

Green Human Resource Management and Employees' Green Behavior in the Hotel Industry: the Mediating Role of Green Culture and Environmental Awareness

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Abstract: This study aims to examine the impact of green human resource management on employees' green behavior in the hotel industry, while also investigating the mediating roles of green culture and environmental awareness. In the context of increasing sustainability pressures faced by the hotel sector, fostering employees' environmentally friendly behavior is considered a critical factor in enhancing environmental performance at the organizational level. Data were collected from employees working in hotels and analyzed using the partial least squares structural equation modeling (PLS-SEM) approach. The results indicate that green human resource management has a positive effect on both green culture and environmental awareness. In turn, these two factors positively influence employees' green behavior. Mediation analysis further reveals that green culture and environmental awareness partially mediate the relationship between green human resource management and employees' green behavior. This study contributes to the green human resource management literature by clarifying the multi-level mechanisms underlying these relationships and provides practical implications for hotel managers in promoting sustainable employee behavior.

Keywords: green human resource management, employees' green behavior, green culture, environmental awareness, hotel industry, partial least squares structural equation modeling (PLS-SEM)

1. Introduction

The hotel industry is regarded as one of the largest global industries and began to pay increasing attention to environmental issues toward the end of the last century (Chan and Hsu 2016). This heightened attention has been driven by the substantial increase in the number of international tourists over the past two decades. Consequently, hotels have faced significant pressure to assume environmental responsibility and adopt environmentally friendly practices, particularly in relation to water and energy consumption as well as waste generation (Nisar et al. 2021).

Employees' green behavior (EGB) is defined as voluntary or required actions undertaken by employees to minimize negative environmental impacts in the workplace (Ramus and Killmer 2007). Numerous studies have demonstrated that environmentally friendly employee behavior contributes to enhanced environmental

performance and a sustainable corporate image (Ones and Dilchert 2012). Nevertheless, a critical question remains: what managerial mechanisms can effectively and sustainably foster employees' green behavior?

In recent years, green human resource management (Green Human Resource Management – GHRM) has emerged as a significant approach to integrating environmental objectives into human resource practices such as recruitment, training, performance appraisal, and compensation (Renwick et al. 2013). Prior studies suggest that GHRM can foster positive environmental awareness and encourage employees to engage in pro-environmental activities (Jabbour and Santos 2008; Dumont et al. 2017). Recent studies on Green Human Resource Management (GHRM) have increasingly examined its influence on employee green behavior, particularly in emerging economies such as China, Pakistan, and Malaysia (Abbas et al., 2020; Aftab et al., 2022). However, most prior studies have focused on manufacturing contexts and mainly investigated direct effects or single mediating mechanisms. Empirical evidence from the hospitality sector, especially in Vietnam, remains limited. This gap is important because hotels are highly labor-intensive service organizations where employees' behaviors directly affect environmental performance and sustainable tourism practices. Moreover, previous findings remain inconsistent across emerging economies due to differences in organizational culture, environmental awareness, and the implementation of green HR practices. In Vietnam, green management practices are still developing and may not yet be fully institutionalized within organizations. Therefore, this study addresses these contextual and theoretical gaps by examining the dual mediating roles of green culture and environmental consciousness in the relationship between GHRM and EGB in Vietnamese hotels.

Some scholars argue that the impact of GHRM on green behavior occurs not only directly but also indirectly through mediating mechanisms at both the organizational and individual levels (Dumont et al. 2017). At the organizational level, green culture (GC) reflects the extent to which environmental values, norms, and beliefs are shared within the organization. A strong green culture can create a social environment that encourages employees to behave in accordance with environmental standards. At the individual level, environmental consciousness (EC) refers to the degree of awareness, concern, and personal responsibility toward environmental issues, which has been widely recognized as a key predictor of pro-environmental behavior (Kollmuss and Agyeman 2002). As the hotel industry is highly resource-intensive, particularly in terms of energy and water consumption, it also generates substantial amounts of waste, especially within the food and beverage sector (Chen et al. 2009).

Nevertheless, prior research has predominantly examined the mediating role of either organizational-level factors, such as green climate or green culture, or individual-level cognitive variables, such as environmental consciousness and green motivation, in isolation (Dumont et al. 2017; Norton et al. 2014; Paillé, P 2014). While these studies provide valuable insights, they tend to overlook the multilevel nature of organizational influence on employee behavior. Green culture represents the shared environmental values, norms, and expectations embedded within the organizational context (Schein 2010; Harris and Crane 2002), whereas environmental consciousness reflects the internal cognitive and moral awareness of employees regarding environmental responsibility (Kollmuss and Agyeman 2002; Bamberg, 2007). These two mechanisms operate at distinct yet interrelated levels - collective and individual - and jointly shape how managerial practices are translated into actual behavior. Examining each pathway separately may therefore obscure their relative explanatory power or the comparative strength of organizational versus individual transmission mechanisms.

Moreover, emerging research in green human resource management suggests that HR practices may exert influence through both contextual shaping and cognitive internalization processes (Renwick et al. 2013; Tang et al. 2018; Pham et al. 2019). However, empirical studies simultaneously incorporating organizational culture and individual environmental cognition within a unified structural framework remain limited, particularly in hospitality settings and emerging economies. Integrating both mediators into a single model enables a more comprehensive understanding of how GHRM operates across levels to foster employee green behavior, thereby advancing multilevel theorizing in sustainable HRM research (A. Kim et al. 2017).

Addressing this gap, the present study investigates the impact of green human resource management on hotel employees' green behavior by simultaneously examining the mediating roles of green culture and environmental consciousness. By employing partial least squares structural equation modeling (PLS-SEM), this study provides empirical evidence on the multilevel mechanisms - organizational and individual - through which GHRM shapes pro-environmental behavior in the workplace.

This study contributes to the literature in three primary ways. First, it extends GHRM research by integrating dual mediating mechanisms within a single analytical model, thereby responding to calls for multilevel perspectives in sustainability and HRM research (Jabbour, 2013; Renwick et al., 2013). Second, it provides empirical evidence from the hotel industry in an emerging economy, a context where sustainability-oriented HR practices are still evolving and remain underexplored (Y. J. Kim et al. 2019; Yong et al. 2020). Third, from a managerial standpoint, the findings offer strategic insights into how HR policies can be designed not only to enhance employees' environmental awareness but also to institutionalize environmental values within organizational culture, thereby ensuring more sustainable and enduring behavioral change.

Although numerous studies have confirmed the positive impact of Green Human Resource Management (GHRM) on employee green behavior, previous research has remained fragmented in its approach. Early studies, such as those by Jabbour and Santos (2008) and Renwick, Redman, and Maguire (2013), primarily focused on the direct influence of GHRM practices on environmental behavior within organizations. More recent studies have increasingly examined mediating mechanisms, but mostly in isolation. For example, Dumont, Shen, and Deng (2017) emphasized individual-level mechanisms such as green motivation and environmental awareness, whereas Norton, Zacher, and Ashkanasy (2014) highlighted the role of organizational context and supportive environmental climate in fostering employee green behavior. More recent studies, including Abbas et al. (2020) and Aftab et al. (2022), further extended the literature by incorporating mediators such as environmental commitment and green leadership; however, these studies still tended to examine either organizational-level or individual-level mechanisms separately. Consequently, limited research has simultaneously integrated both organizational and individual mechanisms within a single analytical framework. Unlike prior studies, the present research proposes a dual mediation model incorporating both green culture and environmental consciousness to explain the multilevel mechanism through which GHRM influences employee green behavior in the context of the hotel industry in Vietnam.

2. Theoretical Background and Hypothesis Development

2.1. Theoretical Foundation: Integrating Social Exchange Theory and Social Identity Theory

This study is grounded in an integrated framework of Social Exchange Theory (SET) and Social Identity Theory (SIT) to comprehensively explain the mechanisms through which green human resource management

(GHRM) influences employees' green behavior. The integration of these two theories is essential, as each explains distinct yet complementary socio-psychological mechanisms within organizational contexts.

According to Social Exchange Theory (Blau 1964; Blau 2017), relationships within organizations operate based on the norm of reciprocity. When organizations invest in GHRM practices, such as green training, environmentally linked performance appraisal, or incentives for green initiatives - employees tend to perceive these practices as signals of organizational support and commitment. In return, they develop a sense of moral obligation and are more likely to engage in behaviors that benefit the organization, including pro-environmental actions. From this perspective, GHRM influences employees' green behavior through social exchange mechanisms and the development of perceived personal responsibility, thereby explaining the mediating role of environmental consciousness (EC).

However, SET primarily explains behavior through reciprocal motivation and felt obligation, without fully addressing the process through which collective values are internalized and organizational identity is formed. This limitation is addressed by Social Identity Theory (Tajfel and Turner 1985). According to SIT, individuals define themselves through identification with the groups or organizations to which they belong. When an organization establishes and sustains environmental values as part of its shared culture, employees are more likely to identify with this "green identity" and enact behaviors consistent with it in order to reinforce their membership. In this context, green culture (GC) functions as an organizational-level mechanism that translates GHRM practices into shared norms and values.

Relying solely on one of these theories would therefore fail to capture the multi-level nature of the underlying mechanisms. SET explains the exchange-based response process at the individual level, whereas SIT clarifies the formation of collective identity and normative alignment at the organizational level. Integrating these two perspectives enables the simultaneous examination of two transmission pathways - through individual consciousness and through organizational culture - thus providing a more comprehensive theoretical framework for understanding how GHRM fosters employees' green behavior in the hotel context.

2.2. Green Human Resource Management and Green Culture

Green human resource management refers to the integration of environmental objectives into core HR functions such as recruitment, training, performance appraisal, and reward systems (Renwick et al. 2013). Through these practices, organizations convey a clear message regarding their commitment to environmental protection.

According to Social Identity Theory, employees tend to internalize organizational values and align themselves with the identity of the organization (Tajfel & Turner, 1986). Through green recruitment, training, performance evaluation, and reward systems, GHRM reinforces environmental values and promotes shared green norms within the organization. As a result, employees are more likely to develop a collective green identity, contributing to the formation of a green culture (Renwick et al., 2013; Roscoe et al., 2019). Therefore:

***H1:** Green human resource management has a positive effect on green culture in hotels.*

2.3. Green Human Resource Management and Environmental Consciousness

From the perspective of Social Exchange Theory, when organizations invest in environmental training, green communication, and reward systems aligned with environmental objectives, employees are likely to develop greater awareness of and personal responsibility toward environmental issues (Blau 2017). GHRM

practices enhance employees' environmental knowledge, strengthen intrinsic motivation, and create opportunities for active participation in environmental initiatives.

Dumont, Shen, and Deng (2017) demonstrate that GHRM can foster environmental awareness and employees' green behavior through cognitive and intrinsic motivational mechanisms. This suggests that GHRM not only influences organizational structures and processes but also shapes individual cognition and internal attitudes (Dumont et al. 2017).

Social Exchange Theory suggests that employees tend to reciprocate organizational support through positive attitudes and behaviors (Blau, 1964). When organizations demonstrate commitment to environmental sustainability through GHRM practices, employees are more likely to perceive environmental responsibility as an important organizational expectation. This process enhances employees' environmental consciousness and awareness regarding sustainable behavior (Dumont et al., 2017; Abbas et al., 2020). Therefore:

H2: Green human resource management has a positive effect on employees' environmental consciousness.

2.4. Green Culture and Employees' Green Behavior

Green culture reflects the extent to which environmental values and norms are shared within an organization. According to Social Identity Theory, when employees identify with the organization's green values, they are more likely to exhibit behaviors consistent with those norms (Tajfel and Turner 1985).

In the hotel industry - where employees' behaviors directly influence customer experience - organizational culture plays a particularly critical role in guiding behavior. Norton, Zacher, and Ashkanasy (2014) found that a supportive organizational climate can foster employees' pro-environmental behavior (Norton et al. 2014; Kim et al. 2019; Zoogah, D. 2011).

From the perspective of Social Identity Theory, employees tend to behave consistently with the values and norms of groups with which they identify (Tajfel & Turner, 1986). In organizations characterized by a strong green culture, environmental responsibility becomes part of the collective identity, encouraging employees to engage in environmentally responsible behavior (Norton et al., 2014; Roscoe et al., 2019). Accordingly:

H3: Green culture has a positive effect on employees' green behavior.

2.5. Environmental Consciousness and Employees' Green Behavior

Environmental consciousness reflects the degree of individual concern, awareness, and personal responsibility toward environmental issues. Environmental behavior models suggest that awareness and positive attitudes constitute important antecedents of pro-environmental behavior (Kollmuss and Agyeman 2002). Within organizational contexts, employees with a high level of environmental consciousness are more likely to proactively engage in behaviors that reduce negative environmental impacts in their work activities (Ones and Dilchert 2012; Zhu et al. 2021).

According to Social Exchange Theory, employees who develop stronger environmental awareness are more likely to reciprocate organizational environmental efforts through positive workplace behavior (Blau, 1964). Employees with high environmental consciousness tend to translate their environmental awareness into concrete pro-environmental actions within the organization (Ones & Dilchert, 2012; Kim et al., 2019). Therefore:

H4: Environmental consciousness has a positive effect on employees' green behavior.

2.6. The Mediating Roles of Green Culture and Environmental Consciousness

Drawing upon the integration of Social Exchange Theory (SET) and Social Identity Theory (SIT), this study argues that the impact of green human resource management (GHRM) on employees' green behavior occurs not only directly but also indirectly through two mediating mechanisms operating at different levels: the individual and the organizational levels.

From the perspective of Social Exchange Theory (Blau 2017), when organizations implement GHRM practices such as environmental training, support for green initiatives, and performance appraisal systems linked to environmental criteria, employees tend to perceive these practices as organizational investment and commitment. Based on the norm of reciprocity, they develop a sense of obligation to reciprocate through behaviors that benefit the organization. In the context of green management, this exchange mechanism fosters the development of environmental consciousness (EC), which reflects individual awareness and personal responsibility toward environmental issues. Thus, EC functions as a psychological mechanism at the individual level, translating GHRM practices into green behavior through reciprocal motivation and moral obligation.

Meanwhile, Social Identity Theory (Tajfel and Turner 1985) emphasizes that individual behavior is strongly influenced by identification with the group or organization to which one belongs. When GHRM practices are implemented consistently over time, they gradually become institutionalized as shared values and norms, thereby shaping a green culture (GC). Once green culture becomes a salient characteristic of the organization, employees are more likely to identify with this "green identity" and align their behavior with collective norms. In this case, GC operates as an organizational-level mechanism that generates normative pressure and social identification, thereby encouraging green behavior.

In summary, from the SET perspective, GHRM influences green behavior through exchange mechanisms and the enhancement of individual environmental consciousness (EC), whereas from the SIT perspective, GHRM operates through the formation and reinforcement of organizational identity embodied in green culture (GC). Simultaneously examining these two mediators enables a clearer understanding of the multi-level nature of the underlying mechanisms and provides a more comprehensive framework for explaining how GHRM practices are translated into employees' green behavior.

Accordingly, the study proposes:

H5: Green culture mediates the relationship between green human resource management and employees' green behavior.

H6: Environmental consciousness mediates the relationship between green human resource management and employees' green behavior

3. Research Methodology

3.1. Research Design, Context, and Sampling

This quantitative study utilizes a structured questionnaire to investigate the relationships among green human resource management (GHRM), green culture (GC), environmental consciousness (EC), and employees' green behavior (EGB). The research context comprises four- and five-star hotels in Da Lat City, Vietnam—a premier tourism destination strategically oriented toward a "green city" image. Due to the absence

of an official sampling frame and the difficulty of accessing hotel employees working across different shifts, convenience sampling was considered appropriate for this study. The respondents were full-time hotel employees with at least six months of working experience to ensure familiarity with organizational practices and environmental activities. Data were collected through self-administered questionnaires distributed directly and online with support from hotel managers. Participation was voluntary and anonymous to reduce social desirability bias and encourage honest responses (Podsakoff et al., 2003). Although convenience sampling may limit the generalizability of the findings, this approach has been widely adopted in hospitality and organizational behavior research, particularly in emerging economy contexts where access to respondents is constrained (Hair et al., 2019; Sekaran & Bougie, 2016). The final dataset yielded 150 valid responses. This sample size is deemed adequate for partial least squares structural equation modeling (PLS-SEM), strictly fulfilling the "10-times rule" for minimum sample size requirements (Hair et al. 2019).

3.2. Measurement Scales

All constructs were evaluated using a five-point Likert scale (1 = "Strongly disagree" to 5 = "Strongly agree"). Prior to formal data collection, the draft instrument underwent a rigorous expert consultation process to ensure content validity and contextual appropriateness within an emerging economy framework, aligning with the recommendations of Hair et al. (2019). A panel of 15 experts, comprising academic researchers and experienced hotel managers, reviewed the items. Revisions primarily enhanced hospitality-specific phrasing and conceptual clarity without altering the underlying constructs.

The measurement scales were adapted from validated prior studies: the GHRM scale was adapted from Renwick, Redman, and Maguire (2013) to reflect green practices such as recruitment, training, and performance appraisal within the hospitality context (Renwick et al. 2013). The EGB scale, focusing on proactive pro-environmental workplace actions, was derived from Ones and Dilchert (2012). The EC scale, assessing personal environmental responsibility, was grounded in Kollmuss and Agyeman (2002). Finally, the GC scale, capturing shared environmental norms and organizational climate, was adapted from Schein (2010) and Norton, Zacher, and Ashkanasy (2014).

3.3. Data Analysis

Data were analyzed using PLS-SEM via SmartPLS software, a robust technique for prediction-oriented objectives, complex mediational models, and datasets lacking strict normal distribution (Hair et al. 2019; Hair et al. 2022). The two-stage analytical procedure commenced with the measurement model assessment to confirm internal consistency reliability (via Cronbach's Alpha and Composite Reliability). Convergent validity was established via the average variance extracted (AVE > 0.50), while discriminant validity was verified using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio. Subsequently, the structural model was evaluated to test the hypothesized paths and specific indirect effects for mediation. Statistical significance was determined using a bootstrapping procedure with 5,000 resamples, and the coefficient of determination (R^2) was calculated to assess explanatory power, adhering to the methodological guidelines of Hair et al. (2022).

4. Results

Based on 150 valid survey responses, the sample characteristics indicate that the majority of respondents work in domestically branded hotels (78.1%), while 21.9% are employed in international hotel chains. Most

hotels have between 100 and 299 employees (67.5%). Regarding age distribution, the largest group falls within the 20-29 age range (48.3%), followed by 30–39 (23.8%) and 40-49 (18.5%), indicating a relatively young workforce.

In terms of tenure, 41.7% of employees have worked for less than one year, while 25.8% have five or more years of experience. The majority of respondents hold a bachelor's degree (74.8%), followed by vocational/college qualifications (11.9%) and postgraduate degrees (8.6%). Concerning job position, 63.6% are staff-level employees, and 36.4% hold managerial roles. The most common monthly income range is 5-10 million VND (51.0%). Additionally, female employees represent a higher proportion (68.9%) compared to male employees (31.1%). Overall, the sample reflects the characteristics of the hotel workforce in Da Lat, characterized by a relatively young demographic, comparatively high educational attainment, and employment primarily in medium-sized, domestically branded hotels.

4.1. Measurement Model Assessment

4.1.1. Indicator Reliability (Outer Loadings)

According to Hair et al. (2017) outer loadings should be equal to or greater than 0.70 to ensure adequate indicator reliability and convergent validity. Indicators with loadings ranging from 0.70 to 0.95 are considered acceptable, as they demonstrate that the construct explains a substantial proportion of the variance in the observed variables.

Table 1. Indicator Reliability (Outer Loadings)

Construct	Item	Outer Loading	Measurement Item
EC	EC1	0.728	I am clearly aware of global environmental issues such as climate change and pollution.
	EC2	0.809	I understand the importance of environmental protection in both my work and daily life.
	EC3	0.738	I frequently seek information related to environmental issues.
	EC4	0.875	I feel personally responsible for reducing negative environmental impacts.
	EC5	0.758	I am willing to change my behavior to contribute to environmental protection.
EGB	EGB1	0.804	I proactively turn off electrical equipment when not in use at the workplace.
	EGB2	0.749	I always try to use resources such as water and paper efficiently in my work.
	EGB3	0.839	I participate in environmental activities organized by the hotel (e.g., recycling, tree planting).
	EGB4	0.758	I share ideas about environmentally friendly practice.

The results of the measurement model assessment indicate that all observed variables have outer loadings greater than 0.70, ranging from 0.703 to 0.875. According to Hair et al. (2022), these values satisfy the recommended criteria for indicator reliability and convergent validity. No measurement items were removed from the model, suggesting that the scales used in this study demonstrate a high level of adequacy and appropriateness.

4.1.2. Assessment of Internal Consistency Reliability and Convergent Validity

The results of the assessment of internal consistency reliability and convergent validity of the latent constructs are presented in Table 2. The analysis indicates that all constructs in the model meet the recommended criteria. Specifically, Cronbach's Alpha values range from 0.789 to 0.841, exceeding the 0.70 threshold and demonstrating good internal consistency reliability. The rho_A values range from 0.789 to 0.846, further supporting the consistency of the indicators within each construct. Composite reliability values range from 0.856 to 0.888, not only surpassing the minimum threshold of 0.70 but also remaining below 0.95, indicating the absence of indicator redundancy or multicollinearity concerns.

Table 2. Assessment of Internal Consistency Reliability and Convergent Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
EC	0.841	0.844	0.888	0.614
EGB	0.841	0.846	0.887	0.611
GC	0.803	0.804	0.864	0.559
GHRM	0.789	0.789	0.856	0.543

In addition, the AVE values of all constructs exceed 0.50 (ranging from 0.543 to 0.614), confirming satisfactory convergent validity, as the observed variables adequately converge on their respective latent constructs. Among the constructs, environmental consciousness (EC) demonstrates the highest level of convergent validity (CR = 0.888; AVE = 0.614), followed by employees' green behavior (EGB) (CR = 0.887; AVE = 0.611). Although green culture (GC) and green human resource management (GHRM) show comparatively lower values, they still exceed the recommended thresholds, indicating that the scales are stable and well-aligned with the collected data.

Overall, these findings confirm that the measurement model satisfies the requirements for reliability and convergent validity, thereby providing a solid foundation for proceeding with the assessment of discriminant validity and the evaluation of the structural model.

4.1.3. Assessment of Discriminant Validity

Discriminant validity of the latent constructs was assessed using the Fornell-Larcker criterion. According to Fornell and Larcker (1981), a construct achieves discriminant validity when the square root of its Average Variance Extracted ($\sqrt{\text{AVE}}$) is greater than its correlations with other constructs in the model. The results indicate that most constructs satisfy this criterion. Specifically, the $\sqrt{\text{AVE}}$ of environmental consciousness (EC) is 0.783, which is higher than its correlations with employee green behavior (EGB = 0.612), green culture (GC = 0.505), and green human resource management (GHRM = 0.591). Similarly, the $\sqrt{\text{AVE}}$ of EGB is 0.782, exceeding its correlations with EC (0.612), GC (0.667), and GHRM (0.668).

For green culture (GC), the $\sqrt{\text{AVE}}$ is 0.748, which is greater than its correlations with EC (0.505) and EGB (0.667). However, the correlation between GC and GHRM (0.771) exceeds the $\sqrt{\text{AVE}}$ of GC. Likewise, the $\sqrt{\text{AVE}}$ of GHRM (0.737) is lower than its correlation with GC (0.771).

Table 3. Assessment of Discriminant Validity

	EC	EGB	GC	GHRM
EC	0.783			
EGB	0.612	0.782		
GC	0.505	0.667	0.748	
GHRM	0.591	0.668	0.771	0.737

Thus, although most constructs meet the Fornell - Larcker criterion, the pair GC and GHRM exhibits a relatively high correlation, indicating that discriminant validity is not fully established between these two constructs under this criterion. However, recent methodological recommendations suggest that the Fornell - Larcker criterion may lack sensitivity in detecting discriminant validity issues, particularly in models with theoretically related constructs (Hair et al., 2022). Therefore, to ensure a more robust assessment, this study further evaluated discriminant validity using the Heterotrait - Monotrait ratio (HTMT), which is considered a more stringent and reliable criterion in PLS-SEM.

Discriminant validity was further examined using the HTMT index as recommended by (Henseler, Ringle, and Sarstedt 2015). According to Hair et al. (2022), HTMT values should be below 0.85 (strict threshold) or 0.90 (acceptable threshold in social science research).

The results show that most construct pairs have HTMT values below 0.85, confirming discriminant validity. However, the HTMT value for the pair green human resource management (GHRM) and green culture (GC) is relatively high (approximately 0.96), exceeding the recommended threshold. From a theoretical perspective, the high correlation between GHRM and GC is conceptually justifiable within the foundational theories of this study.

First, based on the social exchange theory of Peter M. Blau (Blau 2017), organizational management practices serve as signals of the organization's commitment to sustainable values. When hotels implement GHRM practices such as green recruitment, environmental training, and performance appraisal linked to environmental criteria, employees are more likely to perceive a strong environmental orientation within the organization. In other words, GHRM can contribute to shaping and reinforcing green culture.

Second, according to Edgar H. Schein (2010), organizational culture consists of shared values, beliefs, and norms that guide members' behaviors. When GHRM practices are implemented consistently, they may gradually become internalized as shared assumptions, thereby forming and strengthening a green organizational culture (Schein 2010).

Particularly in the context of four- and five-star hotels in Da Lat, where environmental standards and sustainable brand image are increasingly emphasized, green management practices are often institutionalized into organizational culture. This context may intensify the correlation between the two constructs without implying complete conceptual overlap.

Therefore, despite the high HTMT value between GHRM and GC, discriminant validity can still be theoretically justified. The two constructs are retained in the model as they represent different levels of the research phenomenon: the managerial level (management practices) and the cultural level (organizational values).

Although green human resource management and green culture are theoretically related constructs, they represent distinct dimensions in this study. GHRM refers to formal HR policies and managerial practices that promote environmental sustainability, whereas green culture reflects shared organizational values and collective environmental norms. The discriminant validity assessment confirmed that the constructs were empirically distinct, as all HTMT values were below the recommended threshold. The relatively strong association between GHRM and green culture may reflect the organizational context in which green HR practices contribute to the institutionalization of environmental values and shared workplace norms rather than indicating conceptual redundancy.

4.2. Assessment of the Structural Model

4.2.1. Collinearity Assessment

Collinearity among the indicators was assessed using the variance inflation factor (VIF). According to Hair et al. (2022), VIF values below 5 indicate the absence of serious multicollinearity issues; in management research, a more conservative threshold of $VIF < 3.3$ is also frequently applied to ensure the stability of parameter estimates. (Hair et al., 2022)

The results show that the VIF values for all observed variables range from 1.444 to 2.762. Specifically, the environmental consciousness (EC) indicators exhibit VIF values between 1.683 and 2.762; employee green behavior (EGB) ranges from 1.965 to 2.436; green culture (GC) ranges from 1.627 to 1.739; and green human resource management (GHRM) ranges from 1.444 to 1.745. The highest VIF value is observed for EC4 ($VIF = 2.762$); however, this value remains well below the threshold of 5 and falls within the acceptable range under the stricter criterion of 3.3.

Table 4. Collinearity Assessment

	VIF
EC1	1.683
EC2	2.126
EC3	1.687
EC4	2.762
EC5	1.965
EGB1	2.436
EGB2	2.108
EGB3	2.201
EGB4	2.231
EGB5	1.965
GC1	1.636
GC2	1.660
GC3	1.684
GC4	1.627
GC5	1.739
GHRM1	1.444
GHRM2	1.706
GHRM3	1.642
GHRM4	1.745
GHRM5	1.564

Therefore, it can be concluded that multicollinearity among the indicators is not a significant concern and does not adversely affect the reliability of the parameter estimates in the PLS-SEM model. This finding ensures that each observed variable contributes distinct information to its corresponding latent construct, thereby reinforcing the stability of the measurement model.

4.2.2. Coefficient of Determination (R^2)

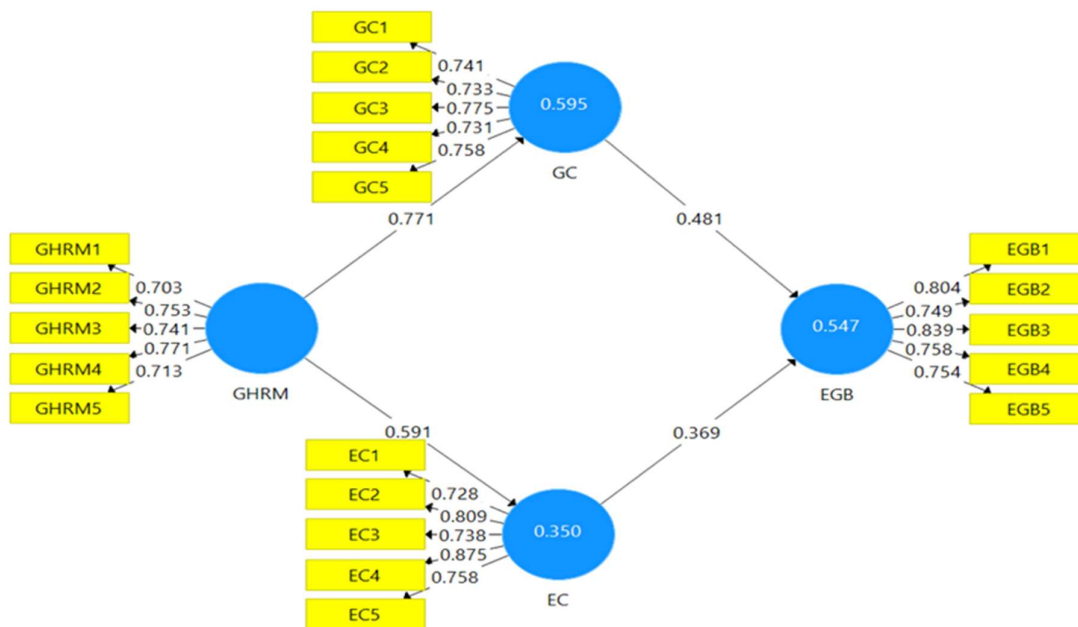
The coefficient of determination (R^2) is used to assess the extent to which the variance of endogenous constructs is explained by the structural model. According to Hair et al. (2022), R^2 values of 0.25, 0.50, and 0.75 can be described as weak, moderate, and substantial, respectively.

Table 5. Coefficient of Determination

	R Square	R Square Adjusted
EC	0.35	0.344
EGB	0.547	0.538
GC	0.595	0.591

The results indicate that green culture (GC) achieves an R^2 value of 0.595 (adjusted $R^2 = 0.591$), meaning that green human resource management (GHRM) explains 59.5% of the variance in GC. This relatively high level of explained variance highlights the important role of GHRM practices in shaping and reinforcing green organizational culture.

For environmental consciousness (EC), the R^2 value is 0.350 (adjusted $R^2 = 0.344$), indicating that GHRM explains 35.0% of the variance in employees' environmental awareness. Although this represents a moderate level of explanatory power, it nevertheless confirms the significant influence of green HR practices on employees' cognitive environmental orientation.

**Figure 1.** Assessment of the Structural Model

Notably, employee green behavior (EGB) achieves an R^2 value of 0.547 (adjusted $R^2 = 0.538$), suggesting that the predictor constructs in the model (GC and EC) explain 54.7% of the variance in green behavior. This reflects a relatively strong predictive capability of the research model within the hotel industry context. Overall, all R^2 values exceed the 0.25 threshold, indicating that the model demonstrates adequate explanatory power and practical relevance in explaining employee green behavior through both organizational and individual mechanisms.

4.2.3. Hypothesis Testing

The research hypotheses were tested using the bootstrapping procedure with 5,000 resamples to assess the statistical significance of the path coefficients. According to Hair et al., (2022), a relationship is considered statistically significant when the t-value exceeds 1.96 and the p-value is less than 0.05.

Table 6. Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision
EC -> EGB	0.369	0.374	0.102	3.614	0	H4: Supported
GC -> EGB	0.481	0.482	0.104	4.612	0	H3: Supported
GHRM -> EC	0.591	0.601	0.065	9.159	0	H2: Supported
GHRM -> GC	0.771	0.773	0.036	21.203	0	H1: Supported

The results reveal that all structural paths are statistically significant at the 5% level, with p-values below 0.001. Specifically, green human resource management (GHRM) has a positive and statistically significant effect on environmental consciousness (EC) ($\beta = 0.591$; $t = 9.159$; $p < 0.001$), thereby supporting hypothesis H2. At the same time, GHRM exerts a strong and positive influence on green culture (GC) ($\beta = 0.771$; $t = 21.203$; $p < 0.001$), supporting hypothesis H1. This path exhibits the largest coefficient in the model, underscoring the pivotal role of green management practices in establishing the foundation of organizational culture.

Furthermore, green culture positively affects employee green behavior (EGB) ($\beta = 0.481$; $t = 4.612$; $p < 0.001$), confirming hypothesis H3. Environmental consciousness also has a positive and significant impact on EGB ($\beta = 0.369$; $t = 3.614$; $p < 0.001$), supporting hypothesis H4. A comparison of effect sizes indicates that the influence of green culture on green behavior is stronger than that of individual environmental consciousness.

Overall, the structural model results demonstrate that all direct hypotheses are supported, reaffirming the critical role of GHRM in promoting employee green behavior through both organizational (green culture) and individual (environmental consciousness) pathways.

4.2.4. Mediation Analysis

The mediating roles of green culture (GC) and environmental consciousness (EC) in the relationship between green human resource management (GHRM) and employee green behavior (EGB) were examined using the bootstrapping procedure with 5,000 resamples. According to Hair et al. (2022), an indirect effect is considered statistically significant when the t-value exceeds 1.96 and the p-value is less than 0.05.

Table 7. Mediation Analysis

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
GHRM -> EC -> EGB	0.218	0.226	0.071	3.082	0.002
GHRM -> GC -> EGB	0.371	0.374	0.087	4.259	0

The results indicate that both indirect effects are statistically significant. Specifically, the indirect effect of GHRM on EGB through environmental consciousness (GHRM $\rightarrow$ EC $\rightarrow$ EGB) is $\beta = 0.218$, $t = 3.082$, and $p = 0.002$, thereby supporting hypothesis H6. Similarly, the indirect effect of GHRM on EGB through green culture (GHRM $\rightarrow$ GC $\rightarrow$ EGB) is $\beta = 0.371$, $t = 4.259$, and $p < 0.001$, supporting hypothesis H5. A comparison of the path coefficients shows that the mediating role of green culture is stronger than that of environmental consciousness.

These findings suggest that both organizational-level and individual-level mediation mechanisms operate within the research model. However, the organizational-level mechanism through green culture exerts

a more prominent influence. This implies that when green HR practices are institutionalized into shared organizational values and norms, they generate a stronger and more sustainable impact on employee green behavior than merely enhancing individual awareness. Notably, the research model does not include a direct path between GHRM and EGB. Therefore, the influence of GHRM on employee green behavior is fully transmitted through the two mediating mechanisms - green culture and environmental consciousness - indicating the presence of full mediation in this relationship.

4.3. Discussion

The findings support a dual-mediation mechanism through which green human resource management (GHRM) influences employee green behavior (EGB) in the hotel industry. Specifically, GHRM enhances both green culture (GC) and environmental consciousness (EC), which subsequently promote employee green behavior. This pattern is consistent with the complementary logic of Social Exchange Theory and Social Identity Theory, suggesting that GHRM operates simultaneously through reciprocal employee responses and stronger identification with organizational environmental values (Blau, 1964/2017; Tajfel & Turner, 1985).

First, the strong effect of GHRM on green culture ($\beta = 0.771$) indicates that green HR practices extend beyond behavioral regulation to shape shared organizational values. This finding corroborates Renwick et al. (2013), who argue that green recruitment, training, and performance appraisal help institutionalize environmental priorities, and it also aligns with Schein's (2010) view that managerial practices are central to the formation and maintenance of organizational culture. Second, the positive effect of GHRM on environmental consciousness ($\beta = 0.591$) confirms that GHRM also operates at the individual cognitive level. This result is consistent with Dumont et al. (2017), who highlight the role of GHRM in fostering employees' environmental awareness and intrinsic motivation. From a social exchange perspective, employees may interpret organizational environmental commitment as a positive signal that encourages reciprocal pro-environmental responsibility. Third, both GC and EC positively predict EGB, in line with previous studies emphasizing the roles of organizational context and individual cognition in shaping pro-environmental behavior (Kollmuss & Agyeman, 2002; Ones & Dilchert, 2012; Norton et al., 2014). Notably, the indirect effect through GC ($\beta = 0.371$) is stronger than that through EC ($\beta = 0.218$), suggesting that organizational-level mechanisms may generate more enduring behavioral outcomes than individual-level awareness alone. This finding extends Dumont et al. (2017) by demonstrating that the influence of GHRM is better understood as a multilevel process in which cultural embedding plays a more prominent mediating role, particularly in the context of four- and five-star hotels in Da Lat.

Importantly, this study provides additional insight into the comparative roles of green culture and environmental consciousness in explaining employee green behavior. While previous studies have mainly examined organizational and individual mechanisms separately, the present findings demonstrate that green culture exerts a stronger mediating effect than environmental consciousness. This suggests that, in the context of Vietnamese hotels, employees' green behavior is influenced more strongly by shared organizational values and collective environmental norms than by individual environmental awareness alone. The finding highlights the importance of cultural embedding in sustaining pro-environmental behavior and suggests that organizational-level mechanisms may generate more stable and long-term behavioral outcomes in labor-intensive hospitality settings.

4.4. Managerial Implications

The findings offer several important implications for hotel managers seeking to foster employee green behavior through green human resource management (GHRM). First, the strong effect of GHRM on green

culture indicates that HR practices should be treated as strategic tools for embedding environmental values within the organization. Managers should integrate environmental objectives across the HR cycle, including recruitment, training, performance appraisal, and reward systems. Recruiting environmentally aware employees, providing sustainability-oriented training, and incorporating green criteria into performance evaluation can strengthen the hotel's environmental orientation (Renwick et al., 2013; Renwick et al., 2016). Second, because green culture emerged as the stronger mediating mechanism, hotel managers should prioritize building a work environment in which environmental responsibility is institutionalized as a shared norm. This requires consistent internal communication, the integration of green values into the hotel's vision and mission, and visible leadership commitment. As Schein (2010) argues, culture is reinforced through leadership behavior and management systems, making alignment between formal policies and daily practices essential. Third, although organizational culture plays the more prominent role, strengthening employees' environmental consciousness remains important. Training programs, sustainability workshops, and internal environmental campaigns can enhance employees' awareness and personal responsibility, which in turn support proactive green behavior (Kollmuss & Agyeman, 2002). Finally, in Da Lat's four- and five-star hotel sector, promoting employee green behavior may enhance competitive advantage by reducing costs, improving customer experience, and reinforcing a sustainable brand image.

4.5. Theoretical Contributions

This study makes several contributions to the literature on green human resource management (GHRM) and employee green behavior in the service sector. First, it advances GHRM theory by integrating Social Exchange Theory and Social Identity Theory into a single explanatory framework. In doing so, it shows that GHRM promotes employee green behavior not only by encouraging reciprocal responses to organizational support (Blau, 1964/2017), but also by strengthening employees' identification with the organization's environmental values (Tajfel & Turner, 1985). Second, the study develops a multilevel explanation by testing two mediating mechanisms simultaneously: green culture at the organizational level and environmental consciousness at the individual level. This extends prior research that has focused mainly on individual cognitive factors, such as environmental awareness or intrinsic motivation (Dumont et al., 2017). Third, the finding that green culture exerts a stronger mediating effect than environmental consciousness highlights the particularly important role of organizational-level mechanisms in sustaining employee green behavior. This finding reinforces the argument that green practices become more effective when institutionalized into shared norms and values (Schein, 2010). Finally, by providing evidence from four- and five-star hotels in Da Lat, Vietnam, the study broadens the contextual relevance of GHRM research in emerging-economy hospitality settings.

4.6. Limitations and Future Research Directions

Despite its contributions, this study has several limitations. First, the cross-sectional design of this study limits the ability to draw definitive causal conclusions among the proposed constructs. Therefore, the findings should be interpreted as associations within a correlational path model rather than as evidence of direct causal mechanisms. Future studies should employ longitudinal or experimental designs to provide stronger causal inference regarding the relationships among GHRM, green culture, environmental consciousness, and employee green behavior. Second, the use of self-reported surveys may introduce common method bias, so future research should incorporate multiple data sources, such as supervisor ratings or objective environmental performance indicators. Third, the focus on four- and five-star hotels in Da Lat may constrain

the generalizability of the findings, as organizational structures, environmental practices, and employee perceptions may differ across hotel categories and national contexts. Therefore, future studies should replicate this model in different hospitality segments and across international settings to enhance the external validity and cross-context applicability of the findings. Fourth, although dual mediators were tested, moderating factors such as leadership style, organizational climate, or customer environmental expectations were not included. Fifth, the use of PLS-SEM emphasizes linear relationships, whereas green behavior may involve more complex dynamics. Finally, the study focuses mainly on internal factors, while external influences such as environmental policies, competition, and sustainable consumption trends may also shape employee green behavior.

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