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Article

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The influence of green human resource management practices on organizational environmental performance: mediating roles of green innovation and employee performance

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ABSTRACT

Employee behavior and environmental performance at work are currently receiving more attention as contributing factors to environmental issues. The goal of this study is to look into how employees' performance and green innovation affect how environmentally responsible a university is. Therefore, businesses are implementing a range of environmental protection efforts and creating green business plans. The factors that influence employee performance and green innovation still warrant more study, despite the expansion of this field of study. In response, this study adds to the body of knowledge by examining the factors that influence employee performance and green innovation. The data will be gathered from 405 workers "in Saudi Arabia's educational sector in public universities using the quantitative research approach and will then be evaluated using the partial least squares structural equation modeling method. Results indicate that an organization's environmental performance in the public sector is positively and significantly impacted by the performance of its personnel. Additionally, the findings show that green innovation significantly affects how environmentally responsible a business is and mediates the link between independent variables and an organization's environmental performance. This study shows that the application of GHRM can help organizations execute green innovation more effectively, which would improve the performance of universities. By analyzing these links and assessing the mediation effects, this study's originality adds to the body of knowledge on organizations' environmental performance. It also provides advice for decision-makers on how to foster an environmentally friendly workplace culture by maximizing employees' use of green human resources techniques.

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1. Introduction

The issue of environmental pollution is getting worse while the degradation of natural ecosystems has worsened. Governments and non-governmental organizations from all over the world promote the development of rules and regulations to decrease the negative effects of environmental destruction on the natural environment and human society (Munawar et al., 2022; Tang et al., 2018; Zahrani, 2022). All of these factors raise the necessity for enterprises to take steps to improve their environmental performance. In order to create a win-win situation of environmental economic protection and sustainable development, organizations must consider how to manage the co-relationships between economic goals and environmental objectives (Zhang et al., 2019). This is so because one of the primary elements that directly affect the environment is economic goals (Paillé et al., 2014). On the other hand, as environmental awareness among customers rises, more and more consumers are taking organizations' environmental practices into account when making purchases (Zaid et al., 2018). Stakeholders and shareholders are putting pressure on businesses to engage in environmentally friendly practices (Úbeda-García et al., 2022).

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Consequently, a number of factors could persuade businesses to embrace sustainable practices (Raut et al., 2017). In particular, a company may work to mitigate its environmental and social impacts (Menezes et al., 2017; Yong et al., 2020), in line with the international treaties and regulatory frameworks of various countries (Kanstrup et al., 2018; Quesada et al., 2018). According to the resource-based view (Wright & McMahan, 1992), a company's unique resources are its human resources. They are unable to be easily imitated by rivals and can give businesses a distinct competitive edge. In this context, it is believed that the alignment of human resources with environmental concerns within companies can result in synergistic effects. To gain a competitive edge over their rivals, organizations frequently adopt specific practices (Dey et al., 2019), which include implementing unique differentiation strategies (Schedlitzki, 2019) as well as internalizing values and traits relevant to their managers (Geiger et al., 2019). These practices are evident through a series of actions that encompass recruiting environmentally conscious employees, implementing selective processes to assess candidates' dedication and consistency regarding both people and the environment (Saeed et al., 2019), providing training that clarifies the university's commitments to environmental and social causes and desired stances, and conducting performance evaluations and rewards that prioritize the organization's sustainability objectives (Pham et al., 2020; Usman et al., 2022).

According to recent studies, environmental performance can be achieved in large part through the effective management of human resources (Haldorai et al., 2022; Jawaad et al., 2022; Munawar et al., 2022). Employing eco-friendly procedures that are in line with environmental objectives, such as performance evaluation and people selection, is how organizations execute environmental management (Tang et al., 2018). As firms moved toward efficient environmental management as a result of the publication of related rules and the growth in public awareness of environmental sustainability, the term "green human resources management" (GHRM) emerged (Ren et al., 2018). By emphasizing the coherence between traditional management of human resources and the environmental objectives of enterprises, it stresses the incorporation of "green" ecological principles with functions (Haddock-Millar et al., 2016). In line with this, the term "GHRM practice" designates the collection of laws, rules, and customs that various parties have adopted in order to take into account the interests of green initiatives (Haddock-Millar et al., 2016; Zahrani, 2022).

Few studies have been done on how GHRM affects employee green behaviors in the performance of environmental businesses, and those that have been done tend to focus on how GHRM works in relation to how well different types of organizations perform overall in terms of the environment (Goel et al., 2022; Kanstrup et al., 2018; Quesada et al., 2018). However, because they spend so much time at work, employees are able to efficiently apply the company's green conduct policy (Quesada et al., 2018). As a result, they can aid in improving organizational performance, help the company resolve the tension between its environmental and economic aims, and advance sustainable development (Zhu et al., 2021). It is vital to talk about how GHRM affects employees' green behavior in order to improve the performance of environmental organizations. GHRM is one of the most important components of sustainable capabilities. GHRM takes a stand for the environment and works to create a workplace that inspires staff to carry out their responsibilities as sustainably as possible (Saeed et al., 2019).

In accordance with the institution's goals, hiring, fulfilling, encouraging self-improvement, and mentoring people are all part of senior management's responsibilities in this area, according to current GHRM principles and practices (Pham et al., 2020; Pimonratanakan & Pooripakdee 2017). Green compensation and reward are crucial practices in GHRM because they affect how any firm compensates and rewards its personnel (Mandago, 2018). A corporation should "praise and honor the efforts of employees in achieving competitive edge and give them rewards and prizes; in this way, the organization will receive a competitive edge and employees will also be motivated (Ahmad, 2015)," according to one definition of environmentally friendly compensation and reward.

GHRM includes a big part called green performance and appraisal methodologies (Malik et al., 2021). It refers to "the extent to which particular personnel participate in behavior (actions and activities) and achieve results with relation to greening over a specific period (Ardiza et al., 2021; Mansoor et al., 2020), according to its definition. The corporation claims that each production measurement is assessed based on how well it is contributing to a greener environment (Chen et al., 2019; Darvishmotevali & Altinay, 2022; Mishra, 2017). Businesses should utilize their green organizational social capital to take full

advantage of the benefits of their greener process innovations. In order to increase employee awareness of environmentally friendly process innovations, firms should make better use of their capacity to communicate properly, as this is a key component in speeding knowledge transfer within organizations (Shahzad et al., 2020). Organizational managers should also employ the proper human resource management strategies to encourage these conversations and interactions among staff members in order to increase social cohesion and trust.

As a result, if members are more connected and encouraged and are ready to exchange information, the isolation and segmentation issues that could occur in the quest for innovation in green processes can be mitigated (Xie et al., 2022). Furthermore, crucial elements like green training and development are included in GHRM practices. Development, as defined by Pham and Paillé (2020), is the improvement of an individual's attitudes, behaviors, knowledge, and abilities so as to prevent the deterioration of those related to the environment. Training and development are responsible for this improvement. On the other hand, training is described as the process of putting multi-talented people through improved instruction that is required for innovations (Gill et al., 2021). Similar to that, GHRM methods include green recruiting and selection as significant components. Recruitment is the process of looking for potential employees to apply for job openings within firms, while selection is the process of selecting the best candidates from among the pool of job applicants (Mwita & Kinemo, 2018). The HRM entrance point of any firm must include efficient recruitment and selection techniques. In addition to the employees' achievement in green innovation, another mediating variable was defined as the performance of the software and hardware used in the innovation that an organization conducts in relation to environmentally friendly products or processes, such as the innovation in technologies involved in green product designs or university environment protection.

In light of the foregoing, this article examines green innovation in GHRM and employee performance at a public university in Saudi Arabia. Results were assessed by applying the GHRM technique, which involved analyzing its impact on green innovation and employee performance at a public university in Saudi Arabia. The "Structural Equation Model" (SEM) was created to study the connections between the variables influencing an organization's environmental performance.

The purpose of this study is to fill a knowledge gap about the relationship between GHRM and an organization's environmental performance by examining the mediating function of green innovation in this relationship. In light of the aforementioned, this study examined the performance of employees and green innovation in GHRM at a public university in Saudi Arabia. The GHRM practice was used to assess the findings in the presence of green innovation and its influence on employee performance. The "Structural Equation Model" (SEM) was created to look into the connections between the variables influencing an organization's environmental performance. To be applied to the GHRM practice in organizations' environmental performance, the research model specifically examines the effects of both collaborative design requirements, namely, green recruitment and selection (GRS), green training and development (GTD), green compensation and reward (GCR), providing green employee opportunities (PGEO), top management support (TMS), motivating green employee engagement (MGEE), employee performance (EP), and green innovation (GI).

This research employed IBM SPSS and Smart-PLS 3.3.3 as the primary statistical tools for this study, covering measure construction, convergent measure validity, discriminant measure validity, and structural model exploration. This study is organized as follows: The portions marked here are: The conceptual model and hypothesis are developed in [Section 2](#), followed by sections on the research methodology, the presentation of the analyzed data in [Section 4](#), the discussion and implications in [Section 5](#), and the conclusion and future work's direction in [Section 6](#).

2. Theoretical model and hypothesis development

To tackle environmental issues in the public sector, institutions need to involve researchers and industry professionals in developing a framework that guarantees sustainable practices. While many nations are presently developing these kinds of frameworks, many organizations still struggle because of a lack of GHRM experience and practical knowledge, failure risk, unclear objectives, and inadequate preparation. Top management went over their well-known strategy and their proactive

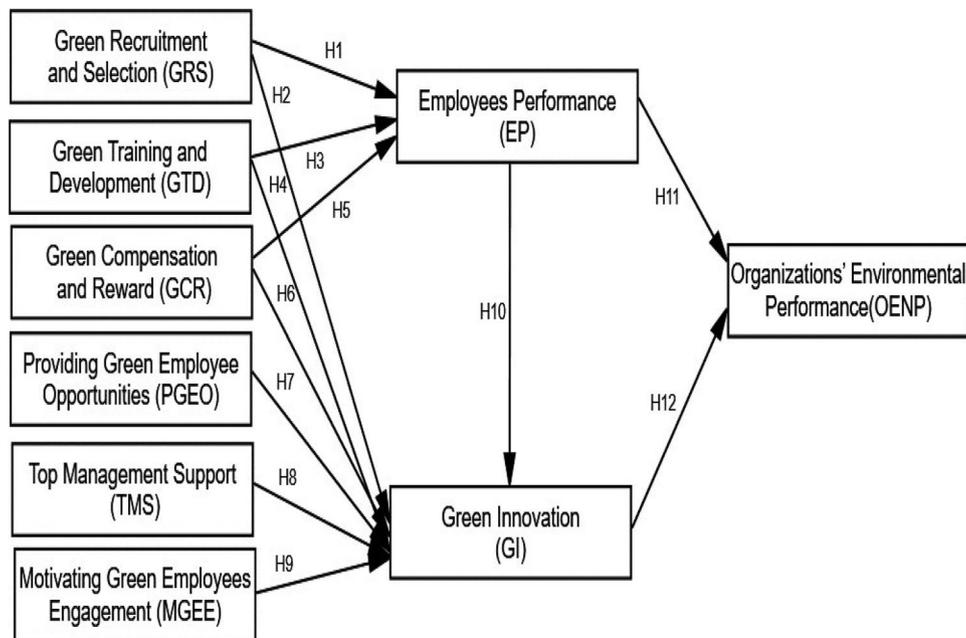


Figure 1. Conceptual model.

approach to putting into practice a methodical GHRM. Nevertheless, there are obstacles and difficulties in reaching environmental performance goals for organizations. This theoretical framework offers a thorough foundation for investigating the ways in which particular GHRM practices affect different facets of employee performance, the ways in which employee performance drives green innovation, and the ways in which green innovation ultimately affects the environmental performance of the business.

It creates the framework for the relationships and mediation techniques that the research study will examine. Lastly, the theoretical framework suggests that organizational environmental performance is impacted by green innovation (GI). The innovations that arise from employee performance can be viewed as special talents that can improve the organization's overall environmental performance, according to the resource-based view (RBV) hypothesis (Barney, 2001). In this study, we use the GHRM practice and green innovation model to analyze the relationship between GHRM practice and employee performance at a Saudi Arabian public university. Through a mediated relationship between employee performance (EP) and green innovation (GI), as illustrated in Figure 1, this study examined GHRM practices, including "green recruitment and selection (GRS), green training and development (GTD), green compensation and reward (GCR), providing green employee opportunities (PGEO), top management support (TMS), and motivating green employee engagement (MGEE)."

2.1. Conceptual framework green recruitment and selection (GRS)

In order to successfully implement the corporate green strategy and accomplish the organizational environmental goals, the green recruiting and selection processes aim to attract and hire staff that are ecologically conscious (Pham et al., 2020; Renwick et al., 2013). This entails defining the organizational hiring process to ensure that employees share the same environmental values and viewpoints as the organization (Chaudhary, 2020). Only if employees are aware of the company's environmental culture will they be able to assist it in achieving its sustainability goals. The job title materials and recruitment advertising should unmistakably demonstrate the organization's commitment to environmental responsibility so that potential candidates may determine whether they are compatible with the green culture of the organization (Pham et al., 2020a Renwick et al., 2013). If there is a good fit between the employee and the organization, they are much more likely to exhibit behaviors that are compatible with the corporate plan. Employing green selection and hiring techniques will therefore probably

result in a staff that supports the organization's values, philosophy, and culture, encouraging them to engage in both job-related and volunteer green behaviors to support corporate goals. Thus, the author hypothesizes:

H1: Green recruitment and selection practices relate positively to employee performance.

H2: Green recruitment and selection practices relate positively to green innovation.

2.2. Green training and development (GTD)

Green training and development (TD) is a method that teaches employees how to protect the environment and conserve it, two skills that are essential for attaining environmental goals (Jabbour, 2011). Green TD practices include enhancing employees' capacity to apply green working practices and increasing their environmental awareness (Ercantan & Eyupoglu, 2022). Their awareness of the relationship between their actions and the environment is enhanced. It equips students with the knowledge and abilities needed to identify environmental issues and implement the necessary solutions (Ercantan & Eyupoglu, 2022). Employees' awareness, knowledge, and skills can all be improved through training (Masri & Jaaron, 2017). Workers may be able to understand the significance of environmental protection thanks to a green training program. Such initiatives can assist staff members in developing a greater awareness of this problem (Cheng et al., 2022). Organizations must undertake employee training to safeguard the environment, raise environmental awareness, enable staff to develop their skills and self-efficacy, and successfully implement green initiatives, all of which will encourage staff to adopt responsible environmental behaviors (Aboramadan & Karatepe, 2021). Through green knowledge management, staff members can receive thorough sustainability training, enhancing their understanding of environmental protection and their capacity to handle challenging environmental management issues (Ababneh, 2021). Employees should also receive training on how to gather trash data and improve their environmental competency. All staff are asked to participate in environmental initiatives as a result of their training (Amjad et al., 2021; Pinzone et al., 2019). If employees are able to recognize and respond to organizational environmental difficulties, they are more likely to feel that their work is meaningful. Better missions and voluntary green behavior will result from this. Therefore, we hypothesize that:

H3: Green training and development relate positively to employee performance.

H4: Green training and development relate positively to green innovation.

2.3. Green compensation and reward (GCR)

According to Clair et al. (1996), a venture capital environmental reward system has been developed that is based on the results of environmental management performance through quarterly managerial bonuses, where different reward programs are offered to staff for green performance in the company. In order to motivate the staff to cut waste, Zaid et al. (2018) noted that flexibility programmers, teleworking, and ending broad professional travel could also be added to the list of GCR practices in the organization (Khatoon et al., 2022). According to Ahmad (2015), GC&R is a crucial component for valuing employees' contributions and has a significant impact on workers, ensuring both their dedication to their jobs and their willingness to put in extra effort to further organizations' goals. According to a study by Ahmad (2015), many contemporary businesses are integrating green reward programmers into their strategic approaches to motivate their workforces to perform well, which helps them achieve their goals of improving environmental management performances. (Mishra, 2017) argued that compensation and incentive systems are a crucial part of the HRM process. Through these systems, employees are recognized for their success in a variety of ways, which increases their motivation to work toward the organization's goals. The entire procedure is in line with green practices and environmental activities carried out in the company thanks to the use of the GC&R system. Green Compensation and Reward is a system of financial and nonfinancial rewards designed to draw in, keep, and inspire employees to advance environmental goals (Jabbour et al., 2013; Yong et al., 2020).

H5. Green Compensation and Reward relate positively to employee performance. H6. Green training and development relate positively to green innovation

2.4. Green employee opportunities (PGEO)

The supply of green options requires employee engagement and environmentally responsible leadership (Renwick et al., 2013). The management needs to make sure that staff members who care about the environment are hired, used, and given leadership responsibilities (Egri & Herman, 2000). Managers typically play both transformational and transactional leadership roles in organizations that value the environment (Egri & Herman, 2000). In order to manage both strategic and operational tasks, management must hire, train, and retain people who possess leadership qualities (Hameed et al., 2020). Peer involvement encourages employee cooperation in green initiatives (Jabbour, 2011). Through education and a compensation structure, management can encourage a culture of environmental responsibility (Pellegrini et al., 2018). Based on resource efficiency, recycling, and conservation, managers might establish key result areas (KRA) (Jabbour, 2011). Giving employees the freedom to make wise decisions outside of the constraints of formative norms is essential for their empowerment (Aboramadan, 2022). Masri and Jaaron (2017) assert that green empowerment raises employees' awareness of environmental issues. Members of the green team are working together to recognize and address environmental problems (Masri & Jaaron, 2017). This serves as a reminder that GHRM is a major force behind green innovation (Muisyo et al., 2022). As a result, we postulate the following:

H7. Offering green employment opportunities is associated with green innovation favorably

2.5. Top management support (TMS)

According to studies like those by Abdel-Maksoud et al. (2016) and Lu et al. (2022), a number of organizational and environmental factors have been shown to have an impact on the adoption of green practices. The degree of environmental unpredictability, increased regulation, and customer pressure are a few environmental factors. The firm's size and amount of assistance are two organizational factors (Al-Shami & Rashid, 2022). Previous research on green practices included these factors, but there has been no thorough research on GHRM (Guerci et al., 2016). The purpose of this research is to fill in the gaps in the existing literature on GHRM by analyzing the most crucial elements, such as support from top management and environmental attitude, that impact its utilization in Saudi organizations. Top management support has been identified as a critical factor in establishing green organizational practices (Guerci et al., 2016). The company's environmental actions depend on how the top management teams view these problems as opportunities or dangers (Mansoor et al., 2021). A deeper integration of environmental issues and strategic efforts is necessary for high-risk industries to increase their economic success (Mansoor et al., 2021). Senior managers have a critical role to play in ensuring a proactive attitude towards environmental protection in business. Based on the themes covered, we believe that the support of top management will have a positive effect on GHRM. As a result, we postulate the following:

H8. Positive top management support for green innovation

2.6. Green Employees Engagement (MGEE)

The development of green motivation includes all aspects of green performance review, rewards, and remuneration focused on improving environmental performance (Renwick et al., 2013). Green performance management is a method that instructs and aligns employees' behavior with the business's environmental strategy (Mansoor et al., 2021). The evaluation of employee environmental performance encourages personnel to take part in and contribute to the company's environmental strategies (Renwick et al., 2013). A green compensation system is one where management offers both monetary and

non-monetary benefits to staff in order to motivate them to support the company's environmental objectives (Jabbour et al., 2013). The management should develop an all-encompassing green productivity and evaluation framework. While evaluating employees in light of the stated green targets, management can talk about how well employees are doing on environmental concerns and receive ideas and suggestions for improvement (Renwick et al., 2013). The achievement of the company's ecological goal has been connected in several studies to executive compensation (Cordeiro & Sarkis, 2008). Companies that link CEO compensation to the accomplishment of environmental goals, according to Cordeiro and Sarkis (2008), have excellent environmental results. In keeping with this idea, Ojo et al. (2022) demonstrated that senior staff who received bonuses for achieving green goals performed very well in terms of sustainability. We postulate the following:

H9. Encouraging Green Employee Engagement Green Innovation has a favorable relationship

2.7. Employees performance (EP)

It can be very challenging to evaluate how well an organization's employees are performing in terms of the environment. One of the main components of GHRM is the measurement of employees' performance on green jobs. As part of the company's overall performance assessment system, individual performance evaluations of inexperienced employees must be conducted (Shen et al., 2018). Additionally, paying attention to successful companies may lead to a correlation between a company's performance in the market and its resources. Resource-based theory is one of the theories that aims to provide an explanation (RBV). It demonstrates how a small number of organizations can generate enough income when businesses utilize their resources efficiently (Chams & García-Blandón 2018). RBV is essentially focused on how businesses create and maintain a competitive edge (Chams & García-Blandón 2018). The company's expertise is its most important resource, according to the information-based overall perspective of the business. This notion, which derives from RBV, is incorporated and carried over into organizational culture and identity, policies, exercises, files, and employee performance (Singh et al., 2019). The pursuit of psychological learning is strongly driven, according to studies (Moshood et al., 2021). The integration of environmental objectives and plans into overarching strategic development objectives can be facilitated by effective EM. Numerous studies back up the idea of HRM as a means of enhancing performance and competitive advantages (Amjad et al., 2021), as well as the HRM approaches used to get there. The field of policies takes into account hiring, performance, and training of employees in a company's green strategy (Renwick et al., 2016), employee relations policies, and reward programmers. Others, however, think that firms should look into the creation of new EM and current HR practices that have a big impact on sustainability and competitive advantage (Yong et al., 2020). The first study discovered that after occupations have fully mastered a specific amount of their assigned duties, they attempt to adjust in accordance with the role of the work in a variety of ways (Gupta, 2018). We postulate the following:

H10. The performance of employees is strongly correlated with green innovation.

H11. The environmental performance of organizations has a positive relationship with employee performance

2.8. Green innovation (GI)

Environmental performance is centered on organizational actions that go above and beyond simple adherence to basic laws and rules in order to fulfill and surpass social expectations for the natural environment (Imran et al., 2021). It involves the ecological effects of organizational actions, products, and resource use in compliance with current environmental legislation (Dibrell et al., 2011). According to a previous study (Rehman et al., 2021), the creation of environmentally friendly goods and procedures, as well as their integration into commercial activities and product development, all serve as the foundation for environmental performance. Green innovation, which is related to a group's environmental management plan, improves environmental performance (Rehman et al., 2021). Through cost and waste reduction, green process and product innovation also lessen a company's detrimental environmental

impact, boosting its economic and social success (Abu Seman et al., 2019). Prior research suggests that green innovation should not be seen as an organization's response to stakeholder demands but rather as driven organizational intents and activities to improve an organization's performance in order to achieve a competitive edge (Rehman et al., 2021). Based on previous research (Abu Seman et al., 2019), we predict that green product and process development will be significant organizational assets that organizations use to improve their sustainability impact and win the trust of key stakeholders. Consequently, we assume that:

H12. Environmental performance of Organizations has a positive relationship with Green Innovation.

2.9. Conceptual framework organizations' environmental performance (OENP)

According to the body of available research, firms can implement effective human resource management strategies to motivate employees to work toward environmental sustainability (Mousa & Othman, 2020; Zaid & Jaaron, 2023). Regarding this, a more thorough analysis should be made to identify the elements that motivate employees to adopt environmentally friendly behaviors and support organizations in their efforts to go green (Paillé et al., 2014). It is also important to remember that businesses cannot operate without employee support, notably in terms of knowledge, commitment, staff skills, and productivity (Zhu et al., 2012). In addition, GHRM aims to restore human resource tools, goods, and procedures with more efficiency but at a lesser cost, while also enhancing competency and destroying the environment. However, (Haddock-Millar et al., 2016) emphasis on the significance of promoting "greening" functions as a crucial component in enhancing organizations' environmental performance is more significant. The authors of Paillé et al. (2014) stress that the EP of a firm will be improved, and the employee will feel encouraged to implement GHRM, which will afterwards give the organization a more serious commercial position. Additionally, GHRM contributes significantly to improving EP and the well-being of the workforce (Renwick et al., 2013). The implementation of sustainability standards and the company's accomplishments are positively correlated, and this relationship is mitigated by the connections between the employees, according to a study on German enterprises (Zaid et al., 2018). Additionally, it is advised that businesses that prioritize having a top-notch ecological operation select and hire employees that are dedicated to solving environmental issues, notably through the application of GHRM (Chiappetta Jabbour et al., 2017; Yong et al., 2020). According to a study by Russo and Fouts (1997), RBV should be used to identify the resources that an organization uses, as this is thought to have an impact on its environmental performance (Solovida & Latan, 2017).

3. Research methodology

Our sample population included staff members from one Saudi Arabian university. A questionnaire survey was used to collect data from the initial sample size of 405 people. The study employed a quantitative research methodology in place of a qualitative approach. The study's target audience included academic staff members from one publicly funded university as well as the heads of departments, deans, and personnel affairs (HR services). A 5-point Likert scale was used to evaluate all of the collected data, which included components of the main endogenous construct of organizations' environmental performance. A mediated link between employee performance (EP) and green innovation (GI), which is hypothesized to significantly predict the environmental performance of organizations and strongly predict green innovation, comprises the proposed model depicted in Figure 1. The nine constructs are "green recruitment and selection (GRS), green training and development (GTD), green compensation and reward (GCR), providing green employee opportunities (PGEO), top management support (TMS), motivating green employee engagement (MGEE), and its impact on organizations' environmental performance through a mediated link between employee performance (EP) and green innovation (GI)."

Among the many techniques for obtaining primary data are surveys, interviews, and case studies. This study's sample was restricted because it came from just one Saudi Arabian public university. When conducting a questionnaire survey, the university faces a challenge because the management is reluctant to

Table 1. The demographic profile.

Demographic	Discription	N	%
Gender	Male	279	68.8
	Female	126	31.1
Age	18-21	63	15.5
	22-25	81	20.0
	26-29	80	19.8
	30-33	69	17.0
	>34	112	27.7
Marital Status	Married	289	71.3
	Not Married	116	28.6
Work Experience (years)	1-5	90	22.2
	6-10	94	23.2
	11-15	198	48.9
	16 or above	23	5.7

provide information. Employees of an organization were therefore included in the target demographic for the survey that was conducted in the Riyadh region. A total of 405 questionnaires were returned after the 45-item survey, which is shown in Table 1, was distributed to the 405 respondents. When the university was scheduled to be visited, data was gathered using a methodical questionnaire. Our sample population included university employees from one Saudi Arabian university. A questionnaire survey was used to collect data from the initial sample size of 405 people. The study employed a quantitative research methodology in place of a qualitative approach. Among the many techniques for obtaining primary data are surveys, interviews, and case studies. This study used a combination of convenience sampling and snowball sampling techniques to collect participant data. To ensure accurate data collection, the questionnaire was physically distributed to all respondents, who were then required to manually complete it on paper. IBM SPSS was used to test the collected data, and Smart-PLS was used for structural equation modeling. Our two-phase study was conducted using IBM SPSS and Smart-PLS 3.3.3 software as the primary mathematical tools. The first phase examined the construction of step suitability, flexible step suitability, and measurement suitability bias, while the second phase looked into the structure's model.

Hair et al. (2019) suggest this approach. Thus, one could argue that in order to improve an organization's environmental performance, the aforementioned factors raise employee performance (EP) and green innovation (GI), respectively, within the organization. There are five items that were previously used to measure green hiring and selection, green training and development, and green compensation and reward (Masri & Jaaron, 2017; Mousa & Othman, 2020; Muisyo et al., 2022). Additionally, five items from the section Providing Green Employee Opportunities (Masri & Jaaron, 2017; Mousa & Othman, 2020; Muisyo et al., 2022) were changed. The following five items were selected with the support of upper management: (Mousa & Othman, 2020; Obeidat et al., 2020).

Furthermore, five items from the publications Motivating Green Employees' Engagement (Masri & Jaaron, 2017; Mousa & Othman, 2020; Muisyo et al., 2022) were altered. Five factors were used to measure employee performance, as was the case with previous research by Masri and Jaaron (2017) and Muisyo et al. (2022). In addition, five items that had been used by Muisyo, et al. (2022) before were used to gauge green innovation. Lastly, five (5) items recommended by Mousa and Othman (2020; Obeidat et al., 2020) were used to measure the environmental performance of organizations. Lastly, modifications were made to five elements that characterize the environmental performance of organizations, as described by Mousa & Othman, 2020; Obeidat et al., 2020. Each variable response was scored using a Likert scale with five possible values. Listed under the demographic profile section of the questionnaire were the following: gender, age, marital status, and work experience. Table 2 presents an overview of the demographic characteristics of the respondents.

3.1. Sample characteristics

There were almost 432 questions distributed, and 405 of those were returned by respondents, meaning that the return rate was 93.7%. 27 of the questions on these exam papers were not completed when they were examined in person. They had to be left out as a result. 405 additional questionnaires

Table 2. Reflective indicator loadings, CR, CA, and AVE.

Factors	Items	Loading	CA	CR	AVE		Items	Loading	CA	CR	AVE
Employees Performance	EP_1	0.861	0.916	0.937	0.747	Motivating Green Employees Engagement	MGEE_1	0.850	0.856	0.897	0.637
	EP_2	0.821					MGEE_2	0.854			
	EP_3	0.872					MGEE_3	0.827			
	EP_4	0.890					MGEE_4	0.727			
	EP_5	0.876					MGEE_5	0.721			
Green Compensation and Reward	GCR_1	0.813	0.876	0.910	0.668	Organizations' Environmental Performance	OENP_1	0.741	0.822	0.875	0.585
	GCR_2	0.842					OENP_2	0.746			
	GCR_3	0.797					OENP_3	0.763			
	GCR_4	0.840					OENP_4	0.801			
	GCR_5	0.794					OENP_5	0.770			
Green Innovation	GI_1	0.866	0.902	0.928	0.719	Providing Green Employee Opportunities	PGEO_1	0.819	0.842	0.888	0.613
	GI_2	0.864					PGEO_2	0.749			
	GI_3	0.862					PGEO_3	0.818			
	GI_4	0.832					PGEO_4	0.807			
	GI_5	0.815					PGEO_5	0.717			
Green Recruitment and Selection	GRS_1	0.707	0.879	0.913	0.678	Top Management Support	TMS_1	0.841	0.878	0.912	0.675
	GRS_2	0.731					TMS_2	0.791			
	GRS_3	0.888					TMS_3	0.713			
	GRS_4	0.885					TMS_4	0.889			
	GRS_5	0.887					TMS_5	0.862			
Green Training and Development	GTD_1	0.823	0.903	0.928	0.722						
	GTD_2	0.875									
	GTD_3	0.871									
	GTD_4	0.791									
	GTD_5	0.883									

were sent to SPSS. 126 (31.1%) and 279 (68.8%) of the 405 questionnaires that were completed by respondents were completed by women. 63 (15.5%) of the participants in this study were between the ages of 18 and 21, 81 (20.0%) were between the ages of 22 and 25, 80 (19.8%) were between the ages of 26 and 39, 69 (17.0%) were between the ages of 22 and 25, 80 (19.8%) were between the ages of 30 and 33, and 112 (27.7%) were over the age of 34. As can be seen from [Table 2](#), 68.9% of the respondents were men. The majority of respondents—289, or 71.4 percent—are married. When it came to years of work experience, most of the respondents (48.9%) had between 11 and 15 years of experience. Each variable response was scored using a Likert scale with five possible values. Listed under the demographic profile section of the questionnaire were the following: gender, age, marital status, and work experience. [Table 2](#) presents an overview of the demographic characteristics of the respondents.

4. Results and analysis

SEM is a useful and well-known technique for analyzing data in social science (Hair et al., 2019). To assess the given hypotheses, the current study employed partial least squares structural equation modeling with Smart-PLS 3.3.3 software. Researchers can manage multicentric models with numerous ideas, elements, and structural routes using the PLS-SEM approach without imposing hypotheses on data distribution. The estimate is emphasized in the model evaluation process using a cause-and-effect SEM prediction technique (Hair et al., 2019).

4.1. Measurement model

We followed Hair et al. (2019) suggestions when applying the measuring approach. For the measurement model, we assessed the loadings, average extracted variance (AVE), and composite reliability (CR) (see [Table 1](#)). This study meets the minimum standards of the required values of composite reliability ($CR > 0.7$), average variance extracted ($AVE > 0.5$), and factor loadings (loadings > 0.5) in order to establish convergent validity in the measurement model indicated in [Table 1](#). The next step was to assure discriminant validity by adding HTMT criteria to the Henssler et al. (2015) and Franke and Sestet (Franke & Sarstedt, 2019) guidelines. [Table 3](#) displays all values for all constructs with values less than 0.85.

Table 3. Discriminant validity (Fornell–Larcker criterion).

Factors	EP	GCR	GI	GRS	G TD	MGEE	OENP	PGEO	TMP
Employee Performance	0.764								
Green Compensation and Reward	0.482	0.817							
Green Innovation	0.641	0.570	0.848						
Green Recruitment and Selection	0.490	0.799	0.610	0.824					
Green Training and Development	0.491	0.681	0.607	0.634	0.850				
Motivating Green Employees Engagement	0.407	0.580	0.615	0.671	0.522	0.798			
Organizations' Environmental Performance	0.504	0.680	0.578	0.689	0.578	0.744	0.765		
Providing Green Employee Opportunities	0.349	0.433	0.457	0.375	0.423	0.433	0.418	0.783	
Top Management Support	0.544	0.808	0.613	0.701	0.561	0.556	0.790	0.411	0.821

4.1.1. Reflective indicator loadings

We followed the reflective indicator loadings obtained by SEM must be higher than 0.700 (Hair et al., 2019). The calculation showed that all loadings were greater than 0.700. The highest loading was for Employee Performance EP 4 (0.890), while the lowest loading was for Green Recruitment and Selection GRS 1. (0.707). A complete summary of all cross-loading estimates may be found in Table 1. After the calculation procedure, 45 signals were included in the upcoming data analysis stage (Table 1).

4.1.2. Consistency reliability (CR)

CR was implemented in order to evaluate the consistency of results across indicators. For the current methodology, Cronbach's alpha and composite reliability (CR) were reported. The acceptable range for CR values is 0 to 1. Cronbach's alpha and CR values should be better than 0.700 (Hair et al., 2019). Table 1 displays the results for Cronbach's alpha and CR. All of the constructs have sufficient Cronbach's alpha and composite reliability above the recommended levels. Performance appraisal had a Cronbach's alpha and CR of 0.916 and 0.937, respectively, compared to Green Compensation and Reward's 0.876 and 0.910 values. Additionally, the alpha and CR for green selection and recruitment were both 0.879 (see Table 1).

4.1.3. Convergent validity

Tests with the same or similar constructs should be significantly connected, according to the definition of convergent validity, which is a subject related to construct validity (Hair et al., 2019). Through the calculation of the average variance derived from this investigation, the convergent validity is presented (AVE). To determine the AVE, we used Smart PLS 3.3.3 (Hair et al., 2019). According to the algorithm, AVE values must be at least 0.500 and should account for at least 50% of the variance (Table 1). The computation showed that all constructs had AVE early highs greater than 0.500 or accounted for more than 50% of the variance. The AVE for an organization's environmental performance was 0.585; for encouraging green employee participation, it was 0.637; and for greener training and development, it was 0.722 (see Table1–).

4.1.4. Discriminant validity

Discriminant validity refers to how much a construct experimentally differs from other constructs. Cross-loadings, the HTMT, and the Fornell-Larcker criterion were all used in this work to examine the discriminant validity. A construct's shared variance needs to be lower than that of the AVE of other constructs in order for it to satisfy the Fornell-Larcker criterion (Fornell & Larcker, 1981). As seen in Table 3, the values of the shared variance for each construction are lower than the construct. For instance, the value of an organization's environmental performance exceeds all of its shared variances, such as employee performance (0.504), engaging green employees and motivating them (0.744), green training

and development (0.578), green hiring and selection (0.689), green process innovation (0.578), and green reward and compensation (0.578) (0.680). The cornerstone for proving the discriminant's validity was the Fornell-Larcker criterion. Additionally, discriminant validity will show up if an indication loading on a construct is greater than its cross loadings (Hair et al., 2019).

We followed Validity will also show up when the HTMT is higher than 0.900. The presence of discriminant validity is absent if the HTMT is greater than 0.900 (Hair et al., 2019). Since all HTMTs are below 0.900 and substantially deviate from 1, as shown in Table 4, the HTMT examination confirmed the discriminant validity. Giving opportunities to green personnel and employee performance had the lowest HTMT values (0.349), whereas chances and green development and training had greater HTMT values (0.850). a more thorough justification of the HTMT values shown in Table 4.

4.2. Structural model

By analyzing the coefficient of determination, t-statistics, and p-value, the structural model's relevance to all real impacts or hypotheses was determined. We computed the data using a bootstrapping method with 5000 resamples. Table 5 offers details on the hypothesis, connection, path, t-value, and p-value, while Figure 2 displays the t-value and load value of the path lines. Table 5 also displays the results of the bootstrapping computation. Only two of the eleven essential constructions' hypotheses were rejected,

Table 4. Heterotrait monotrait ratio for discriminant validity (HTMT).

Factors	EP	GCR	GI	GRS	G TD	MGEE	OENP	PGEO	TMP
Employee Performance									
Green Compensation and Reward	0.536								
Green Innovation	0.694	0.637							
Green Recruitment and Selection	0.545	0.821	0.682						
Green Training and Development	0.530	0.763	0.669	0.713					
Motivating Green Employees Engagement	0.451	0.659	0.696	0.751	0.582				
Organizations' Environmental Performance	0.584	0.727	0.667	0.825	0.671	0.874			
Providing Green Employee Opportunities	0.384	0.501	0.518	0.433	0.483	0.503	0.497		
Top Management Support	0.599	0.724	0.676	0.819	0.628	0.629	0.744	0.475	

Table 5. Variance inflation factor (VIF).

Factors	EP	GCR	GI	GRS	G TD	MGEE	OENP	PGEO	TMP
Employee Performance			1.574				1.696		
Green Compensation and Reward	2.215		2.698						
Green Innovation							1.696		
Green Recruitment and Selection	2.879		2.511						
Green Training and Development	1.948		2.136						
Motivating Green Employees Engagement			2.001						
Organizations' Environmental Performance									
Providing Green Employee Opportunities			1.374						
Top Management Support			2.269						

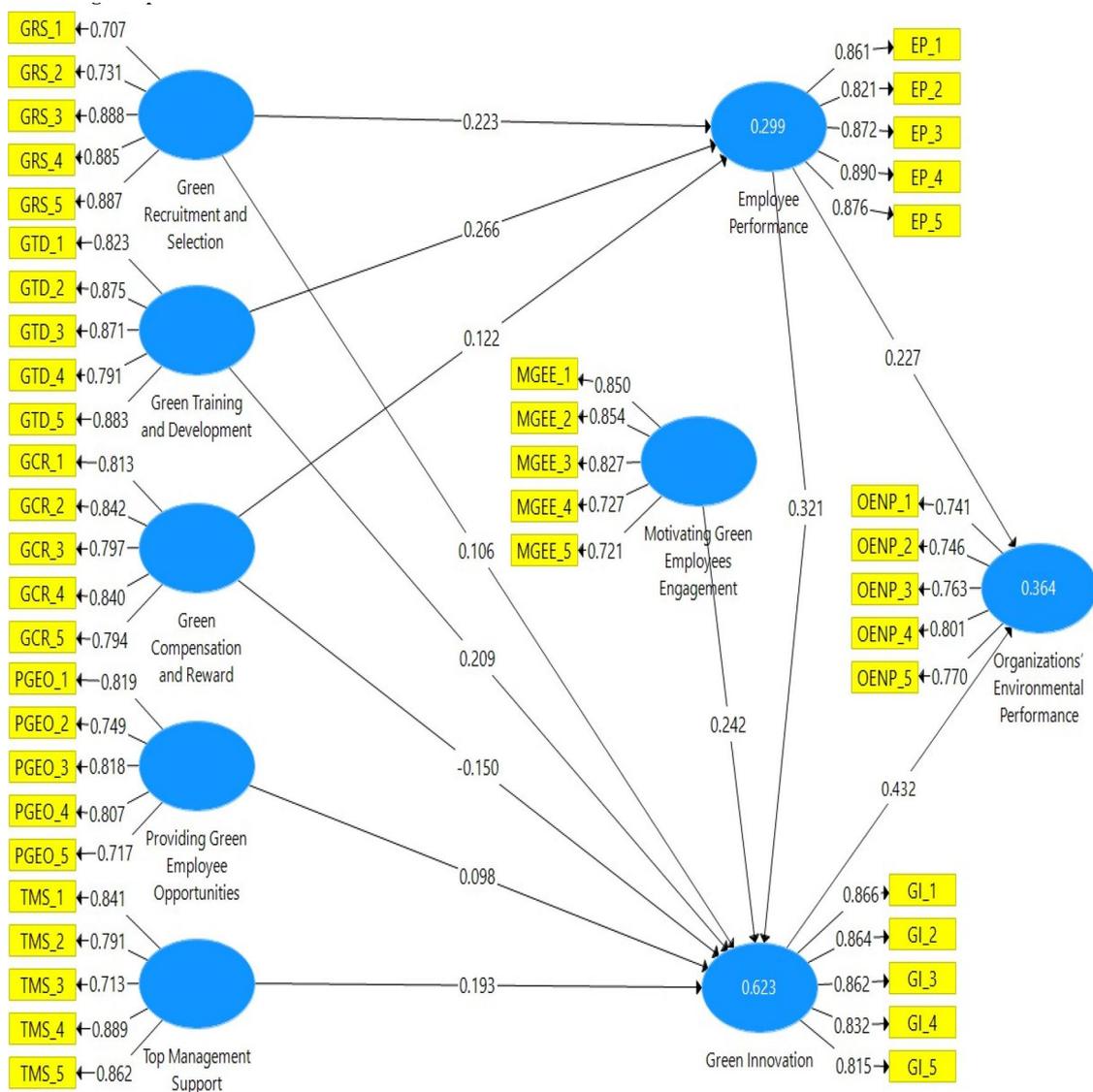


Figure 2. Findings for path coefficient.

as shown in Figures 2, 3, and Table 5, while all other hypotheses were accepted. The highest t-value was obtained by the path between green innovation and organizations' environmental performance ($t=7.217$), while the lowest value was the relationship between green Green Compensation and reward and employee Employee Performance ($t=1.421$). In detail, the first H1 was reported to be significant in influencing green recruitment and selection with employee performance (H1: $\beta=0.223$; $t=2.932$). The results prove a positive and significant relationship; thus, hypothesis (H1) is supported. However, the second hypothesis (H2) indicates that there isn't a relationship between green recruitment and selection and green innovation (H2: $\beta=0.106$, t -value = 1.525). The results proved there isn't a positive and significant relationship; thus, hypothesis (H2) is unsupported. H3 and H4 were also supported, where green training and development are significantly predicted by employee performance (H3: $\beta=0.266$; $t=4.640$) and green innovation (H4: $\beta=0.209$; $t=3.576$). The results proved to have a positive and significant relationship; thus, hypotheses (H3 and H4) are supported. The fifth hypothesis (H5) indicates that there isn't a relationship between green compensation and reward and employee performance (H5: $\beta=0.122$, t -value = 1.421). The results proved there isn't a positive and significant relationship; thus, hypothesis (H5) is unsupported. Similarly, the significant role of green compensation and rewards on employee performance (H6) was also reported (H6: $\beta = -0.150$; $t=2.053$). and green innovation. Providing green employee opportunities is also a significant predictor of green innovation (H7: $\beta=0.098$; $t=2.228$). The result of

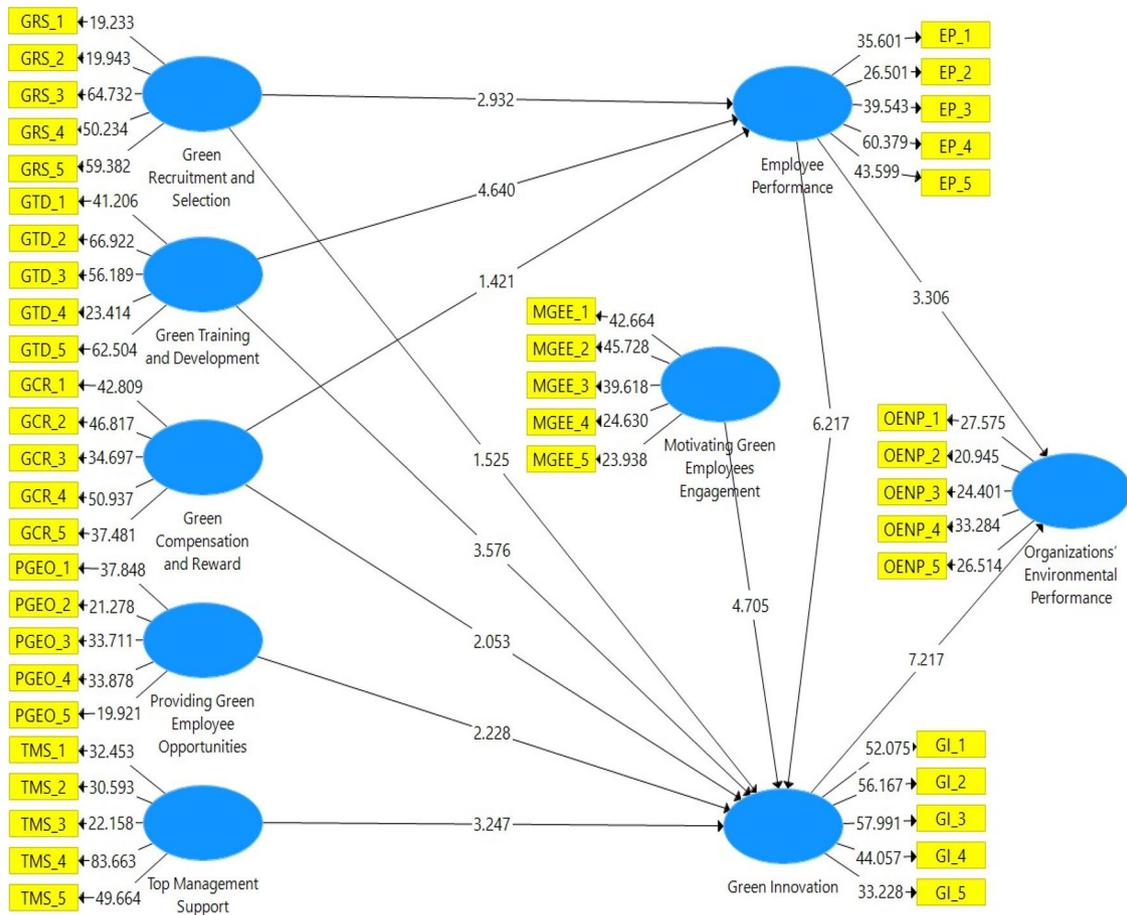


Figure 3. Findings for (T-Values).

Table 6. Coefficient of determination R2.

Factors	R Square	R Square Adjusted
Employee Performance	0.299	0.294
Green Innovation	0.623	0.617
Organizations' Environmental Performance	0.364	0.361

PLS- SEM results supports H8 because there is a significant direct effect of practical top management support on green innovation ($\beta=0.193$; $t=3.247$). H9 is also supported as motivating green Green engagement is significantly predicted by green innovation (H9: $\beta=0.242$; $t=4.705$). The tenth and eleventh (H10, H11) were reported to be significant influences on employee performance with green innovation (H10: $\beta=0.321$; $t=6.217$) and organizations' environmental performance (H11: $\beta=0.227$; $t=3.406$). The results proved to have a positive and significant relationship; thus, hypotheses are supported. Finally, the findings also support hypothesis H12. Positive relationships also emerged between green innovation and organizations' environmental performance (H12: $\beta=0.432$; $t=7.217$). The structural model's evaluation also included a look at the model's propensity for prediction. However, before providing the structural model, the variance inflation factor (VIF) values should be reported in order to acknowledge the collinearity value. Notably, the predictor sets were examined for collinearity (Hair et al., 2019), with green innovation and green recruitment serving as predictors of employee performance (Table 6). VIF values should be below 3; those above 3 are frequently seen as having multicollinearity problems. The results of the data analysis show that all VIFs are under 3. Green hiring and selection were found to have a VIF value of 1.000 as a prediction of employee outcomes and green innovation. For predicting green innovation and an organization's environmental performance, employee performance received a VIF score of 1.574 and 1.696, respectively (Table 6). Collinearity therefore poses no issue for the study's model.

Table 7. Results for F^2 .

Factors	EP	GCR	GI	GRS	G TD	MGEE	OENP	PGEO	TMP
Employee Performance			0.273				0.248		
Green Compensation and Reward	0.207		0.313						
Green Innovation							0.273		
Green Recruitment and Selection	0.325		0.308						
Green Training and Development	0.252		0.254						
Motivating Green Employees Engagement			0.278						
Organizations' Environmental Performance									
Providing Green Employee Opportunities			0.218						
Top Management Support			0.330						

Table 8. Hypotheses assessment.

Factors	β	T-Values	p Values	Results
Green Recruitment and Selection ----- > Employee Performance (H1)	0.223	2.932	0.004	Accepted
Green Recruitment and Selection ----- > Green Innovation (H2)	0.106	1.525	0.128	Rejected
Green Training and Development ----- > Employee Performance (H3)	0.266	4.640	0.000	Accepted
Green Training and Development ----- > Green Innovation (H4)	0.209	3.576	0.000	Accepted
Green Compensation and Reward ----- > Employee Performance (H5)	0.122	1.421	0.156	Rejected
Green Compensation and Reward ----- > Green Innovation (H6)	0.150	2.053	0.041	Accepted
Providing Green Employee Opportunities -----> Green Innovation (H7)	0.098	2.228	0.026	Accepted
Top Management Support ----- > Green Innovation (H8)	0.193	3.247	0.001	Accepted
Motivating Green Employees Engagement ----- > Green Innovation (H9)	0.242	4.705	0.000	Accepted
Employee Performance ----- > Green Innovation (H10)	0.321	6.217	0.000	Accepted
Employee Performance ----- > Organizations' Environmental Performance (H11)	0.227	3.306	0.001	Accepted
Green Innovation ----- > Organizations' Environmental Performance (H12)	0.432	7.217	0.000	Accepted

The outcome of the regression analysis is the coefficient of prediction (R^2), which represents the percentage of endogenous variable change that can be predicted by the exogenous variable. It determines how well a suggested model can predict the future. Two specific endogenous constructs and their square connection are what matter. According to the study's results, the R^2 has a range of 0 to 1, with 0.25 being weak, 0.50 being moderate, and 0.75 being large (Hair et al., 2019). Table 6 displays the R^2 s outcome.

How closely a predictor construction correlates with just an independent variable is measured by the statistical notion of effect size, also known as f^2 . In other words, f^2 has been used to evaluate the effect of external factors on endogenous latent variables. F^2 investigates what happens to f^2 's value when an exogenous construct is taken out of the model. The f^2 values of .02, .15, and .35 have a mild, medium, and considerable impact, respectively, in accordance with Hair et al. (2019); see Tables 7 and 8.

5. Discussion and implication

The primary goal of the current study was to examine how GHRM practices affect how well firms perform in terms of the environment, their employees, and green innovation as they support the sustainability of those universities in Saudi Arabia. The findings demonstrate a considerable and favorable influence of independent variables on staff performance and green innovation. Indeed, there is a direct correlation between GHRM and sustainable performance. Additionally, it has been noted that earlier studies on GHRM heavily concentrated on practices at the individual level rather than a collection of behaviors, motivating the current study to further analyze GHRM practices collectively (Hooi et al., 2022; Malik et al., 2021; Singh et al., 2020). Additionally, the GHRM package may foster the diffusion of environmental ideas and standards based on employee motivations and skills, which will then allow the employees an opportunity to improve the environment of the firm (Singh et al., 2020). In fact, a significant number of experts have underlined that sustainability is an evolutionary component and

the future of human resource management (Ren et al., 2018; Singh et al., 2020). More significantly, GHRM is considered advantageous because it gives businesses access to knowledgeable, committed, and environmentally concerned employees who can help the university lower its carbon footprint by making good use of its resources (Amjad et al., 2021). In addition, the adoption of GHRM practices is highly advantageous because it can result in increased efficacy, low costs, a setting with better employee engagement, increased productivity, and other observable advantages (Alavi & Aghakhani, 2021; Amjad et al., 2021) that are hoped to help the organizations work in a sustainable manner (Rani & Mishra, 2014).

Additionally, it was found that companies that took on social responsibility gained real advantages that are likely to boost their performance, such as increased employee and customer satisfaction, the hiring of top-notch staff, and innovation (Gupta, 2018; Renwick et al., 2016; Yong et al., 2020). GHRM bundling practices and employee effectiveness in terms of green innovation, however, were not the subject of any studies. This study sheds light on the emerging field of green technology and worker productivity within the context of human resource administration. There is a substantial body of literature on HRM, but much of it focuses on the application of GHRM in organizational settings, and there remains a research gap in the area of researching GHRM in the context of business. Notably in Saudi Arabia. In an organizational setting, continual development has been implemented to enhance organizations' environmental performance.

As a result, this study broadens our understanding of both human resource management and sustainable organizations. In order to do this, a new field that is focused on employee performance and green innovation is highlighted. Our research showed that businesses were doing an excellent job of implementing green technology and improving environmental performance. Additionally, there was also a positive correlation between these two variables and the organizations' environmental performance, which was statistically significant. The two factors that most strongly correlate with an organization's success are employee productivity and green innovation. The findings of our study contribute to our understanding of the relationships between an organization's environmental performance and employee performance, green process innovation, training and development, compensation and reward, offering green employee possibilities, support from top management, and promoting green employee engagement. GHRM practices can improve an organization's environmental efficiency by supporting the environment generated by employees' productivity and green innovation. The results show a significant correlation between greener hiring and selection procedures and worker performance.

The findings of studies from developed countries like Saudi Arabia, Malaysia, and the USA (Faisal & Naushad, 2020; Haddock-Millar et al., 2016) are in agreement with this conclusion. Therefore, H1 was approved. The results also show how little significance there is to the connection between environmentally friendly innovation, green hiring, and hiring practices for the long-term sustainability of organizations in the real world. The conclusion is in line with other research findings (Mousa & Othman, 2020; Zahrani, 2022; Zaid & Jaaron, 2023); hypothesis H2 is disproved. The study also showed that green training and development have a considerable impact on environmental performance, employee performance, and green innovation (H3 and H4). The findings are consistent with past studies, which have shown a strong relationship between employee performance and environmentally friendly innovation (Mousa & Othman, 2020; Zahrani, 2022). As a result, this investigation's third and fourth hypotheses were also accepted. According to the results of the current study, employee performance, green reward, and remuneration were not significantly correlated. These results don't line up with earlier studies' findings, which suggested that organizational environmental performance is significantly impacted by green reward and pay. However, Amjad et al. (2021; Zahrani, 2022) contend that remuneration and rewards are important for the effective application of GHRM methods. The use of green rewards and remuneration to promote a pro-environmental attitude among employees has not received much attention from organizations, which is important. According to Paillé et al. (2014), it is challenging to design a reward system that encourages workers at all levels because different forms of incentives may be required for different sorts of employees, posing administrative issues regarding the resources required to connect rewards to specific behaviors. The findings also indicate a strong relationship between green innovation and green compensation and reward (H6). This outcome is in line with findings from other research carried out in wealthy nations, such as Saudi Arabia and Malaysia (Anwar et al., 2020; Mousa & Othman, 2020). Thus, H6 was approved.

The findings confirm the theory that green compensation and reward are directly connected with green innovation, which has been supported by past studies (Anwar et al., 2020; Mousa & Othman, 2020). (H6). As a result, the investigation's sixth hypothesis was also accepted. Based on the findings, we were able to confirm that Supplying Measures of Employee Opportunities, Top Management Support, Compelling Green Employees Engagement, and Job Performance had a significant impact on the Environmental Performance of Green Innovation of Organizations, which is consistent with (Anwar et al., 2020; Mousa & Othman, 2020; Yong et al., 2020). In light of this, research showed that measures of employee opportunities, top management support, motivating green worker engagement, and employee performance (H7, H8, H9, H10) had a substantial impact on green innovation. Numerous studies looked at the impact of giving green employees opportunities, getting top management support, encouraging green employees' engagement, and employee performance on the environmental performance of green organizations (Khatoon et al., 2022; Obeidat et al., 2020; Zahrani, 2022). Additionally, it was demonstrated that an organization's performance significantly affects the performance of its personnel (H11). This outcome is consistent with earlier research (Mousa & Othman, 2020; Obeidat et al., 2020; Yong et al., 2020) that discovered a link between employee productivity and an organization's performance. As a result, the H11 hypothesis was likewise accepted in this investigation.

This study found that when given the chance to participate in environmental activities and encouraged to provide suggestions for resolving environmental issues, employees are more inclined to engage in discretionary sustainability impact (Yong et al., 2020; Zhang et al., 2019). The hypothesis (H12) argues that green innovation is a direct predictor of organizations' environmental performance based on the results of this study. Results showed that H12 and green innovation have a big impact on how environmentally friendly a corporation is. These results are consistent with one researcher's conclusions that the usage of green innovation and the purpose of use have a beneficial impact on an organization's environmental performance (Khatoon et al., 2022; Mousa & Othman, 2020), as shown by the improvement of employee abilities and the sharing of ideas.

5.1. Theoretical implications

The current study has various theoretical ramifications. First, as suggested by theories like the recourse-based view theory and social learning theory, the current study indicates that positive relationships between "green innovation and employees' performance mediated by green innovation, green recruitment and selection, green training and development, green compensation and reward, providing green employee opportunities, motivating green employee engagement, and development influence organizations' environmental performance." Secondly, the majority of scholarly investigations concerning the RBV have been carried out in developed nations; however, minimal knowledge exists regarding the RBV outside of these contexts (Barney, 2001).

The study context and RBV approach to organizations' environmental performance and employees' performance with green innovation make this research incremental. This study makes a significant theoretical contribution by integrating HRM practices with green innovation and the environmental performance of organizations. These kinds of studies are uncommon in the literature on HRM practices and innovation. Future researchers in the fields of innovation management, human resource management, and the environmental performance of organizations now have a number of new theoretical integration options to choose from. The main contribution of this research that will aid in bridging the theory gap between these three research domains is the integration of theories from all three to produce strong theoretical foundations. Current research makes a significant theoretical contribution by utilizing social learning theory and integrating it with RBV, GHRM concepts, green innovation, and environmental performance. As a result, by offering a paradigm like "GHRM practices and green innovation," which also functions as a useful framework for understanding the following, this study adds to the body of literature. Through green innovation, GHRM practices can improve a university's environmental performance as well as employee performance. Among these are green hiring and selection practices, green pay and incentives, and green training and development. Therefore, this study contributes to the literature by suggesting a paradigm like "GHRM practices and green innovation," which also serves as an effective framework for comprehending the following:

- GHRM practices may enhance employee performance and a university's environmental performance through green innovation. Green training and development, green pay and incentives, and green recruiting and selection are some of these.
- Green innovation has the biggest impact on how environmentally responsible a firm is. By doing this, businesses gain the respect of both employees and stakeholders for their environmental performance.
- The environmental performance of stakeholders and employees inside a business is also significantly influenced by employee performance and green innovation.
- To improve enterprises' environmental performance for the purposes of employee performance and green innovation, a theoretical model should be created and used in conjunction with other tactics.

5.2. Practical implications

Several applications of this study to organizational environmental performance are possible. For organizations, environmental performance is provided by the proposed study model and knowledge of the interactions among various decision variables. The current study provides two points of view: first, the GHRM practices and green innovation variables encourage a wide range of priorities to understand employees' performance at universities; and second, employees' performance in order to improve businesses' environmental performance. Test metrics and procedures are also crucial elements in research or practice. Therefore, the green innovation factors and GHRM techniques presented in this study can be employed in the practical assessments of the environmental performance of firms created with the intention of increasing employee adoption of green innovation. Even though some of the study's hypotheses are not yet confirmed by any research models, they are nonetheless important to employ in quantifying the various facets of a university's environmental performance. Another significant theoretical contribution of our research was the successful identification of some data that might be used to satisfy employee performance requirements with regard to green innovation and organizational environmental performance. This study provides two lines of evidence and preliminary proof of GHRM practices that can be used in the context of eco-friendly hiring and selection, eco-friendly training and development, eco-friendly compensation and reward, offering eco-friendly job opportunities, assistance from top management, and promoting eco-friendly employees' engagement. Strategies for green learning and development, green recompense and reward, green employee opportunities, support from top management, and inspiring eco-friendly employee engagement that can improve workers' productivity in the context of an organization's performance rank as the second-strongest metrics of employee performance and green innovation. This is a significant theoretical contribution to earlier studies on GHRM practices that (Mousa & Othman, 2020; Yong et al., 2020; Zahrani, 2022) did not examine the impact of employee performance on the ethical purpose to be used. The following are the key deductions made from the study:

- It is crucial to implement GHRM practices within an organization, or with the intention of doing so, in order to boost employee productivity. GHRM practices are one of the key elements of organizations. It is important to increase the usage of GHRM practices and the system's accessibility so that all employees, no matter where they are, may utilize it. By appropriately responding to employees' inquiries and simultaneously enhancing professional development, green reward and reward, providing employee green opportunities, support from top management, and motivating green employee's engagement, employees' performance may also benefit.
- Stakeholders frequently motivate staff to improve an organization's environmental In order to streamline the process, firms can incorporate all GHRM techniques and supplies.

5.3. Limitations

Despite these limitations, the research was able to produce excellent results. Since the study's data came from a single Saudi university, the results need to be extrapolated to other cultures and industry sectors

in order to assess how well an organization's use of green innovation and GHRM practices affects the environment. Additional research should be done to look into how GHRM practices might improve organizations' environmental performance because there aren't enough experimental studies in this area. Additionally, it's possible that the results won't apply to all companies, including factories, small and medium-sized businesses, educational institutions, or to their general perceptions. Individuals within the organization could have opinions and theoretical understandings that diverge from what they actually do. The fact that the distinctions across research topics were not taken into consideration is another problem. Therefore, by making changes or enhancements to these current restrictions, future research might choose other mediating variables (e.g. green commitment, green self-efficacy, and green trust) or moderating variables (e.g. environmentally specific servant leadership and a leader's support for the environment).

6. Conclusions future research

It is determined that constantly evolving surroundings strongly need green practices in all facets of businesses, but that if human resources are built on green practices, it will ultimately have an impact on all the organization's divisions. According to this study, employing green human resources techniques along with employee productivity and green innovation has positive, noteworthy benefits for every aspect of an organization's total environmental performance. Additionally, it has been discovered that top management support, motivating green employee engagement, green compensation and reward, providing green employee opportunities, and training and development are the GHRM practices variables that have the highest influence. By implementing green human resources practices like learning and development, green reward and reward, providing employee green opportunities, support from top management, and motivating green employee engagement, it can be said that organizational practices must be linked to environmental practices in order to compete globally. With regard to training and development, green compensation and reward, providing measures of employee opportunities, top management support, motivating green employee engagement, and providing green employee opportunities, this study can help conceptualize GHRM bundle practices and green innovation. It can also give employees the ability to educate themselves about GHRM bundle practices and their implications. As a last point, we would like to emphasize that HRM plays a significant role in the implementation of GHRM practices and policies. In addition to this, they are essential in the hiring of new workers who are more accountable for green university practices. Future studies should strive to experimentally validate the model using comparative and country-specific research approaches. Next, models for other transitioning nations (like Asia) and other regional GHRM models across continents could be compared to the conceptual GHRM bundle model with green innovation. Last but not least, the majority of the highly referenced GHRM articles lack a solid theoretical foundation, which should be considered in future studies. Such a study has the prospect of assisting organizations in halting environmental degradation and gaining the advantages of environmental renewal and protection, ultimately benefiting all organizational stakeholders in the long run.

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Authors contributions

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