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## Article

# Green human resource management practices and environmental performance: the mediating role of job satisfaction and pro-environmental behavior

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# Green human resource management practices and environmental performance: the mediating role of job satisfaction and pro-environmental behavior

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## ABSTRACT

The contemporary business landscape is witnessing a paradigm shift towards environmental sustainability, prompting organizations to adopt green practices. Among these, Green Employee Empowerment (GEE) and Green Training (GT) have emerged as pivotal strategies. This study aims to explore the interplay between GEE, GT, Job Satisfaction, Pro-environmental Behavior (PEB), and Environmental Performance (EP) within hotel organizations. Using a cross-sectional design, a questionnaire survey was administered to 400 full-time employees. The data were analyzed using Partial Least Square- Structural equation modelling (PLS-SEM) v4 techniques. The study's findings highlight the substantial impact of GEE and GT on both PEB and Job Satisfaction among employees in hotel organizations. Interestingly, the results reveal that GEE significantly influences Environmental Performance (EP), underscoring its role in driving positive outcomes in terms of sustainability practices within hotels. However, the surprising finding is that GT, despite its emphasis on environmental training, has an insignificant impact on EP. This unexpected result warrants further exploration and underscores the need for a nuanced understanding of the effectiveness of different green initiatives in influencing the overall environmental performance. As hotels worldwide grapple with the imperative to adopt sustainable business practices, this study provides valuable insights and a roadmap for hotel organizations seeking to navigate the complex landscape of environmental responsibility and social accountability. The findings provide practical guidance for luxury hotels striving to strike a balance between economic success and environmental stewardship, fostering a holistic approach to sustainability in the hotel industry.

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## 1. Introduction

The global population has been greatly impacted by various environmental crises, such as climate change, resource scarcity, waste management issues, water scarcity, and air pollution. These crises have had negative effects on living conditions and health worldwide. Critically, these impacts are not limited to a single country but rather affect the entire world. One of the main factors contributing to the current environmental crisis is the challenge of sustaining economic growth owing to the rapid increase in the global population.

According to the United Nations, by 2050, approximately 68% of the global population will be living in urban areas, which is a 14% increase from 2018 (Klumbyte et al., 2021). This rapid urbanization will result in greater demand for resources, while the availability of these resources continues to diminish. Currently, our world relies heavily on natural resources, but this reliance poses challenges and limitations to economic growth as the costs of these resources increase. Consequently, service organizations have shifted their focus towards environmental concerns and are now emphasizing sustainable development,

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particularly in terms of environmental performance (Chaudhary, 2020; Ren et al., 2018; Yong et al., 2019; Yusliza et al., 2017).

As a result, many organizations have made efforts to reduce the waste generated during the production and disposal processes. This has led to improved environmental performance (EP) (Melnik et al., 2003). Thus, (Wagner, 2011) agreed that organizations are now required to adapt green models by performing environmentally friendly practices in their operations. This change towards sustainability has created a competitive advantage for organizations in the service industry (Jackson and Seo, 2010). In sectors such as the hotel industry, green practices include educating customers and employees, saving energy, conserving water, and reducing waste (Bohdanowicz et al., 2011; Rahman et al., 2012). Hilton prioritized environmental protection by setting operational goals, implementing eco-friendly practices, and developing monitoring means to track progress. As a result, water consumption was reduced by 14.1% and energy usage by 14.5% between 2009 and 2014 in Hilton Worldwide. Similarly, Marriott, another major hotel chain, has actively worked on preservation initiatives that contribute to environmental conservation.

Previous studies in the fields of green employee empowerment (GEE), green training (GT), and environmental performance (EP) have predominantly focused on hotel environmental practices. These studies examined how hotels can save energy, conserve water, and establish environmentally friendly practices from the perspective of customers. For instance, Manaktola and Jauhari (2007) discussed environmentally friendly practices in hotels from the customers' perspective. Kang et al. (2012) demonstrate that American customers are concerned about their environment and their ability to pay high prices to green hotels. Despite the crucial role that employees' behavior plays in promoting environmental practices within the hotel industry, few empirical studies have established a connection between green employee empowerment (GEE), green training (GT), pro-environmental behavior (PEB), employee job satisfaction (JS), and environmental performance (EP).

GEE and GT, as components of GHRMPs, are vital for achieving successful environmental performance practices (Beard, 1996; Daily et al., 2011; 2012; Daily and Huang, 2001; Fernández et al., 2003; Govindarajulu and Daily, 2004; Hart, 1995; Kim et al., 2019; Kitazawa and Sarkis, 2000; Kularathne, 2020; Pham et al., 2020; Pinzone et al., 2019; Ramus, 2001; Ramus and Steger, 2000; Rashid and Al Qaseer, 2022; Sarkis, 2001; Yafi et al., 2021) Furthermore, they also have a positive influence on PEB and EJS (Al-Ababneh et al., 2017; Bhatti et al., 2022; Li et al., 2023; Nurul Alam et al., 2023; Ojo et al., 2022; Pham et al., 2020; Pinzone et al., 2019).

This research focuses on the hotel industry, including GHRMPs, PEB, EJS, and EP. Among the hotel industry, twelve five-star hotels in Amman – Jordan are chosen to conduct the study, and among the GHRMPs, GEE and GT are suggested to be used to investigate their potential influence on EP practices via pro-EP and EJS.

To fill the gap in the literature review and continue where other colleagues have stopped in the areas of GEE, GT, PEB, EJS, and EP, this research is one the first to propose different relationships between different variables on EP in a non-Western setting, instead, in the Middle East setting, particularly at five-star hotels in Jordan. Therefore, the objectives in this research are folded into two main points: (1) to investigate the relationships between GEE and GT on PEB, EJS and EP. (2) To investigate the relationship between GEE and EP mediated by PEB and EJS. (3) to investigate the relationship between employee PEB and EP and the relationship between EJS and EP. In other words, the proposed model suggests that empowering and training employees to achieve green initiatives in the organization should lead employees to be satisfied with their jobs and engage in PEB that promotes EP. Thus, creating an employment environment in which employees are empowered and trained will lead employees to be satisfied in their jobs and become involved in friendly behavior that employees utilize to reduce or eliminate the negative impact in the work environment. Consequently, it has a positive impact on the EP.

## **2. Literature review and hypothesis development**

### **2.1. Green employee empowerment, pro-environmental behavior and environmental performance**

Green practices are considered a shift from the traditional model to the green model. This requires the management to think in a way that involves the employees to participate not only in expressing ideas,

issues, and problems related to the EP in the workplace and discussing how to be addressed, but also in implementing what they share with the management. To do so, adopting an empowerment approach by which the management shares authority and responsibility with their employees will lead them to initiate and shape environmental objectives, make decisions on addressing environmental problems, and any other problems could arise during the implementation of green activities in the service organization (Daily and Huang, 2001; Jabbour and Santos, 2008).

This was confirmed with a study conducted by Moraes et al. (2019) who indicated that green empowerment involves giving the employees the authority to make decisions regarding environmental concerns. Another study showed that empowering employees not only motivates them in resolving environmental issues, but also can influence the performance of the environment as well (Iftikar et al., 2022).

Moreover, employee empowerment is associated with decentralization approach which gives autonomy to employees in bringing creative and best ideas for enhancing environmental performance (Iftikar et al., 2022), thus empowering employees is required from the management not only to share authority and responsibility to be effective in participating in green initiatives but also to provide the required knowledge of environmental issues and the required green practices towards it, motivating and involving employees in solving environmental problems, and forming a system that boosts environmental management (Renwick et al., 2013). In this way, employees are empowered by giving them opportunity and voice to contribute to problem-solving and participating in environmental programs (Tariq et al., 2016), and become responsible for the EP in the service organization (Masri and Jaaron, 2017), as well as be ready for the next step in the practice of PEB.

Service organizations in general and hotels in particular can improve the environment of the workplace and its PEB performance by empowering and rewarding employees to participate in EP management and to prevent pollution and any environmental issues that may arise (Saeed et al., 2019 and Renwick et al., 2013). Green empowerment also encourages employees to address environmental issues with the help of green teams where team members can share ideas and actively play a role in ecological issues (Roscoe et al., 2019). Therefore, GEE is a vital approach for ensuring the sustainability of environmental practices in the workplace (Del Brío et al., 2007; Masri and Jaaron, 2017; Rothenberg, 2003), and enhancing EP (Perez et al., 2009; Renwick et al., 2013; Saeed et al., 2019). Accordingly, we propose the following hypothesis:

H1: GEE will have positive influence on employees' PEB.

PEB or green behavior as others name it (Lee et al., 2013) has been defined in many ways. For example, (Scherbaum et al., 2008, p.827) defined PEP as 'willingness to engage in pro-environmental activities'. While, (Lee et al., 2013) described PEB as behavior that protects the environment. Others defined employees' PEB as friendly behavior that employees consciously conduct in reducing or eliminating any negative impact and strive to create a positive impact on the workplace environment (Yue et al., 2022). Moreover, PEB includes employees' actions in minimizing the wrong practices of personnel activities that damage the quality of EP (Kim and Stepchenkova, 2020). From these definitions, the focus is clearly centered on the actions or practices of employees in either reducing, eliminating, or protecting the environment from any negative impact of the workplace in the service organization.

Therefore, the aim of PEB is to boost the welfare of all parties' organizations, groups, and individuals (Bassi et al., 2007; Sawitri et al., 2015). Developed knowledge about the undesirable practices of human behaviors in the environment has led to an increase in employee PEB to be increased (Sawitri et al., 2015). Therefore, Judge and Douglas (1998) indicated that successful practices in terms of the environment are represented by the organization's ability to achieve and overcome society's standards that are related to the sustainability development goals of the environment.

Today, most organizations are obliged towards EP and organizational performance (OP) (Suganthi, 2019). As a result, the service organization adds value to the success of environmental performance, particularly when it looks to this success as part of the human resources (HR) role in educating their workers about sustainability development goals of the environment (Sawitri et al., 2015). Involving employees in green performance supported by empowerment approach potentially should enhance PEB and EP. Therefore, (Renwick et al., 2013) suggested five important stations of green involvement that should help to improve PEB and EP. These include green learning climate, clear green vision, various

communication channels, offering green practices and encouraging green involvement. A clear green vision refers to a set of principles and symbols that encourage the practice of environmental management and guideline workers to participate in environmental issues. A green learning climate and various communication channels are stations where the employees share the various issues and situations of environmental practices at the workplace. The next station is a mutual green learning environment that leads to common understanding of each other's environmental behaviors and awareness among employees. Different communication channels are used to form a culture where employees can share knowledge and information regarding environmental issues, increase awareness and improve pro-environmental behaviors. Finally, employees can be motivated to participate in environmental management by offering green activities like developing problem-solving groups, writing newsletters, and setting up green teams for various projects (Vallaster, 2017).

Specifically, in service organizations, many activities have been identified in the literature that reflect the success of PEB (Saeed et al., 2019). These include switching the light off while the employees are out of their offices, conserving energy and water in their operations, printing papers in a double-sided format, stopping the use of disposable cups, supporting their organizations to perform green strategies, transforming via green transportation (i.e. bicycles), educating customers and employees, reducing waste, and providing different methods to prevent their workplace from any environmental humiliation (Bohdanowicz et al., 2011; Rahman et al., 2012; Saeed et al., 2019). These activities convey the contributions of employees to the service organization to achieve the objectives of the EP by the employees in the service organization (Vicente-Molina et al., 2013).

In addition, participating employees in solving environmental problems in their work through empowerment, besides being involved in PEB, is considered an effective approach to become environmentally responsible to their organizations in enhancing their EP practices (Djellal and Gallouj, 2016; Kangasniemi et al., 2014). Accordingly, the following hypothesis is proposed:

H2: PEB will have a positive impact on EP.

H3: GEE will have a positive impact on EP.

H4: PEB will mediate the relationship between GEE and employees' EP.

## **2.2. Green employee empowerment, job satisfaction and environmental performance**

Al-Ababneh et al. (2017) indicated that empowerment is a proper approach to be implemented in a service organization, and this is due to the excellent results on the performance of the organization, EJS, and their motivation. Consequently, empowerment has a positive influence on the EJS (Al-Ababneh et al., 2017). In this study, GEE presents an approach that provides employees the authorities and responsibilities to make decisions related to EP (Ford and Fottler, 1995), in this respect, these responsibilities help the employees to be satisfied on one side and to practice EP effectively on the other side.

Numerous previous studies have shown that empowerment and job satisfaction are strongly connected. Examples, (Dickson and Lorenz, 2009; Fulford and Enz, 1995; Gazzoli et al., 2010; Hancer and George, 2003; Hechanova et al., 2006; Patah et al., 2009; Pelit et al., 2011; Spreitzer, 1996) have all explored this relationship. Fulford and Enz (1995) indicated that when employees feel empowered, they experience positive emotions and develop stronger attachment to their work environment. Implementing empowerment correctly in a service organization can have a significant impact on performance, productivity, and job satisfaction (Sashkin, 1984). This finding was confirmed by Fulford and Enz, (1995) and (Heskett et al., 1994) who stated that empowerment has a positive influence on EJS.

In the hospitality industry, previous studies have revealed a positive relationship between psychological empowerment and job satisfaction (Dickson and Lorenz, 2009; Hechanova et al., 2006; Patah et al., 2009), and demonstrated that psychological empowerment is positively associated with receptionists' job satisfaction by applying three dimensions of psychological empowerment: meaningfulness, competence, and influence. Another study by Gazzoli et al. (2010), who showed that empowering staff in the restaurant sector significantly influenced job satisfaction. Furthermore, (Pelit et al., 2011) discovered that the overall impact of empowerment on EJS in hotels is greater than that of using structural or psychological

empowerment separately. This was further supported by a study conducted in Jordanian hotels in Amman, which stated that combining structural and psychological empowerment has a greater impact on EJS than using either separately (Al-Ababneh et al., 2017). Accordingly, this study proposes that GEE plays an important role in acquiring EJS. Hence, the following hypothesis is proposed:

H5: GEE will have positive influence in EJS.

Various activities within Green Employee Empowerment (GEE) are associated with job satisfaction. Motivated employees can contribute to environmentally friendly practices and profitability of companies (Chaudhary, 2020; Yong et al., 2019; Zaki and Norazman, 2019). Motivating and empowering employees can directly impact their internal satisfaction, and they are more likely to cooperate towards personal and organizational goals. Additionally, green GHRM efforts can support employee lifestyles and encourage participation in environmentally friendly practices (Chaudhary, 2020; Yong et al., 2019).

The concept of 'Green Employee Empowerment' (GEE) refers to the empowered employees, who carry out green tasks within an organization, and who have significant input in the implementation of environmental management systems (Hutomo et al., 2020). GEE provides moral support to employees and ensures their satisfaction when collaborating with environmental practices (Yong et al., 2019). Therefore, this study assumes that EJS acts as a mediator and can play an important role in achieving a significant influence on the link between GEE and EP. Based on this, we propose the following hypothesis:

H6: EJS will have a positive influence as a mediator variable on the relationship between GEE and EP

### **2.3. Green training and pro-environmental performance and environmental performance**

Green Practices, as mentioned in the preceding paragraphs, are not only a shift from the traditional model to the green model but also considered as a change initiative. This change will definitely not be achieved without an adequate GT or the development of employees. A literature review presents several definitions of GT. For example, GT refers to a set of practices that encourages employees to acquire skills to protect the environment and pay attention to environmental issues of environment (Jabbour, 2011). Saeed et al. (2019) defined GT as employees' actions that help them learn and understand the skills and issues of the environment as well as motivate them towards green commitment. GT is also defined as a process of training on-the-job and a series of educational sessions designed to achieve environmental management targets and purposes in the service organization (Daily and Huang, 2001). From these definitions, it can be noticed that the focus is on equipping employees with skills, issues, and knowledge about environmental practices, which are keys to achieving environmental objectives (Jabbour, 2011; Joshi and Dhar, 2020).

GT and development activities aim to enhance the skills of employees, motivate and prepare them for future environmental challenges and issues. GT also about enhances the knowledge and abilities of employees and helps them to enhance their awareness regarding the ecological activities at the workplace (Iftikar et al., 2022).

Previous studies have expressed the impacts of GT on employees' awareness and knowledge toward PEB and EP as it provides the awareness to employees about how to identify the environmental issues and knowledge about how to overcome those issues (Iftikar et al., 2022). Therefore, GT provides the understanding to managers and employees of how policies and practices and various activities at the workplace can influence both PEB and PE.

Therefore, GT can increase employees' skills, knowledge, and awareness of environmental issues, as well as enable them to handle environmental activities effectively (Saeed et al., 2019; Sammalisto and Brorson, 2008). GT and education programs should not be provided to one department, but to all departments of the organization. GT can raise employees' awareness of PEB in service organizations (Saeed et al., 2019). Consequently, GT activities, such as waste data collection and pollution source identification, are used to support employees in understanding the importance of protecting the environment and the process of controlling and/or preventing the environment (Kjaerheim, 2005).

Implementing environmental practices in a service organization, such as GT, increases their awareness of environmental issues, enabling them to effectively address environmental concerns (Baumgartner and

Winter, 2014), and helping them adopt responsible Pro-Environmental Behaviors (PEBs) (Saeed et al., 2019). Additionally, regular training programs are provided to employees to educate them about Environmental Performance (EP) practices (Fernández et al., 2017). This allows employees to recognize the importance of PEB in the workplace (Govindarajulu and Daily, 2004), and enhances their actions to support green initiatives (Del Brío et al., 2007). Consequently, employees become more interested and motivated to engage in PEB (Zibarras and Coan, 2015). GT plays a critical role in creating a green culture within the service organization (Opatha and Arulrajah, 2014), and has been shown to significantly impact employees' attitudes and engagement in PEB (Bissing-Olson et al., 2013). Thus, GT enhances the employees' critical abilities to analyze complex environmental problems and makes them responsible for achieving environmental goals (Pinzone et al., 2019).

GT should be given to all the employees along with other educational programs to enhance the awareness of PEBs of employees at the workplace (Iftikar et al., 2022). GT builds confidence among the employees and makes them able to fulfill the greening objectives of the organization. GT and development motivate employees for better decision-making related to greening within the organizations (Iftikar et al., 2022). GT and development enable employees to be more conscious about environmental protection and make employees able to collect data about waste and identify various pollution sources. Thus, employees' GT enhances their capabilities in understanding various environmental related issues and leading them to adopt PEBs (Baumgartner and Winter, 2014).

Jackson et al. (2011) warned that training programs may get reverse results in stimulating PEB, particularly when organized without considering time and proper application in the workplace. Thus, GT is vital in qualifying employees to take action, as estimated by EP practices. Finally, many previous studies have indicated that applying GT at all levels in a service organization is crucial for successful EP efforts (Cramer and Roes, 1993; Garavan, 1997; Perron et al., 2006; Ramus, 1997). Consequently, we propose that training can provide employees with relevant environmental knowledge, thereby increasing their concern about the environment. This, in turn, can motivate them to practice PEB in the workplace, ultimately influencing EP (Ojo et al., 2022). Therefore, the link between the GT and EP is suggested to be more effective when PEB is incorporated. Based on this, the following hypotheses were proposed:

H7: GT will have a positive influence on PEB.

H8: GT will have a positive influence on EP.

H9: PEB will mediate/strengthen the relationship between GT and EP.

#### **2.4. Green training, employees' job satisfaction and environmental performance**

Lu et al. (2005) indicated that a positive response to the level of enjoyment an individual experience in their job is the definition of EJS. Previous studies presented two main perspectives on the impact of GT on the EJS (Pinzone et al., 2019). One perspective supports the idea that training leads to increased job satisfaction, while another suggests that training can lead to decreased job satisfaction (Ileana Petrescu and Simmons, 2008). Organizations that use training as an investment to develop employees' skills and competencies create an environment in which employees feel more satisfied with their work and are better able to meet their job requirements (Kristof-Brown et al., 2005; Vansteenkiste et al., 2005; Watson et al., 2018). However, some argue that training can have negative effects on EJS, as it may interfere with task completion and increase workload, time pressure, and performance expectations (Oppenauer and Van De Voorde, 2018; Topcic et al., 2016). Employees may perceive GT as a source of stress in the workplace (Kuvaas et al., 2012). In this study, GT is argued to be a way to increase the level of EJS. Specifically, GT provides employees with knowledge and skills that enhance their competence in environmental topics. as GHRMPs provide better job satisfaction and developing high commitment (Renwick et al., 2016), environmental-awareness training develops skills and attitudes that positively enhance PEB (Amrutha and Geetha, 2021). This should improve employees' feelings towards their job and consequently lead them to perform environmental management tasks as required (Dhanesh, 2014).

Furthermore, GT can also create a positive effect on the personal lives of employees (Klade et al., 2013), particularly through having the chance to be educated more about proper behaviors in the

environment. Consequently, they are likely to be more cautioned in terms of their behaviors outside the workplace (Pinzone et al., 2019). Therefore, this study expects as Muster and Schrader (2011) expected that employees who participate in GT activities and provided with green resources will get positive results either when they are at work or in their personal lives. Hence, they became more satisfied with their jobs. Therefore, we propose the following hypothesis:

H10: GT will have a positive influence on EJS.

Job satisfaction refers to the feeling of achievement and dedication that an employee experiences in relation to their job (Kalleberg, 1997). Satisfied employees are more inclined to actively participate in green programme (Jabbar and Abid, 2015). Research has shown that employees who are satisfied with their work tend to be more engaged in their tasks than are those who are less satisfied (Fernández et al., 2003). This finding suggests that job satisfaction can motivate employees to become involved in environmentally friendly policies and reduce harm to the environment. Additionally, workplace conditions, including type of work, work environment, and interpersonal interactions, can have a positive or negative impact on employees' job satisfaction (Gibson et al., 2012). When employees feel satisfied with their work conditions, such as a healthy and supportive environment, they are more likely to be satisfied and perform well in the organization (Bentley et al., 2013). However, dissatisfaction with work conditions can negatively affect employee performance and job satisfaction (Adeel et al., 2022; Adigun et al., 2018). Various studies have supported the idea that job satisfaction positively influences employee performance (Bakotić, 2016; Platis et al., 2015). Therefore, the more the EJS, the more likely it is to actively conduct green initiatives and take environmental responsibility seriously (Ahmad, 2015). Increased involvement in green initiatives can lead to improvements in EP (Adeel et al., 2022).

According to a study conducted by Jabbar and Abid (2015), employees who are satisfied with their jobs are more inclined and motivated to play a significant role in green programs. Satisfied employees, being content and settled in their job, are more likely to show interest in participating in green initiatives than employees who are dissatisfied or unsettled. This finding is supported by Fernández et al. (2003), who found that satisfied employees are more willing to engage in green policies and contribute to reducing environmental damage. Based on these studies, we suggest that GT will greatly influence EJS, leading them to be more interested in enhancing EP practices. In addition, the link between GT and EP is suggested to be more influential when EJS intervenes in between. Therefore, the following hypothesis is proposed as shown in Figure 1:

H11: EJS will have positive influence on EP.

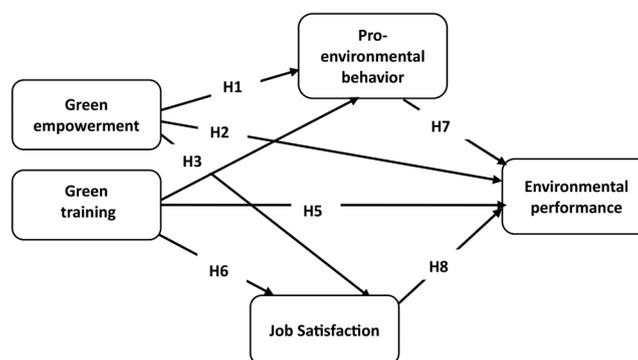
H12: EJS will mediate/strengthen the relationship between GT and EP.

### 3. Methodology

This research aims to investigate how green human resource management practices influence environmental performance, considering the mediating roles of job satisfaction and pro-environmental behavior. To achieve this, we have developed a conceptual model based on existing empirical research. The validity of this model will be evaluated using empirical data gathered from a survey questionnaire. To fulfill this research objective, we meticulously crafted a comprehensive questionnaire, which underwent rigorous validation using various statistical methods, including an analysis of common method bias (CMB) and Partial Least Square Structural Equation Analysis (PLS-SEM). The following sections offer a thorough explanation of the empirical research methodology employed.

#### 3.1. Sampling and data collection

Conducted in March and April 2023, this cross-sectional study utilized a purposeful sampling strategy to target employees with a minimum of 3 years of experience in five- and four-star hotels in Jordan. The sample comprised 440 full-time employees, and a face-to-face approach was employed to distribute and collect the designated questionnaires. Of the collected surveys, 400 were deemed valid for further analyses. Subsequently, the data was coded and processed using SPSS version 24. The analysis involved



**Figure 1.** Research framework.

several stages, including descriptive analysis and multiple regression analysis using SmartPLS 4 Structural Equation Modeling (SEM), following the two-stage methodology outlined by Leguina, (2015).

### 3.2. Measurement instrument

The questionnaire was divided into six main sections: 1) main information of the participants, 2) three variables that measure environmental empowerment were derived from Spreitzer (1995); 3) the third section has six items to measure environmental training and was developed from previously published measures (Curkovic et al., 2000; Daily et al., 2011; Wayne et al., 1997), 4) the fourth section measured pro-environmental behavior with six items derived from previous studies (Elshaer et al., 2021; Frese et al., 1997), 5) the fifth part of the questionnaire contains nine items to measure job satisfaction adopted from Macdonald and MacIntyre (1997); and 6) environmental performance items were located in the sixth part of the questionnaire and contained seven items adopted from Daily et al. (2011) and Melnyk et al. (2003). Eleven academics assessed the questionnaires with regard to content validity, and no issues were addressed. Respondents' answers were evaluated using a 5-Likert scale points starting from 1 (strongly disagree) to 5 (strongly agree).

### 3.3. Data analysis

SmartPLS version 4 conducted an analysis of the causal relationships among relevant factors using 'partial least squares structural equation modeling' (PLS-SEM) method (Hair et al., 2021). PLS-SEM is well suited for this study because of its high predictive accuracy, particularly in analyzing complex research models characterized by numerous structures and indicators (Lew et al., 2020). In this specific investigation, which encompasses six dimensions and 31 variables, PLS-SEM emerged as a fitting choice for theory development, maximizing the variance explained by the target construct (Loh et al., 2022; Pal et al., 2021). Furthermore, PLS-SEM offers the advantage of simultaneously analyzing both the measurement and structural model results (Jattamart et al., 2019; Jattamart and Kwangsawad, 2021). The comprehensive nature of PLS-SEM is highlighted, as it provides results for content validity and classification validity, including statistics for composite reliability (CR) and average variance extracted (AVE) (Jattamart and Leelasantitham, 2020; Phaosathianphan and Leelasantitham, 2021). In summary, based on the aforementioned considerations, it is reasonable to assert that PLS-SEM was the optimal model for this study.

## 4. Results

### 4.1. Descriptive statistics

Upon data examination, the questionnaire received 440 responses, of which 400 were deemed complete. Among these respondents, 79% were male and 21% were female, aligning with the officially released figures by the Ministry of Tourism and Antiquities Jordan (2020), where 91% of the hotel industry workforce in Jordan is male and 9% is female. Regarding age distribution, 27% of participants were under

20 years, 34% were between 26 and 35 years, 33% ranged from 36 to 45 years, and 6% were 46 years and above. This indicates that a significant majority (61%) of hotel employees in Jordan are young and capable of handling demanding tasks. In terms of education, 63% of the employees had a secondary school education or lower, 35% had an undergraduate degree, and only 2% held a postgraduate degree. Concerning working departments, 58% were in front-line positions, and 52% were in back-line roles. Experience levels varied, with 7% having one year or less, 31% having two to four years, 30% having five to seven years, and 32% having eight years or more of experience. These characteristics are reflective of personnel in the five-star hotels in Jordan. The mean values for all research variables ranged from 3.53 to 4.44, and the standard deviation scores ranged from 0.7154 to 1.223. This spread indicates that the data exhibit variability and are not highly concentrated around the mean value.

#### **4.2. Checking missing value, assessing CMV, and dealing with non-response bias**

To inspect the issue of missing values in our dataset, we employed Little's MCAR test using the 'Expectation Maximization Algorithm' (EMA) procedure. The results, characterized by a chi-square value of 168.770, 157 degrees of freedom, and a significance level of 0.367, suggest that the missing data can be considered random. Building on this assessment, we applied the EMA 'expectation-maximization algorithm, harnessing its imputation capabilities to address missing values in a manner consistent with the observed random pattern. This approach ensured the integrity and completeness of our data, thereby bolstering the reliability of subsequent analyses and interpretations.

Furthermore, in the field of social and behavioral sciences, the issue of 'common method variance' (CMV) within measurement scales can pose a potential threat to the validity of research findings (Podsakoff et al., 2003). CMV has the potential to affect item reliability, modify the covariation among latent constructs, and, consequently, influence structural relationships (Kline, 2012; MacKenzie and Podsakoff, 2012). To address this concern, (Reio (2010) recommended two approaches: procedural design and statistical control. In alignment with the guidance of (Podsakoff et al. (2003), this study proactively tackled CMV during the questionnaire design phase by employing strategies such as avoiding common answer effects, mitigating biases in responses, and carefully managing various aspects of scale presentation. Additionally, an assessment using Harman's one-factor test was conducted, providing assurance that CMV did not significantly impact the outcomes of this study.

Finally, in the realm of research, acknowledging and actively managing non-response bias are crucial considerations, as overlooking this issue can compromise the broader applicability and generalizability of the research findings (Michie and Marteau, 1999). Non-response bias, characterized by variations between respondents and those who opt not to participate, poses a challenge to accurately representing the perspectives of non-participants (Menachemi, 2011; Thompson et al., 2014). Researchers addressing the complexities of non-participation are compelled to actively tackle non-response bias to maintain the validity of their studies (Bowling, 2014). Various methods, including the analysis of identified characteristics, examination of non-responder subsamples, wave analysis, and linear extrapolation, are commonly employed to assess non-response bias (Lewis et al., 2013). In this study, a comprehensive three-step approach rooted in the continuum-of-resistance theory (Lin and Schaeffer, 1995), was used to confirm that non-response bias did not significantly impact the findings. First, an analysis of known demographic characteristics revealed no significant differences between the groups, instilling confidence in the comparability of respondents. Additionally, a comparison of respondents from different universities ensured the similarity of samples obtained through the two data collection modes, with no significant differences observed. Second, a wave analysis was conducted, scrutinizing variables between early and late responders, reinforcing the robustness of the study's findings against potential non-response bias.

#### **4.3. Measurement model**

The (Hair et al. 's(2021) criterion metrics were employed to assess the quality of the variables. The confidence value of Cronbach's  $\alpha$  ranged from 0.824 to 0.910, consistently meeting the criterion of not being less than 0.70. The confidence value of the Composite Reliability (CR) component revealed that each component exceeded the 0.70 criterion, with values ranging from 0.832 to 0.914. The

**Table 1.** Validity & reliability statistics.

Constructs	variables	loadings	$\alpha$	CR	AVE	VIF
Environmental empowerment	E_Emwr_1	0.821	0.824	0.832	0.740	1.694
	E_Emwr_2	0.884				2.026
	E_Emwr_3	0.874				1.959
Environmental Training	E_Trang_1	0.773	0.901	0.904	0.671	2.037
	E_Trang_2	0.839				2.474
	E_Trang_3	0.842				2.613
	E_Trang_4	0.843				2.657
	E_Trang_5	0.872				3.101
	E_Trang_6	0.738				1.825
Pro-Environmental Behavior	Pro_Env_B1	0.834	0.910	0.912	0.689	2.550
	Pro_Env_B2	0.805				2.330
	Pro_Env_B3	0.841				2.522
	Pro_Env_B4	0.836				2.626
	Pro_Env_B5	0.824				2.236
	Pro_Env_B6	0.842				2.540
Job Satisfaction	Jb_Sats_1	0.806	0.911	0.914	0.556	2.508
	Jb_Sats_2	0.701				1.903
	Jb_Sats_3	0.790				2.912
	Jb_Sats_4	0.780				2.568
	Jb_Sats_5	0.752				2.051
	Jb_Sats_6	0.689				1.995
	Jb_Sats_7	0.771				2.341
	Jb_Sats_8	0.697				2.219
	Jb_Sats_9	0.740				2.383
Environmental Performance	Env_Perf_1	0.810	0.900	0.906	0.624	2.421
	Env_Perf_2	0.774				2.284
	Env_Perf_3	0.803				2.319
	Env_Perf_4	0.777				2.238
	Env_Perf_5	0.825				2.447
	Env_Perf_6	0.800				2.611
	Env_Perf_7	0.738				2.034

Average Variance Extracted (AVE) for each component, which should not be less than 0.50, yielded values between 0.556 and 0.740. Referring to Table 1, the variable weights in each component (loading) were greater than 0.70, indicating that each variable in the component sufficiently explained its measurement model. Utilizing a diagonal matrix, the (Fornell and Larcker (1981) criterion, shown in Table 2, was employed to assess the relationship between variables. The square roots of AVEs in each construct (bold letters) were greater than those in the corresponding horizontal and vertical rows, indicating discriminant validity among the variables. Discriminant validity was further supported by inspecting the cross-loading in Table 3, where all items loaded highly to its related dimension. This observation supports the use of these variables in analyzing the structural equation model, as presented in Table 4.

#### 4.4. Structural model

Confidence in the analysis of construct relations was bolstered through structural model analysis, involving the resampling of 5000 bootstrap data. Additionally, adherence to the guidelines outlined by Hair et al. (2021) and Henseler et al. (2016) was maintained, focusing on Structural Path Coefficients, Variance Inflation Factor (VIF), and Stone-Geisser Q2. Multicollinearity in causal variables was assessed using VIF, with a criterion not exceeding five correlations (Loh et al., 2020; 2022). The observed VIF values (ranging from 1.694 to 3.101) were within the acceptable threshold, indicating that the causal variables in the structural model analysis were not problematic. The relationship between the variables was scrutinized through Structural Path Coefficients, evaluating path coefficients, P-values, and T-values, with a minimum T-value greater than 1.96 (at a 5% level of significance). The predictive relevance of the endogenous constructs was assessed using Stone-Geisser Q2, employing the blindfolding technique. The results indicate that the Q2 values for the endogenous latent variables (0.458 for pro-environmental behavior, 0.752

**Table 2.** Fornell and Larcker criterion, (Fornell and Larcker, 1981).

	EE	ET	EP	JS	PEB
Environmental Empowerment (EE)	<b>0.860</b>				
Environmental Training (ET)	0.652	<b>0.819</b>			
Environmental Performance (EP)	0.565	0.405	<b>0.790</b>		
Job Satisfaction (JS)	0.755	0.821	0.508	<b>0.746</b>	
Pro-Environmental Behaviour (PEB)	0.540	0.673	0.561	0.567	<b>0.830</b>

**Table 3.** 'loadings & Cross loadings scores'.

	EE	ET	EP	JS	PEB
E_Emwr_1	<b>0.821</b>	0.557	0.384	0.609	0.418
E_Emwr_2	<b>0.884</b>	0.578	0.546	0.674	0.479
E_Emwr_3	<b>0.874</b>	0.550	0.513	0.661	0.492
E_Trang_1	0.579	<b>0.773</b>	0.328	0.701	0.507
E_Trang_2	0.611	<b>0.839</b>	0.346	0.727	0.548
E_Trang_3	0.488	<b>0.842</b>	0.350	0.638	0.590
E_Trang_4	0.541	<b>0.843</b>	0.367	0.641	0.596
E_Trang_5	0.535	<b>0.872</b>	0.337	0.689	0.614
E_Trang_6	0.440	<b>0.738</b>	0.252	0.637	0.438
Env_Perf_1	0.503	0.400	<b>0.810</b>	0.500	0.527
Env_Perf_2	0.430	0.320	<b>0.774</b>	0.403	0.403
Env_Perf_3	0.522	0.375	<b>0.803</b>	0.503	0.460
Env_Perf_4	0.408	0.284	<b>0.777</b>	0.325	0.447
Env_Perf_5	0.446	0.265	<b>0.825</b>	0.323	0.476
Env_Perf_6	0.412	0.276	<b>0.800</b>	0.348	0.417
Env_Perf_7	0.368	0.296	<b>0.738</b>	0.372	0.335
Jb_Sats_1	0.567	0.714	0.421	<b>0.806</b>	0.514
Jb_Sats_10	0.494	0.591	0.301	<b>0.701</b>	0.321
Jb_Sats_2	0.587	0.630	0.382	<b>0.790</b>	0.442
Jb_Sats_3	0.623	0.599	0.398	<b>0.780</b>	0.457
Jb_Sats_4	0.562	0.639	0.368	<b>0.752</b>	0.426
Jb_Sats_5	0.492	0.593	0.286	<b>0.689</b>	0.379
Jb_Sats_6	0.525	0.589	0.390	<b>0.771</b>	0.396
Jb_Sats_7	0.443	0.537	0.281	<b>0.697</b>	0.360
Jb_Sats_8	0.543	0.605	0.364	<b>0.740</b>	0.408
Jb_Sats_9	0.727	0.603	0.531	<b>0.718</b>	0.480
Pro_Env_B1	0.489	0.588	0.457	0.572	<b>0.834</b>
Pro_Env_B2	0.489	0.538	0.411	0.515	<b>0.805</b>
Pro_Env_B3	0.428	0.511	0.421	0.390	<b>0.841</b>
Pro_Env_B4	0.387	0.518	0.554	0.386	<b>0.836</b>
Pro_Env_B5	0.481	0.646	0.491	0.483	<b>0.824</b>
Pro_Env_B6	0.412	0.535	0.447	0.470	<b>0.842</b>

**Table 4.** Hypotheses evaluation.

Relationships	Path coefficients	T statistics	Total effect	P values	Recommendation
GEE -> EP	0.329	5.613	0.523	0.000	Accept H1
GEE -> JS	0.382	10.684	---	0.000	Accept H2
GEE -> PEB	0.176	3.799	---	0.000	Accept H3
GT -> EP	-0.362	4.869	0.063	0.000	Reject H4
GT -> JS	0.572	15.939		0.000	Accept H5
GT -> PEB	0.558	8.845		0.000	Accept H6
JS -> EP	0.296	4.337		0.000	Accept H7
PEB -> EP	0.458	7.469		0.000	Accept H8
Specific indirect effects					
GEE -> PEB -> EP	0.081	3.259		0.001	Accept H9
GT -> JS -> EP	0.169	4.062		0.000	Accept H10
GT -> PEB -> EP	0.256	5.246		0.000	Accept H11
GEE -> JS -> EP	0.113	3.866		0.000	Accept H12

<sup>1</sup>EE, environmental empowerment; ET: Environmental training; JS: Job Satisfaction; PEB: Pro-Environmental Behavior; EP: Environmental Performance.

for job satisfaction, and 0.309 for environmental performance) were greater than zero, confirming the relevance of these variables to the predictive validity of the model.

As Figure 2 and Table 4 show, the data analysis assessed eight direct and four indirect hypotheses. The outcomes are summarized as follows: H1 - Green Empowerment (GE) and Environmental Performance (EP): Supported, revealing a positive influence of green empowerment on environmental performance with a significance level of 0.001 ( $\beta=0.329$ ,  $t=5.631$ ). H2: Green Empowerment (GE) and Job Satisfaction

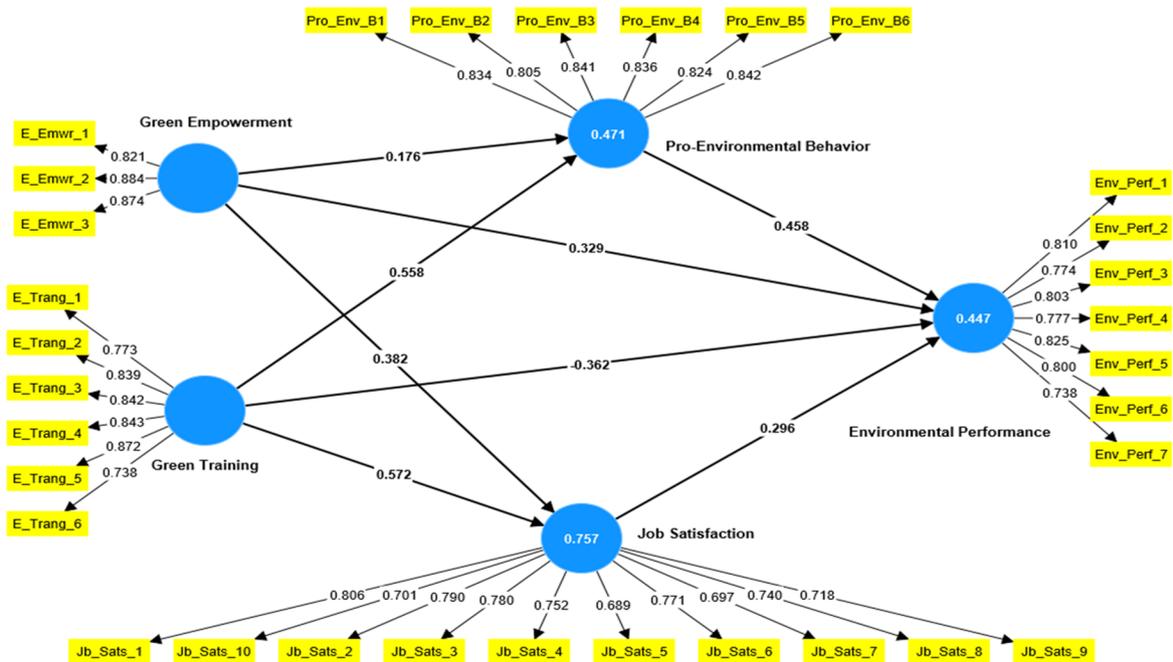


Figure 2. PLS-SEM model results.

(JS): Supported, indicating a positive influence of green empowerment on job satisfaction at the significance level of 0.001 ( $\beta=0.382$ ,  $t=10.684$ ). H3: Green empowerment (EE) and Pro-environmental Behavior (PEB): Supported, demonstrating a positive influence of green empowerment on pro-environmental behavior at a significance level of 0.0015 ( $\beta=0.176$ ,  $t=3.799$ ). H4: Green Training (GT) and Environmental Performance (EP): Not supported, unexpectedly suggesting a negative influence of green training on environmental performance at a significance level of 0.001 ( $\beta = -0.362$ ,  $t=4.869$ ). H5: Green training (GT) and Job Satisfaction (JS): Supported, revealing a positive influence of green training on job satisfaction at the significance level of 0.001 ( $\beta=0.572$ ,  $t=15.939$ ). H6: Green Training (GT) and Pro-environmental Behavior (PEB): Supported, indicating a positive influence of green training on pro-environmental behavior at a significance level of 0.001 ( $\beta=0.558$ ,  $t=8.845$ ). H7: Job Satisfaction (JS) and Environmental Performance (EP): Supported, demonstrating a positive influence of job satisfaction on environmental performance at a significance level of 0.001 ( $\beta=0.296$ ,  $t=4.337$ ). H8 - Pro-environmental Behavior (PEB) and Environmental Performance (EP): Supported, indicating a positive influence of pro-environmental behavior on environmental performance at a significance level of 0.001 ( $\beta=0.758$ ,  $t=7.469$ ).

Regarding the mediation analysis for indirect paths, the findings from the PLS-SEM output indicated a transformation of the initially negative impact of green training on environmental performance to a positive one. This shift was attributed to the mediating effects of job satisfaction ( $\beta=-0.169$ ,  $t=4.062$ ,  $p<0.001$ ) and pro-environmental behavior ( $\beta=-0.256$ ,  $t=5.246$ ,  $p<0.001$ ), thereby supporting H10 and H11. Furthermore, the direct influence of green empowerment on environmental behavior ( $\beta=-0.329$ ) was reinforced by the mediating effects of job satisfaction ( $\beta=-0.169$ ,  $t=4.062$ ,  $p<0.001$ ) and pro-environmental behavior ( $\beta=-0.081$ ,  $t=3.259$ ,  $p<0.01$ ), resulting in a total effect of ( $\beta=-0.523$ ), thereby supporting H9 and H12. The findings are shown in Figure 2.

## 5. Discussion

This research was conducted to fill the knowledge gap related to different relationships between GEE, GT, PEB, EJS, and EP in Jordanian luxury five-star hotels. Based on previous research on GEE, GT, PEB, EJS, and EP, this study developed a conceptual framework focusing on Jordan luxury five-star hotels. The results of the proposed model show that GEE positively and directly influences PEB and EJS in five-star hotels in Jordan. This means that these luxury hotels have created an employment environment where employees can have the authority and responsibility to act independently, which was reflected

effectively in both PEB and EJS. In other words, the five-star hotels in Jordan have empowered employees and enabled them to perform friendly behaviors represented by either reducing, eliminating, or protecting the environment from any negative impact of the workplace in luxury Jordan five-star hotels. On the other hand, empowerment among employees in five-star hotels in Jordan has also led employees to feel more satisfied in their work and present a positive response towards their work these luxury hotels. These results are supported by previous studies indicating that GEE has a positive influence on both PEB and EJS (Al-Ababneh et al., 2017; Daily and Huang, 2001; Del Brío et al., 2007; Dickson and Lorenz, 2009; Hechanova et al., 2006; Jabbour and Santos, 2008; Masri and Jaaron, 2017; Patah et al., 2009; Pelit et al., 2011; Perez et al., 2009; Renwick et al., 2013; Rothenberg, 2003; Saeed et al., 2019). The results also show that GEE had a significant and positive influence on EP. This also means that empowered employees have achieved the purpose of empowering towards the EP at Jordan's five-star hotels. In other words, sharing authority and responsibility with employees, providing them with the required knowledge of environmental issues and the required green practices towards them, motivating and involving employees to highlight environmental concerns, and forming a culture that reinforces environmental management has led employees to perform positively in enhancing the performance of environmental management in five-star hotels in Jordan. This result supports previous studies asserting that GEE positively influences EP (Del Brío et al., 2007; Masri and Jaaron, 2017; Perez et al., 2009; Renwick et al., 2013; Rothenberg, 2003; Saeed et al., 2019). Moreover, the results revealed that PEB significantly and positively influences EP. This means that the PEB of the employees was performed effectively in terms of switching the light off while the employees were out of their offices, conserving energy and water in their operations, printing papers in a double-sided format, stopping the use of disposable cups, supporting their organizations to implement greening strategies, using green transportation to commute (i.e. bicycles), educating customers and employees, minimizing waste, and providing new initiatives to protect their workplace from any environmental degradation at five-star hotels in Jordan. This result supports previous studies that have confirmed the positive effect of PEB on EP (Bohdanowicz et al., 2011; Rahman et al., 2012; Saeed et al., 2019; Sawitri et al., 2015; Vicente-Molina et al., 2013). The results showed that PEB partially mediates the relationship between GEE and EP. This means that employees at luxury Jordan five-star hotels were effectively able to participate in addressing environmental issues through empowerment, besides being prepared in PEB and becoming environmentally responsible in enhancing their EP practices. This also means that PRB intervention of PRB has a vital role in strengthening the role of GEE in EP. This result is supported by previous studies that indicated a positive impact of PRB on the relationship between GEE and EP (Djellal and Gallouj, 2016; Kangasniemi et al., 2014). The results also indicate that EJS significantly and positively influences EP. This result clarifies that the employees in Jordan five-star hotels are satisfied, settled, and supported in their jobs and, consequently, lead them to participate effectively in green initiatives, take environmental responsibility seriously, provide a high level of involvement in green initiatives, and boost the improvements in EP. Moreover, this result also means that satisfied employees in five-star hotels are more willing to be involved in green policies and diminish damage to the environment. This result is supported by previous studies that indicated a significant influence of the EJS on EP (Adeel et al., 2022; Ahmad, 2015; Fernández et al., 2003; Jabbar and Abid, 2015). Interestingly, the results also revealed that EJS partially mediates the relationship between GEE and EP. This means that GEE in Jordan's luxury five-star hotels is a primary key in the progression of executing the environmental management system and consequently has a significant main role in delivering moral support to their staff and ensuring that staff members are well satisfied when they come to cooperate in achieving the practices of the EP. In other words, employees at Jordan luxury five-star hotels are empowered and satisfied, and therefore, were able to induce not only a positive change in the relationship between GEE and EP, but also strengthen it when the EJS is intervened between them; therefore, the relationship between GEE and EP becomes more solid than in the direct relationship between them. This result is in agreement with that of a previous study that indicated the positive influence of EJS on the relationship between GEE and EP (Yong et al., 2019).

Another part of the results is presented as follows: This research revealed that GT has a positive and significant influence on PEB and EJS. This means that luxury hotels in Jordan have provided GT properly and equipped employees with skills, issues, and knowledge about environmental practices, which are the keys to raising employees' awareness of PEB. Moreover, training employees in luxury hotels in Jordan to

look after the natural environment, increasing environmental awareness levels, and allowing them to utilize their capabilities to address environmental issues effectively helped employees to successfully adopt responsible PEB. This result supports previous studies that indicate a positive influence of GT on PEB (Baumgartner and Winter, 2014; Jabbour, 2011; Joshi and Dhar, 2020; Kjaerheim, 2005; Saeed et al., 2019).

On the other hand, providing GT to employees working in luxury hotels in Jordan has improved their feelings towards their jobs. In other words, GT has provided employees with knowledge and skills that enhance their competences on environmental topics, raising the level of job satisfaction among employees working in luxury hotels in Jordan. Moreover, GT gave employees the opportunity to learn more about the important behaviors in their day-to-day work for the environment and provided them with green personal resources, which were useful both when they were at work and in their personal lives. Hence, they became more satisfied with their jobs. This result is supported by previous studies that argued for the positive and significant influence of GT on EJS (Dhanesh, 2014; Ileana Petrescu and Simmons, 2008; Klade et al., 2013; Kristof-Brown et al., 2005; Muster and Schrader, 2011; Pinzone et al., 2019; Vansteenkiste et al., 2005; Watson et al., 2018). Unlike previous studies (Cramer and Roes, 1993; Del Brío et al., 2007; Fernández et al., 2017; Garavan, 1997; Jabbour, 2011; Joshi and Dhar, 2020; Perron et al., 2006; Ramus, 1997), the results of this study show that GT has a negative and insignificant influence on EP. This means that training in five-star hotels was provided to employees but was not sufficient to enhance EP practices. Therefore, this relationship may require the addition of other variables (i.e. EJS and PEB) with GT to achieve the purpose of EP. More specifically, the results of this study showed that PEB partially mediated the relationship between GT and EP. This means that training has provided employees with relevant environmental knowledge and, therefore, raises their concern for the environment and motivates them to practice PEB in their workplace, which in turn influences EP effectively. In other words, the link between GT and EP becomes more effective and stronger when PEB intervenes. This result supports that of a previous study by Ojo et al. (2022), indicating PEB's positive influence as a mediator between GT and EP. Following the previous result in this research, the results of this study showed the EJS has fully mediated the relationship between GT and EP. This means that GT greatly influenced EJS, leading them to be more interested in enhancing EP practices in five-star hotels in Jordan. In addition, the link between GT and EP becomes more influenced and stronger when EJS intervenes in between. This result is supported by previous studies that have indicated the positive influence of EJS as a mediator between GT and EP (Adeel et al., 2022; Ahmad, 2015; Fernández et al., 2003; Jabbar and Abid, 2015).

## 6. Implications

This study's findings are based on the context of luxury hotels in Jordan. Subsequently, the theoretical and practical contributions to the understanding of GEE, GT, PEB, EJS, and EP are outlined as follows. The variables examined in this study, along with its overall structure, have been validated and proven reliable among employees within the luxury hotel sector in Jordan. Consequently, the research instrument employed in this study is deemed a valid tool that holds potential for utilization by scholars in the hospitality and tourism fields, particularly in developing countries with diverse contextual settings.

From a theoretical perspective and to the authors' knowledge, this study may be one of the first to examine the proposed model and contribute to the limited studies on GEE, GT, PEB, EJS, and EP on a large business scale, particularly in luxury hotels in Jordan, as well as providing a better understanding of the interrelationships among the variables of this study in luxury hotels in Jordan. In other words, this study provides a significant contribution to the literature of green human resource management practices (GHRMPs) and environmental performance management (EPM) literature by focusing on the mediating influence of employees' job satisfaction and pro-environmental behavior on the relationship between GHRMPs (i.e. Green Employee Empowerment and Green Training and environmental performance). First, the results confirmed that GEE and GT have a significant influence on both PRB and EJS. However, the results confirm that GEE has a significant influence on EP, while GT surprisingly has an insignificant influence on EP. These results particularly on GT contribute theoretically through showing that the results of GT on large businesses and even in small businesses in other contexts cannot always be generalized to large businesses, such as five-star hotels in Jordan. Consequently, scholars must pay

attention when generalizing the results in another context. Moreover, the results of GT are consistent with previous studies and confirmed that training in general or green training in particular does not always provide significant results as planned or required and the contribution may refer to when the training is conducted and who had delivered the training as both of them may affect the results of the training. Therefore, it is important to make sure that the the training is conducted in proper time without any clashes with the duties of the employees in the hotels and trainer should be specialized and professional in the field of green training and environmental performance.

Second, the results confirm that PEB and EJS significantly and positively influence EP. Third, PEB and EJS appeared to be critical variables for improving the practices of either GEE or GT, and consequently, EP. More specifically, the relationship between GEE and EP is partially mediated by PRO and EJS and becomes stronger when it intervenes in between. Conversely, the connection between GT and EP is partially mediated by PRB and fully mediated by EJS. These results have provided and added new theoretical contributions to hospitality scholars in Jordan and other researchers who examined these relationships in both non-manufacturing and manufacturing businesses in developed and developing countries. In addition, this assured the necessity of incorporating human-centric elements into environmental management inquiries. Thus, by allocating pro-environmental behavior as a mediator, this study expands the knowledge of how individual-level conduct impacts organizational environmental performance. Consequently, this confirms the significance of employees' voluntary initiatives in boosting environmental sustainability efforts. Furthermore, scholars are gently required to pay good attention for review and understand EJS, particularly as it plays a full mediating role between GT and EP. Fourth, the results of this study are based on employees' perspectives in five-star luxury hotels in Jordan, unlike other studies that investigate GEE, GT, PEB, EJS, and EP from a managerial perspective.

From a practical standpoint, this study makes several managerial contributions. Managers in luxury hotels in Jordan should be aware of GT and its critical role in EP. In this study, GT had an insignificant influence on EP. Therefore, Luxury Hotels in Jordan should make sure that they invest in eco-friendly training programs that aimed to enhance employees' awareness regarding environmental sustainability and their significant role in advancing it through their job responsibilities. These training initiatives should boost the PEBs and job satisfaction among staff members. In addition to the efforts that managers put in making sure that: (1) employees in luxury hotels in Jordan have received specialized training on EP, as it seems the provided training was not concentrated on EP, and it was clearly focused on other issues (i.e. customer satisfaction). (2) Employees in luxury hotels in Jordan understood the aim of the training program. This should at least ensure that employees practice the issues or activities of EP effectively. This can be done through the direct manager department, as the training should not be exclusive to one department in the hotel and/or managers in the human resource (HR) development department by delivering training activities or educational sessions that illustrate the importance of achieving EP in the Jordanian hotel environment. Managers at every level should recognize the impact of the EJS on both the GT and EP. Thus, managers should ensure that employees in luxury hotels in Jordan have acquired a high level of job satisfaction, which either affects their attention and concern to the training activities and finally to the practices of EP; otherwise, employees will not pay the required attention to training activities and, consequently, will fail to exhibit EP effectively. Finally, integrating criteria related to employees' involvement in pro-environmental activities and their satisfaction with green initiatives into performance appraisal systems is crucial. Therefore, acknowledging and rewarding employees who exhibit commendable levels of PEBs and job satisfaction, organizations can effectively and indirectly inspire others to practice such behaviors.

At all levels, luxury hotel managers in Jordan should realize the importance of GEE on PEB, EJS, and EP. Thus, managers must display consistent support for green human resource management (GHRM) practices and actively communicate the importance of environmental sustainability to their workforce as well as give them the required resources, authority, and responsibility to: (1) exhibit friendly behaviors towards s their environment in the hotels (i.e. switching the light off while the employees are out of their offices, conserving energy and water in their operations, printing papers in a double-sided format, stopping the use of disposable cups, supporting their organizations to implement greening strategies, using green transportation to commute (i.e. bicycles), educating customers and employees, minimizing waste, and providing new initiatives to protect their workplace from any environmental degradation at

luxury hotels in Jordan); (2) achieve a high level of job satisfaction; and (3) move forward in practice EP properly. In other words, when managers empower employees by granting them the authority and responsibility to act independently, without the need for constant approval from upper management, this leads to an increase in the level of the empowered behavior. Consequently, employees in the hotel industry are more likely to exhibit friendly behavior and high level of job satisfaction. Consequently, the ultimate goal by default will also be achieved, which is the effectiveness of practice EP. Lastly, when the managers actively participating in green initiatives and championing sustainable practices, managers set themselves among the employees as a compelling example and foster a culture of environmental responsibility throughout the organization.

## 7. Limitations and future research recommendations

This study makes several important contributions. However, some restrictions and recommendations have been highlighted in future studies and require further attention. This research was conducted only on luxury hotels in Jordan with regard to the practices of GEE, GT, PEB, EJS, and EP. These practices are known to vary between hotels, sectors, and nations, and therefore, this advises the researchers who are interested in this topic to reexamine the proposed hypotheses of this research in other contexts (e.g. luxury restaurants, five-star resorts, etc.) We focused only on one classification of the hotel industry (i.e. five-star hotels) and in one country (i.e. Jordan) to improve the limited generalizability of this study and enrich the literature on GEE, GT, PEB, EJS, and EP. This study used a cross-sectional design, which allowed us to capture data at a single point in time. Therefore, researchers are advised to use a longitudinal study in the future that allows them to track the impact of GEE and GT on both PEB and EJS on one side and EP on the other over time. Moreover, using multigroup analysis to compare and differentiate the findings of this research across developing and developed countries is recommended for future research. Additionally, employing variables such as years of work experience, age, education level, and nationality as moderating variables and others such as supervision style (Moin et al., 2022), green commitment and green self-efficacy as mediating variables could bring new results to the research area (i.e. GEE, GT, PEB, EJS, and EP).

## Author contributions

Conception and design, I.A.E. and S.M.A.; analysis and interpretation of the data, I.A.E. and S.M.A.; drafting of the paper, I.A.E.; revising manuscript critically for intellectual content, I.A.E. and S.M.A.; final approval of the version to be published, I.A.E. and S.M.A.; investigation, I.A.E., S.M.A., M.M.A., A.H.A., and J.A.A.A.; resources, I.A.E., S.M. A.; writing—review and editing, I.A.E. and S. M. A.; visualization, I.A.E.; supervision, I.A.E.; project administration, I.A.E.; funding acquisition, I.A.E., S. M.A., all authors agree to be accountable for all aspects of the work.

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### **Informed consent statement**

A written informed consent was obtained from all participants involved in the study.

### **Institutional review board statement**

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the deanship of the scientific research ethical committee, King Faisal University (project number: 5997, date of approval: 25 April 2023).

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## Data availability statement

Data is available upon request from researchers who meet the eligibility criteria. Kindly contact the first author privately through e-mail.

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