

# Exploring the Moderating Influence of Sustainable Creativity Strategies on the Relationship between a Green Innovation Atmosphere and Employee Green Creativity

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**Abstract: Purpose:** Within the framework of a green innovative technology development industry in Shenzhen, China, this paper explores the interaction of organisational atmosphere, sustainable creativity strategies, and employee green creativity. It seeks to clarify how organised sustainability interventions and a favourable environment for green innovation affect workers' creative contributions to environmental sustainability initiatives.

**Method:** A total of 247 individuals employed by the research and development division took part in the survey. Variables relationship were assessed using previously developed scales modified for this study, and Stata-SEM was used to examine data.

**Findings:** The findings show the following significant positive relationships: Employee Green Creativity is positively influenced by Green Innovation Atmosphere ( $\beta = 0.588$ ,  $p < 0.001$ ), Employee Green Creativity is enhanced by Sustainable Creativity Strategies ( $\beta = 0.519$ ,  $p < 0.001$ ), and the relationship between Green Innovation Atmosphere and Employee Green Creativity is moderated by Sustainable Creativity Strategies ( $\beta = 0.492$ ,  $p < 0.001$ ).

**Originality/Implications:** This study advances theory by illustrating how organisational cultures and strategic interventions foster sustainability-focused employee creativity. It stresses the significance of

combining enabling climates with focused sustainability policies for competitive advantage and environmental stewardship and offers actual ways for businesses to promote innovation and sustainability.

**Keywords:** Sustainable Creativity Strategies, Green Innovation Atmosphere, Employee Green Creativity, Product Innovation, Process Innovation.

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## 1. Introduction

Since sustainable development and environmental stewardship are becoming more important, green innovation and employee creativity have gained prominence. Green innovation, which develops and implements environmentally friendly goods, processes, and practices, is a strategic need for organisations globally (Rana et al., 2024). Innovation that prioritises sustainability is essential as regulators, consumers, and stakeholders pressure organisations to go green (Chen, 2011). Employee creativity the creation of new and beneficial ideas at work—is vital for innovation and competitive advantage (Baah et al., 2024). Green innovation and employee creativity are important areas of research that examine how organisational practises and cultures might inspire employees to produce creative sustainability solutions (Le et al., 2024). Growing corporate sustainability literature emphasises the significance of integrating environmental factors into strategic planning and daily business operations (Tran, 2024). This comprehensive approach reduces organisations' environmental impact and boosts their commercial position.

Green innovation and employee creativity studies has shown that a supportive workplace is an important aspect in their literature (Şengüllendi et al., 2024). According to Srivastava et al. (2024), a strong organisational commitment to environmental sustainability improves employees' environmental behaviours and green innovation performance. Anwar

(2024) research showed that top management sets the tone for sustainability and fosters an environmentally responsible culture. Ejibe et al. (2024) found that businesses with comprehensive environmental management systems encourage employee green activities. They give staff the structure and resources to solve sustainability problems creatively. Also noteworthy is Wang (2024)'s study on sustainability-oriented creative tactics and employee innovation. Ur Rehman et al. (2024) found that sustainability training and collaborative problem-solving sessions encourage staff to create new environmental solutions. The literature on creativity implies that giving employees autonomy and diverse, challenging jobs boosts creativity (Choudhary et al., 2024). Empowering leadership, a key component of sustainable creativity techniques, boosts intrinsic motivation and creative self-efficacy, increasing creativity, according to Farrukh et al. (2024). Green human resource techniques have also been studied for boosting employee creativity. Green training and development programmes improve employees' environmental performance, according to Soomro et al. (2024). These programmes teach staff green innovation skills and demonstrate the company's commitment to sustainability, motivating them to innovate. Bhat et al. (2024) found that transformational leadership improves employees' pro-environmental behaviour, showing that green leaders can encourage creative sustainability thinking.

Despite the extensive literature on green innovation and employee creativity, some gaps exist (You et al., 2024). Understanding how sustainable creativity initiatives affect employee

green creativity is lacking. Supportive organisational contexts boost employee creativity, but studies rarely explain how (Liu et al., 2024). For instance, more research is needed on how green training programmes and leadership styles affect employees' abilities to innovate environmental solutions (Tuan, 2023). There is little empirical information on how sustainable creativity initiatives moderate the association between green innovation atmosphere and employee green creativity (Adomako et al., 2023). Some studies suggest that supportive practices can improve the impact of environmental management systems on employee behaviours (Fazal-e-Hasan et al., 2023), but there is little research on how these strategies interact with the green innovation atmosphere to influence creativity. Given the complexity of green innovation and employee creativity, which are influenced by many human, organisational, and external factors, this gap is particularly crucial (Kiranantawat et al., 2023). Existing study has focused on large, international firms, neglecting innovative technology development company. innovative technology development company are vital to the global economy and drives innovation, but their approaches to green innovation and employee creativity may differ from larger enterprises (Setyaningrum et al., 2023). SMEs' specific challenges and opportunities must be understood to build tailored strategies that encourage sustainability and innovation across organisational settings (Li et al., 2023). Therefore, more studies are needed to evaluate the impact of sustainable creative initiatives over time.

Several reliable frameworks assist the study of sustainable creative techniques, green innovation atmosphere, and employee green creativity. The componential theory of creativity (Nasir, 2023) helps explain how individual and contextual factors affect creative performance. This idea

says domain-relevant abilities, creativity-relevant processes, and intrinsic motivation drive creativity. By giving employees the skills, creating a supportive atmosphere, and increasing intrinsic desire, green training and empowered leadership can improve these elements (Song et al., 2023). According to the resource-based view (RBV) of the company, distinctive organisational skills like a green innovation climate can sustain competitive advantage. Successfully integrating sustainability into core operations and strategy can provide valuable, uncommon, and inimitable resources that boost performance. Through a green innovation culture and sustainable creativity methods, organisations may maximise employee green creativity and generate sustainable innovation (Begum, Xia, et al., 2022). This research will help organisations use sustainable creativity practices to boost employee green creativity and generate sustainable innovation.

## 2. Literature Review

Green innovation, a vital component of sustainable development, is gaining academic and industrial attention. The idea comprises developing and implementing environmentally friendly products, methods, and behaviours (Arici et al., 2022). Eco-friendly product demand, governmental pressures, and corporate social responsibility drive it (Begum, Ashfaq, et al., 2022). Green innovation helps companies satisfy environmental standards and differentiates their offers and improves operational efficiency, according to research (Maitlo et al., 2022). Companies that invest in green technologies reduce resource use and waste, saving money and improving profitability (Luu, 2022). Green innovation can boost a company's brand image and attract eco-conscious customers and investors. Organisational green innovation relies on employee inventiveness (Hu et al., 2022). Employee creativity generates new

ideas and solutions needed to produce sustainable products and processes. A supportive organisational culture that promotes risk-taking, cooperation, and continual learning is essential for creativity (Jamshed et al., 2022). Leadership dedication to sustainability goals can also motivate workers to match their creativity with the company's green ambitions (Malik et al., 2021). Studies suggest that intrinsic motivation enhances creativity and engagement when employees feel their contributions to green innovation are acknowledged (Ogbeibu et al., 2021). Green innovation requires investing in an environment that fosters creativity and harnesses employee ingenuity.

The organisational climate and environment that fosters eco-friendly and sustainable ideas is called the green innovation atmosphere (Muñoz-Pascual et al., 2021). This environment includes managerial support for green initiatives, resources for sustainable projects, and policies and practices that promote environmental responsibility (Arslan et al., 2021). However, employee green creativity is the ability and willingness of employees to produce unique and effective ideas that promote environmental sustainability (Mansoor et al., 2021). Employees actively develop solutions to reduce environmental impact, enhance resource efficiency, and promote sustainable practices in their organization (Sharma et al., 2021). Previous study has shown that encouraging organisational climates boost employee creativity. Studies have indicated that an innovative organisational culture that celebrates and rewards creativity can boost employees' creativity (Shahzad et al., 2021). Strong corporate dedication to environmental sustainability enhances employees' environmental habits and green innovation performance, according to Muisyo et al. (2021). Furthermore, companies with thorough environmental management systems inspire staff green initiatives (Anwar, 2024).

These results highlight the need of a green innovation-friendly workplace in motivating staff creativity towards sustainability targets (Baah et al., 2024). These empirical results allow one to enlarge the idea that a green innovation environment significantly influences employee green creativity (Tran, 2024). Organisations that support green innovation help to create environmental sustainability and provide individuals with the means of creativity. Environmentally friendly organisational policies and practices, according to Srivastava et al. (2024), equip staff members with information, tools, and motivation to produce creative environmental ideas. Green leaders can motivate employees to think imaginatively about sustainability, according to Wang (2024), who found that transformational leadership supports pro-environmental behaviour. The notion is supported by a large body of empirical data showing a green innovation environment boosts employee green creativity and drives sustainable innovation in organisations (Farrukh et al., 2024).

#### *H1. Green innovation atmosphere significantly influences the employee green creativity.*

Numerous studies have studied how creativity tactics affect employee innovation and creativity (Bhat et al., 2024). Liu et al. (2024) found that autonomy, diverse and hard activities, and a supportive work environment promote creativity. (Adomako & Nguyen, 2023) found that sustainability-oriented creativity initiatives boost employees' innovative environmental conservation behaviours. Sustainability into the organisational vision, green skill training and development, and collaborative environmental problem-solving are some of these initiatives. Kiranantawat and Ahmad (2023) found that empowering leadership, a key component of sustainable creativity techniques, boosts intrinsic

motivation and creative self-efficacy, increasing creativity (Li et al., 2023). From these empirical findings, the hypothesis that sustainable creativity practices greatly influence employee green creativity can be developed. Sustainable creative strategies, which clearly incorporate environmental aims and sustainability principles, shape employee green creativity (Nasir, 2023). Green training programmes give employees the tools to solve environmental issues creatively. Begum, Xia, et al. (2022) found that green HR approaches including training and development improve employees' environmental performance. Organisations that foster sustainability collaboration allow staff to share varied viewpoints and ideas, resulting in more innovative and effective green solutions (Begum, Ashfaq, et al., 2022). Luu (2022) found that team-based problem-solving and information sharing improve green innovation outcomes. Positive outcomes from sustained creative initiatives in diverse organisational contexts support the hypothesis (Luu, 2022). When firms integrate their creativity strategy with sustainability goals, they encourage innovation and employee participation in environmental goals (Ogbeibu et al., 2021). This alignment gives employees purpose and motivates them to solve sustainability problems creatively. Nasir (2023) found that employees are more likely to be pro-environmental and give new ideas when they believe their company is sustainable. Thus, a strong body of empirical evidence supports the idea that sustainable creativity initiatives boost employee green creativity, resulting in more sustainable and innovative organisational practices.

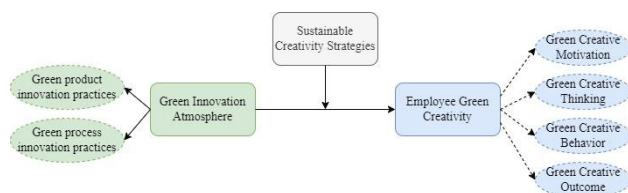
## *H2. Sustainable creativity strategies significantly influence the employee green creativity.*

Organisational initiatives have been shown to moderate the association between workplace

climates and employee outcomes (Rana & Arya, 2024). Innovation-supportive HR strategies boost employee creativity in creative work environments, according to Le et al. (2024). Sustainability studies demonstrate that various techniques might increase the link between environmental initiatives and employee behaviour. Şengüllendi et al. (2024) found that sustainable training programmes and eco-friendly performance appraisals improve environmental management systems' green behaviour engagement. Ejibe et al. (2024) revealed that integrating environmental strategy into organisational frameworks considerably increases corporate environmental policies' impact on employees' pro-environmental actions. From these empirical findings, the hypothesis that sustainable creativity strategies considerably regulate the association between green innovation atmosphere and employee green creativity can be developed (Choudhary & Datta, 2024). Sustainable creativity strategies, green skills training, sustainable leadership, and collaborative problem-solving can boost employee creativity in a green innovation environment (Soomro et al., 2024). Structured sustainability training helps employees understand and interact with green innovation efforts, improving their creativity. This supports Renwick et al. (2013), who found that green HR practices alter employee behaviour and boost the organization's environmental strategies (You & Kee, 2024). Evidence that sustainable creativity practices foster green creativity supports the concept. Organisations that promote sustainable innovation give staff the tools and information they need and create a culture that rewards green creativity (Tuan, 2023). Employee creativity increases when green innovation atmosphere and sustainable creativity initiatives work together. For instance, Fazal-e-Hasan et al. (2023) discovered that empowered leadership, a major component of sustainable creative initiatives,

greatly enhances the positive benefits of a sustainability-focused organisational climate on staff innovation (Setyaningrum & Muafi, 2023). Thus, a large body of empirical evidence supports the hypothesis that sustainable creativity strategies moderate the relationship between green innovation atmosphere and employee green creativity, resulting in more effective and sustainable innovation in organisations.

*H3. Sustainable creativity strategies significantly moderate the relationship of green innovation atmosphere and employee green creativity.*



**Figure 1:** Theoretical Model

### 3. Methodology

This study examined the collected data of 247 Employees from the R&D department of a green innovative technology development company in Shenzhen, China. Due to its technological innovation and green technology focus, Shenzhen was a smart pick. Participants were chosen for their direct involvement in green innovation R&D, assuring relevance and knowledge in the study's core area. The study measured essential constructs using scales from earlier studies. We used scales for Sustainable Creativity Strategies, Green Innovation Atmosphere, and Employee Green Creativity. They were chosen for their reliability and validity in assessing organisational constructs and have been verified in past publications. Participants completed structured questionnaires about sustainable creativity techniques, organisational

green innovation atmosphere, and green creative behaviours. Participant preference and organisational logistics determined whether surveys were given electronically or in print form.

**Table 1:** Questionnaire Profile

<i>Variable</i>	<i>Number</i>	<i>Reference</i>
Sustainable Creativity Strategies	05	(Zahrani, 2022)
Green Innovation Atmosphere	12	(Weng et al., 2015)
Employee Green Creativity	16	(Jiang et al., 2021)

Stata-SEM, a powerful statistical tool for analysing complex latent variable associations, was used for statistical analysis. Initial validation of the measurement model and scale reliability and validity was done using confirmatory factor analysis (CFA). The hypothesised correlations between Sustainable Creativity Strategies, Green Innovation Atmosphere, and Employee Green Creativity were tested using structural equation modelling (SEM). The research followed a methodical data gathering, cleaning, and processing process. Missing data were handled properly, and SEM assumptions like normality and multicollinearity were reviewed and addressed. Chi-square, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardised Root Mean Square Residual (SRMR) were used to assess structural model goodness-of-fit. The study checked for validity and reliability throughout. This included using psychometrically sound scales, rigorous statistical methods, and SEM analysis best practices. Sensitivity and robustness analyses verified results stability and consistency across model parameters.

## 4. Results

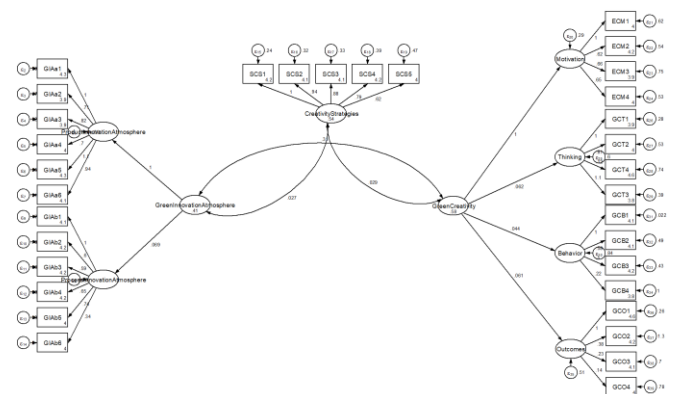
Sustainable creativity strategies, green innovation atmosphere, and employee green creativity are the study's major factors. Table 2 shows their reliability and validity metrics. These parameters are essential for build uniformity and accuracy. Sustainable Creativity Strategies has 0.897 Cronbach's Alpha. Internal consistency is strong, indicating that this construct's items are highly connected and dependable. The Composite Reliability (CR) for this variable is 0.931, confirming the measurement model's reliability. Composite dependability values above 0.70 are generally acceptable, and above 0.90 are quite high. Sustainable Creativity Strategies have 0.521 AVE. If the latent concept accounts for more than half of the variance in the observable variables, the AVE value should be over 0.50 to demonstrate its convergent validity.

**Table 2:** Variables reliability and validity

Variable	Cronb ach's Alpha	Comp osite Relia bility	Aver age Vari ance Extra cted (AV E)
Sustainable Creativity Strategies	0.897	0.931	0.521
Green Innovation Atmosphere	0.929	0.867	0.546
Employee Green Creativity	0.858	0.932	0.528

The Green Innovation Atmosphere variable has a Cronbach's Alpha of 0.929, indicating high internal consistency. Its strong alpha value shows that the items are reliable and measure the construct consistently across contexts. The Composite Reliability for this variable is 0.867, suggesting robustness. Despite being slightly

lower than the CR for Sustainable Creativity Strategies, it comfortably exceeds 0.70, guaranteeing the construct's trustworthiness. AVE for Green Innovation Atmosphere is 0.546, exceeding the 0.50 standard and demonstrating that the construct has strong convergent validity, capturing most of the items' variance. Employee Green Creativity has 0.858 Cronbach's Alpha. This result shows strong internal consistency and reliability of this build indicator items. At 0.932, Composite Reliability indicates a very trustworthy measurement model for this variable. The AVE is 0.528, exceeding the 0.50 criterion like the other variables. With the latent variable explaining more than half of the variance in the observed measurements, the construct has strong convergent validity.



**Figure 2:** Estimated Model

The confirmatory factor analysis (CFA) tests the measurement model's fit for the latent components Sustainable Creativity Strategies (SCS), Green Innovation Atmosphere (GIA), and Employee Green Creativity (GCM, GCT, GCB, GCO) in Table 3. Standardised coefficients (OIM Coef.) indicate each measurement item's latent construct representation strength. The coefficients, standard errors, z-values, significance levels ( $P > |z|$ ), and 95% confidence intervals reveal the measurement model's reliability and validity. The restricted

coefficients of 1.000 for each first item in the construction serve as reference points for comparing following items' strength and contribution.

**Table 3:** Confirmatory Factor Analysis

Measurement	OIM Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
SCS1	1.000	(constant)				
SCS2	0.568	0.044	10.985	0.000	0.385	0.550
SCS3	0.595	0.047	10.648	0.000	0.150	0.573
SCS4	0.171	0.085	8.955	0.000	0.258	0.838
SCS5	0.218	0.039	7.515	0.000	0.254	0.784
GIAa1	1.000	(constant)				
GIAa2	0.518	0.082	8.542	0.000	0.167	0.762
GIAa3	0.712	0.082	8.912	0.000	0.207	0.802
GIAa4	0.589	0.081	8.466	0.000	0.155	0.751
GIAa5	0.616	0.050	9.425	0.000	0.517	0.714
GIAa6	0.589	0.079	9.081	0.000	0.275	0.751
GIAb1	1.000	(constant)				
GIAb2	0.546	0.083	8.466	0.000	0.170	0.761
GIAb3	0.465	0.095	7.666	0.000	0.232	0.769
GIAb4	0.680	0.057	9.236	0.000	0.568	0.631
GIAb5	0.530	0.075	10.555	0.000	0.283	0.906

GIAb6	0.562	0.087	8.331	0.000	0.218	0.788
GCM1	1.000	(constant)				
GCM2	0.085	0.088	9.367	0.000	0.351	0.918
GCM3	0.674	0.053	9.825	0.000	0.569	0.617
GCM4	0.407	0.079	9.949	0.000	0.275	0.883
GCT1	1.000	(constant)				
GCT2	0.677	0.039	72.782	0.000	0.114	0.350
GCT3	0.675	0.036	78.257	0.000	0.105	0.383
GCT4	0.591	0.074	9.376	0.000	0.140	0.560
GCB1	1.000	(constant)				
GCB2	0.737	0.037	78.510	0.000	0.184	0.422
GCB3	0.688	0.063	9.882	0.000	0.217	0.712
GCB4	0.591	0.038	77.154	0.000	0.207	0.371
GCO1	1.000	(constant)				
GCO2	0.434	0.037	79.100	0.000	0.232	0.653
GCO3	0.292	0.038	79.420	0.000	0.316	0.462
GCO4	0.512	0.039	76.632	0.000	0.313	0.720

Table 4 shows the fitness data for Sustainable Creativity Strategies, Green Innovation Atmosphere, and Employee Green Creativity. The standardised factor loadings from the original sample show how well each indicator item connects with its latent construct. Higher



factor loadings indicate stronger correlations between measuring items and constructs. Sustainable Creativity Strategies metrics like SCS3 (0.739) and SCS2 (0.718) have strong correlations with the entire construct, showing they accurately capture sustainable creative behaviours. For Green Innovation Atmosphere, GIAa4 (0.797) and GIAb3 (0.720) have high loadings, showing their efficacy in measuring the organisational climate for green innovation. Indicators like GCM2 (0.837) and GCO3 (0.779) strongly correlate with their characteristics of creativity, proving their relevance in assessing employees' green creativity. The study's measuring model is reliable and valid, laying the groundwork for subsequent studies and interpretations of these constructs' linkages.

**Table 4:** Measurement Items Fitness Statistics

Variable	Indicator	Original Sample
Sustainable Creativity Strategies	SCS1	0.667
	SCS2	0.718
	SCS3	0.739
	SCS4	0.670
	SCS5	0.573
Green Innovation Atmosphere	GIAa1	0.566
	GIAa2	0.606
	GIAa3	0.617
	GIAa4	0.797
	GIAa5	0.585
	GIAa6	0.534
	GIAb1	0.637
	GIAb2	0.684
	GIAb3	0.720
	GIAb4	0.610
Employee Green Creativity	GIAb5	0.635
	GIAb6	0.649
	GCM1	0.798

	GCM2	0.837
	GCM3	0.672
	GCM4	0.708
	GCT1	0.595
	GCT2	0.520
	GCT3	0.763
	GCT4	0.668
	GCB1	0.695
	GCB2	0.710
	GCB3	0.562
	GCB4	0.555
	GCO1	0.688
	GCO2	0.678
	GCO3	0.779
	GCO4	0.737

Table 5 shows the chi-square fit statistics used to compare the structural equation model (SEM) to the saturated and baseline models. The likelihood ratio chi-square value of 7827.455, with a p-value of 0.000, suggests that the proposed model and saturated model fit differently. The baseline chi-square value of 3236.769, likewise with a p-value of 0.000, shows a substantial difference from the saturated model, demonstrating the model's ability to capture variable associations. These fit statistics reveal the SEM's goodness-of-fit, allowing us to assess its ability to explain the relationships between Sustainable Creativity Strategies, Green Innovation Atmosphere, Employee Green Creativity, and other study constructs.

**Table 5:** Chi-square Fit statistics

Fit statistic	Value	Description
Likelihood ratio	7827.455	model vs. saturated
p > chi2	0.000	
chi2_bs(2728)	3236.769	baseline vs. saturated
p > chi2	0.000	

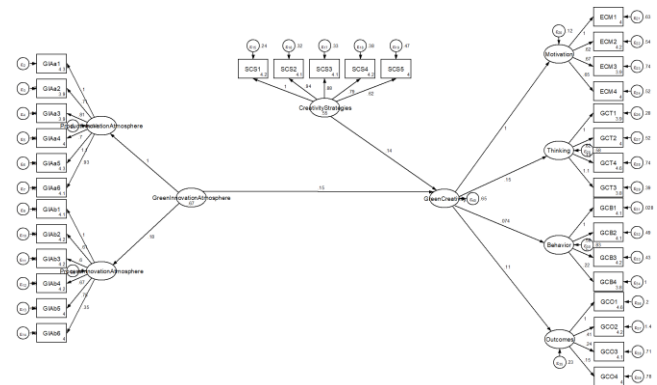
Table 6 shows R-square statistics comparing the saturated model to the estimated model, showing how much variance each variable explains. The Saturated Model has a decent match with an SRMR (Standardised Root Mean Square Residual) of 0.040, while the Estimated Model has 0.069, a little higher residual error but still within acceptable standards. Job Security (0.253) and Job Autonomy (0.554) R-square values in the Estimated Model indicate how much variance the model explains. These statistics help determine the structural equation model (SEM)'s goodness-of-fit and explanatory power, revealing how well the data supports the proposed relationships between Sustainable Creativity Strategies, Green Innovation Atmosphere, Employee Green Creativity, and other variables.

**Table 6:** R-square statistics Model Goodness of Fit Statistics

	Saturate d Model	Estimated Model	R Square
SRMR	0.040	0.069	
Job security			0.253
Job autonomy			0.554
Employee engagement			0.575

The route analysis of Green Innovation Atmosphere, Sustainable Creativity Strategies, and Employee Green Creativity is shown in Table 7. Path coefficients (OIM Coef.) indicate the intensity and direction of the variables' association, together with their standard error, z-value, significance level ( $P > |z|$ ), and 95% confidence interval. A path coefficient of 0.588 ( $z = 4.005$ ,  $p < 0.001$ ) suggests that Green Innovation Atmosphere strongly impacts Employee Green Creativity, with a confidence interval of 0.349 to 0.466. This shows that a

green innovation-friendly workplace boosts employees' sustainability creativity. The significant path coefficient suggests that as organisations commit to green innovation, employees are more likely to engage in innovative behaviours that promote environmental sustainability, supporting prior research on organisational climate and creativity (Amabile et al., 1996; Robertson & Barling, 2013).



**Figure 3:** Structural Model for Path Analysis

Similarly, Sustainable Creativity Strategies strongly impact Employee Green Creativity ( $p < 0.001$ , path coefficient 0.519,  $z = 3.548$ , confidence interval 0.269-0.769). This shows the necessity of structured strategies to encourage sustainable creative behaviour among employees. The positive relationship shows that organisations that promote sustainable innovation with resources, training, and support drive employee creativity towards environmental goals. Organisational interventions influence employee sustainability behaviours and outcomes, according to theoretical perspectives (Renwick et al., 2013; Zhang & Bartol, 2010). Additionally, Sustainable Creativity Strategies moderate the link between Green Innovation Atmosphere and Employee Green Creativity, with a path coefficient of 0.492 ( $z = 3.360$ ,  $p <$

0.001) and a confidence interval of 0.255 to 0.728. This moderating impact shows that focused sustainability measures enhance employee green creativity in a supportive green innovation environment. Combining a green innovation environment with well-organized interventions to foster sustainable creativity can have combined effects that result in more creative output in environmental projects. This emphasises the requirement of a whole strategy combining strategic support with environmental dedication to boost staff innovation in favour of organisational sustainability.

**Table 7:** Path Analysis

	OI M Co ef.	Std .Err .	z	P>  z	[95% Conf. Interval]	
Green innovation atmosphere significantly influences the employee green creativity.	0.588	0.208	4.005	0.000	0.349	0.466
Sustainable creativity strategies significantly influence the employee green creativity.	0.519	0.128	3.548	0.000	0.269	0.769
Sustainable creativity strategies significantly moderate the relationship	0.492	0.121	3.360	0.000	0.255	0.728

of green innovation atmosphere and employee green creativity.						
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## 5. Discussion

Sustainable development depends on employee creativity and organisational innovation. Businesses are adopting environmentally friendly solutions to lessen their ecological effect and increase resilience in light of the growing severity of environmental challenges around the world. In order to understand how employee green creativity, sustainable creativity methodologies, and the atmosphere of green innovation interact to support sustainable invention, this study looks at the intricate relationships between these factors. The report clarifies how businesses could successfully integrate sustainability. It demonstrates how businesses may harness the inventiveness of their staff to solve environmental problems. This is achieved by assessing the connections between these elements.

An atmosphere conducive to green innovation plays a crucial influence in employee green creativity, and organisational climate supports environmentally focused innovation. A supportive workplace fosters employee innovation, according to (Arici & Uysal, 2022). This conclusion emphasises the need for such a scenario and encourages research. A culture that prioritises sustainability, resources for eco-friendly projects, and environmental goals spurs green innovation. This environment inspires employees to find creative, achievable solutions to reduce their environmental impact. The organization's commitment to environmental sustainability and green innovation in structure

and motivation is shown here. Thus, employee creativity supports business goals. This study supports Mansoor et al. (2021) claims that green innovation boosts employee green creativity. Organisational support strongly influences environmentally conscious behaviour and creativity, according to the study. This shows that management and leadership are essential to environmentally responsible firm innovation. Leaders may inspire people to be environmentally conscious and work towards a common goal by modelling sustainability. Transformational leadership boosts green creativity by fostering creative sustainability thinking, according to Malik et al. (2021). The study found that workers who believe their bosses share their environmental ideals are more inventive in addressing environmental issues. Leaders must foster green innovation and empower people to approach sustainability issues imaginatively. An workplace that encourages green innovation boosts employee creativity, which benefits sustainable firms. Companies that wish to unleash worker creativity and create long-term solutions should promote green innovation. Rules are needed for green projects. These policies and practices include eco-friendly skill development and training, cooperative idea-generation platforms, and staff sustainability recognition. The research shows that these programmes help workers address environmental issues and use eco-friendly goods. Companies that invest heavily in green innovation frameworks may see increased staff creativity and sustainability.

Validating the second hypothesis, which states that sustainable creativity practices strongly influence employee green creativity, emphasises the need of planned organisational interventions in supporting environmentally conscious innovative behaviour among workers. Hu et al. (2022) found that tailored strategies boost creativity. The conclusion supports previous

research. Worker knowledge, skills, and drive enable environmentally conscious innovation and sustainable solutions. Cooperative problem-solving, sustainable labour, and green training are examples. These strategies were strongly correlated with employees' innovative environmental efforts, according to the study. Sustainability-focused employers can inspire employee creativity to achieve environmental goals. According to creativity and sustainability theories, organisational support and resources help employees create innovative environmental solutions Maitlo et al. (2022). Third hypothesis: sustainable creativity methods attenuate the relationship between an atmosphere of green innovation and employee green creativity. This helps us understand how organisational climates and structured interventions affect creative behaviour. The third hypothesis is that sustainable creativity techniques moderate the relationship. The findings show that sustainable creative methods boost green innovation by promoting green creativity. The moderating influence suggests that explicit measures to support and encourage sustainable innovation are more effective in boosting employee creativity when joined with a green innovation climate. However, this effectiveness is dramatically boosted. This study confirms past research on organisational behaviour and innovation that revealed structured interventions and supportive environments encourage creativity Arici and Uysal (2022). This supports that view. According to statistics, companies that implement sustainable creativity initiatives into their operational frameworks encourage environmentally friendly innovation and a creative workplace. These findings are significant for firms seeking to improve sustainability through staff innovation and creativity. Recognising the complimentary impacts of sustainable creativity and green innovation may help organisations establish

more complete green creativity initiatives. This requires creating a sustainable workplace and implementing focused methods to give employees the tools, supplies, and rewards they need to produce sustainably. Comprehensive green training programmes may raise employees' environmental knowledge and skills, while collaborative platforms can boost innovation. Recognising and praising sustainability accomplishments can boost employee commitment to environmental goals. This study stresses the necessity for a robust green innovation and sustainable creativity environment to boost employees' green creativity and encourage sustainable innovation in organisations.

The necessity of promoting green creativity among staff members by establishing an environment that is conducive to sustainable creativity and green innovation is highlighted by the validation of all three hypotheses. Employee creativity contributes more to sustainability in an environment that encourages green innovation, and sustainable creativity techniques offer the framework and resources to amplify this impact. A green innovation environment and employee green creativity can interact in ways that are controlled by sustainable creativity methodologies, demonstrating the potential for synergy between customised interventions and the right climate. For businesses that prioritise sustainability, these insights are crucial. They contend that employees' creative potential can be unlocked by integrating strategic assistance with environmental dedication, leading to noteworthy and inventive environmental solutions.

## 6. Conclusion

This study found several ways organisational cultures and strategic actions might boost employee creativity and environmental sustainability. The findings underline the

importance of an organisation's commitment to sustainability and the importance of a conducive environment for eco-friendly innovation in encouraging employee environmental innovation. The research also implies that sustainable creative tactics boost employees' environmental stewardship concepts. This study shows that supportive surroundings and specialised interventions can synergize. These tactics boost organisational atmosphere and staff green creativity. Practically, these findings suggest that businesses can improve their sustainability by promoting green innovation and implementing systematic techniques that empower individuals to creatively solve sustainability problems. This method improves organisations' resilience and competitiveness and supports environmental and sustainable development goals. To better understand these processes, we must identify and address the limitations and aggressively pursue future study. This will provide insights for organisational leaders and governments trying to manage sustainability in a changing world.

### *Implications of the study*

Research in the fields of organisational theory and sustainability will be affected by this study. First, the research clarifies how surroundings of green innovation in companies boost employee green creativity. Showing that green innovation stimulates creative activities that enhance environmental sustainability supports and expands ideas of organisational climate and creativity. Strategic aims and organisational leadership influence employee sustainability. Second, the study underlines sustainable creativity ways in employee green innovation to develop theories. Structured interventions comprising training, environmentally friendly practices, and cooperative platforms encourage sustainable invention, hence extending theoretical frameworks linking organisational

practices to creativity (Renwick et al., 2013; Zhang & Bartol, 2010). This theoretical contribution highlights the need for organisations to invest in focused efforts that enable people to creatively solve environmental concerns. The work also enhances sustainability-oriented innovation moderating effects theory. Sustainable creativity strategies change the relationship between green innovation atmosphere and employee green creativity, showing the combined effects of supportive organisational climates and personalised interventions. This theoretical insight emphasises the need for integrated approaches that optimise employee creativity towards sustainability goals using environmental commitment and strategic aid.

This research is important for firms looking to increase sustainability through employee creativity and innovation. First, the findings stress organisational green innovation support. Giving environmental sustainability top priority and including it into business culture will motivate employees to create environmentally friendly projects. Realistic are establishing sustainability targets, supporting green initiatives, and encouraging innovation and idea sharing. The study highlights environmentally friendly creative solutions to raise staff members' sustainable innovation level. Organisations can gain from teaching sustainable practices, including environmentally friendly policies and methods into daily operations, and providing venues for group solutions of sustainability problems. These initiatives improve staff capacity and match them with corporate sustainability objectives, therefore promoting innovation and long-term environmental responsibility. The research also emphasises the need of including a supportive organisational environment together with particular projects to maximise sustainability activities. The synergistic results of this study can assist

companies applying holistic approaches combining structured support for creative innovation with leadership commitment to sustainability. This approach links sustainability objectives with strategic planning, honours staff green initiatives, and regularly changes sustainability policy in response to environmental concerns and employee comments.

### ***Limitations and Future Research Directions***

This research carries some limitations even if it has made some worthwhile contributions. The study could have limited generalizability by concentrating on sectors or businesses with varying sustainability strategies and organisational environments. Comparative studies across sectors or worldwide areas could test the robustness of found links in future study. Self-reported data for factors like green innovation atmosphere and staff green creativity may introduce common method bias, exaggerating construct connections. Mixed-method or longitudinal designs can capture quantitative and qualitative data to better understand how organisational environments affect sustainability-oriented creativity over time.

This analysis suggests several intriguing research options. One avenue could be to study how sustainable creativity practices affect employee green creativity. Examine how training, incentives, and organisational rules affect employees' abilities to create and implement sustainable ideas. Additionally, studying how leadership styles and organisational culture support green innovation may provide ways to promote sustainability-oriented creativity at different organisational levels. Future research should also examine the border circumstances that affect sustainable creativity techniques' ability to moderate the relationship between

green innovation atmosphere and employee green creativity. Organisational size, industry features, and geographic location may help explain when and how these tactics work best. Longitudinal studies could also examine the dynamic nature of organisational environment, sustainable creativity practices, and employee green creativity and their long-term effects on organisational sustainability. Addressing these limitations and following these potential research directions might improve our understanding of how organisations can use innovation and creativity to achieve sustainability goals. Researchers can inform organisational practices and policies that promote environmental stewardship and sustainable development in varied organisational contexts by examining these avenues.

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### **Conflict of Interest**

The authors have no conflicts of interest to declare that are relevant to the content of this article.

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