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Title: Green HRM Practices and Employee Green Creativity: Evidence on the Mediating Role of Environmental Psychological Ownership and the Conditional Effect of Digital Sustainability Competence

Author (s): *Ahmad Bilal Ali [a], Sardar Ahmad [b], Gule Hina Khalid [c], Muhammad Bilal Saeed [b], Amir Manzur Wain[b]*

Affiliation (s):

[a] Ph.D. Scholar, Faculty of Business and Management Sciences, Superior University Lahore

[b] Department of Business Administration, Lahore Leads University, Lahore, Punjab

[c] Visiting Scholar, University of Education, Lahore, Punjab

Correspondence: Sardar Ahmad Sardar_ahmad1@outlook.com

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Green HRM Practices and Employee Green Creativity: Evidence on the Mediating Role of Environmental Psychological Ownership and the Conditional Effect of Digital Sustainability Competence

Abstract

This research examines the contribution of Green Human Resource Management (GHRM) practices in fostering employee green creativity via the mediating mechanism of environmental psychological ownership and conditional impact of digital sustainability capability. Based on Social Exchange Theory, the current study argues that workers feel psychological ownership for sustainability objectives when they perceive high organizational care for sustainability through GHRM practices. Psychological ownership in turn triggers their creative contribution towards eco-innovative behavior. Finally, the study examines the effect of digital sustainability competency on further catalyzing the translation of psychological ownership into creativity. A standardized questionnaire was utilized to gather data from 245 employees employed in environmentally sensitive industries in Pakistan out of which 200 valid responses were obtained, generating a response rate of 81.6%. Data were calculated with the assistance of SmartPLS 4.0 to test measurement as well as structural models. Findings indicate that perceived GHRM practices have a positive association with environmental psychological ownership, which mediates their influence on employee green creativity. In addition, digital sustainability competence was identified to enhance the ownership–creativity relationship and to emphasize the need to integrate digital competencies with sustainability-driven HR practices. Theory is advanced by refining Social Exchange Theory to sustainability and digital competence domains, and practice is enhanced by emphasizing that organizations need to develop green HRM practices and invest in staff's digital sustainability competences at the same time to release their creative potential for green innovation.

Keywords: *Green HRM Practice; Employee Green Creativity; Environmental Psychological Ownership; Digital Sustainability Competence; Social Exchange Theory*

1. Introduction

Employee green creativity—employees' invention and execution of new ideas that minimize environmental damage or maximize environmental performance—has emerged as a powerful organizational need amid escalating climate change, increasing regulation, and mounting stakeholder pressures for sustainability. But though its usefulness is widely accepted, organizations and employees alike remain behind in green creativity: ideas on creative sustainability remain unspoken or uncaged by lack of psychological ownership, corporate support, or capability to implement ideas (Ismail Sulphey, Al-Kahtani, Senan, & Adow, 2023; Khan, Shaukat, Ahmad, & Saeed, 2022). For instance, in Lahore's pharmaceutical industry, research shows that although Green HRM influences the employee green creativity positively, the green mindset as the mediating factor only partly fulfills this role, implying there could be other unstudied variables that may inhibit or facilitate this creativity (Impact of green human resource management …, 2023). Also, based on evidence from Pakistan's telecommunication and manufacturing industries, it is noted that Green HRM practices have more impact on pro-environmental performance when workers are engaged and have self-efficacy (Khan et al., 2022; Asghar, Ullah, & Bangash, 2025). Accordingly, stimulating green creativity is not so much a question of enacting green policies—it is a question of understanding the psychological and boundary-condition factors that facilitate creativity, instead of

compliance.

Green Human Resource Management (GHRM) practices—green recruitment, training, reward systems, job design, and environment performance-directed performance appraisal—have long been known to be the main antecedents in developing green behavior, environmental performance, and even more, green creativity (Liu, Lin, & Sun, 2024; "Impact of green human resource management on green creativity in pharmaceutical companies: mediation role of green mindset" (2023)). In Pakistani and Chinese hotel industries, recent empirical studies identify that GHRM practices have a strong impact on green innovative work behavior (GIWB), with mediating variables of green perceived organizational support and organizational citizenship behavior for the environment (OCBE) and with moderating variables of green transformational leadership amplifying these relationships (BMC Psychology, 2025). Also, manufacturing sector work in Pakistan corroborates that employees' environmental conduct and satisfaction with the psychological contract are strengthened by GHRM practices, particularly high environmental orientation fit (Gilal, Nawaz, Riaz, Channa, & Jahanzeb, 2024). The study affirms growing consensus that GHRM plays an imperative role in catalyzing environmental innovation.

But there remain two considerable gaps. To begin, whereas numerous studies have simulated mediators such as green mindset, green passion, green absorptive capacity, or organizational support (Murad & Li, 2024; "Impact of green human resource management …", 2023; Liu et al., 2024), fewer have considered psychological mechanisms linking GHRM to green creativity in particular through ownership perceptions i.e., the degree to which employees see environmental goals, resources, or sustainability efforts as "their own.". Prior research has been more in the direction of using more generic mediators (e.g., mindset, engagement, self-efficacy, organizational support) than psychological ownership for environmental or green settings. Next, prior research refers to boundary conditions or moderators facilitating or hindering such relationships (e.g., green concern, green mindfulness), but fewer have considered how digital-related abilities would moderate the cross-transfer of psychological states (such as ownership or mindset) to green creative outcomes. Specifically, the quantitative and qualitative measures and definitions of digital sustainability capacity—competence, awareness, and practices for utilizing digital resources for sustainable purposes—are still in its early stages (Digital Sustainability: Dimension exploration and scale development, 2024).

Empirical research yields suggestive evidence regarding such gaps. For example, the research "Impact of green human resource management on green creativity in pharmaceutical companies" (2023) in Lahore found that green mindset mediates GHRM → green creativity but the moderator green concern was not significant in moderating mindset → creativity relationship, and hence other moderators could be present. Moreover, in a new China-centered investigation, it was determined by Liu, Lin, and Sun (2024) that workplace flourishing mediates the relationship between Green HRM practices and green creativity, while creative leadership plays a moderation role in the direct and indirect linkages. The findings shed some light on mechanism but refrain from investigating how psychological ownership acts as the mediator and whether digital sustainability capability could exert an equivalent moderating effect.

Psychological ownership has, in many instances, been associated with greater motivation, responsibility, and self-volition. In green manufacturing environments, psychological ownership of environmental-friendly objectives is associated with increased performance outcomes (Sekaran &

Mauludin, 2024). Yet, its exact contribution to green creativity above stringent adherence or environmental friendliness remains to be extensively tested. The idea is conceptually appealing: if employees see environmental objectives as individual and "owned," they are likely to come up with new ideas, break with risk aversion, and practice creative problem-solving instead of just complying with existing pro-environmental norms.

At the same time, digital competence measurement and digital sustainability are evolving. One instrument among others that can be taken up to study moderating effects on green creativity models is the development and validation of scales of dimensions including empowerment, leadership, and integration by the study Digital Sustainability: Dimension Exploration and Scale Development (2024). Furthermore, education digital competence scales (such as digital competence scales for teachers; SDiCoS for students) have determined that there exist valid and reliable measuring instruments that also measure not only minimal digital literacy but also secure, collaborative, evaluative, and resource-management habits (Development and validation of students' digital competence scale (SDiCoS), 2022; Strengthening Sustainable Higher Education with Digital Technologies: Development and Validation of DCS-UT, 2024). These scales demonstrate that operationalizing digital sustainability competence is possible and appropriate.

Considering these loopholes, the aim of the current study is to develop and test a model in which Perceived Green HRM Practices positively affect Employee Green Creativity through Environmental Psychological Ownership as a mediator and Digital Sustainability Competence as a moderator (on the mediator → DV path). The suggested model responds to some open issues: (a) extending GHRM → general green behavior to GHRM → green creativity; (b) applying psychological ownership as a mediator instead of other common mediators such as mindset or involvement; and (c) including a digital-sustainability-related moderator at the exact second step in an attempt to determine when the ownership → creativity relationship is stronger.

With that purpose in mind, this research seeks to make a theoretical and practical contribution. Theoretically, it will synthesize sustainable, creative, and digital competence literatures to chart new antecedents and boundary conditions of green creativity. In practice, the implications could guide HR professionals what practice and digital readiness works best in promoting green innovation, particularly for developing economies where green norms and technological infrastructure might be weaker but digital platforms are spreading in a fast pace.

2. Hypotheses and Theory Development

2.1. H1: Employees' Perception of Green HRM Practices positively influences Environmental Psychological Ownership

Firms nowadays are under great pressure to maintain sustainability within their management systems, and Green Human Resource Management (GHRM) is among the top drivers. GHRM entails adding environmental sustainability to core HR processes like recruitment, training, performance management, and rewards (Renwick et al., 2013; Tang et al., 2018). From the Social Exchange Theory (SET) point of view, when workers feel that the firm is making an investment in GHRM practices, they view such investments as signs of care and trust. From SET's point of view, people pay back organizational benevolence with positive behavior and good conduct (Blau, 1964; Cropanzano & Mitchell, 2005).

Psychological ownership is one of these psychological responses, or the sense that environmental

goals and projects in this case — is "mine" or "ours" (Pierce et al., 2001). The employees of whose organization induce them to implement sustainability by using GHRM are likely to build personal connections with environmental practices and thus sense environmental psychological ownership. For instance, green training enhances the environmental understanding of employees, environmentally friendly employee recruitment reinforces personal and organizational value alignment, and green behavior-based performance evaluation reinforces employees' perception that sustainability is a shared responsibility (Pham et al., 2019; Kim et al., 2019).

Empirical evidence indicates that sustainability-focused HR practices lead to stronger psychological attachment among workers and environmental outcomes. Norton et al. (2015) in their research found that workers who feel that the organization has robust pro-environmental support are more likely to be emotionally committed to sustainability activities. In the same vein, Shen et al. (2020) demonstrated that green HRM practices trigger a sense of responsibility and belongingness, the same pillars of psychological ownership. Hence, when employees feel that GHRM is indeed an investment in sustainability, they establish a sense of environmental psychological ownership as reciprocation.

2.2. H2: Environmental Psychological Ownership positively affects Employee Green Creativity

Creativity in the workplace, particularly with regards to sustainability, means producing original and usable ideas that support organizations in reducing environmental impact and accomplishing green initiatives (Zhang et al., 2022). While employee green creativity is vital for developing organizations in today's climate, it needs to be enabled, motivated, and have a personal sense of obligation. Although the rationale supporting employee ownership of sustainability can be explained using SET, it will set the stage for the important, intrinsic link of employees with their organization. Psychological ownership engenders a sense of accountability and an obligation to safeguard and contribute to the welfare of the ownership target (Pierce et al., 2003). In a case where the ownership target relates to organizational sustainability, employees who perceive ownership over sustainability will be motivated to produce new and useful ideas to enhance and protect “their” environment. In a sense, this reciprocity within SET is an act of reciprocity whereby the employee is repaying organization-initiated support for sustainability through exceeding formal job requirements to provide new green solutions (Organ, 1997; Cropanzano et al., 2017). Research into psychological ownership has demonstrated a positive correlation between employee perceptions of ownership, whereby employees who perceive ownership as part of their role are more likely to show proactive and creative behaviors. Liu et al. (2019) demonstrated that the sense of ownership over work increased an employee's level of creative problem solving. Afsar et al. (2023) also discovered that psychological ownership is an important predictor of green innovation behaviors in employees in eco-sensitive industries. Employees are more likely to take risks, question existing norms and suggest environmental alternatives to production (Chen & Chang, 2013). Thus, environmental psychological ownership establishes the needed motivation for employees.

2.3. H3: Environmental Psychological Ownership mediates the relationship between Perceived Green HRM Practices and Employee Green Creativity

The mediating function of environmental psychological ownership symbolizes the exchange link between the organizational practices and employee outcomes. SET recognizes, employees’ perceptions of the supportive HRM practices create an obligation which translates into positive behavior (Cropanzano & Mitchell, 2005). In the GHRM case, employees perceive the organization’s

investments in sustainability (e.g., green recruitment, training, incentives) as signals of the organization's value for the environment and its people (Renwick et al., 2013). Employees then develop environmental psychological ownership, and this enhances their motivation to reciprocate with green creativity. This mediation logic is aligned with studies where HRM practices often generate their effects through the psychological mechanisms. For example, (Tang et al. 2018) reported green HRM influences employees' pro-environmental behaviors through psychological green climate. Similarly, Kim et al. (2019) showed green HRM creates green commitment and drives employee behaviors related to sustainability. Extending this logic, we propose environmental psychological ownership represents the psychological path through which GHRM is translated to green creativity. If environmental psychological ownership was absent, the effect of GHRM on creativity symptomatically would not be as clear or direct. Employees may appreciate the GHRM practices, however, until they internalize the practices and provoke a sense of personal responsibility, they likely will not contribute novel ideas nor their time or energy to develop new ideas. Environmental psychological ownership captures the internalized sense of obligation that connects perceived organizational support to reciprocal creative contributions, or if nothing else, an extra effort-oriented behavior.

2.4. H4: Digital Sustainability Competence moderates the relationship between Environmental Psychological Ownership and Employee Green Creativity

While psychological ownership provides the motivation to act, it is also critical that employees have the capacity to translate ownership feelings into actionable creative outputs. Social Exchange Theory (SET) places the impetus for reciprocity as not only driven by tendencies to respond but also influenced by an individual's ability to respond (Emerson, 1976). In the digital economy, the concept of digital sustainability competence, or the employee's ability to engage digital tools and technologies to develop sustainable-based solutions, serves as a key moderating variable capable of determining whether psychological ownership develops into green creativity. Employees' high digital sustainability competence will allow them to employ data analytics, artificial intelligence, block chain and other digital tools in terms of developing innovative green solutions (Zhang et al, 2022). For example, an employee with a high degree of digital sustainability competence may propose a digital waste-tracking system or optimize energy usage through smart technologies. Alternatively, an employee who lacks sufficient digital sustainability competence may feel ownership but is not able to utilize that ownership to develop creative products or solutions. There is empirical evidence to support this role as a moderating mechanism. Chen and Chang (2013) noted that employees with sufficient levels of green knowledge or expertise are better able to translate pro-environmental attitudes into innovative behavior. In a similar manner, more recent studies have made connections between digital skills in terms of enhancing sustainable innovation both on an organizational level, and an individual level (Del Giudice et al., 2021; Centobelli et al., 2022). Thus, employees who possess a high level of digital sustainability competence will strengthen the link between pro-environmental psychological ownership and inspiration toward creativity directed toward green outputs, as they would experience a sense of responsibility as it would be activated more effectively.

3. Methodology

3.1. Research Design

The research employed a quantitative, cross-sectional survey research design to examine the relationships among perceived green human resource management (GHRM) practices, environmental psychological ownership, employee green creativity, and digital sustainability

competence. A quantitative design was used because the general objective of quantitative research is to test hypotheses that were generated from theory in an organized manner while investigating mediation and moderation effects on multi-dimensional behaviors (Creswell & Creswell, 2018). A cross-sectional design has been adopted as cross-sectional designs enable an investigator to obtain data at a point in time from many respondents whose data provides means for examining between variables, together with capturing workers' perceptions of green HRM practices and creative behaviors (Podsakoff et al, 2012).

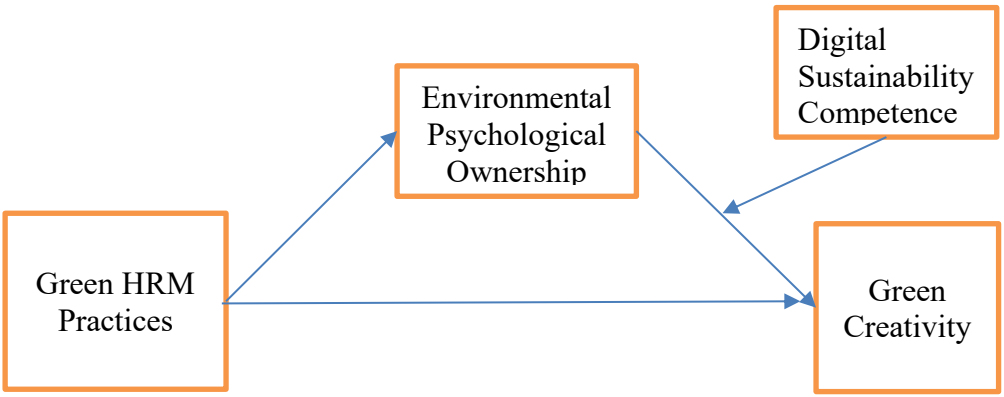

Figure 1. Theoretical Framework

3.2. Population and Sampling

The subjects of this research were full-time employees in environmentally sensitive industries such as manufacturing, energy, and services in which the implementation of green HRM is becoming increasingly important. Employees in such industries were suitable respondents since they are directly exposed to sustainability-focused policies and can redefine such practices as green creativity. Sampling method used was the purposive sampling, focusing on companies that were already embracing green HRM policies or considering embracing sustainability-oriented HR initiatives. This helped in furnishing assurance that the respondents were pertinent to the subject of study and could give competent answers on GHRM practices (Etikan, 2016).

3.3. Data Collection Procedure

Data collection utilized a standardized self-report questionnaire that was delivered electronically by email and internet websites since the technique is more accessible and geographically broader. Pilot study of 30 participants tested clarity, reliability, and instrument content validity prior to large-scale data collection. Pilot feedback led to minor wording changes in items to make them clearer and suitable for culture. Ethical guidelines were strictly maintained: voluntary recruitment, anonymity and confidentiality, and informed consent of all subjects were guaranteed.

3.4. Measurement Instruments

The instrument had five sections. Perceived practices of GHRM were measured via a psychometrically sound instrument by Tang et al. (2018) and contain items that address green

recruitment, training, performance appraisal, and reward. Environmental psychological ownership was measured with the instrument by Afsar et al. (2023) with some adjustments to measure the sense of ownership and accountability by the employees towards environment activities. Employee green creativity was measured by Chen and Chang (2013) scale measuring the extent to which employees generate new and valuable ideas that support environmental sustainability. Digital sustainability competence was assessed through Centobelli et al.'s (2022) scale adapted to an employee-level to reflect individuals' ability to utilize digital tools in supporting sustainability activities. The statements were all rated on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree, identical to what has previously been employed in sustainability and HRM studies (Kim et al., 2019).

3.5. Control of Common Method Bias

To reduce worry concerning common method bias, several procedural and statistical remedies were used. Procedurally, the questionnaire was developed in a way that answers were neither incorrect nor correct, and questions were randomized to avoid patterns in response. Statistically, Harman's single-factor test was conducted to attempt to test any factor explaining the largest variance, and confirmatory factor analysis (CFA) was employed to assess discriminant validity across constructs (Podsakoff et al., 2003).

3.6. Sample Size Calculation

Sample size was determined in accordance with structural equation modeling best practices regarding the utilization of PLS-SEM, focusing on statistical power and prediction rather than distributional requirements (Hair et al., 2019). In accordance with the "10-times rule," the minimum sample size should be no smaller than ten times the number of structural paths potentially targeted to any one latent construct (Hair et al., 2021). Since the model was intricate, there was an aim of having a minimum of 200 so that there could be enough statistical power.

3.7. Data Analysis Strategy

Analysis was conducted using SmartPLS version 4.0, which is ideal for exploratory models, mediation, and testing moderation in variance-based SEM designs (Ringle et al., 2022). Analysis was conducted in two steps. In step one, the measurement model was checked to ascertain reliability and validity. Internal consistency reliability was measured using Cronbach's alpha and composite reliability (CR) with a minimum of 0.70 or higher as sufficient. Convergent validity was established using factor loadings (>0.70) and average variance extracted (AVE) values of greater than 0.50. Discriminant validity was checked through the use of the Fornell–Larcker criterion and heterotrait–monotrait (HTMT) ratio to ensure that constructs were distinct empirically.

Structural model testing of hypothesized relationships was conducted in stage two. Path coefficients, t-values, and p-values were estimated through a process of bootstrapping using 5,000 resamples, which provides good estimates of mediation and moderation (Hair et al., 2021). The environmental psychological ownership mediation effect was examined by examining indirect effect significance testing and the moderating effect of digital sustainability competence through interaction terms constructed in SmartPLS. Predictive validity of the model was also evaluated by using R^2 values, effect sizes (f^2), and Stone–Geisser's Q^2 statistics.

In general, methodological design utilized ensures rigor, validity, and reliability in testing the hypothesized relationships. With the use of validated measurement scales, ensuring ethical data collection, and the use of SmartPLS-based variance modeling approaches, research provides robust

empirical examination of the impact of green perceived GHRM practices on green creativity through environmental psychological ownership, and how digital sustainability competence acts as a moderator.

4. Data Analysis

4.1. Pre-Screening of Data

Survey responses collected were first screened against data for completeness and accuracy. Questionnaires with patterned and missing responses were not included in the data. Missing values were very low and handled with mean substitution, how to handle big data survey data (Hair et al., 2019). Outliers were identified through standardized z-scores and none of them were outside the threshold.

Table 1
Measurement Model: Reliability and Validity Results

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Perceived GHRM Practices	0.88	0.91	0.67
Environmental Psychological Ownership (EPO)	0.85	0.89	0.63
Employee Green Creativity	0.90	0.93	0.71
Digital Sustainability Competence (DSC)	0.87	0.90	0.66

Note. All values exceed recommended thresholds ($\alpha \geq 0.70$, $CR \geq 0.70$, $AVE \geq 0.50$), indicating satisfactory reliability and convergent validity (Hair et al., 2019).

Table 2
Fornell–Larcker Criterion for Discriminant Validity

Construct	GHRM	EPO	Green Creativity	DSC
GHRM	**0.82**			
EPO	0.58	**0.79**		
Green Creativity	0.52	0.61	**0.84**	
DSC	0.49	0.55	0.59	**0.81**

Note. Diagonal values (bold) represent the square root of AVE; off-diagonal values represent correlations. Discriminant validity is confirmed as diagonal values are greater than corresponding inter-construct correlations (Fornell & Larcker, 1981).

Table 3
Structural Model Results

Hypothesized Path	β	t-value	p-value
GHRM → EPO	0.62	12.35	<0.001
EPO → Green Creativity	0.54	10.87	<0.001

Hypothesized Path	β	t-value	p-value
GHRM → Green Creativity (direct)	0.21	3.12	0.002
EPO × DSC → Green Creativity	0.18	2.94	0.004

Note. Bootstrapping with 5,000 resamples was used to test significance. All hypothesized paths are statistically significant.

Table 4
R^2, f^2, and Q^2 Results

Endogenous Construct	R^2	Q^2	f^2 (Effect Size)
EPO	0.39	0.25	GHRM → EPO = 0.25
Green Creativity	0.52	0.34	EPO → Green Creativity = 0.31; DSC → Green Creativity = 0.14

Note. R^2 values of 0.25, 0.50, and 0.75 represent weak, moderate, and substantial explanatory power, respectively. $Q^2 > 0$ indicates predictive relevance (Hair et al., 2021).

Normality was not assumed in the current study since PLS-SEM does not require multivariate normality in order to estimate its parameters, and therefore it is suitable for management and behavioral research contexts (Hair et al., 2021).

4.2. Descriptive Statistics

Descriptive statistics were computed to depict the demographic information of the respondents by gender, age, education, length of employment, and type of industry. Means, standard deviations, and correlations among study variables were also computed to present an overview of the data and to begin examining initial associations. These results presented descriptive information on the spread and variability in the constructs being investigated.

4.3. Measurement Model Assessment

The measurement model was checked for the validity and reliability of the constructs for applicability. Indicator reliability was checked according to the outer loadings where loadings of 0.70 and above were acceptable (Hair et al., 2019). We kept items that had loadings between 0.40 and 0.70, if these did not compromise composite reliability or average variance extracted. To determine internal consistency reliability, we computed Cronbach's alpha and composite reliability (CR) that resulted in internal consistency reliability above the recommended standard of 0.70. Convergent validity was verified based on the fact that average variance extracted (AVE) was more than 0.50 for all constructs, meaning that constructs explained more than half of the variance of its indicators. Discriminant validity was tested based on the Fornell–Larcker criterion, in which the square root of AVE was higher than the inter-construct correlations, and the Heterotrait–Monotrait ratio of correlations (HTMT), in which values less than 0.85 yielded strong discriminant validity evidence (Henseler et al., 2015). Overall, these tests offered evidence that the constructs within the current study were separate and reliable.

4.4. Structural Model Assessment

Once the measurement model was confirmed, the structural model was tested to provide evidence for the proposed relationships. Before testing the hypotheses, collinearity was checked based on the

variance inflation factor (VIF). All the reported VIF values were less than 5, indicating that there was no multicollinearity problem (Hair et al., 2021). Bootstrapping was applied to assess the structural relationships through 5,000 resamples, presenting decisive estimates of the significance of path coefficients with corresponding R-values and p-values. Explanatory power in the model was tested through R^2 values, which estimate the degree to which the endogenous constructs are explained by the exogenous constructs. An R^2 of 0.25 is weak; 0.5 is moderate; and 0.75 is strong (Hair et al., 2019). The effect sizes (f^2) of the exogenous variables on the endogenous variables were also examined: 0.02 is small; 0.15 is medium; and 0.35 is a large effect size. Last but not least, predictive relevance was checked using Stone–Geisser's Q^2 values with the blindfolding procedure, and a value higher than zero would imply sufficient predictive relevance. Mediation Analysis

Environmental psychological ownership mediating role was empirically tested by testing indirect effects through SmartPLS. Use of bias-corrected bootstrapping with 5,000 subsamples to test the significance of effects yields indirect paths with confidence intervals. Mediation was confirmed when the indirect effect was significant and the direct effect decreased in strength or became no significant when adding a mediator (Zhao et al., 2010).

4.5. Moderation Analysis

Moderating influence of digital sustainability competence was applied to the relationship between employees' environmental psychological ownership and green creativity.
A cross-product term was created in SmartPLS by multiplying the standardized predictor (environmental psychological ownership) and the moderator (digital sustainability competence). The moderating influence was tested using bootstrapping. To examine further the moderation effect, simple slope analysis was carried out with an examination of the relationship at high and low levels of the moderator (±1 SD). The analysis showed more about how digital sustainability competence enhances or destabilizes the relationship between psychological ownership and green creativity. Model Fit Evaluation

While PLS-SEM focuses on prediction, fit indices were also presented to bolster the results. Standardized root mean square residual (SRMR) was used as the goodness-of-fit measure and fit will be deemed acceptable when the values are below 0.08 (Henseler et al., 2014). Fit indexes like normed fit index (NFI) were also utilized to provide additional proof of model goodness-of-fit.

5. Discussion

The results of this research are significant contributions to the area of how green human resource management (GHRM) practices that are perceived by employees promote green employee creativity as mediated by environmental psychological ownership, with an additional stimulating impact of digital sustainability competence. Similar to the existing research, results indicate that GHRM practices positively predict environmental psychological ownership in which organizations actively engage in sustainability-oriented human resources practices linked to GHRM and promote employees to adopt and own the practices, eventually leading to a sense of responsibility to environmental performance (Tang et al., 2018; Afsar et al., 2023). This is in support of the premise of Social Exchange Theory (SET) in which in this situation there is a perception of organizational support which in turn engenders a sense of obligation to manifest an up-surge in pro-environmental attitudes or actions (Blau, 1964), in this case, by representing their pro-environmental attitudes or actions to sustainability GHRM practices through a psychological framework. Thus, employees that

experience more intensive application of green HRM practices respond with psychological ownership channeled as ownership of environmental issues, which enhances the connection to the larger stake of services or resources targeted to pro-environmental attitudes.

The mediation analysis also supported the fact that environmental psychological ownership had a meditating role in transferring GHRM to generate green creativity of employees. Literature contribution was created in the analysis of polished procedures, through the process of psychological ownership, which makes it possible to translate HR practices into actions of innovation. Previous studies call this psychological ownership subsequent practices at involvement by employees and new levels of initiative to be utilized to their work atmosphere (Pierce et al., 2001), which is applied to the natural environment in which the workplace exists as the processes or mechanisms that promote the propensity of employees to bring incremental, environmentally-friendly concepts to the work organization. This mediation effect underscores the fact that the organizational policies themselves may not be capable of stimulating creativity unless a sense of personal responsibility and involvement among the employees exists. Green creativity is therefore made possible by GHRM practices not just due to structural support but also due to the provision of cognitive and emotional sense of ownership that staff feel towards the mission, goals, objectives and activities of the organization.

The results of this study illuminated the comprehension of the comparatively robust direct connection of GHRM and green creativity. This is important because it reflects previous studies that indicate that green HR activities are related to pro-environmental innovative behaviors (Kim et al., 2019). However, the results also show that the strengths of the direct effect were considerably diminished by the inclusion of mental psychological ownership in the model (and, therefore, contribution to green creativity). The evidence of the mediating role of psychological factors forms an important part of the overall influence of GHRM on green creativity, which is another argument in favor of the statement that HR practices make the most significant impact when they indirectly influence cognitions and values of employees. This finding adds to the rising HRM and sustainability literature in which contributions that emphasize the psychological processes that govern employee reactions are at the core of organizational performance. Besides that, the results of this study in terms of moderating effect of digital sustainability competence are another important addition to literature.

The results showed that the workers who possessed greater digital sustainability competence proved to be more successful in transferring the psychological ownership role to the green creativity, where the reverse occurred to the workers facing the environmental competence hurdles. This supports the arguments about the applicability of digital preparedness to modern work practices because sustainability concerns require the employees to apply digital, technology-driven green tools increasingly. Past research has shown that digital competence increases the ability of the employees to develop solutions to complex environmental issues (Centobelli et al., 2022), and this research is the first to scientifically demonstrate that the ability has a contextual condition that strengthens the ownership-creativity relation. Consistent with SET, the moderating role implies that the exchange process will be augmented when the employees not only feel that they have an obligation but, more crucially, can also pay back the commitment of the organizations towards sustainability by acquiring appropriate digital capabilities.

Theoretically this paper is a continuation of SET as it demonstrates the extension of resource

exchange into the environmental and digital scenario. GHRM practices are translated as a sign of organizational dedication to sustainability by employees and this creates a sense of ownership and duty. Such commitments and ownership eventually result in enhanced instantiating green creativity in the case of digital sustainability capability. The research thus demonstrates the interactions between organizational practice, psychological processes and unit-contextual capabilities. The integrated perspective is relevant to the scholarship of sustainability by defining HRM, psychology, and digital competence within the same frame. Practically, the results indicate that the organizations that are planning to develop employee green creativity need to go beyond compliance to establish HR policies that reflect a spirit of environmental sustainability. The recruitment, training, performance and reward systems will have an ideal concentration on green values and in the process establish a sense of psychological ownership amongst workers. Since the employees need to get technologies that maximize the digital sustainability potential, organizations need to be conscious and committed to developing digital sustainability competence through training, digital literacy, and access to sophisticated tools. Employees are supposed to be committed, but they should also be in a position to offer creative environmental solutions. In so doing, organizations can create an enabling environment in which employees can be held responsible to the impact on the environment and have the resources to be creative and responsible.

Lastly, this study adds to the wider green HRM literature by outlining our reflections with regard to the implications of psychology and digital approaches. Although previous literature has focused primarily on direct effects of GHRM on green behaviour (Renwick et al 2013; Kim et al 2019), the results of the present study emphasize the mediating and contingent impact of environmental psychological ownership and the conditional effect of digital sustainability competence. Lastly, it is applicable in conveying the notion that creative stimulation in sustainability is concerned with multi-dimensional thinking, that is, deeming the organizational practicality, psychology and technological capability simultaneously.

6. Conclusion and Recommendations

The emerging evidence indicates that green creativity can be attained by employees through GHRM practices that allow employees to embark on environmental psychological ownership and mediated by digital sustainability competence. According to the Social Exchange Theory, when employees believe that GHRM practices involve investment, they are compelled to pay back by engaging in green behavior, developing a sense of psychological ownership, and trying to devise creative green solutions. The mediation effect as argued implies that GHRM raises green creativity not only directly but more importantly by providing a feeling of accountability towards the environment which exudes above. The conditional impact of digital sustainability competence implies that the increased adoption of digital capabilities by firms is due to the fact that the digital innovative capacity of employees as the owner of environmental practice within the firm will open possibilities of creation.

In enhancing the theoretical branch, the research extends SET to the focal point of HRM, environmental sustainability psychology, and digitalization through the development of an integrated framework and offers advice to organizations that hope to exploit environmental sustainability in GHRM practice. Greeks should be important to the organizations in terms of green employment practices and green employee experience. To that end, the environmental outputs should be incorporated in HR activities like recruitment, training and performance management.

Employees will first inculcate green values in organizational culture. Good psychological ownership will ensue.

On the training aspect, organizations need to train on the competencies of digital sustainability, which can be trained in terms of workshops and exposure to the digital tools that facilitate sustainable innovations. When companies integrate digital skills development and GHRM, organizations create a sustainable ownership course in both directions. Workers re-seize the reins and organizations allow them to get into their right positions. The management will need to have shared working areas and online forums through which the employees are able to deliberate and collaborate on the green ideas, which will lead to outstanding results. The current work has shortcomings. Information was gathered on a self-report level and utilized majorly cross-sectional survey research methodologies, which constrain the causal generalization, yet are more liable to bias. Further research will require the use of longitudinal or experimental designs to support cause assertions and to better represent psychologic processes.

The study also restricted itself to selected organizations as well as one national environment in this instance. A cross-cultural design can provide the clue on how to conduct a future research to investigate how institutional and cultural context may influence the GHRM- creativity relationship. Although this paper has considered the concept of digital sustainability competence as a moderating factor, it is possible to have some other situational contextual factors such as organizational climate, or style of leadership which might offer a more holistic view of the conditions that would facilitate or inhibit green creativity. In general, this research paper adds to practice and theory by proving that workers' green creativity is not solely due to organizational imposition but also due to psychologically perceived property of workers in their work and digital skills that they employ. Therefore, when organizations engage in GHRM practices as they are supposed to and invest in workers' digital sustainability competence, they are tapping into a limitless pool of innovative workers. This will enhance sustainability of the company in terms of the environment, innovation and sustainability in the long run.

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