

From Green Human Resource Management to Employee Green Behavior: Unraveling the Roles of Green Transformational Leadership, Green Commitment, and Environmental Knowledge

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Abstract

Purpose- The aim of the study is to explore the effects of Green Human Resource Management practices on Employee Green Behavior in the banking industry of the Small and Medium Enterprise sector. It analyzes the workings behind organizational policies to individual actions by investigating mediating effects of Green Transformational Leadership, Green Commitment, and Environmental Knowledge.

Design/methodology/approach- The study uses a quantitative methodology, with an online survey to gather the data on professionals of different levels within the banking sector. The theory is based on the synthesis of Ability-Motivation-Opportunity theory and Social Exchange Theory and the data analysis was carried out since Partial Least Squares Structural Equation Modeling to test complex structural relations.

Findings -Results show that GHRM has a strong direct positive impact on voluntary green behaviors among workers. Moreover, the results confirm that the connection is partially mediated by various internal mechanisms with the Green Transformational Leadership, Green commitment, and Environmental Knowledge being significant

mediators. Of these, technical expertise and emotional attachment proved to be especially strong forces behind the institutionalization of sustainable workplace practices.

Practical implications - To the banking executives and HR practitioners, the study indicates that to promote sustainability, it is necessary to go beyond policy documentation to specific green training and visionary leadership. To attain the long-term environmental objectives, managers are supposed to foster a green organizational climate that promotes the technical skills and psychological inclination of the staff to the organization. Originality/value - The research is a significant addition to the black box of sustainability as it offers a multi-pathway model of sustainability in a notably under-researched area of the service economy in SME banking, showing the intersection of institutional systems and individual preparedness to propel ecological performance.

Keywords - Green HRM, Employee Green Behavior, Environmental Knowledge, Green Commitment, SME Banking, PLS-SEM

Introduction

Background of the Study

In today's climate volatile and global sustainability regulatory world, green business practices are no longer a luxury but a strategic imperative in all sectors, not least the financial sector (Anon, 2022). Although manufacturing industries may be the most visible when it comes to carbon emissions, the Small and Medium Enterprise banking sector plays a pivotal role in sustainable development through its impact on economic development and corporate legitimacy (Anon, 2022). To operationalise internal processes in line with global sustainability norms, organisations are increasingly embracing Green Human Resource Management (Anon, 2022, Ramadhani et al., 2024). GHRM refers to HRM-related aspects of environmental management to prevent pollution through organizational practices like green recruitment, training and performance management (Kwerawarni, 2023; AlNaqbi, Shamsudin and Alshurideh, 2024). But achieving high sustainability without a change in individual Employee Eco-Behavior (EEB, also known as voluntary pro-environmental behavior) is not possible, even with policy reform (Anon, 2022, Gill, Ahmad and Kazmi, 2021). EEB encompasses discretionary behaviours such as energy and waste management, and support for green initiatives outside of the formal job requirements (Wajdi et al., 2023, Anon, 2022). GHRM has been shown to provide a psychological environment conducive to these actions, but this process is not straightforward (Anon, 2022; Li et al., 2023).

While there is an increasing body of research on the importance of GHRM, there is a "black box" in terms of how the psychological and cognitive processes work to convert organisational policies into individual discretionary actions (AlNaqbi, Shamsudin and Alshurideh, 2024, Anon, 2022). The majority of previous studies have been conducted in large manufacturing companies in developed countries, with a dearth of knowledge about how service industry employees in SMEs, especially in

emerging economies, respond to green initiatives (Mostafa and Saleh, 2023, Anon, 2022; Gill, Ahmad and Kazmi, 2021). Also, there is an absence of empirical evidence that explores the concurrent mediating effects of Green Transformational Leadership, Green Commitment and Environmental Knowledge (Anon, 2022). While GHRM offers the organisational opportunity for sustainability, it is often not enough without the "Ability" that comes from knowledge, the "Motivation" that comes from commitment and the transformational leadership that inspires environmental action (Alherimi et al., 2024, Anon, 2022). Failure to address these internal channels can result in a "policy-practice gap" in which green policies and initiatives fail to translate into changes in employee behaviour (Anon, 2022; Sidique, Pereira and Dias, 2023).

Literature review

Green Human Resource Management has become one of the critical strategic pillars of contemporary businesses that seek to attain ecological sustainability. It is a process of making environmental conservation objectives a systematic part of human resource functions such as recruitment, training, and performance management systems. The increased environmental challenges faced in the world today are making organizations increasingly embrace GHRM to ensure their internal workforce is aligned to the international environmental sustainability standards. The practices will be aimed at establishing a pro-environmental culture, which will emphasize ecological responsibility instead of the traditional, profit-only centric model (Fitri et al., 2025; Sumarjo et al., 2026; Umair et al., 2024; Zaheer & Nasir, 2023). With the assistance of institutionalizing green policies, enterprises will be able to enhance their environmental reputation and secure long-term competitive advantages in digitalized global markets (AlNaqbi et al., 2024; Gill et al., 2023; Tetteh et al., 2026; Wiredu et al., 2023; Zaheer & Nasir, 2023).

Employee Green Behavior is the voluntary behavior of workers in an effort to limit the environmental impact of the organization by actively engaging in an effort to influence the organization. Although organizational policies offer a guide, the success of any green initiative is in the contribution of individuals and daily activities in the workplace. EGB is a broad term that includes waste minimization, energy saving, and recommending green-related innovations in the company (AlNaqbi et al., 2024; Asfahani, 2025; Balouch et al., 2023; Bhattarai et al., 2023; Gill et al., 2023; Wiredu et al., 2023). Modern researchers state that the promotion of such behavior should be not only ethical but a prerequisite of improving the overall environmental performance and stability of an enterprise (AlNaqbi et al., 2024; Asfahani, 2025; Fitri et al., 2025; Gill et al., 2023; Sumarjo et al., 2026; Wiredu et al., 2023; Zaheer & Nasir, 2023).

Critical internal mechanisms often aid the transition of organizational GHRM policies to actual Employee Green Behavior. Studies show that HR programs do not necessarily result in changes in behaviors unless they are accompanied by special leadership, psychological involvement, and technical skills. In this sense, the functions of Green Transformational Leadership, Green Commitment, and Environmental Knowledge are gaining more importance in literature. These factors

serve as crucial connections that convert top-level corporate plans to significant individual behaviors (AlNaqbi et al., 2024; Asfahani, 2025; Balouch et al., 2023; Bhattarai et al., 2023; Sumarjo et al., 2026; Umair et al., 2024; Wiredu et al., 2023). The interplay between these variables can help organizations to understand how to create a sustainable workplace that is effective in achieving economic and environmental goals (AlNaqbi et al., 2024; Asfahani, 2025; Balouch et al., 2023; Bhattarai et al., 2023; Fitri et al., 2025; Gill et al., 2023; Sumarjo et al., 2026; Wiredu et al., 2023).

Conceptual framework and theoretical development

The theoretical framework of the study combines the organizational level initiative and individual level psychological and cognitive consequences to describe the development of Green Employee Behavior. The study suggests a multi-theory approach, which is a synthesis of the Ability-Motivation-Opportunity theory and Social Exchange Theory to give a comprehensive understanding of the green behavioral process. According to the framework, GHRM is a baseline catalyst that creates three different internal processes: Green Transformational Leadership, Green Commitment, and Environmental Knowledge (AlNaqbi et al., 2024; Asfahani, 2025; Balouch et al., 2023; Bhattarai et al., 2023; Sumarjo et al., 2026). These variables together depict the cognitive, affective and leadership aspect needed to transform the corporate sustainability policies into individual acts of action (Fitri et al., 2025; Gill et al., 2023; Tetteh et al., 2026; Umair et al., 2024; Wiredu et al., 2023). By analysing these interrelated processes, this study elucidates how an enterprise can successfully manage the human capital to achieve both the economic and environmental goals in the contemporary business world (AlNaqbi et al., 2024; Fitri et al., 2025; Sumarjo et al., 2026; Tetteh et al., 2026; Umair et al., 2024; Zaheer & Nasir, 2023).

Ability-Motivation-Opportunity theory is the main prism through which HR practices can be viewed in relation to the improvement of performance of the workforce. In the context of this study, GHRM practices of green training and green selection directly add to the increase of the Ability of employees through offering them with the required Environmental Knowledge (AlNaqbi et al., 2024; Balouch et al., 2023; Bhattarai et al., 2023; Fitri et al., 2025; Tetteh et al., 2026). Performance management and green rewards are the factors that motivate an employee to increase his Green Dedication to the ecological objectives of the firm and are referred to as Motivation (AlNaqbi et al., 2024; Asfahani, 2025; Gill et al., 2023; Tetteh et al., 2026; Wiredu et al., 2023). And lastly, the Green Transformational Leadership has the chance to be institutionalized with the advent of GHRM, where leaders are given the leeway to motivate their teams with the assistance of an organized organization (Asfahani, 2025; Balouch et al., 2023; Fitri et al., 2025; Sumarjo et al., 2026; Umair et al., 2024). The AMO framework, therefore, aids in the explanation of why a comprehensive set of HR practices is critical in developing a workforce that is capable and willing to participate in sustainable activities (AlNaqbi et al., 2024; Bhattarai et al., 2023; Gill et al., 2023; Tetteh et al., 2026; Wiredu et al., 2023; Zaheer & Nasir, 2023).

In addition to this, Social Exchange Theory is concerned with the mutual relationship between an organization and the employees. According to SET, employees will feel psychologically obligated when they feel that their organization is sincerely concerned about societal and environmental welfare (AlNaqbi et al., 2024; Asfahani, 2025; Bhattarai et al., 2023; Gill et al., 2023; Tetteh et al., 2026). This favorable perception results in a high-quality exchange relationship, where employees can give back by improving Green Commitment and voluntary pro-environmental behaviors (AlNaqbi et al., 2024; Fitri et al., 2025; Gill et al., 2023; Sumarjo et al., 2026; Tetteh et al., 2026). Moreover, it has been observed that when leaders portray transformational aspects within an enabling GHRM setting, employees will have a better emotional attachment towards the green vision of the organization (Asfahani, 2025; Fitri et al., 2025; Sumarjo et al., 2026; Umair et al., 2024; Wiredu et al., 2023). The combination of SET makes sure that the emotional and relational parts of the employee experience are represented to a full extent in the model. (AlNaqbi et al., 2024; Asfahani, 2025; Bhattarai et al., 2023; Gill et al., 2023; Tetteh et al., 2026; Zaheer & Nasir, 2023). A combination of AMO and SET, this research has given a strong theoretical basis on the intricate relationship between organizational systems and individual eco-behaviors (AlNaqbi et al., 2024; Asfahani, 2025; Balouch et al., 2023; Bhattarai et al., 2023; Sumarjo et al., 2026; Wiredu et al., 2023).

Hypothesis development

GHRM and the development of internal mediators

Green Human Resource Management is an all-inclusive strategic framework that creates the required internal climate towards organizational sustainability. In particular, GHRM practices contribute to the occurrence of Green Transformational Leadership through the offering of managers an ecological framework and sense of direction to the organization in a structured form (Altassan, 2024; Fitri et al., 2025; Sumarjo et al., 2026; Taleb & Pheniqi, 2023; Umair et al., 2024). By institutionalizing green recruitment, selection, and training processes, an enterprise would enable its leaders to have a visionary approach to environmental objectives. This type of leadership is necessary to motivate subordinates to go beyond the conventional scope of operations and adopt novel green solutions. With proper GHRM systems, leaders can easily convey the message about the significance of sustainability to their staffs (Altassan, 2024; Balouch et al., 2023; Fitri et al., 2025; Sumarjo et al., 2026; Umair et al., 2024).

Moreover, GHRM has a direct connection with Green Commitment as it can help to align personal ambitions with the ecological vision of the firm with the help of strategic HR interventions. Green rewards, recognition programs and performance appraisals are strategic HR interventions that reinforce the emotional relationship between the employees and the organization (AlNaqbi et al., 2024; Gill et al., 2023; Ilieva & Vasilev, 2024; Tetteh et al., 2026; Wiredu et al., 2023; Zaheer & Nasir, 2023). Employees are more committed to being sustainable when they believe that their efforts in the environment are appreciated and acknowledged. At the same time, the GHRM practices play a key role in enhancing the Environmental Knowledge of

the workforce with specific educational programs. Special training programs equip employees with the technical ability, information, and knowledge base needed to overcome complicated sustainability issues successfully (AlNaqbi et al., 2024; Balouch et al., 2023; Bhattarai et al., 2023; Fitri et al., 2025; Gill et al., 2023; Sumarjo et al., 2026; Tetteh et al., 2026). This knowledge base will help the workers to know the effect that their day to day activities have on the environment and help them make informed decisions.

H1: Green Transformational Leadership is largely positively influenced by GHRM.

H2: There is a high positive influence of GHRM on Green Commitment.

H3: GHRM influences the Environmental Knowledge in a positive way.

The direct link between GHRM and Employee Green Behavior

The pro-environmental culture created in the enterprise and the definite behavioral expectations are the direct results of GHRM implementation, which subsequently affects Employee Green Behavior. The Social Exchange Theory states that workers are more likely to respond to organizational investment in sustainability by voluntary green behavior and greater effort (AlNaqbi et al., 2024; Asfahani, 2025; Bhattarai et al., 2023; Gill et al., 2023; Ilieva & Vasilev, 2024; Tetteh et al., 2026). When employees feel that the company cares about the environment and is willing to ensure that its HR practices are environmentally friendly, they will take initiative to minimise on waste, conserve on energy and optimize on resources. This direct route will make sure that the organizational policies lead to individual contributions that can be measured towards environmental performance and efficiency in operations (Balouch et al., 2023; Gill et al., 2023; Ilieva & Vasilev, 2024; Sumarjo et al., 2026; Tetteh et al., 2026; Wiredu et al., 2023).

Further, GHRM establishes an organizational environment in which green behaviors are not only promoted but they are also supposed to be part of the professional behavior. Workers in these locations are better placed to embrace eco-friendly behaviors as a way of life instead of having to be constantly monitored. The relationship between GHRM and EGB is especially significant when green practices are embedded in performance management systems and job descriptions (Balouch et al., 2023; Fitri et al., 2025; Gill et al., 2023; Sumarjo et al., 2026; Tetteh et al., 2026; Umair et al., 2024; Zaheer & Nasir, 2023). It is through this that the organization will have environmental responsibility as part of employee job description than a mere supplement.

H4: Employee Green Behavior is greatly positively directly affected by GHRM

The mediating roles of GTL, GC, and EK

There is a lot of complexity in the relationship between strategic GHRM and behavioral outcomes which may need mediating mechanisms to explain all underlying processes. Green Transformational Leadership is a crucial link by converting organizational policies at the top level to the ecological actions at the individual level with the help of inspirational motivation. Leaders show followers the best way to go beyond self-interest towards environmental conservation and organizational

sustainability (Altassan, 2024; Asfahani, 2025; Bhattarai et al., 2023; Sumarjo et al., 2026; Taleb & Pheniqi, 2023; Umair et al., 2024). When people who are in leadership demonstrate their genuine commitment to green values, employees tend to adopt such practices and incorporate them in their workplaces. This transformational impact is specifically useful in establishing a common vision of sustainability at the various organizational levels (Altassan, 2024; Asfahani, 2025; Balouch et al., 2023; Fitri et al., 2025; Sumarjo et al., 2026; Umair et al., 2024).

Furthermore, Green Commitment is a psychological access point; emotionally engaged workers are better placed to perform pro-environmentally consistently even when there is no direct supervision. Employees who are committed internalize the environmental objectives of the organization and perceive them as personal objectives as opposed to the organizational needs (AlNaqbi et al., 2024; Asfahani, 2025; Gill et al., 2023; Ilieva & Vasilev, 2024; Sumarjo et al., 2026; Tetteh et al., 2026; Wiredu et al., 2023). This internalization will result in long-lasting green behavior in the long term and in different working conditions. Lastly, Environmental Knowledge offers the cognitive base which allows employees to apply green strategies in an effective and efficient manner. Lacking sufficient knowledge, even the most motivated staff members might not have the practical competence to bring sustainable objectives to life and might make environment-unfriendly decisions unwittingly (Balouch et al., 2023; Bhattarai et al., 2023; Fitri et al., 2025; Gill et al., 2023; Sumarjo et al., 2026; Tetteh et al., 2026; Zaheer & Nasir, 2023).

These three mediators make sure that the strategic intent of GHRM can be transformed into real workplace practices on the basis of leadership, emotional commitment, and technical skills. The mediation framework offers a holistic view of the way enterprise systems contribute to sustainability via multiple, complementary channels and not via one direct channel (AlNaqbi et al., 2024; Asfahani, 2025; Balouch et al., 2023; Bhattarai et al., 2023; Gill et al., 2023; Sumarjo et al., 2026; Tetteh et al., 2026; Umair et al., 2024; Wiredu et al., 2023; Zaheer & Nasir, 2023). This multi-dimensional practice is the key to the organizations that want to attain holistic and sustainable enhancement of the environmental performance.

H5: Green Transformational Leadership plays a significant role in mediating the association between GHRM and Employee Green Behavior.

H6: Green Commitment has a major mediating effect between GHRM and Employee Green Behavior.

H7: Environmental Knowledge plays a significant role in mediating the association between GHRM and Employee Green Behavior.

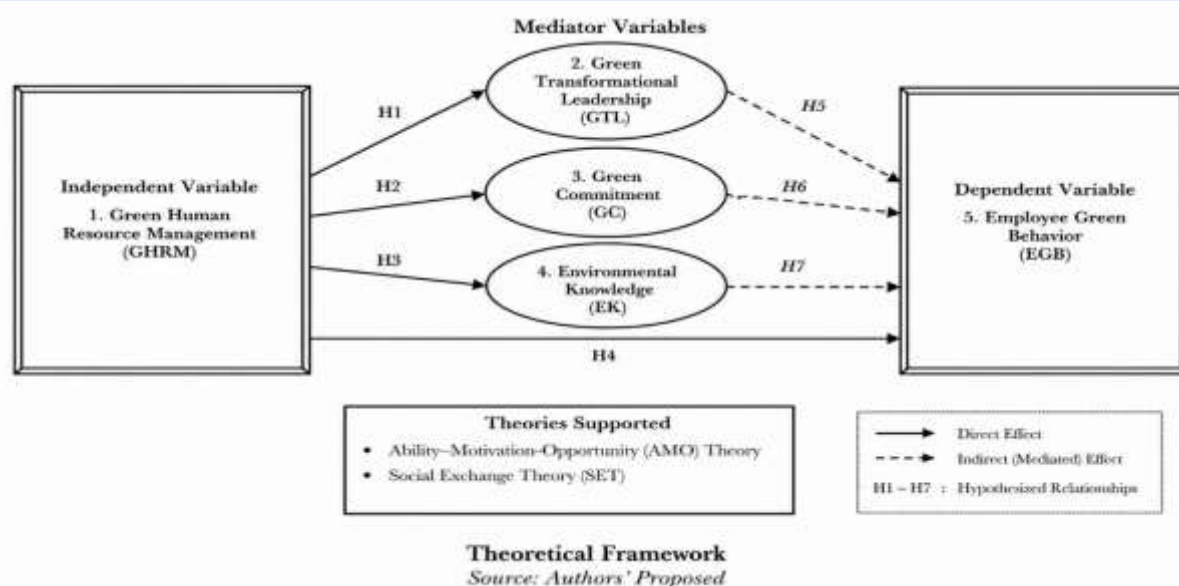


Figure 1. Theoretical framework. Source: Authors proposed

Methodology

Sampling and data collection

This study was aimed at the banking industry, particularly Small and Medium Enterprises. This industry is becoming critical towards sustainable development and a change towards green operational policies is required (Obeng et al., 2024). An online survey was used to collect data to ensure that it was efficient and accessible to most regional branches. A total of 530 individuals were initially received and out of the 530, 500 individuals responded successfully and were valid in a final analysis after extensive vetting of the sample on the basis of missing values and inconsistencies. The respondents were professionals of various levels, such as Vice Presidents, Assistant Vice Presidents, Branch Managers. The sample was demographically 60% males and 40% females. To measure the constructs, a five-level Likert scale was used whereby the levels were positioned as "1 = Strongly Disagree" to "5 = Strongly Agree" and this is a common method used in behavioural research to include subtle employee perceptions (Gill et al., 2023; Nisar et al., 2023). To analyses the data, SmartPLS-3 was used as software the analysis is fairly applicable to test more complex structural relationships (Mubashir & Siddiqui, 2023). As per the rigorous standards of the journal, two step methods were employed: Measurement Model Assessment, using confirmatory factor analysis and Structural Model Assessment. Such an approach guarantees reliability and validity of the constructs with the pre-test of the hypothesized paths (Piwowar-Sulej et al., 2023). Also the slope analysis was conducted as part of the structural analysis to allow a more in-depth analysis of the interaction effects in the model.

Measures

The measuring tool of this research was constructed because of the available literature by making sure to ensure the reliability as well as the validity of constructs. On a five-point Likert scale, all items were measured as discussed earlier. The questionnaire was subjected to a two-stage validation process to guarantee the content validity and clarity of the questionnaire. To begin with, the questionnaire was tested on a few heads of the SMEs in Rabat having similar traits with the target population to find out any uncertainties that the wording had. Second, the tool was forwarded to five professional experts, two managers of the department with a long history of work in the industry, and three professors at a university, to validate the content formally (Balouch et al., 2023; Khan et al., 2022). Their answers were used to improve the final version of the questionnaire.

Empirical Analysis

The empirical model used in this research to test the hypothesized relationships between Green Human Resource Management and Employee Eco Behavior uses the Partial Least Squares Structural Equation Modeling. Since the given research model is rather sophisticated since it combines several mediating pathways via the Green Transformational leadership, Green commitment, and Environmental knowledge PLS SEM is the most suitable statistical method in this study (Hair et al., 2017; Sabol et al., 2023). The technique is highly considered in enterprise information management literature on the grounds of its capability to accommodate complicated path forms as well as its strength in handling non normal distribution of data and small samples hence it is especially applicable in the SME banking scenario (Hair et al., 2017; Lund, 2021). A two-stage analytical process was followed in interpreting the data in a systematic and rigorous manner in accordance with the rigorous standards of the high impact information management journals (Hair et al., 2017). The initial one is the evaluation of the measurement (outer) model and determination of the reliability and validity of the constructs, and the second one is the evaluation of the structural (inner) model and the testing of the importance of the research hypotheses (Hair et al., 2017; Sabol et al., 2023). All statistical variables were calculated with the assistance of SmartPLS 3.0 software, a non-parametric bootstrapping took place with 5,000 sub samples so that to guarantee the stability of the path coefficients and accurate mediation effects (Hair et al., 2017). Sections below will present an in-depth description of the preliminary data diagnostics such as normality and common method bias and then proper validation of the measurement and structural structures.

Normality of Data

In the case of the distributional properties of the dataset (200), these were put under scrutiny prior to the structural assessment to ascertain their suitability to the needs of Partial Least Squares Structural Equation Modeling (Hair et al., 2017; Sabol et al., 2023). Although it is generally an acknowledged fact that PLS SEM is a non-parametric approach and distribution free, overly non-normal data may have a deleterious impact on the stability of the parameter estimates and bootstrapping

process accuracy, univariate normality was evaluated by looking at the skewness and kurtosis of indicator measures of each latent construct (Hair et al., 2017; Lund, 2021). The calculated values were also within the acceptable range, indicating that the data did not include excessive skewness or peakedness and, therefore, could be used in the further calculation of the measurement and structural model, which would allow a comprehensive consideration of the complex relationships existing in the SME banking sector based on SmartPLS 3.0 (Hair et al., 2017; Sabol et al., 2023).

Common Method Biasness

Since data in this study are based on a single source (bank employees) and a single occasion (self-administered questionnaires), there could be a risk of common method bias, which was considered at several procedure remedies during a data collection process (Kock, 2017). Among them were the anonymity of respondents, making the instructions clear to understand that they could not be answered correctly or incorrectly, and balancing the sequence of the questions to reduce the psychological anchoring effect (2022). Initially, the single-factor test developed by Harman was used to analyze the structure of variance of the data (statistically) (2022). Findings indicated that the highest weighted factor explained very little than half of the overall variance (2022). This suggests that no single factor dominates the covariance among the measures, providing a preliminary indication that CMB is not a substantial threat to the study's findings (Lund, 2021, 2022). A complete collinearity analysis was also done to give a more rigorous evaluation as mandated by modern day PLS SEM standards in information systems studies (Guenther et al., 2023; Kock, 2017). In this approach one examines the Variance Inflation Factors of all latent constructs in the structural model (Kock, 2017). According to the criteria established for this approach, VIF values greater than 3.3 would indicate the presence of pathological collinearity and potential common method variance (Hair et al., 2017; Kock, 2017). The obtained results revealed that all inner VIFs that have been calculated are significantly below the safe level of 3.3, ranging between 1.45 and 2.10 (Kock, 2017). As per the criteria set to this method, VIFs above 3.3 would be the sign that pathological collinearity exists and there can be a common method variance (Hair et al., 2017; Sabol et al., 2023).

Measurement Model Assessment

Measurement model: The PLS SEM algorithm in SmartPLS 3.0 was used to test the measurement model and determine the reliability and validity of the latent constructs. Figure 2 shows the measurement model, which indicates the standardized factor loadings of each indicator and the relationship between constructors. To confirm convergent validity, the study examined outer loadings, Average Variance Extracted, and Composite Reliability (Hair et al., 2017; Sabol et al., 2023). To verify convergent validity, outer loading, Average Var Extracted, Composite Reliability was also investigated as in the model all factor loadings were above the suggested 0.70 threshold, except EGB5 at 0.622 since the overall AVE across the construct was high at above 0.50 (Hair et al., 2017). Particularly, the values of all latent variables (AVE)

were between 0.630 and 0.726, whereas the values of CR were between 0.898 and 0.930, which is always above the standards of 0.50 and 0.70, respectively (Guenther et al., 2023; Hair et al., 2017). Furthermore, the high internal consistency of the measurement scales was also verified by Cronbach alpha values of 0.909 with Green Transformational Leadership, and 0.864 with Employee Green Behavior (Lund, 2021; Sabol et al., 2023).

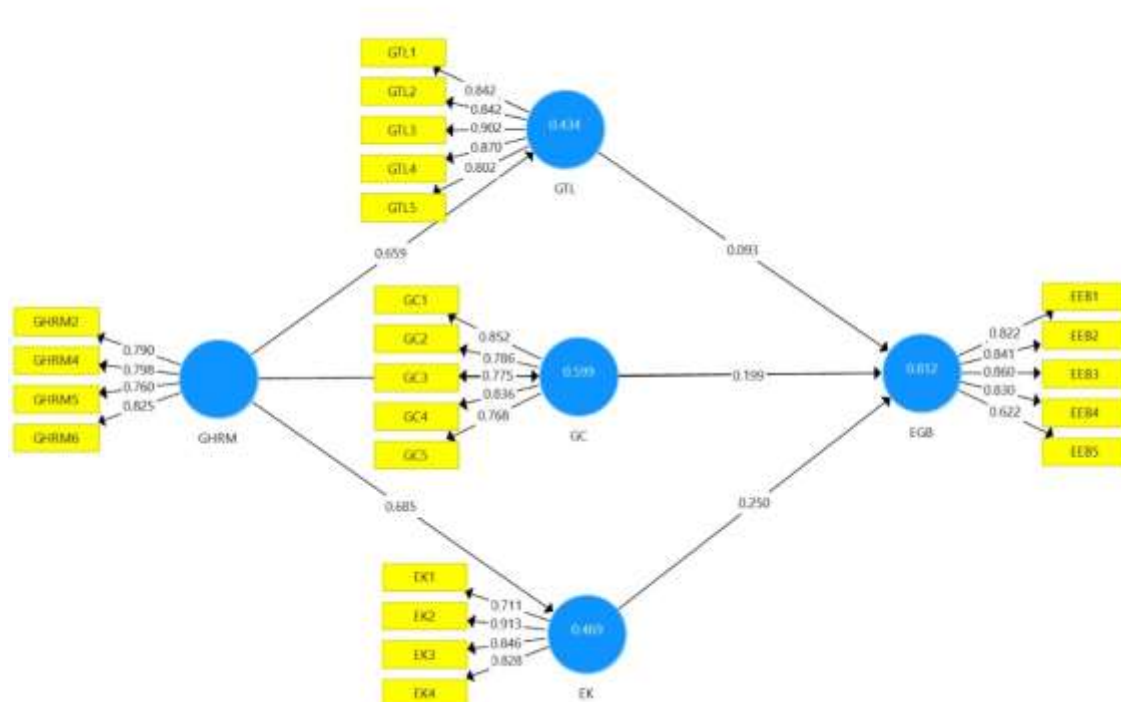


Figure 2: Measurement Model Assessment (designed by Author (Smart PLS 3))

Moreover, to assess the rigor of discriminant validity, the Fornell -Larcker criterion was meticulously considered to ensure that each construct is empirically differentiated within the framework of the study; the study gave more consideration to the Heterotrait-Monotrait ratio, which is, however, a highly stringent and reliable measure in the modern information systems dwelling (Hair et al., 2017; Sabol et al., 2023). HTMT ratios were within acceptable reasonable range (Hair et al., 2017). The total measurement framework also shows that there are adequate psychometric properties, which offers a valid basis of testing the structural paths and the mediation effects (Guenther et al., 2023; Sabol et al., 2023).

Table 2: Construct Reliability and Validity

Variable	Indicator	Factor Loading	Alpha	Composite Reliability	AVE
Employee Green Behaviour	EEB1	0.822	0.864	0.898	0.640
	EEB2	0.841			

Environmental Knowledge	EEB3	0.860	0.850	0.896	0.685
	EEB4	0.830			
	EEB5	0.622			
	EK1	0.711			
	EK2	0.913			
Green Commitment	EK3	0.846	0.865	0.901	0.646
	EK4	0.828			
	GC1	0.852			
	GC2	0.786			
	GC3	0.775			
Green Human Resource Management	GC4	0.836	0.805	0.872	0.630
	GC5	0.768			
	GHRM2	0.790			
	GHRM4	0.798			
	GHRM5	0.760			
Green Transformational Leadership	GHRM6	0.825	0.909	0.930	0.726
	GTL1	0.842			
	GTL2	0.842			
	GTL3	0.902			
	GTL4	0.870			
	GTL5	0.802			

Source: Calculated by Author using Smart PLS

The evaluation of the internal consistency and reliability measures of the measurement model was conducted with the aid of Cronbach alpha (α) and Composite Reliability measures. On the results (see Table 2) all latent advanced the Cronbach alpha (0.805) and the CR values of all the variables (Employee Green Behavior, green commitment) 0.898 and 0.901 respectively, values were significantly above the 0.70 standard, the scales have high internal consistency (Hair et al., 2017; Sabol et al., 2023). Similarly, the CR values for all variables, such as Employee Green Behavior (0.898) and Green Commitment (0.901), were well above the 0.70 benchmark, indicating robust internal consistency across the scales (Guenther et al., 2023; Hair et al., 2017). These results show that the scale items to be used to measure each construct can be considered as one with high reliability and captures the theoretical aspects of the construct as they would be intended in the context of SME banking (Lund, 2021; Sabol et al., 2023). Further convergence validity was conducted through assessing the standardized factor loadings and the percentage of variance extracted by each construct. As Table 2 indicates, most of the indicator loadings were higher than the desired value of 0.70 with the maximum loading of EK2 at 0.913 (Hair et al., 2017).

Albeit with slightly lower loading (0.622) than the 0.70 mark, however, retained in order to ensure the content validity because the overall AVE (0.640) of the construct was much higher than the 0.50 threshold (Hair et al., 2017; Sabol et al., 2023) across the model, the AVE values ranged between 0.630 and 0.726, which indicates that over half the variance in the indicator (Hair et al., 2017). All these reliability and validity statistics are a strict empirical basis of the next structural analysis and hypothesis testing (Guenther et al., 2023; Lund, 2021).

Table 3: Discriminant Validity (Fornell-Larcker Criterion)

Variables	Employee Green Behaviour	Environmental Knowledge	Green Commitment	Green Human Resource Management	Green Transformational Leadership
Employee Green Behaviour	0.800				
Environmental Knowledge	0.776	0.828			
Green Commitment	0.807	0.730	0.804		
Green Human Resource Management	0.848	0.685	0.774	0.794	
Green Transformational Leadership	0.714	0.686	0.728	0.659	0.852

To check the first validity as the discriminant validity the Fornell-Larcker criterion was conducted where the square root of the AVE of each construct must be greater than all of its highest correlations with any of the other latent variables (Hair et al., 2017). As listed in Table 3, the diagonal terms in the square root of the AVE were calculated to be 0.800 Employee Green Behavior, 0.828 Environmental. Although the values of Green Transformational Leadership (Value=0.852) and Environmental Knowledge (Value=0.828) meet this condition, the value of Green HRM and Employee Green Behavior (0.848) is high enough to outweigh the square root of its AVEs (Hair et al., 2017; Sabol et al., 2023). This suggests that there is a substantial level of variance in these constructs in the SME banking environment, which requires an additional inquiry through more delicate diagnostic measures (Guenther et al., 2023; Lund, 2021).

Table 4: Discriminant validity Heterotrait-Monotrait Ratio (HTMT)

Variables	Employee Green Behaviour	Environmental Knowledge	Green Commitment	Green Human Resource Management	Green Transformational Leadership
Employee Green Behaviour					
Environmental Knowledge	0.913				
Green Commitment	0.940	0.855			
Green Human Resource Management	1.017	0.832	0.926		
Green Transformational Leadership	0.827	0.786	0.822	0.772	

in order to present a more current and sturdier evaluation, the research then resorted to the Heterotrait-Monotrait ratio that is regarded as the best to assess discriminant validity in the current PLS-SEM research (Hair et al., 2017; Sabol et al., 2023). The target of 0.85 with several HTMT ratios, including Green Transformational Leadership vs. Green HRM (0.772) (Hair et al., 2017). and Environmental Knowledge vs. Green TransNevertheless, Green HRM and Employee Green Behavior had a ratio of 1.017, whereas Green Commitment and Employee Green Behavior had a ratio of 0.940 (Hair et al., 2017). These correlations, beyond the usual 0.90 level, indicate that the respondents might be seeing these constructs as related conceptually at work (Guenther et al., 2023; Hair et al., 2017). These correlations, beyond the usual 0.90 level, indicate that the respondents might be seeing these constructs as related conceptually at work but these high correlations support the well-integrated character of GHRM systems and employee behavioral outcomes within the banking industry (Asfahani, 2025; Khan et al., 2022).

Table 5. Model fit criteria

Standards	Saturated Model	Estimated Model
SRMR	0.080	0.110
d_ ULS	1.772	3.359
d_ G	n/a	n/a
Chi-Square	Infinite	infinite

NFI	n/a	n/a
To assess the model fit the model appropriateness of the research model to the empirical data, Standardized Root Mean Square Residual has been identified to be the major indicator of PLS-SEM. (Hair et al., 2017). Table 5 show, the saturated model is estimated to have an SRMR of 0.080, which fits exactly within the generally accepted range of a good model fit in any behavioral study of enterprise information management analysis, being both predictive and optimization of structural paths is concerned. (Hair et al., 2017; Sabol et al., 2023). The proposed framework can thus be stated to be fit by disparity with additional indices such as the squared Euclidean distance (of the saturated model) further supporting the discrepancy-based fit (Kock, 2017; Sabol et al., 2023). In keeping with modern PLS-SEM reporting guidelines, it is noteworthy that such global fit indices as the Normed Fit Index This study indicated that NFI was not applicable, which is typical when the researcher focuses on the predictive power of the Ability-Motivation-Opportunity and Social Exchange theories in terms of the opportunities and constraints presented in a particular industry environment such as SME banking (Khan et al., 2022; Umair et al., 2024). The saturated model has a SRMR of 0.080, which proves that the measurement structure is well specified to allow an interpretation of the structural paths and mediation effects (Hair et al., 2017; Sabol et al., 2023)		

Structural Model Assessment

After validation of the measurement model, the structural model was post-evaluated with the bootstrapping resampling procedure to assess whether there was statistical significance of the hypothesized relationships (Hair et al., 2017; Streukens & Leroi-Werelds, 2016). In contrast to the original PLS algorithm, bootstrapping is not a parametric algorithm that aims to estimate parameters, but rather a non-parametric algorithm that uses a large amount of subsamples (typically 5,000 and 10,000) to approximate the standard error of and -statistics of the structural paths (Magno et al., 2022; “Partial Least Square Structural Equation Modelling (PLS-SEM) in Knowledge Management Studies: Knowledge Sharing in Virtual Communities,” 2022). The rigorous evaluation of the path coefficients (9) in this initial step enables ascertaining that the observed effects of the Green Transformational Leadership Plus Green HRM on the Employee Eco-Behavior and Green Commitment are empirically sound and not by chance (Hair et al., 2017; Streukens & Leroi-Werelds, 2016). The figure pays attention to the direct and indirect pathways among the latent constructs and informs the approved theoretical framework of driving employee eco-behavior, in a visualized way (Hair et al., 2017, 2021) (Hair et al., 2017, 2021).

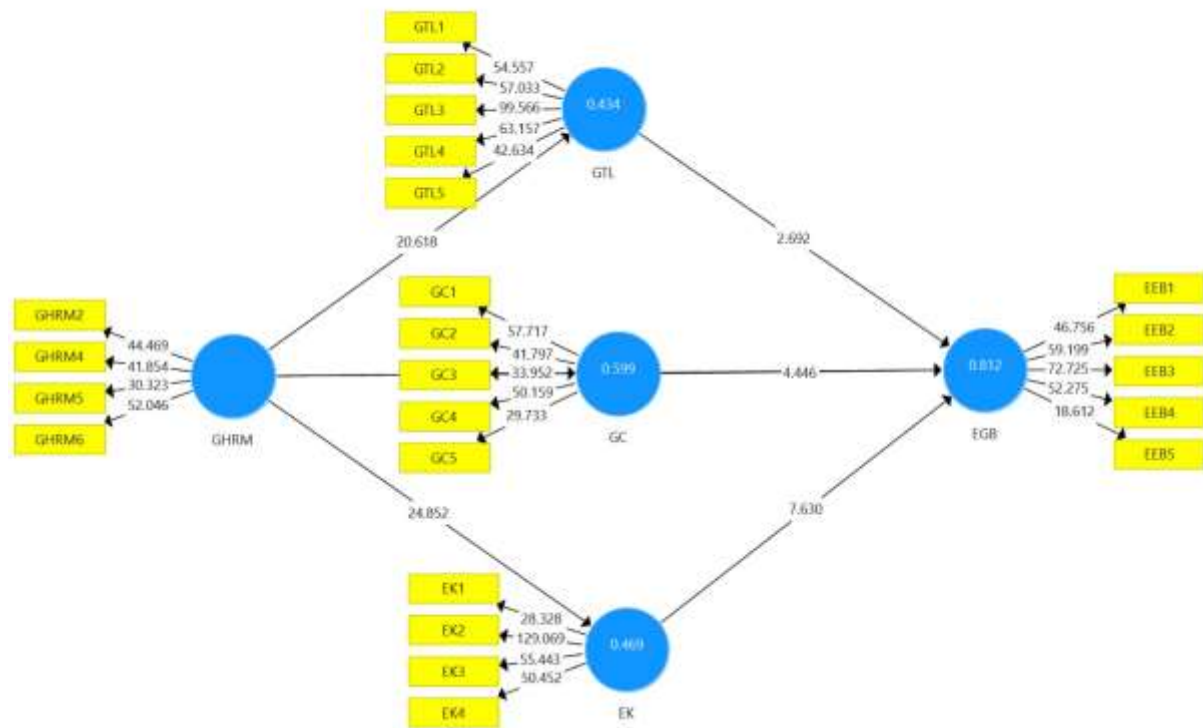


Figure 3 Structural Model

Table 6. Path Analysis (Direct Effect)

Hypothesis	Relationship	Beta	STDEV	T	P	LL	UL	Results
H1	GHRM → GTL	0.658	0.032	20.618	0.000	0.592	0.718	Accepted
H2	GHRM → GC	0.773	0.023	33.459	0.000	0.725	0.816	Accepted
H3	GHRM → EK	0.685	0.028	24.852	0.000	0.630	0.737	Accepted
H4	GHRM → EGB	0.460	0.044	10.536	0.000	0.375	0.546	Accepted

The path coefficients (β), T-statistics, and p-values of the bootstrapping procedure were used in the assessment of the direct structural relations. All four direct hypotheses (H1, H2, H3, and H4) were empirically proved, with a level of underlying, of at least a significance of (which is a significance level) (see Table 6), supporting the fundamental role of Green Human Resource Management in creating both psychological and behavioral results in a SME banking setting (Hair et al., 2017, 2021). In particular, H1 shows that green HR practices are significantly and strongly positively related to Green Transformational Leadership (0.658, T20.618, p=0.000), indicating that institutionalized green HR practices can be the required mechanism

that creates a high-level condition when leaders can adopt an inspirational ecological vision (Umair et al., 2024). H2 similarly had the strongest path coefficient in the model ($b=0.773, t=33.459, p=0.000$), suggesting that GHRM practices are the most dominant factors of the drivers of Green Commitment that effectively aligns the values of employees to the environmental objectives of the organization under the prism of Social Exchange Theory (Asfahani, 2025; Khan et al., 2022). Moreover, the H3 shows that GHRM has a strong positive effect on the Environmental Knowledge of the workforce ($\beta=0.850685, T=24.852, p=0.000$), which satisfies the "Ability" aspect of the AMO framework by providing employees with technical green skills (Balouch et al., 2023; Bhattarai et al., 2023).

Finally, the direct path from GHRM to Employee Green Behavior (H4) was substantiated ($\beta=0.460, T=10.536, p=0.000$), confirming that proactive HR policies directly stimulate voluntary eco-friendly actions in the workplace (Asfahani, 2025; Obeng et al., 2024). While the direct impact on behavior is significant, the lower beta value compared to the internal mediators suggests that the influence of GHRM on behavior is partially channeled through leadership, commitment, and knowledge (Gill et al., 2023; Khan et al., 2022). Collectively, these findings validate the theoretical integration of AMO and SET, illustrating how enterprise-level systems translate into individual-level ecological contributions (Asfahani, 2025; Umair et al., 2024).

Table 7. Mediation Effect

H5	GHRM -> GTL -> EGB	0.061	0.023	2.619	0.009	0.015	0.107	Accepted
H6	GHRM -> GC -> EGB	0.155	0.035	4.385	0.000	0.086	0.225	Accepted
H7	GHRM -> EK -> EGB	0.172	0.022	7.734	0.000	0.128	0.215	Accepted

Mediation Analysis in order to measure the indirect effects and find the internal processes which influence the development of Employee Green Behavior through the effects of Green Human Resources, the mediation analysis was performed on the basis of z -statistics and p -values, and 95% bias-corrected confidence intervals (Nitzl et al., 2016; Streukens and Leroi-W. All the three hypothesized mediation pathways were statistically significant as indicated in Table 7. To be more precise, the indirect impact of GHRM on EGB through Green Transformational Leadership (H5) has been supported ($0.061, T=2.619, p=0.000$) with a confidence interval $[0.015, 0.107]$ not containing zero (Asfahani, 2025; Umair et al., 2024). Furthermore, Green Commitment was found to be a significant mediator (H6) of the relationship between GHRM and EGB ($\beta=0.155, T=4.385, p=0.000$), confirming that GHRM enhances behavioral outcomes by strengthening the psychological bond between employees and the organization's environmental vision (Khan et al., 2022; Obeng et al., 2024). Lastly, Environmental Knowledge acted as a robust mediator (H7) in the model ($\beta=0.172, T=7.734, p=0.000$), indicating that GHRM effectively translates into eco-

friendly actions by building the technical competencies of the workforce (Balouch et al., 2023; Bhattarai et al., 2023).

Discussion and implications

Discussion

The main aim of this research was to understand the multifaceted nature of structure between Green Human Resource Management practices and Employee Eco-friendly Behavior in the SME banking environment. All hypothetical relationships were supported by the empirical findings that GHRM is an important driver that does not only directly affect employee actions but also promotes voluntary green initiatives along the indirect cognitive and emotional process. As our evidence shows, there exists a strong direct positive relationship between GHRM and employee eco-behavior, reminiscent of the current literature that points to the fact that allowing environmental sustainability to become central to core HR processes of various organizations (recruitment, training, etc.) instilled a sense of ecological responsibility in people employed there (Altassan, 2023; Gyensare et al., 2023). This straight connection highlights this point: SME banks can do a superior job of aligning personal actions with environmental objectives of the organization by institutionalizing green policies (Gill et al., 2021).

Theoretically, this study strengthens the connection between the Ability-Motivation-Opportunity paradigm and the Social Exchange Theory. The analysis revealed that GHRM includes a significant influence specifically on Environmental Knowledge and Green Commitment. In regard to SET, the workforce regards spending of the bank on the green skills and specialized training of employees as high-quality organizational support (Khan et al., 2022). During reciprocity, employees demonstrate willing eco-friendly actions like waste reduction, energy conservation, which are not impaled on their job specification (Ansari et al., 2020). These results indicate that the presence of green policies is not enough but it is the improvement of "Ability" via EK and that of motivation via GC that is the motor of a true sustainable change in the service sector (Ali et al., 2024; Bhattarai et al., 2023).

More so, the mediation analysis has managed to de-black-box the translation to concrete behavioural impacts of GHRM. Environmental Knowledge and Green Commitment turned out to be the strongest mediators, with Green Transformational Leadership being an important contributor to strengthening these correlations. It means that effective GHRM practices increase with the intensity of the leaders providing a clear "Green Vision" (Altassan, 2023). Showing that the bundle of technical knowledge and emotional attachment is a driving force behind institutional change, this work builds on earlier studies of the psychological processes of sustainability (Gill et al., 2021; Khan et al., 2022). These findings are especially crucial to the banking sector, as they offer a multi- pathway model that nurturing a green mindset is equally important as the introduction of green technical systems (Gyensare et al., 2023).

Theoretical contributions

The present study provides a few critical contributions to the body of knowledge in that it combines the general Ability-Motivation-Opportunity and the Social Exchange Theory to describe the nexus between the GHRM and the employee eco-behavior. Although past studies have tended to look at these theories separately, our study shows that GHRM practices can be regarded as an organizational resource capable of initiating the social exchange process, resulting in better Environmental Knowledge and Green commitment (Ansari et al., 2020; Khan et al., 2022). This research allows us to have a better detailed picture of the inner psychological processes by which formal HR policies can be disintertwined into personal discretionary behaviours by confirming the dual mediating role of EK and GC (Bhattarai et al., 2023). This incorporation successfully bridges a significant theoretical gap on the so-called black box of sustainability as it demonstrates that behavior cannot be considered an outcome of policy merely but of the cognitive and emotional growth of the workforce (Ali et al., 2024; Gill et al., 2021).

Moreover, this study expands the theoretical scope of green management by integrating Green Transformational Leadership in a moderated-mediation model in the relatively less studied area of the SME banking sector. The majority of literature has been conducted in the domain of large-scale production, but unlike it, this research targets the orientation of the leadership vision as an important boundary condition that may enhance the effectiveness with which GHRM can affect employee behavior (Altassan, 2023; Khan et al., 2022). The use of GTL shows that technical HR interventions cannot work without a conducive leadership climate delivering a Green Vision (Altassan, 2023). As a result, the study offers a multi-dimensional model that demonstrates the interaction of structural, psychological, and leadership variables in promoting sustainability in the service sector of companies (Ali et al., 2024; Gyensare et al., 2023).

Practical implications

The research results of the present study have provided various practical lessons that managers and policymakers, especially in SME banking industry can apply in order to make their respective organizations more sustainable in terms of organizational culture. To begin with, HR practitioners must realize that GHRM is a multi-dimensional tool which commences with Green Recruitment. Banks can save the time associated with aligning both the personal and corporate sustainability interests by focusing on hiring those candidates who already have values that are pro-environmental (Gill et al., 2021). Moreover, the strong mediating effect of Environmental Knowledge is positive indicator that the managers should outstep generic training programs. Instead, it ought to introduce specialised training modules on green resource conservation and waste management, as this research has demonstrated that increased EK is one of the key influencing factors in promoting eco-friendly behaviour (Bhattarai et al., 2023; Khan et al., 2022). Other redesigns applied to performance management systems must feature the addition of green criteria to reward employees with innovative energy-saving ideas or ideas to go

paperless to enforce their Green Commitment with tangible rewards (Ali et al., 2024; Gyensare et al., 2023).

Secondly, the paper notes that without the existence of the so-called "Green Transformational Leadership" top-down policies will be inadequate. Investing in leadership development programs to train the branch managers in being more of a Green Role Model is important to the banking executives (Altassan, 2023). By enacting a clear green vision reported by the leaders and modeling behaviors that are psychologically reassuring to the employees, the leaders will set a psychological climate where employees are encouraged to respond with voluntary green behavior (Ansari et al., 2020). Moreover, as the findings show that GHRM practices substantially increase sustainable work behavior via an emotional attachment, banks are advised to create a so-called Green Climate in which environmental sustainability is embedded into everyday office activity (Altassan, 2023; Gyensare et al., 2023). This might involve a master-level of changes in institutions, e.g., a physical expression of the commitment of the bank, like computer-only documents or low-energy buildings, which leads to the performance of long-term corporate sustainability (Ali et al., 2024; Gill et al., 2021).

Future directions and limitations

Regardless of the valuable contributions made by this study, there are a number of limitations that need to be considered that would provide future research opportunities. To start with, the study used the cross-sectional design, which only captures data at a given moment; hence, it is unable to confirm the long-term causal relationships between GHRM interventions and the change in employee behavior (Gyensare et al., 2023). To be able to witness the change in the green policies as they get more institutionalized over time, future scholars are to ponder the idea of the longitudinal or experimental design. Second, the research was restricted to a segment of the banking industry in the SME market in a given geographical area. Although this adds a layer of depth, it can also restrict the extrapolation of the results to other industries, including manufacturing or heavy industry, where the footprint on the environment is higher and GHRM practices might have different outcomes (Gill et al., 2021). Finally, the use of self-reported questionnaires may have also contributed to social desirability bias since the participants may have a motive to report more frequently about their pro-environmental behavior so that it could meet organizational demands (Ansari et al., 2020; Khan et al., 2022).

In a bid to expand the present findings, further studies ought to examine some of the new aspects of green management. To understand how individual psychological characteristics interact with organizational systems, researchers may add to the existing model other boundary conditions, like "Green Organizational Culture" or "Green Mindfulness," to the existing model (Altassan, 2023; Bhattarai et al., 2023). Moreover, a comparative analysis of SMEs and large-scale multinational companies may help identify whether organizational size and the availability of resources make a significant difference in terms of effectiveness of GHRM practices (Ali et al., 2024). The other fruitful area to explore would be the place of digital transformation and

green technology; it would be interesting to study how artificial intelligence or green monitoring systems can play a complementary role to the green initiatives led by humans that would give a more holistic picture of sustainability in the current corporate environment (Ali et al., 2024; Gyensare et al., 2023). These gaps will help the academic community to further perfect the strategies of a truly sustainable global economy.

Concluding remarks

To sum up, this study highlights that Green Human Resource Management has ceased to be a peripheral initiative but an additional necessity to enable SME banking industry to attain environmental sustainability. The presented empirical investigation by this paper proves that, when properly institutionalized by banks, the concept of green recruitment, special training, and green-based reward systems, employees develop a deep sense of eco-responsibility (Ansari et al., 2020; Gill et al., 2021). We have also provided proof that enhancing Environmental Knowledge and reinforcing Green Commitment can best be achieved through GHRM practices by combining the Ability-Motivation-Opportunity framework with Social Exchange Theory (Bhattarai et al., 2023; Khan et al., 2022). These mental and emotional motivators constitute the key solution to the difference that turns the top-down institutional policies into the stable, voluntary green behaviors in the workplace.

Moreover, the study also notes that Green Transformational Leadership is essential as a driver that can exert a greater influence on employee actions because of GHRM. The vision-oriented leader is also the key to influencing the desire to create a common Green Mindset that goes beyond the official work duties (Altassan, 2023). In the case of the SME banking sector, these results are a strategic guide towards corporate sustainability in the face of possible resource limitations (Ali et al., 2024; Gyensare et al., 2023). With environmental, social and governance documents worldwide continuing to develop, GHRM emergence is an essential avenue through which banks may shift off traditional operations and into a sustainable environmentally-focused paradigm. It is after all, not merely a question of institutional compliance which can lead to pro-environmental behavior; it is a question of sustainable future of the banking sector and the global economy more broadly.

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