study found that Green Innovative Work Behavior (GIWB), along with in-role, extra-role, and green behaviors, benefited from high levels of GWE. This implies that employees with higher GWE are more likely to communicate effectively and honestly with their organization, thereby promoting positive outcomes such as green behaviors. Furthermore, the results demonstrated that GWE significantly mediated the relationships examined in the study. Specifically, the connections between GHRM and GIWB, GHRM and green behaviors outside of one's role, and GHRM and green behaviors within one's role were all significantly influenced by GWE. This suggests that the relationship between GHRM and green outcomes involves multiple pathways, including both direct and indirect relationships mediated by mechanisms such as GWE Karatepe and Olugbade (2016).

This study enhances the existing knowledge base on GHRM in general, and green management in higher education specifically. Given the growing interest in GHRM Pham et al (2020), particularly within higher education Gilal et al (2019), further research is essential. In response to this need, the study proposes a hypothesis and empirically investigates a new mechanism that may explain the relationship between GHRM and its outcomes. Uniquely, this study is the first to use the GWE construct as both the intervention method and the study variable.

In prior research, strategies such as green crafts, capital, employee empowerment, and environmental knowledge have been employed as intervention techniques Dumont et al (2017); Fawehinmi et al (2020); Hameed et al (2020). Additionally, the model incorporates a new latent variable, GIWB, alongside other green outcomes. The GHRM literature indicates that employees' green behaviors often pertain to work-related, volunteer-related, and organizational citizenship activities. Higher education institutions are encouraged to adopt green initiatives and develop programs that educate and empower their staff to become environmental advocates. To promote environmental stewardship and encourage sustainable workplace behavior, these organizations must effectively implement GHRM programs. By adopting sustainable green practices, higher education institutions can support their staff in addressing environmental challenges. Such practices can benefit both the operations of these institutions and the sustainable development of the community. HR professionals in higher education should prioritize GHRM practices over other HRM systems, such as high-performance work practices and high-commitment HRM systems.

Green Human Resource Management (GHRM) is emerging as an essential approach for integrating environmental responsibility into business operations. Fawehinmi et al (2020) emphasize its impact within higher education institutions, presenting perspectives that contrast significantly with those of Gilal et al

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

(2019). This research aligns with extensive studies that underscore the importance of disseminating knowledge and raising awareness for the effectiveness of corporate environmental initiatives. Environmental awareness serves as a crucial connector, indicating that knowledgeable employees are more likely to engage in eco-friendly behaviors. Expanding on these findings Fawehinmi et al (2020) and the broader literature, the following hypotheses are formulated:

The hypothesis is based on the mediating role identified by Fawehinmi et al (2020) and supported by extensive literature highlighting the critical role of knowledge in promoting environmentally responsible actions. This hypothesis broadens the scope from environmental behaviors to evaluate the influence of GHRM on the innovative work behavior of academic staff, in line with the wider organizational innovation literature. By conceptualizing Green Work Engagement as a mediator, it suggests that GHRM affects Green Innovative Work Behavior through its impact on employees' overall participation in green initiatives. This framework seeks to enhance the understanding of the complex effects of GHRM in higher education institutions in Pakistan, focusing on the intricate connections between GHRM, environmental knowledge, Green Work Engagement, and employee behavior.

The results of this study corroborate earlier research demonstrating the beneficial effects of GHRM on employee behavior in different sectors. By concentrating on higher education institutions (HEIs) in Pakistan and incorporating Green Work Engagement (GWE) as a mediating factor, this study broadens the existing knowledge of GHRM in the academic setting. Furthermore, the study's large sample size and rigorous statistical techniques, such as the bootstrap method used to assess the mediation effect of GWE, strengthen the reliability of its findings.

This research highlights the critical role of GHRM practices in fostering environmentally aware and innovative behaviors among academic staff in Pakistani higher education institutions (HEIs). By clarifying the mediating role of Green Work Engagement, the study offers useful guidance for HR professionals and organizational leaders aiming to execute successful sustainability programs in higher education. The findings emphasize the importance of incorporating GHRM into HR strategies to tackle environmental issues and cultivate a sustainability-oriented culture within HEIs.

5.1 Limitations and Future Research

Future research is warranted due to several limitations in this study. Firstly, the proposed model was tested using data collected from a single source (employees) at a single point in time. Although this study indicates that common method bias (CMB) was not an issue, future research should address this by using data from multiple sources and at different time points, such as incorporating assessments from managers regarding their staff's environmental practices. Secondly, the findings may not be generalizable as the data were sourced from employees across only five higher education institutions. Future studies should consider expanding the sample size to enhance generalizability. Thirdly, the cross-sectional nature of this study limits the ability to determine causality. Future research

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

could employ longitudinal study designs to examine the model over an extended period. Additionally, while this study investigated the middle link (green work environment, GWE) within the model, future research should explore other influencing factors such as organizational identification, organizational support for sustainability, and environments that foster green participation. Investigating whether there are industry-specific distinctions could also be valuable, particularly by applying the model to other service sectors like higher education, nonprofits, healthcare, and hospitality.

6 Conclusion

This study explores the intricate relationships between Green Human Resource Management (GHRM), employee environmental behavior, Green Work Engagement (GWE), and Green Innovative Work Behavior (GIWB) within the context of higher education institutions in Pakistan. The findings offer valuable insights into how GHRM practices may influence employee behavior, contribute to the development of innovative and environmentally responsible work behaviors, and the mediating role of Green Work Engagement.

6.1 Potential Impact of GHRM Practices on Employee Environmental Behavior

The findings of this study reveal a substantial and statistically significant positive correlation between Green Human Resource Management (GHRM) and various aspects of employee environmental behavior. The observed positive correlations between GHRM and both in-role and out-of-role green behavior, as well as overall green behavior, highlight the significant impact that GHRM practices can have on fostering environmentally responsible conduct among employees in higher education institutions in Pakistan. These results confirm that GHRM practices are essential in encouraging environmentally friendly behaviors, thereby supporting a more sustainable work environment.

6.1.1 Contribution of GHRM to Fostering Green Innovative Work Behavior

The study demonstrates that GHRM has a favourable and noteworthy effect on green innovative work behaviour (GIWB). The findings indicate that companies adopting GHRM procedures have a higher probability of observing a rise in inventive and eco-friendly work practices among their workforce. This suggests that GHRM encourages staff members to participate in imaginative and creative activities that support the organization's overall sustainability objectives in addition to influencing conventional environmental behaviours. In Pakistani higher education institutions, green human resource management (GHRM) stands out as a driving force behind staff members' green innovation cultures.

6.1.2 Mediating Role of Green Work Engagement

The study explores the mediating role of Green Work Engagement (GWE) in the relationships between Green Human Resource Management (GHRM), employee environmental behavior, and Green Innovative Work Behavior (GIWB). The findings reveal that GWE significantly mediates the relationship between

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

GHRM and various dimensions of employee environmental behavior, as well as between GHRM and GIWB. This suggests that the positive effects of GHRM on employee environmental behavior and green innovative work behavior are partially achieved through GWE. In essence, GWE acts as a mediator that strengthens the connection between GHRM practices and the desired environmental and innovative outcomes among employees in higher education institutions in Pakistan.

6.1.3 Comparison with Prior Research Outcomes

Our study's findings are consistent with previous research Dumont et al (2017), which indicates that Green Human Resource Management (GHRM) positively influences both in-role and out-of-role environmental behaviors. Additionally, our results align with the Job Demands-Resources (JD-R) framework, highlighting the role of workplace resources in driving employee engagement. This study contributes to the literature by introducing Green Work Engagement as a novel mediating mechanism in the relationship between GHRM and employee outcomes.

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

References

Aboramadan M, Dahleez K, Hamad MH (2020) Servant leadership and academics outcomes in higher education: the role of job satisfaction. International Journal of Organizational Analysis 29(3):562–584

Albrecht SL, Bakker AB, Gruman JA, Macey WH, Saks AM (2015) Employee engagement, human resource management practices and competitive advantage: An integrated approach. Journal of organizational effectiveness: People and performance 2(1):7–35

Bissing-Olson MJ, Iyer A, Fielding KS, Zacher H (2013) Relationships between daily affect and pro-environmental behavior at work: The moderating role of pro-environmental attitude. Journal of Organizational Behavior 34(2):156–175

Chang CH, Chen YS (2013) Green organizational identity and green innovation. Management Decision 51(5):1056–1070

Chaudhary R (2019) Green human resource management in indian automobile industry. Journal of Global Responsibility 10(2):161–175

Chin W (1998) The partial least squares approach to structural equation modeling. Modern Methods for Business Research/Lawrence Erlbaum Associates

Demerouti E, Bakker AB, Nachreiner F, Schaufeli WB (2001) The job demands-resources model of burnout. Journal of Applied psychology 86(3):499

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 MY, Mohamad Z, Noor Faezah J, Muhammad Z (2020) Assessing the green behaviour of academics: The role of green human resource management and environmental knowledge. International Journal of Manpower 41(7):879–900

Fornell C, Larcker DF (1981) Evaluating structural equation models with unobservable variables and measurement error. Journal of marketing research 18(1):39–50

Gilal FG, Ashraf Z, Gilal NG, Gilal RG, Channa NA (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

Guerci M, Longoni A, Luzzini D (2016) Translating stakeholder pressures into environmental performance–the mediating role of green hrm practices. The International Journal of Human Resource Management 27(2):262–289

Hameed Z, Khan IU, Islam T, Sheikh Z, Naeem RM (2020) Do green hrm practices influence employees' environmental performance? International Journal of Manpower 41(7):1061–1079

Haynie JJ, Mossholder KW, Harris SG (2016) Justice and job engagement: The role of senior management trust. Journal of Organizational Behavior 37(6):889–910

Karatepe OM, Olugbade OA (2016) The mediating role of work engagement in the relationship between high-performance work practices and job outcomes of employees in nigeria. International Journal of Contemporary Hospitality Management 28(10):2350–2371

Kim YJ, Kim WG, Choi HM, 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

Larik KA, Shah IA, Lashari AR (2023) The role of green work engagement as an intermediary mechanism for the impact of green human resource management on the green behavior of higher education employees

León-Fernández Y, Domínguez-Vilches E (2015) Environmental management and sustainability in higher education: The case of spanish universities. International Journal of Sustainability in Higher Education 16(4):440–455

Luu TT (2017) Csr and organizational citizenship behavior for the environment in hotel industry: The moderating roles of corporate entrepreneurship and employee attachment style. International Journal of Contemporary Hospitality Management 29(11):2867–2900

Luu TT (2019) Building employees' organizational citizenship behavior for the environment: The role of environmentally-specific servant leadership and a moderated mediation mechanism. International Journal of Contemporary Hospitality Management 31(1):406–426

Mazzi A, Toniolo S, Mason M, Aguiari F, Scipioni A (2016) What are the benefits and difficulties in adopting an environmental management system? the opinion of italian organizations. Journal of cleaner production 139:873–885

https://ir.iba.edu.pk/businessreview/vol19/iss1/4
DOI: 10.54784/1990-6587.1579

McClean E, Collins CJ (2011) High-commitment hr practices, employee effort, and firm performance: Investigating the effects of hr practices across employee groups within professional services firms. Human resource management 50(3):341–363

Norton TA, Parker SL, Zacher H, Ashkanasy NM (2015) Employee green behavior: A theoretical framework, multilevel review, and future research agenda. Organization & Environment 28(1):103–125

Ojo AO, Raman M (2019) Role of green hrm practices in employees' pro-environmental it practices. In: New Knowledge in Information Systems and Technologies: Volume 1, Springer, pp 678–688

Paillé P, Boiral O (2013) Pro-environmental behavior at work: Construct validity and determinants. Journal of Environmental Psychology 36:118–128

Pham NT, Hoang HT, Phan QPT (2020) Green human resource management: a comprehensive review and future research agenda. International Journal of Manpower 41(7):845–878

Ren S, Tang G, E Jackson S (2018) Green human resource management research in emergence: A review and future directions. Asia Pacific Journal of Management 35:769–803

Rodwell J, McWilliams J, Gulyas A (2017) The impact of characteristics of nurses' relationships with their supervisor, engagement and trust, on performance behaviours and intent to quit. Journal of advanced nursing 73(1):190–200

Saeed BB, Afsar B, Hafeez S, Khan I, Tahir M, Afridi MA (2019) Promoting employee's proenvironmental behavior through green human resource management practices. Corporate Social Responsibility and Environmental Management 26(2):424–438

Schaufeli WB, Bakker AB, Salanova M (2006) The measurement of work engagement with a short questionnaire: A cross-national study. Educational and psychological measurement 66(4):701–716

Scott SG, Bruce RA (1994) Determinants of innovative behavior: A path model of individual innovation in the workplace. Academy of management journal 37(3):580–607

Seeck H, Diehl MR (2017) A literature review on hrm and innovation–taking stock and future directions. The International Journal of Human Resource Management 28(6):913–944

Wright P, Nishii L (2006) Strategic hrm and organizational behavior: integrating multiple levels of analyses (working paper no. 06-05). CAHRS, Cornell University, Ithaca, New York, NY

Yong JY, Yusliza MY, Fawehinmi OO (2020) Green human resource management: A systematic literature review from 2007 to 2019. Benchmarking: An International Journal 27(7):2005–2027