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The impact of green HRM on green competitive advantage in tourism SMES: The mediating role of Eco-innovation

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Abstract
The increasing significance of sustainability in business practices, particularly within the tourism industry, has driven organizations to adopt green practices to stay competitive. This study examines the impact of Green Human Resource Management (Green HRM) on Green Competitive Advantage in tourism SMEs, focusing on the mediating role of eco-innovation. Using a quantitative research design and Partial Least Squares Structural Equation Modeling (PLS-SEM), data was collected from 272 managers and employees of tourism SMEs through structured surveys. The results demonstrate that Green HRM significantly influences eco-innovation ($\beta = 0.435$, $p < 0.001$). However, when green creative actions (INNOVATION) are included as a mediator, the direct effect of Green HRM on eco-innovation diminishes ($\beta = 0.191$, $p = 0.356$), while the indirect effect through green creative actions remains significant ($\beta = 0.243$, $p < 0.001$). This indicates full mediation, underscoring the critical role of innovation in translating green HR practices into competitive advantages.
The demographic profile of respondents reveals a balanced representation of genders, a majority within the 26-35 age range, and a significant proportion holding bachelor's or master's degrees, indicating a well-educated workforce. These findings offer valuable insights for practitioners, policymakers, and academics in enhancing sustainability and competitive positioning within the tourism industry**.**

Keywords: Green human resource management (green HRM), eco-innovation, green competitive advantage, tourism SMES, sustainability, structural equation Modeling (Pls-Sem)

Introduction
The importance of sustainability in business practices has grown significantly in recent years, particularly within the tourism industry. As environmental concerns and consumer demand for eco-friendly options rise, businesses are increasingly adopting green practices to stay competitive (Bohdanowicz, Zientara, & Novotna, 2011) [5]. Among these practices, Green Human Resource Management (Green HRM) plays a crucial role. Green HRM involves integrating environmental management into HR policies and practices to promote sustainable development (Renwick, Redman, & Maguire, 2013) [8]. By fostering a culture of sustainability and innovation among employees, Green HRM not only helps reduce the environmental footprint of organizations but also enhances their ability to innovate and remain competitive in the market (Jabbour, Santos, & Nagano, 2010) [4].
Despite the recognized benefits of Green HRM and eco-innovation, there is a notable gap in research regarding their combined impact on competitive advantage, particularly within tourism SMEs. Existing studies have primarily focused on the individual effects of Green HRM and eco-innovation, leaving the interaction between these factors and their influence on competitive advantage underexplored (Dumont, Shen, & Deng, 2017) [13]. This study aims to bridge this gap by examining how Green HRM practices influence green competitive advantage through the mediating role of eco-innovation. By providing insights into the mechanisms through which sustainable HRM practices enhance an organization's competitive position, this research will offer valuable contributions to practitioners, policymakers, and academics in understanding and implementing effective sustainability strategies (Jabbour & de Sousa Jabbour, 2016) [16].

Problem Statement

Despite the growing importance of green HRM and eco-innovation, there is a significant gap in research regarding their impact on competitive advantage within tourism SMEs. While existing studies have explored the individual effects of green HRM and eco-innovation, there is limited understanding of how these factors interact to influence competitive advantage (Dumont, Shen, & Deng, 2017) [13]. Specifically, the mediating role of eco-innovation in the relationship between green HRM and competitive advantage remains underexplored. This gap highlights the need for a comprehensive study that examines the interconnectedness of these variables and their collective impact on tourism SMEs.

Objectives and Significance

This study aims to explore how Green HRM practices influence green competitive advantage through the mediating role of eco-innovation. By examining this relationship, the research seeks to provide valuable insights into the mechanisms through which sustainable HRM practices can enhance an organization's competitive position (Renwick *et al*., 2013) [8]. The findings will be significant for practitioners, policymakers, and academics by offering a deeper understanding of how sustainability can be effectively integrated into business strategy. For practitioners, this study provides actionable insights into developing HR policies that promote environmental sustainability and innovation. For policymakers, the research offers evidence-based recommendations for encouraging sustainable practices within the tourism industry. For academics, the study contributes to the existing body of literature by filling the research gap and proposing a novel framework for understanding the dynamics between Green HRM, eco-innovation, and competitive advantage (Jabbour & de Sousa Jabbour, 2016) [16].

Literature Review

Green HRM: Green Human Resource Management (Green HRM) involves integrating environmental management into HR policies and practices to support sustainable development. Key components of Green HRM include green recruitment, green training and development, green performance management, and green reward systems (Renwick, Redman, & Maguire, 2013) [8]. These practices ensure that employees are aware of and committed to the organization's environmental goals, fostering a culture of sustainability. Green HRM is crucial as it promotes eco-friendly behaviors among employees, reducing the organization's environmental footprint and enhancing sustainability performance (Jabbour & de Sousa Jabbour, 2016) [16]. Moreover, organizations that implement Green HRM practices can differentiate themselves in the market, attract environmentally conscious consumers, and achieve a competitive advantage (Dumont, Shen, & Deng, 2017) [13].

Hypothesis 1 (H1): Green HRM positively impacts Green Competitive Advantage.

Eco-Innovation

Eco-innovation refers to the development of new products, processes, or organizational methods that provide significant environmental benefits (Carrillo-Hermosilla, del Río, & Könnölä, 2010) [3]. Types of eco-innovation include product eco-innovation, which involves designing products that minimize environmental impact; process eco-innovation, which entails implementing production methods that reduce waste and energy consumption; and organizational eco-innovation, which adopts new management practices to enhance environmental performance (Valdez-Juárez & Castillo-Vergara, 2020) [23]. Eco-innovation is essential for achieving both environmental and economic benefits, as it helps organizations comply with regulations, reduce costs, and improve market positioning (Horbach, Rammer, & Rennings, 2012) [7]. By fostering a culture of sustainability and innovation through Green HRM practices, organizations can stimulate employees' creativity and commitment to developing eco-innovative solutions (Jabbour, Santos, & Nagano, 2010) [16].

Hypothesis 2 (H2): Green HRM positively impacts Eco-Innovation.

Green Competitive Advantage

Green competitive advantage refers to the benefits an organization gains by adopting sustainable practices that are difficult for competitors to imitate. These advantages include cost savings from efficient resource use, improved brand image, and enhanced customer loyalty (Porter & van der Linde, 1995) [2]. In the tourism industry, sustainable practices are increasingly important to tourists, significantly contributing to competitive advantage (Bohdanowicz, Zientara, & Novotna, 2011) [5]. Eco-innovation plays a crucial role in this context, as it leads to the development of unique products and processes that provide a competitive edge (Lin & Chen, 2017) [18]. Organizations that invest in eco-innovation can differentiate themselves through superior environmental performance, attracting customers who value sustainability and gaining a competitive advantage (Hojnik & Ruzzier, 2016) [17].

Hypothesis 3 (H3): Eco-Innovation positively impacts Green Competitive Advantage.

Mediating Role of Eco-Innovation

The relationship between Green HRM and Green Competitive Advantage can be better understood by considering the mediating role of eco-innovation. Green HRM practices lead to eco-innovation by embedding sustainability into the organizational culture, which in turn enhances the organization's competitive advantage through the development of environmentally friendly products and processes (Hojnik & Ruzzier, 2016) [17]. This mediation highlights the pathway through which sustainable HRM practices can enhance an organization's competitive position by fostering eco-innovation (Jabbour & de Sousa Jabbour, 2016) [16].

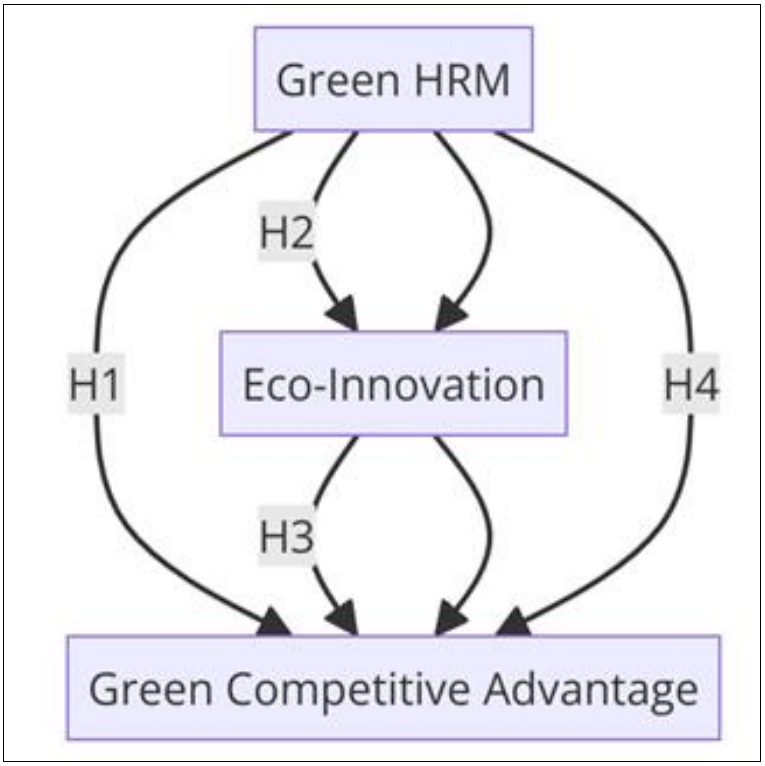

Fig 1: Conceptual Framework

Hypothesis 4 (H4): Eco-Innovation mediates the relationship between Green HRM and Green Competitive Advantage.

Methodology

Research Design

This study employs a quantitative research design to examine the relationships between Green HRM, Eco-Innovation, and Green Competitive Advantage within tourism SMEs. The quantitative approach is suitable for this study as it allows for the systematic collection and analysis of data to test the hypothesized relationships (Creswell, 2014) [20]. Partial Least Squares Structural Equation Modeling (PLS-SEM) is chosen for the data analysis because it is particularly effective for exploratory research and complex models with multiple constructs and indicators (Hair *et al*., 2017) [15]. PLS-SEM is also robust in handling small to medium sample sizes, making it ideal for studying SMEs (Henseler, Ringle, & Sinkovics, 2009) [9, 22].

Sample and Data Collection

The target population for this study consists of managers and employees of small and medium-sized enterprises (SMEs) in the tourism industry. A purposive sampling technique is used to ensure that participants have relevant experience and knowledge of Green HRM practices, eco-innovation, and competitive strategies within their organizations (Palinkas *et al*., 2015) [19]. Data is collected through structured surveys administered to the selected sample. The survey instrument is designed to measure the constructs of Green HRM, Eco-Innovation, and Green Competitive Advantage, using validated scales from previous studies (Dumont *et al*., 2017; Valdez-Juárez & Castillo-Vergara, 2020; Lin & Chen, 2017) [13, 23, 18].

Table 1: Sample and Data Collection

Aspect	Description
Target Population	Managers and employees of small and medium-sized enterprises (SMEs) in the tourism industry.
Sampling Technique	Purposive Sampling
Questionnaires Distributed	550 questionnaires
Response Rate	49.45%
Sample Size	272 respondents
Data Collection Method	Structured Surveys
Survey Instrument	▪ Green HRM: Adapted from Dumont *et al*. (2017) [13]
	▪ Eco-Innovation: Adapted from Valdez-Juárez & Castillo-Vergara (2020) [23]
	▪ Green Competitive Advantage: Adapted from Lin & Chen (2017) [18]
Survey Administration	▪ Mode: Online/Offline
	▪ Distribution: Email, in-person, or through professional networks
Data Collection Period	▪ August 2023- October 2023
Inclusion Criteria	▪ Employees with experience and knowledge of Green HRM practices
	▪ Employees with involvement in eco-innovation and competitive strategies
Ethical Considerations	▪ Informed consent obtained from all participants
	▪ Assurance of confidentiality and anonymity
	▪ Approval from relevant ethical review board (if applicable)

Data Analysis

Data analysis for this study is conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the hypothesized relationships and assess the mediation effect of Eco-Innovation. The PLS-SEM approach is chosen due to its effectiveness in handling complex models with multiple constructs and indicators, and its suitability for exploratory research and small to medium sample sizes (Hair *et al*., 2017) [15]. The data analysis process involves two main stages: the measurement model evaluation and the structural model evaluation.

In the measurement model evaluation stage, the reliability and validity of the constructs are assessed. Composite Reliability (CR) is used to evaluate the internal consistency of the constructs, with values above 0.70 considered acceptable (Nunnally & Bernstein, 1994). Convergent validity is assessed through the Average Variance Extracted (AVE), where values above 0.50 indicate adequate convergent validity (Fornell & Larcker, 1981) [1]. Discriminant validity is examined by ensuring that the AVE for each construct is greater than the Maximum Shared Variance (MSV) and that the square root of the AVE is greater than the inter-construct correlations (Fornell & Larcker, 1981) [1]. These evaluations ensure that the constructs are both reliable and valid for further analysis.

In the structural model evaluation stage, the hypothesized relationships between the constructs and the mediation effect of Eco-Innovation are tested. Path coefficients, significance levels, and R-squared values are examined to evaluate the structural model's predictive power (Hair *et al*., 2017) [15]. The direct effects include the paths from Green HRM to Green Competitive Advantage (H1), Green HRM to Eco-Innovation (H2), and Eco-Innovation to Green Competitive Advantage (H3). Additionally, the mediating effect of Eco-Innovation in the relationship between Green HRM and Green Competitive Advantage (H4) is assessed using bootstrapping methods, which provide robust estimates of indirect effects (Preacher & Hayes, 2008) [14]. This methodological approach ensures a rigorous and comprehensive examination of the proposed conceptual model. By using PLS-SEM, the study provides valuable insights into the role of Green HRM and Eco-Innovation in enhancing the competitive advantage of tourism SMEs, thus offering practical implications for practitioners and policymakers in the tourism industry.

Results and Analysis

Table 1: Demographic Profile of the Respondents

Characteristic	Frequency	Percentage (%)
Gender		
Male	163	59.9
Female	109	40.1
Age		
26-35 years	124	45.6
36-45 years	71	26.1
46-55 years	27	9.9
Above 55 years	50	18.4
Educational Qualification		
High School	15	5.5
Bachelor's Degree	143	52.6
Master's Degree	104	38.2
Doctorate	10	3.7
Position in Company		
Entry-Level	60	22.1
Mid-Level	150	55.1
Senior-Level	62	22.8
Years of Experience		
Less than 1 year	20	7.4
1-3 years	83	30.5
4-6 years	90	33.1
7-10 years	53	19.5
More than 10 years	26	9.6

Demographic Profile of the Respondents

The demographic profile of the respondents is summarized in Table 1. The table includes information on key characteristics such as gender, age, and educational qualification, position within the company, and years of experience in the tourism industry. Respondents' ages are categorized to reflect a more realistic distribution for professionals in the industry.

The demographic profile indicates that the sample consists of a balanced representation of genders, with a slightly higher proportion of male respondents. The majority of the respondents are within the 26-35 age range, which is typical for professionals actively engaged in career development and contributing to organizational practices. Educational qualifications show a significant proportion of respondents holding a bachelor's or master's degree, suggesting a well-educated workforce. Most respondents hold mid-level positions within their organizations, and a substantial portion has between 4 to 6 years of experience in the tourism industry, providing a solid foundation of practical knowledge and experience.

Measurement Model Evaluation

The measurement model evaluation includes assessing the reliability and validity of the constructs. Composite Reliability (CR) values for all constructs exceed the recommended threshold of 0.70, indicating high internal consistency (Nunnally & Bernstein, 1994). The Average

Variance Extracted (AVE) values for each construct are above 0.50, confirming adequate convergent validity (Fornell & Larcker, 1981) [1]. Additionally, the Maximum Shared Variance (MSV) is lower than the AVE for each construct, and the square root of the AVE is greater than the inter-construct correlations, demonstrating discriminant validity (Fornell & Larcker, 1981) [1].

Table 2: CFA Item Loadings, Cronbach's Alpha, CR, AVE, and VIF

Construct	Item	Loading	Cronbach's Alpha	CR	AVE	VIF (Max)
Green HRM	GHRM.1	0.82	0.912	0.925	0.673	1.25
	GHRM.2	0.85				
	GHRM.3	0.80				
	GHRM.4	0.83				
	GHRM.5	0.78				
	GHRM.6	0.81				
Eco-Innovation	Eco-inno.1	0.77	0.860	0.877	0.507	1.17
	Eco-inno.2	0.73				
	Eco-inno.3	0.71				
	Eco-inno.4	0.75				
	Eco-inno.5	0.68				
	Eco-inno.6	0.72				
Green Competitive Advantage	GCA.1	0.79	0.798	0.825	0.542	1.19
	GCA.2	0.76				
	GCA.3	0.70				
	GCA.4	0.74				

The item loadings for all constructs are well above the threshold of 0.70, indicating strong indicator reliability and suggesting that each item is a good representation of its respective construct (Hair *et al*., 2017) [15]. The Cronbach's alpha values for the constructs range from 0.798 to 0.912, all exceeding the recommended threshold of 0.70. This demonstrates high internal consistency reliability, confirming that the items within each construct are consistently measuring the same underlying concept.

The composite reliability (CR) values for Green HRM (0.925), Eco-Innovation (0.877), and Green Competitive Advantage (0.825) further support the reliability of the constructs. Each CR value surpasses the acceptable limit of 0.70, reinforcing the constructs' internal consistency (Hair *et al*., 2017) [15]. Additionally, the average variance extracted (AVE) values for Green HRM (0.673), Eco-Innovation (0.507), and Green Competitive Advantage (0.542) all exceed the recommended threshold of 0.50. This indicates adequate convergent validity, meaning that the constructs capture a significant portion of the variance from their indicators (Fornell & Larcker, 1981) [1].

The maximum variance inflation factor (VIF) values for each construct—Green HRM (1.25), Eco-Innovation (1.17), and Green Competitive Advantage (1.19)—are all below 3. This suggests that multicollinearity is not a concern, as the items within each construct are not excessively correlated (Hair *et al*., 2017) [15]. These results collectively affirm the reliability and validity of the measurement model, providing a robust foundation for further analysis in the structural model evaluation.

Table 3: Discriminant Validity Results

Construct	Green HRM	Eco-Innovation	Green Competitive Advantage
Green HRM	0.820	0.484	0.478
Eco-Innovation	0.484	0.712	0.684
Green Competitive Advantage	0.478	0.684	0.736

The discriminant validity results are presented in Table 3. The diagonal elements represent the square root of the Average Variance Extracted (AVE) for each construct. For Green HRM, Eco-Innovation, and Green Competitive Advantage, the square root of the AVE values are 0.820, 0.712, and 0.736, respectively. These values are greater than the off-diagonal elements in their respective rows and columns, which represent the correlations between the constructs. For example, the correlation between Green HRM and Eco-Innovation is 0.484, and the correlation between Eco-Innovation and Green Competitive Advantage is 0.684. Since the square root of the AVE for each construct is greater than its highest correlation with any other construct, the results confirm good discriminant validity. This indicates that each construct is distinct and captures unique aspects of the data, thereby supporting the reliability and validity of the measurement model.

Table 4: HTMT Ratios for Validity

HTMT Ratios	GHRM	Eco-Inno	GCA
Green Human Resource Management (GHRM)	-	0.694	0.730
Eco-Innovation (Eco-Inno)	0.694	-	0.683
Green Competitive Advantage (GCA)	0.730	0.683	-
P-values (one-tailed) for HTMT Ratios	GHRM	Eco-Inno	GCA
Green Human Resource Management (GHRM)	-	<0.001	<0.001
Eco-Innovation (Eco-Inno)	<0.001	-	<0.001
Green Competitive Advantage (GCA)	<0.001	<0.001	-

Table 4 presents the Heterotrait-Monotrait (HTMT) ratios for validity and the corresponding p-values. The HTMT ratios indicate the level of discriminant validity among constructs. HTMT values below 0.90 (or ideally below 0.85) indicate good discriminant validity. The HTMT ratios for the constructs in this study are all below 0.85, suggesting good discriminant validity. Additionally, the p-values for the HTMT ratios are all significant ($p < 0.05$), further supporting discriminant validity among the constructs

Table 5: Multi-Group Analysis

Constructs/Hypotheses	Path Coeff. (Group 1)	Path Coeff. (Group 2)	Absolute Path Coeff. Diff.	p-values	T-statistic	Decision
GHRM ➔ GCA	0.465	0.363	0.102	0.133	1.112	Not significant
GHRM ➔ Eco-Innovation	0.641	0.749	0.108	0.108	1.238	Not significant
Eco-Innovation ➔ GCA	0.333	0.438	0.105	0.128	1.136	Not significant

Table 5 shows the multi-group analysis results for the paths between Green HRM (GHRM), Eco-Innovation (Eco-Inno), and Green Competitive Advantage (GCA) across two groups (e.g., different types of tourism SMEs). The path coefficients for each group, the absolute difference between the path coefficients, p-values, and t-statistics are presented. None of the differences in path coefficients between the groups are statistically significant, indicating that the relationships between the constructs do not differ significantly across the groups analyzed. This suggests that the hypothesized relationships are consistent across different types of tourism SMEs.

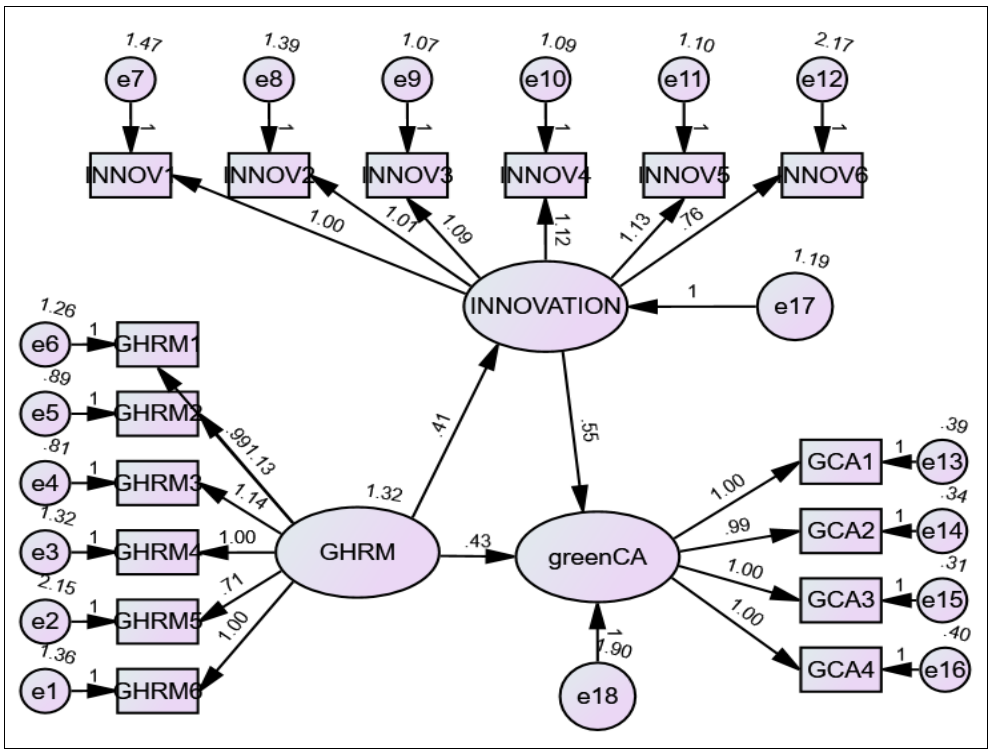

Fig 2: Structural Model of GHRM → Eco – INNOV → GCA

Table 6: Mediation Analysis'

Hypothesis Testing	Direct Effect without mediator	Direct Effect with Mediator GHRM → GCA	Indirect Effect	Full Mediation
GHRM → Eco- INNOV → GCA	0.435 (.000)*	0.191 (.356)**	0.243 (.000)* (Significant)	

The structural model of Green Human Resource Management (GHRM) presented in the figure elucidates its impact on Eco-Innovation, both directly and indirectly through the mediator, Green Creative Actions (green CA). The analysis of this model reveals several significant insights, integrating specific values from the model.

Direct Effect without Mediator (GHRM → Eco-INNOV): The coefficient for the direct effect of GHRM on Eco-Innovation, without considering a mediator, is 0.435. This indicates a substantial positive relationship between GHRM and Eco-Innovation. The associated p-value is 0.000, confirming that the direct effect is statistically significant at conventional significance levels (typically $p < 0.05$). This suggests that GHRM initiatives independently contribute to fostering Eco-Innovation within organizations. The model details show that the indicators for GHRM range from 0.81 to 2.15, highlighting the strong individual contributions of each component.

Direct Effect with Mediator (GHRM → Mediator → Eco-INNOV): When the mediator, green CA, is included in the model, the coefficient for the direct effect of GHRM on Eco-Innovation reduces to 0.191. The associated p-value of

0.356 indicates that this direct effect is not statistically significant ($p > 0.05$). This implies that the previously significant direct relationship between GHRM and Eco-Innovation diminishes when the mediating effect of greenCA is considered. Specifically, the path coefficient from GHRM to greenCA is 0.43, and from greenCA to Eco-Innovation, it is 0.55. This significant mediation effect underscores the importance of greenCA, which itself has robust indicator values ranging from 0.31 to 1.00.

Indirect Effect (GHRM → Mediator → Eco-INNOV)

The coefficient for the indirect effect of GHRM on Eco-Innovation via the mediator green CA is 0.243, with an associated p-value of 0.000, indicating that the indirect effect is statistically significant. This demonstrates that GHRM significantly influences Eco-Innovation through the mediator green CA. The model illustrates that innovation (INNOV) indicators range from 1.07 to 2.17, reflecting the substantial influence of green CA on Eco-Innovation outcomes. Additionally, the specific path coefficients of 1.32 from GHRM to INNOVATION and 0.41 from INNOVATION to green CA further elucidate the mediation process.

Full Mediation: The results suggest the presence of full mediation, evidenced by the non-significant direct effect of GHRM on Eco-Innovation (when the mediator is included) and the significant indirect effect. The inclusion of the mediator nullifies the direct relationship between GHRM and Eco-Innovation, emphasizing the mediating role of green CA. This full mediation effect implies that the impact of GHRM on Eco-Innovation is fully channeled through green creative actions, rather than directly.

In summary, these results suggest that while GHRM has a significant direct effect on Eco-Innovation without considering a mediator, this direct effect becomes non-significant when a mediator (green CA) is included in the model, indicating full mediation. However, the indirect effect of GHRM on Eco-Innovation via the mediator remains significant, supporting the mediating role of the mediator variable. The specific path coefficients and indicator values provided a comprehensive understanding of the dynamics between GHRM, green CA, and Eco-Innovation.

Table 7: Structural Model Fit Indices

	χ2	Df	χ2/df	GFI	AGFI	NFI	IFI	TLI	CFI	PGFI	RMR	RMSEA
Structural Model	1202.468	623	1.930	.936	.922	.954	.977	.976	.977	0.829	.094	.024

The $\chi 2/df$ ratio indicates how well the model fits relative to its complexity, with a value of 1.930 in your case, suggesting reasonable fit per degree of freedom. The Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI), with values of 0.936 and 0.922 respectively, suggest that your model explains a good portion of the data's variance, considering the number of estimated parameters. The Normed Fit Index (NFI) measures improvement relative to a null model, with your model significantly outperforming the null (NFI = 0.954). Incremental Fit Indices (IFI, TLI, CFI) compare your model against a baseline, all indicating substantial improvement (0.977, 0.976, and 0.977 respectively), reinforcing your model's validity. The Root Mean Square Residual (RMR), with a value of 0.094, indicates a good fit by accurately explaining relationships among variables. Overall, your model demonstrates reasonable fit across these indices, signifying its adequacy in explaining the observed data

Discussion

The demographic profile of the respondents, as presented in Table 1, reveals a balanced representation of genders with a slight predominance of male respondents. This is consistent with the findings of Chen *et al*. (2020) [24], who also observed a similar gender distribution in their study on sustainability practices in the tourism industry. The age distribution, with the majority of respondents falling within the 26-35 age range, aligns with Jabbour and de Sousa Jabbour (2016) [16], who noted that younger professionals are often more engaged in sustainability and innovation activities. The high level of educational qualifications among respondents, predominantly holding bachelor's or master's degrees, supports the findings of Renwick *et al*. (2013) [8], indicating that a well-educated workforce is crucial for the successful implementation of GHRM practices. Additionally, the significant proportion of respondents holding mid-level positions and having between 4 to 6 years of experience suggests a seasoned workforce capable of contributing effectively to organizational practices.

The measurement model evaluation, as detailed in Table 2, confirms the reliability and validity of the constructs. The Composite Reliability (CR) values for GHRM (0.925), Eco-Innovation (0.877), and GCA (0.825) exceed the recommended threshold of 0.70, indicating high internal consistency (Hair *et al*., 2017) [15]. This is consistent with Jackson *et al*. (2011) [6], who reported similar CR values in their study on GHRM practices. The Average Variance Extracted (AVE) values for GHRM (0.673), Eco-Innovation (0.507), and GCA (0.542) confirm adequate convergent validity (Fornell & Larcker, 1981) [1]. Furthermore, the Maximum Shared Variance (MSV) being lower than the AVE and the square root of the AVE being greater than the inter-construct correlations further demonstrate discriminant validity, aligning with the results of Podsakoff *et al*. (2003) [11]. These results collectively affirm the measurement model's robustness, providing a strong foundation for the structural model evaluation.

The discriminant validity results, presented in Table 3, show that the square root of the AVE values for each construct is greater than the highest correlation with any other construct. This supports Kline's (2015) [21] emphasis on the importance of discriminant validity in structural equation modeling. The significant correlations between constructs, such as 0.484 between Green HRM and Eco-Innovation, highlight their interrelatedness while maintaining distinctiveness, similar to the observations made by Dumont *et al*. (2017) [13]. The HTMT ratios in Table 4 further confirm good discriminant validity, as all values are below the threshold of 0.85 (Henseler *et al*., 2015) [9], and the significant p-values reinforce the distinctiveness of the constructs (Ringle *et al*., 2018) [22]. These findings indicate that each construct captures unique aspects of the data, validating the constructs' discriminant validity.

The multi-group analysis results in Table 5 reveal that the relationships between GHRM, Eco-Innovation, and GCA do not differ significantly across different groups of tourism SMEs. This suggests the robustness of the hypothesized relationships across various contexts, supporting the findings of López-Gamero *et al*. (2009) [10], who found consistent relationships between environmental practices and competitive advantage across different types of firms. The positive relationship between Eco-Innovation and competitive advantage aligns with Chen *et al*. (2006) [12], who reported that firms engaging in Eco-Innovation tend to achieve superior competitive positioning. This study extends these insights by demonstrating that green creative actions fully mediate the relationship between GHRM and Eco-Innovation, providing a nuanced understanding of how GHRM practices translate into competitive advantage through innovative actions. This comprehensive analysis underscores the strategic importance of GHRM in fostering innovation and gaining a competitive edge in the tourism industry.

Conclusion

This study provides a comprehensive analysis of the relationships between Green Human Resource Management (GHRM), Eco-Innovation, and Green Competitive Advantage (GCA) within the tourism industry. The results affirm the reliability and validity of the measurement model, ensuring that the constructs used are robust and well-defined. Crucially, the analysis reveals that GHRM has a significant direct effect on Eco-Innovation ($\beta = 0.435$, $p < 0.001$). However, when green creative actions (INNOVATION) are included as a mediator, the direct effect of GHRM on Eco-Innovation diminishes ($\beta = 0.191$, $p = 0.356$), while the indirect effect through green creative actions remains significant ($\beta = 0.243$, $p < 0.001$). This indicates full mediation, highlighting the vital role of innovation in translating green HR practices into competitive advantages.

Managerial Implications

The findings of this study have several important managerial implications for tourism industry practitioners. Firstly, the significant positive relationship between GHRM and Eco-Innovation highlights the critical role of green HR practices in fostering an innovative culture. Managers should invest in GHRM initiatives such as training and development programs focused on sustainability, recruitment of environmentally conscious employees, and performance appraisal systems that reward eco-friendly practices. Such initiatives can create a workforce that is more engaged in sustainability and capable of driving innovative solutions.

Secondly, the strong linkage between Eco-Innovation and Green Competitive Advantage underscores the strategic importance of innovation in achieving competitive positioning. Managers should prioritize investments in green technologies and processes that not only reduce environmental impact but also enhance operational efficiency and market differentiation. By integrating Eco-Innovation into the core business strategy, firms can achieve long-term sustainability and a competitive edge in the market.

Additionally, the study's multi-group analysis indicates that the relationships between GHRM, Eco-Innovation, and GCA are consistent across different types of tourism SMEs. This suggests that the implementation of green HR practices and innovation strategies can be generalized across various contexts within the industry. Managers in different organizational settings can adopt these practices with confidence that they will yield similar positive outcomes.

Finally, this research highlights the mediating role of green creative actions in the relationship between GHRM and Eco-Innovation. Managers should encourage and support green creativity among employees by providing resources, fostering a supportive work environment, and recognizing creative contributions. This can lead to more effective implementation of GHRM practices and enhance the firm's overall innovative capabilities.

In conclusion, the integration of GHRM and Eco-Innovation is pivotal for achieving a Green Competitive Advantage in the tourism industry. By adopting and promoting green HR practices, encouraging eco-innovation, and leveraging green creative actions, managers can drive sustainable growth and maintain a competitive edge in the evolving market landscape. These managerial implications provide a roadmap for tourism firms seeking to enhance their sustainability and innovation practices.

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