

Mediating Mechanism of Engagement in Pro-environmental Creative Activities between Green Motivation and Green Creative Performance: Moderating Role of Organizational Green Culture.

Shumaila Mazhar Khan ¹, Masooma Batool ²

Author's Affiliation:

¹Faculty of Management Sciences,
National University of Modern
Languages (NUML), Rawalpindi
²Faculty of Education, Virtual
University (VU), Pakistan

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Corresponding author(s):

Shumaila Mazhar Khan
Email: shumaila.awan@numl.edu.pk

Co-author(s) Email:

Asma Basit
Email: mbatool1990@gmail.com

ABSTRACT

Purpose—In light of the current rise in ecological degradation problems, generally triggered by the manufacturing sector and the deficient steps taken to solve them, this study explores whether workers' motivation to safeguard nature contributes to their pro-environmental green creative performance. The authors also examined the mediating function of employees' engagement in pro-environmental creative activities between green motivation and green creative performance. The authors posited organizational green culture as a moderating factor between green motivation and employees' engagement in pro-environmental creative activities.

Study Design/methodology/approach—Data were collected from 311 usable responses of managerial and non-managerial employees in manufacturing companies through non-probability sampling. Structural equation modeling was applied to analyze the data and evaluate the proposed theoretical framework. All model fitness indicators confirmed satisfactory model fit.

Findings—Employees' green creative performance is proven to be significantly improved by their green motivation. Employees' engagement in pro-environmental creative activities has partially mediated the link between green motivation and green creative performance. Lastly, the connection between green motivation and employees' engagement in pro-environmental creative activities among workers is moderated by organizational green culture.

Research Implications—In accordance with the United Nations' goals for sustainable development, this study recommends that organizations boost employees' engagement in pro-environmental creative activities by increasing green motivation and promoting a green culture. Based on current research findings, manufacturing companies can better understand how to promote employees' green creative performance to combat the world's most pressing environmental issues through employees' engagement in pro-environmental creative activities.

Originality/value—This study is among the first to highlight the important role of workers' pro-environmental intrinsic and extrinsic motivation in directing them to engage in employees' engagement in pro-environmental creative activities, leading to achieving sustainability goals through green creative performance.

Keywords: Green creative performance, Pro-environmental creative activities, Green motivation, Green organizational culture, Sustainability.

JEL Classification Codes: O31, M14, Q01, Q56

1 | INTRODUCTION

Concerns about environmental degradation, largely brought on by the manufacturing sector, are gaining more and more attention worldwide ([Abbas, 2025](#)). Ecologists are constantly raising consciousness about diminishing natural resources, which in turn compels corporations to seek out sustainable and renewable energy alternatives ([Qing et al., 2024](#)). By enforcing environmental sustainability principles and contributing to the attainment of sustainable development goals (SDGs), the United Nations Global Compact (UNGC) has become the world's most prominent green environment initiator ([UNDP, 2021](#)). The greening of organizations, especially concerning operations, resource consumption, and environment-friendly processes, such as recycling, has become a considerable concern of stakeholders and scholars worldwide, forcing businesses to ensure sustainability at all levels ([Faruque, 2025](#)). As a result, organizations worldwide are increasingly focusing on sustainable development practices, finding new ways to minimize reliance on non-renewable energy resources, and adopting eco-friendly practices to achieve sustainability goals ([Amuakwa-Mensah & Näsström, 2022](#)).

Environmental degradation has not only influenced businesses in general ([Abbas, 2025](#)) but, more specifically, prompted workers to change their schemas of subjective and cognitive resources from an inward-focused to an outward-focused orientation, to do as little harm as possible to the environment ([Luu, 2021](#)). Employees are the drivers of the whole value chain process and have an active role in the organization's institutional performance and competitive advantage ([Chughtai et al., 2024](#); [Emon, 2025](#)). Their motivation to follow green practices at the workplace can enable the organization to achieve and sustain a competitive advantage via green creative performance (GCP) ([Wang, 2022](#)).

Motivation involves both intrinsic and extrinsic components [Patwary et al. \(2025\)](#) separated green extrinsic motivation (GEM) from green intrinsic motivation (GIM) to examine the personal factors that foster environmentally conscious innovation (GEM). Internally motivated green behavior, for instance, doing activities to protect nature out of a commitment to the environment, is an example of GIM ([Pan et al., 2022](#)). Employees are more likely to be invested in the success of the company's green initiatives if their values correspond with those of the company ([Bhuiyan et al., 2025](#)). However, GEM is controlled by extraneous factors, such as demonstrating eco-friendly actions in exchange for rewards or the praise of others. When organizations reward green output and follow green HR practices, it promotes the spirit of green extrinsic motivation among employees ([Irani et al., 2022](#)). When an organization prioritizes green management and adopts green approaches, employees are more engaged in pro-environmental innovative activities ([Abbas, 2024](#); [Hu et al., 2022](#)).

Once motivated for sustainable operations, employees lead to engagement in pro-environmental creative activities (EPCA), which is a nascent concept introduced by [Kalyar et al. \(2021\)](#). Participation in a company's GCP is when an employee identifies an issue, seeks relevant information, and comes up with solutions. There is strong evidence linking engagement in creative processes with creative activity ([Yang et al., 2025](#)). However, this link is rarely explored from an environmental perspective. GCP is studied to be constituted of green creativity (GC) and green innovative behaviors (GIB) ([Khan & Abbas, 2022](#)). In GCP, employees suggest unique and valuable ideas to better the environment, champion ideas to others, and develop plans to implement green ideas for existing environmental problems ([Katz et al., 2022](#)). Sustainable performance has

been studied in different terms, like corporate green performance ([Sahan et al., 2025](#)), environmental performance ([Shahbaz et al., 2025](#)), and green creative performance ([Kalyar et al., 2021](#)). Hence, organizations integrate sustainability concerns with a creative mindset to harvest green initiatives and trigger GC ([Rasheed et al., 2025](#)). The literature about GCP and its drivers is still in its infancy, and there is a strong need to extend the literature in this area.

The interactionist perspective suggests that various individual and circumstantial factors influence a person's motivation from an ecological perspective ([Yu et al., 2024](#)). Hence, it is likely that when a person's motivation makes them engage in creative processes, organizational culture can either hinder or catalyze this involvement. [Schneider et al. \(2013\)](#) termed green culture (OGC) behaviorally oriented. Therefore, it can influence the efficacy of GM in fostering the EPCA of employees, which, in turn, can enhance GCP.

Based on the above discussion, this study examines 1) Does green motivation strengthen employees' creative performance? 2) Does employee engagement in pro-environmental creative activities mediate the relationship between green motivation and green creative performance? 3) Does organizational green culture moderate the relationship between green motivation and employee engagement in pro-environmental creative activities? This study contributes to the literature with several findings. Firstly, it enhances the existing literature on the direct relationships between GM and GCP and GM and EPCA by elucidating how employees with GM can be more engaged in EPCA and GCP. Secondly, understanding whether or not GM improves GCP among manufacturing firm employees can be explained by considering the part of EPCA as a mediator variable between GM and GCP. Thirdly, it proposes OGC as a contextual boundary condition in this relationship, explaining why GM is highly or less effective in developing EPCA. By creating and testing a mediating and moderating model of the precursors of GCP in the industrial sector, this work adds to the current body of knowledge empirically and conceptually.

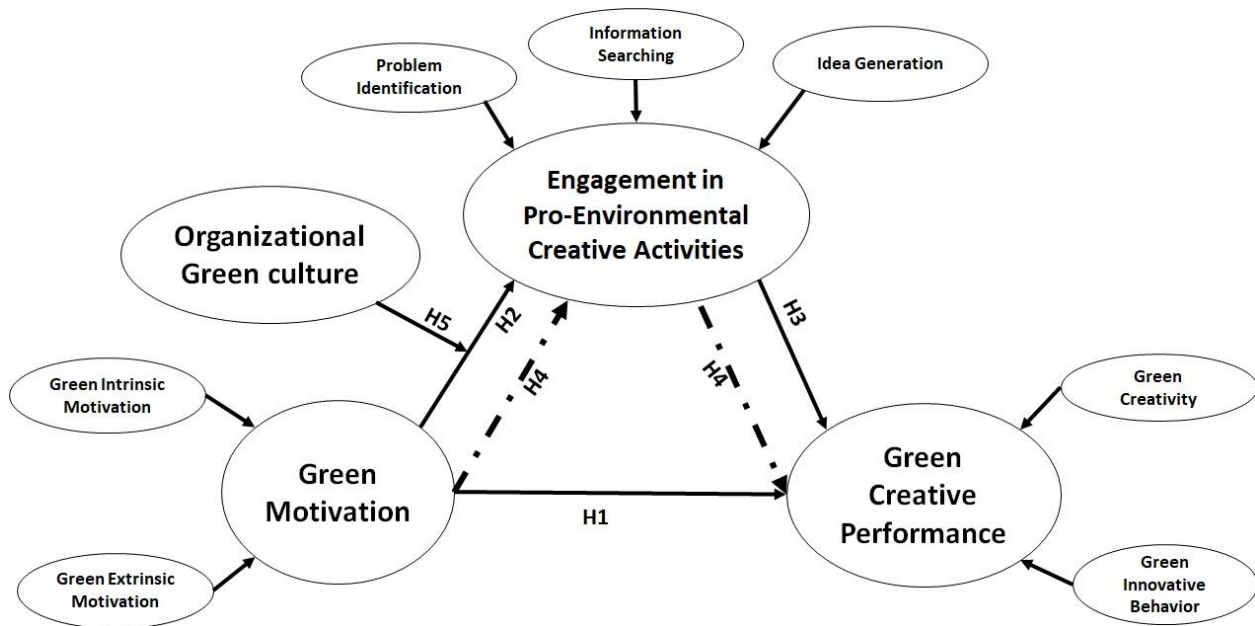
1.1 | Theoretical Foundation

Manufacturing organizations' consumption of natural resources has largely increased since the Industrial Revolution ([Khan et al., 2022](#)). These organizations mainly consume non-renewable energy resources and cause enormous pollution in water, air, soil, etc. ([Datta et al., 2024](#)). It has raised a critical issue about the future supply of natural resources. In light of this reality, various interested parties have advocated for increased attention to dwindling natural resources and environmentally conscious practices across the company. Different organizations have begun focusing on environmental aspects of creative organizational performance ([Khan & Abbas, 2022](#)). Eckersley's trans disciplinary "Green theory" is one good justification of going beyond traditional boundaries of academics by combining natural and social science ([Eckersley, 2010](#)). This theory helps in a more holistic understanding of environmental issues. The primary objective of the theory is to ensure environmental sustainability at all levels. It states that sustainable competitive positioning can only be achieved by balancing all the participants' parallel and complementary benefits involving society and the natural environment ([Fu et al., 2023](#)). This research takes its roots in green theory, as it involves combining the human mind engagement process and social aspects of culture in realizing GCP. Additionally, [Hobfoll \(2011\)](#) Conservation of Resources (COR) theory states that people try to protect what they possess to make more out of it. Employee capabilities and dedications like motivation allow them to engage in GCP and handle unique and difficult conditions, which leads to more resources. Rare, valuable, and non-substitutable

sustainability resources help organizations maintain a competitive edge. The conceptual study model is provided in Figure 1.

Figure 1

Conceptual Model



2 | LITERATURE REVIEW

2.1 | Green Motivation

There is an increasing surge in studying the greening of different organizational practices like green financing ([Li et al., 2025](#)), green marketing ([Vijayalakshmi et al., 2025](#)), green HRM ([Bhardwaj et al., 2025](#)), etc. This study focuses on the greening of the within-person affective state, i.e., green motivation (GM), and its influence on the GCP through EPCA in the presence of OGC. According to [Hu et al. \(2022\)](#), GM comprises GIM and GEM. Motivation to abide by green practices is derived from a person's sheer love for the natural environment, which is characterized as GIM. People with intrinsic motivation are more interested and focused on their work and feel more engaged in their tasks ([Aldabbas et al., 2025](#)).

Supplementing the intrinsic motivation with the concern for the environment leads to the willingness to be pro-environmental and exhibit eco-friendly behaviors that are internally driven. GIM involves actions like choosing green items over non-green ones, using recyclables, conserving electricity and water, etc. ([Triswanto & Yunita, 2021](#)). GEM denotes behaving in an environment-friendly manner, like reducing waste, increasing efficiency, and preserving the environment because of some external financial or non-financial benefit, although it is studied to last shorter in effect than the intrinsic motivation ([Ali et al., 2020](#)). The stimulus of extrinsic motivation is considered to minimize the self-determining behavior to be innovative ([Hamzawi et al., 2025](#)).

2.2 | Green Creative Performance

Responding creatively to sustainable development initiatives is an overall development amongst the global community ([Ugwu et al., 2025](#)). Despite being challenging, its importance as an initiator of sustainable practices cannot be ignored. The manufacturing industry is a major contributor to the deterioration of the natural environment by polluting soil, water, and air through their production process ([Khan et al., 2022](#)). The UN 2030 Sustainable Development Goals and UNESCO have promoted innovative thinking to address sustainability issues ([UNESCO, 2016](#)). UN principles for responsible management education (PRME) encourage creativity in business schools to create sustainable value ([UNPRME, 2021](#)). Organizations are allocating more resources to environmental development due to stakeholder pressure. Firms save employees' scarce resources to attain creative performance and maintain a competitive edge ([Shahbaz & Malik, 2025](#)).

GCP explains an increase in an individual's GC and GIB ([Mutonyi et al., 2020](#)). GC develops novel and valuable ideas concerning green products, services, or processes ([Aftab et al., 2022](#)). It is studied as a proxy for eco-innovation contributing to organizational greening ([Song et al., 2020](#)). Likewise, GIB investigates novel techniques, plans, and technologies to implement unique ideas in response to environmental problems and minimize environmental degradation ([Shahbaz et al., 2025](#)). It exhibits new ways of achieving goals through innovation for sustainable development by adopting, implementing, or using creative ideas.

COR theory offers the ground to elucidate the link between GM and GCP. Employees with GM are more prone to generate creative ideas that minimize resource wastage, like paper, water, electricity, etc., at the workplace. Their internal drive to care for the environment motivates them to create products and services that minimize environmental damage caused by organizational operations. Thus, enterprises need to have the know-how of green awareness and the green commitment of the employees to ensure green production and GCP ([Sharma et al., 2021](#)). GIM drives employees to exhibit environment-friendly behavior and create products that conserve the environment, making them feel elated and proud ([Liu et al., 2025](#)). Employees with more GIM will lead to enhanced GCP. [Ojo et al. \(2019\)](#) explained a positive connection between green attitudes, environmentally friendly beliefs, and green computing practices through their study of individual, social, and organizational aspects of green IT. [Gilal et al. \(2019\)](#) found that employee green values were crucial regarding green creative performance.

Similar to GIM, GEM is the drive to propose or implement an environmentally friendly proposal for the sake of gain any kind of benefit ([Patwary et al., 2025](#)). The GEM of employees is the result of an organization's green human resource policies, which include green remuneration and performance management ([Jerónimo et al., 2020](#)). Whether it is GIM or GEM, this study claims that when employees are driven to defend the natural environment, they explore beneficial methods for the organizations and guarantee eco-friendly results. It is therefore proposed that:

H1. *Employees with green motivation are significantly inclined towards green creative performance.*

2.3 | Pro-Environmental Creative Activities Engagement

Employee-led creative action (EPCA) is how workers figure out what's wrong with the environment, track the knowledge they need to fix it, and develop novel solutions ([Nuwagaba et al., 2025](#)). Engaging in

environmentally responsible creative processes is essential to protecting our planet and its limited supplies. It ensures familiarity with GC's iterative procedures. Employees with more excellent GM, especially GIM, have an innate appreciation for the natural world that compels them to participate in activities that seek to find novel approaches to environmental challenges or come up with original ideas for how to address them ([Perano et al., 2025](#)). The ones with GEM are also interested, as their organization rewards green performance ([Yusoff et al., 2020](#)), setting the direction for EPCA. Thus, they are encouraged to search for problem-related information ([Yu et al., 2022](#)).

The ability to correctly recognize the nature and causes of the environmental problem is improved by GM since it allows people to trace information related to the issue ([Luu, 2021](#)). Such an extended knowledge base will enable them to generate diverse pro-environmental ideas ([Ahmed et al., 2021](#)). More views help develop unique solutions to environmental problems. In COR theory, stated that workers at GM are prone to come up with resource-efficient, ingenious answers whenever an ecological problem arises. They must actively participate in a rigorous creative process to achieve this goal. The current study argues that GM directs persons to engage in pro-environmental innovative approaches based on these principles. It is therefore proposed that:

H2. *Employees' participation in environmentally beneficial creative activities can be predicted in large part by their level of green motivation*

2.4 | Green Motivation, Pro-environmental Creative Activities, and Green Creative Performance

Engagement in creative processes is considered an indispensable step toward creativity ([Khan & Abbas, 2022](#)). Each element has different elements, leading to improved IC ([Li et al., 2021](#)). Considering the environmental perspective, the antecedents of GC are distinctive from traditional innovation, and the mechanism of EPCA and its effect on GCP, GIB, and GC warrants detailed investigation. EPCA consists of three components: identification of a problem causing the environmental issue, searching for information that can conserve the environment, and generating ideas that can minimize wastage and solve the problem ([Al-Raeei, 2025](#)). Once involved in such processes, an individual proposes novel solutions for sustainability problems, fostering GC ([Kalyar et al., 2021](#)).

In this context, "GIB" refers to the employee's concept, implementation, application, and commercialization of a fresh, feasible idea for the environmental issue ([Hermalia & Kuswati, 2025](#)). It calls for going above and beyond the call of duty by looking for new methods or ideas to disrupt the existing routines, then convincing others to support the concept, creating a strategy, and gaining funding to put the plan into action. The first step of EPCA is to check that the worker has properly framed the problem, and the second is to guide the worker through finding and encoding the pertinent data. The third phase ultimately promotes fresh insight into the issue at hand. Many believe that the solution's quality and uniqueness improve as more time is invested in each step of the EPCA process ([Reiter-Palmon, 2021](#)). Because of this, it is claimed that EPCA has a beneficial effect on all aspects of GCP (including GIB and GC). The following hypothesis is then put forth:

H3. *Employee engagement in pro-environmental creative activities significantly positively affects green creative performance.*

Moreover, increased concern for protecting the natural environment, i.e., enhanced GM, fosters the quality information generated for regulating the behavioral function of an employee about environmental issues and their solutions ([Irani et al., 2022](#); [Yang et al., 2025](#)). Also, keeping in mind the COR theory perspective, employees need to acquire plenty of resources to solve the problem creatively; as a result, they are involved in inventive processes incorporating ecological issue identification and information quest and pro-environmental ideation, subsequently enhancing GCP. It is therefore posited that:

H4. *Employee engagement in pro-environmental creative activities mediates the relationship between green motivation and green creative performance.*

2.5 | Organizational Green Culture

A person alone can do little if the contextual support of the organization is missing. An individual's decision to be involved in a unique endeavor is contingent upon estimating the psychologically safe response from the context ([Imran et al., 2025](#); [Pan et al., 2022](#)). Green culture plays a crucial role in helping employees thoughtfully respond to the environmental issues by raising their concern for environmental protection ([Qu et al., 2022](#)). OGC focuses on the measures and initiatives involving corporate greening. It is a shared perception of employees about organizational practices, policies, and procedures for ensuring environmental sustainability ([Wang et al., 2022](#)).

The green climate performs a significant contextual role in creating and implementing green ideas in the workplace. An organization with a creative environment nurtures the CPE and CP of employees ([Leung & Lin, 2022](#)); hence, it is asserted that OGC ensures the EPCA and GCP of employees. Being an invisible resource, OGC can be a competitive advantage for an organization and provide GP ([Zaidi & Lakhal, 2025](#)). OGC is studied to impact green outcomes like organizational citizenship behavior for the environment and moderate the chain effect of green outcomes ([Aftab et al., 2022](#)). When employees perceive that the organizational climate supports green involvement, they are more motivated to participate in eco-friendly initiatives ([Ahmed et al., 2021](#)).

Being a practical critical resource for employees, GM helps an organization develop products and processes that can minimize the harmful effects of organizational operations on environmental degradation ([Nguyen et al., 2025](#)). An employee with enhanced GM experiences an environment-friendly culture, which encourages green activities, and is more involved in EPCA; by identifying environmental problems, searching for pro-environmental information, green ideation, and implementation. It is empirically proven that a green climate enhances the green behavior of employees ([Azhar & Yang, 2022](#); [Shahriari et al., 2023](#)). On the contrary, an organizational culture low in green involvement is less likely to offer GIM and GEM required for EPCA. This study claims that low OGC acts as a barrier hindering motivated employees from exhibiting EPCA, so that high OGC enhances and low OGC minimizes the engagement of employees in green processes:

H5. *Organizational green climate moderates the relationship between green motivation and employee engagement in pro-environmental creative activities, in such a way that a higher level of organizational green climate will strengthen this relationship.*

3 | METHODOLOGY & DESIGN

3.1 | Data Collection

The current study targets manufacturing firms listed on the Securities and Exchange Commission of Pakistan (SECP), which is considered the most credible firm directory in Pakistan. Like other recent studies ([Wang, 2019](#); [Yong et al., 2020](#)), only manufacturing organizations opted because they are considered the primary source of environmental degradation ([Uddin, 2020](#)). Data was collected from only those businesses that have applied for or planned to seek ecological certification (ISO 14000). The information is gathered from all levels of staff (lower, middle, and senior management) through surveys. Participants were given a five-point Likert scale to score their GM, EPCA, GCP, and OGC, with 'one' indicating significant disagreement and 'five' indicating strong agreement. The 5-point scale is widely used because of its simplicity and ease of use. It also reduces the fatigue and confusion of respondents in answering the questions.

At the organizational level, we incorporated non-probability purposive sampling, and at the personnel level, we used non-probability convenience sampling. This technique was used because of the specific nature of the targeted population. We had constraints in assessing eligible firms and employees. We only collected data from firms that had attained ecological certification, as only these firms were relevant to the study context. Whereas, convenience sampling allowed us to have access across all managerial levels. Google Forms, emails, and in-person meetings were all used to disseminate the surveys. A total of 501 surveys were circulated within manufacturing organizations in Islamabad, Rawalpindi, Lahore, Sialkot, Faisalabad, and Karachi, the country's eminent business hubs, and the operating units of most of the manufacturing companies are located in these cities. A total of 501 questionnaires were distributed, and only 257 were received back, yielding a response rate of 51.3%. Of these 257 received responses, 43 were excluded for incomplete or improper completion, yielding 214 valid manual responses. Additionally, 97 valid responses were gathered through Google Forms, which were then added to the manually collected 214 valid responses, leading to 311 usable responses.

Out of the total of 311 valid responses, 108 were females, and 203 were males. In-depth demographic detail of the respondents is given below:

Table 1*Respondents' Demographics*

Factor	Narrations	Volume	Percentage
Job Position	Operational staff	123	39.5%
	Junior manager	63	20.2%
	Middle manager	88	28.2%
	Top manager	37	11.9%
Gender	Male	203	65.2%
	Female	108	34.7%
Experience	1month-5years	121	38.9%
	6years-10years	87	27.9%
	11years-15 years	54	17.3%
	Above 16 years	49	15.7%

3.2 | Measurement instrument

The demographic questions were located in the first part of the questionnaire, while the construct questions were in the second part. The scales were adopted as they were; [Junsheng et al. \(2020\)](#) and [Guay et al. \(2000\)](#) provided the GM items incorporating GIM and GEM, respectively, [Kalyar et al. \(2021\)](#). The EPCA scale is used to quantify EPCA. [Scott and Bruce \(1994\)](#), [Luu \(2021\)](#), and [Soda et al. \(2019\)](#) all inspired the CP elements that make up GC and GIB. The [Tuan \(2021\)](#) and [Zientara and Zamojska \(2018\)](#) scales are used to evaluate OGC.

4 | RESULTS and ANALYSIS

To check the relation between GM, EPCA, GCP, and OGC, the structural equation modeling (SEM) technique is used. It is considered an effective technique for eliminating biases because of measurement errors and examining the relation between latent and observed constructs ([Schwarz et al., 2017](#)). According to [Hair \(2013\)](#), a sample size of 200 or more is appropriate for testing SEM. Therefore, SEM is applied considering the sample size of 311, well within the said limit of more than 200 responses. Data analysis is done through AMOS v.23 and SPSS v.23. Robustness of data to conduct factor analysis was ensured by analyzing sample size, common method variance (CMV), and multicollinearity. The sample size was enough according to the Kaiser-Meyer-Olkin (KMO) test results, which gave a value of 0.907. It matched the minimal condition of 0.6 recommended by Kaiser and Rice ([Kaiser & Rice, 1974](#)).

The multicollinearity aspect was examined using the VIF test. The calculated value of 1.163 is well below the threshold of 4, pointing out that multicollinearity does not exist ([Hair, 2013](#)). When both the dependent and independent variables are studied through the same academic discipline, a phenomenon known as "common method variance" (CMV) develops ([Podsakoff et al., 2012](#)). Using Harman's single-factor test, the researcher investigated this worry; the value obtained for the single component was 40.01%, which is lower than the threshold of 50%. To rigorously check the CMV latent method, a factor was also incorporated in the structural model, and all indicators were allowed to load on their theoretical constructs and a common latent factor. The result indicated minimal variance, explaining the lack of CMV in the dataset. Data normality was checked by skewness and kurtosis values, which were well within the acceptable limit of ± 2 . Likewise,

outliers were detected using Mahalanobis distance, and extreme cases were checked and removed to ensure data quality and reliability.

4.1 | Model Assessment and Factor Analysis

The validity and uni-dimensionality of the measurement model of the study were ensured by conducting confirmatory factor analysis (CFA), as suggested by [Hinkin \(1998\)](#). CFA provides empirical confirmation of the observed variables' factor structure by shedding light on the connection between latent and observable variables. Cronbach's alpha values and the measurement model's composite reliabilities were verified (see table 2), and both met the minimum 0.7 thresholds established by [Molina et al. \(2007\)](#). Defining that the items always measure the same construct and have high internal consistency. The model's reliability was checked by measuring its convergent and discriminant validity. When the factor loadings of the measurements indicate a relationship between two variables, we say that the two variables have convergent validity. Each indicator has a factor loading of greater than 0.7, suggesting that the indicators have convergent validity ([Awang, 2012](#)). The constructs in this research meet the criterion of convergent validity set out by which requires an AVE value of larger than 0.5.

Table 2

Validity and Reliability of the Scales

Factors	Items	α	Items Loading	Composite Reliability	AVE
GM	9	.826	.736-.925	.876	.637
EPCA	11	.912	.754-.951	.865	.656
GC	4	.893	.785-.944	.943	.689
GIB	6	.874	.734-.943	.938	.636
OGC	7	.931	.793-.920	.827	.605

GM = Green Motivation, EPCA = Engagement in Pro-environmental creative Activities, GC= Green Creativity, GIB = Green Innovative Work Behavior, OGC = Organizational Green culture

For the discriminant validity, each measured construct must be distinct from, or empirically discriminant from, any other construct in the study. All of the correlation values are below 0.9, as required by [Hair \(2013\)](#), to guarantee discriminant validity. Hence, all the predictor variables can be used reliably (refer to table 3). The indicators of a construct or other indicators that converge on the same construct account for its variance, according to a proposal by [Fornell and Larcker \(1981\)](#). Furthermore, the correlation between the two indicators should equal the square root of the AVE score. According to Table 3, all values meet these discriminant validity requirements, signifying that the model possesses the requisite goodness, and all instruments fulfill the reliability and validity requirements to test hypotheses.

Table 3*Constructs Discriminant Validity*

Construct	GM	EPCA	GC	GIB	OGC
GM	0.798				
EPCA	.496**	0.809			
GC	.507**	.459**	0.830		
GIB	.565**	.584**	.681**	0.797	
OGC	.443**	.612**	.523**	.610**	0.777

Note: * $p < 0.05$; ** $p < 0.01$; GM = Green Motivation, EPCA = Engagement in Pro environmental creative Activities, GC = Green Creativity, GIB = Green Innovative Work Behavior, OGC = Organizational Green culture

Generally, seven indicators can be used to evaluate the quality of a measurement model's fit: the χ^2/DF , GFI, AGFI, CFI, NFI, RMSEA, and SRMR (Kaynak, 2003). To verify that the structural and measurement models are well-fitting, the current research includes the Tucker-Lewis index (TLI). The ratio of chi-square to degrees of freedom for the measurement model is 1.164, whereas for the structural model, it is 1.191. Byrne (1989) sets the upper bound at 3.0, while Bagozzi and Yi (1988) set it at 2.0. Like the measurement model, the structural model's NFI, GFI, AGFI, CFI, and TLI values are all over the 0.9 thresholds recommended by Bollen (1986): 0.931, 0.922, 0.951, 0.956, and 0.951. In addition, the RMSEA and SRMR for the measurement model are 0.029 and 0.0352. For the structural model, they are 0.034 and 0.0331, respectively, which are significantly less than the optimum ceiling of 0.08 proposed by Browne and Cudeck (1992), and Hu and Bentler (1998). In light of this, Table 4 shows how well the results fit various measurement and structural models.

Table 4*Measurement of Model*

The goodness of fit measures	CMIN/DF	NFI	GFI	AGFI	CFI	TLI	RMSEA	SRMR
Recommended value	$\leq 3^1$	$\geq 0.9^2$	$\geq 0.9^2$	$\geq 0.9^2$	$\geq 0.9^2$	$\geq 0.9^2$	$\leq 0.08^3$	$\leq 0.08^4$
Measurement model	1.164	.926	.911	.927	.942	.954	.029	.0352
Structural model	1.191	.931	.922	.951	.956	.951	.034	.0331

¹(Bagozzi & Yi, 1988; Byrne, 1989b), ²(Bagozzi & Yi, 1988; Bollen, 1986), ³(Browne & Cudeck, 1992b)

⁴(Hu & Bentler, 1998b).

4.2 | Hypotheses Testing

The hypotheses were examined using the SEM method. GM's substantial and positive effect on employees' GCP was found using a t-test, with a standardized estimate of 0.289 and p-values of 0.004. Hence, H1 was accepted. In addition, the scientists examined how GM affected EPCA, and their findings demonstrated that GM positively predicts EPCA with a standardized estimate of 0.312 and a value of 0.003. Hence, H2 is also accepted. EPCA's effect on GCP was statistically and practically significant, $p = 0.001$, and an estimate of 0.351, suggesting that H3 should also be accepted.

With an estimate of 0.231 and a p-value of 0.016, the mediation analysis showed that the effect of GM on GCP decreased from 0.289 to 0.231. Because some of GM's results are transmitted to EPCA, GM's influence is mitigated. Given the significance of the findings, it is fair to conclude that EPCA mediates some of the connection between GCP and GM ([Awang, 2012](#)). The mediation effect was also verified using bootstrapping. While the direct impact of bootstrapping showed a value of 0.352 with a p-value of 0.021 when using 5000 bootstrap samples and 95% bias correction, the indirect influence of GM on GCP through EPCA showed a value of 0.264 with a p-value of 0.016. The substantial value of both indirect and direct effects supports EPCA's mediating role within the GM-GCP interaction. Therefore, H4 is recognized as well. To test whether OGC moderates the effect of GM on EPCA, we create an interaction term by multiplying GM by OGC (independent*moderator) and then treating this term as if it were another independent variable. The results showed that OGC had a moderating function between GM and EPCA, with a standardized estimate of 0.201, a significant p-value of 0.009, and a 95% bias-corrected bootstrap confidence interval depicted values (0.066, 0.325). As the interval does not include zero and the relationship is statistically significant, it indicates that H5 is also accepted and supports the moderating role of OGC. Employing bootstrapping ensured the robustness and stability of direct and indirect effects of the study, as depicted in the confidence intervals and bias-corrected p-values, ensuring sensitivity and cross-validation.

Table 5

Testing of Hypothesis

Hypothesis	Constructs	Standardized	Critical	p-Value	Decision
Direct Effects					
H1	GM → GCP	.289**	2.679	.004	Support
H2	GM → EPCA	.312**	2.799	.003	Support
H3	EPCA → GCP	.351***	3.669	.001	Support
Mediation					
H4	GM → GCP	.231*	2.221	.016	Partially Support
	GM → EPCA	.269**	2.219	.009	
	EPCA → GCP	.308*	2.301	.021	
Moderation					
H5	GM x OGC → EPCA	.201**	2.013	.009	Support

* $p < .05$; ** $p < .01$; *** $p < .001$ GM = Green Motivation, GCP = Green Creative Performance, EPCA =

5 | DISCUSSION

This study seeks to clarify the influence of GM on GCP in the manufacturing sectors of developing Asian economies like Pakistan through the mediating function of EPCA and the moderating function of OGC. According to the data, GM beneficially enhances GCP. Whether the motivation comes from within or without, it's clear that GCP improves when workers care about preserving natural resources. This result is associated with the work of [Gilal et al. \(2019\)](#). They conjectured that environmental performance and green production resulted from employees' knowledge of their green abilities and green values. It is in line with the COR theory,

which posits that employees use their resources to solve the problem creatively, so they are involved in creative processes leading to increased GCP.

Further, it lends credence to the findings of [Li et al. \(2021\)](#), who hypothesized that GIM motivates people to act more sustainably at work. The reasonable faith efforts of employees to safeguard the ecological landscape from personal actions and those of company processes by reducing resource waste can result in GCP improving an organization's competitive edge ([Wang, 2022](#)) and promoting environmental sustainability. GCP can improve a company's reputation as an excellent corporate citizen, making it more appealing to consumers. GM and GCP are remarkably comparable when it comes to improving sustainable performance and cutting down on waste. Organizations can enhance long-term success by emphasizing green employee management (GM) through green human capital and other related initiatives. Involving workers in efforts to reduce wasteful resource use and hazardous waste emissions is one-way businesses may become more eco-conscious and accountable to the community.

Also consistent with [Ahmed et al. \(2021\)](#), who found that GM employees try to discover creative solutions to environmental challenges, the empirical data imply that GM strongly predicts individuals' involvement in pro-environmental creative processes. In addition, [Ali et al. \(2020\)](#) concluded that GIM encourages creative work by its staff. GM has the opportunity to increase the perceptive participation of its staff in eco-friendly projects. Consequently, businesses should ramp up their efforts by providing green incentives and training employees. Employees will be better able to identify the issues at hand, find relevant information, and settle on a workable solution with such encouragement and backing. An analysis of the connection between GCP and EPCA showed that EPCA had a significant, beneficial effect on GCP. This result is consistent with the findings of [Li et al. \(2021\)](#), who provide an explanatory model for the positive correlation between participation in the creative process and originality. It is clear that an employee is attempting to submit a fresh and worthwhile suggestion when they recognize a problem causing resource harm, look for knowledge that can limit wastage, and offer ideas to fix such an environmental problem. They propose a concept and work to turn it into a marketable product or service by doing things like finding investors, developing the necessary skills, and spreading the word. Scarce information exists on EPCA's function as a dominant mediating mechanism between GCP and GM. The findings demonstrated that EPCA had a significant and favorable role as a mediator within this connection, suggesting that GM can have both direct and indirect (through EPCA) impacts on GCP.

The authors next looked at how OGC acted as a moderator between EPCA and GM. OGC, as a moderator in the context of GM, green participation, and green outcomes, has received less empirical attention. The results showed that OGC has promising potential and boosts GM's efficiency in encouraging EPCA. This finding relates to [Tuan \(2021\)](#) study, which suggested that OGC can be considered an invisible resource that can lead to green performance and act as a competitive advantage for the organization. [Zientara and Zamojska \(2018\)](#) also studied OGC as a moderator within a chain of green outcomes. It's proof that a green-friendly culture at work has a beneficial effect on employees' GM. Thus, they augment their participation in activities, adding value to the organization's environmental response and enhancing GM's effectiveness in predicting EPCA.

5.1 | Practical and Theoretical Implications

The current study results have suggested some implications for managers to promote the GCP of employees. Following the green outlook, the organizations ensuring GCP is in place are more likely to achieve a competitive advantage and a firm reputation. In addition, the UN's sustainability emphasis has made it imperative for organizations to comply with environmental standards. By responding to such concerns, this research suggests that the organization's management should try to enhance the GM of employees and facilitate OGC to foster the GC and GIB, ultimately improving GCP. To encourage GEM and equip GIM to engage in eco-friendly projects, top-level management and leadership must apply green HR practices, such as green hiring, green learning and development, and environmental compensation. As a result of GM's efforts, GCP has increased, and more employees are participating in green activities. It satisfies the desires of the staff to lessen their impact on the environment and enhance the company's public standing. Employees with such pro-environment attitudes and actions boost intellectual capital since they thrive in green workplaces. Employees with GM are more inclined to achieve GCP through EPCA in green climate organizations. In a similar vein, a study has highlighted the importance of OGC in enhancing the green engagement of employees, subsequently validating the green plan of the organization.

This research provides some theoretical contributions as well. Firstly, it suggests the linkage between GM and GCP, signifying that GM employees are more attuned to solving environmental problems, enhancing GCP. Rare studies have been done in this regard in the previous literature. Secondly, this study has highlighted the intervening mechanism between GM and GCP by highlighting EPCA as a mediating link within this relationship. EPCA elucidates the route of realizing GCP by identifying environmental problems, searching for information to recommend alternatives, and suggesting novel solutions. It clarifies the process of achieving GC and GIB by GM. Thirdly, this study has offered a boundary condition of OGC influencing the GM and EPCA link. This investigation contributes to the literature on sustainability by explaining how OGC catalyzes GM in achieving EPCA, subsequently fostering GCP. The study validates the CoR theory by demonstrating that valuable, rare, and non-substitutable resources, like GM, help employees engage in creative engagements and realize GCP.

Along with recommending some imperative contributions, the current study is not without limits. Firstly, this research was conducted using a cross-sectional design; upcoming investigations can incorporate a longitudinal design to overcome this problem. Secondly, the current research targets the manufacturing industry of developing nations in Asia. Future studies can collect data from the service and manufacturing industries from a multi-country perspective to generalize the findings. Thirdly, the researchers studied EPCA and OGC as intervening and moderating variables. Future studies can see the effect of other contextual and individual elements on the GM and GCP relationship.

5.2 | Limitations and Future Recommendations

Apart from contributing a unique body of knowledge in the existing field of study, the study is not free of limitations. The study has focused on GC as the only boundary condition, whereas other internal and external constructs, like psychological safety and organizational size, should also be studied to evaluate the dynamics of the relationship. In addition, a non-probability sampling technique is incorporated that may reduce the generalizability of the findings and may introduce potential bias. Furthermore, the absence of

sensitivity analysis and cross-validation for moderation analysis is also a limitation of the current study. Future research may add these avenues to strengthen the robustness of findings.

6 | CONCLUSION

This study is intended to strengthen both theory and practice by looking into the relationship of the dynamics of GM and GCP by incorporating COR theory. GM is a vital resource that helps employees in conserving further resource wastage. It also throws light on the mediating effect of EPCA, showcasing that GM leads to GCP in the presence of EPCA. The role of OGC as a boundary condition depicts that employee surrounded by a strong green culture are more prone to enhance and sustain their GM and EPCA. This study extends the central premise of COR theory, i.e., the importance of resource loss and resource investment, considering the sustainability context. Organizations intending to incorporate sustainable manufacturing should try to enhance GM by incorporating eco-awareness programs and green tutoring. These activities will also amplify the EPCA and GCP of employees. Nurturing an OGC, by following green policies, norms, and reward schemes, organizations can ensure resource investment and harvest greener innovation. The findings of the study expand sustainability erudition by highlighting that GM alone isn't sufficient; its creative potential must be cultivated via EPCA and reinforced by a robust cultural context.

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