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THE ROLE OF GREEN LEADERSHIP IN GREEN CREATIVITY OF EMPLOYEES

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Abstract. The current research aimed to explore the conceptual framework of green leadership and green creation. It sought to shed light on the current state of green leadership and green creativity at Director of Electricity Distribution Center Nineveh. And to offer recommendations regarding the role of green leadership in green creativity. The study employed a descriptive methodology, utilizing a questionnaire administered to a sample of 80 employees were selected as research respondents. The results of the study showed that green leadership has a positive and significant effect on green creativity of employees. The practical implications of these findings underscored the importance of developing green leadership as strategies for improving of green creativity of employees in public organizational environments. These implications could help organizations make more effective employees.

Keywords: Green leadership, Green creativity, Director of Electricity Distribution Center Nineveh

Introduction

Given the current circumstances, there is growing pressure from regulatory bodies, investors, and consumers for organizations to demonstrate tangible and actionable environmental performance. This has compelled organizations to adopt a proactive and innovative approach to environmental management [1]. "Employee green creativity" which encompasses the generation, promotion, and implementation of eco-friendly ideas and practices by staff is a critical factor in this transition. It is an essential function that influences an organization's environmental performance, yet it is a process that cannot be managed or mandated solely by top-level leadership [2]. Consequently, understanding the organizational and leadership conditions that foster eco-friendly creative behavior has become a subject of increasing theoretical and practical interest, as such behavior is fundamentally linked to the willingness and individual creativity of employees.

The concept of "green leadership" a leadership style proposed to stimulate green creativity among employees has gained significant attention in academic literature. It involves leaders articulating a clear environmental vision, actively participating in environmental initiatives, and encouraging environmentally responsible behaviors among their staff [3]. It has been established that green leadership influences employees' attitudes and workplace behaviors. Furthermore, it has been found that environmentally committed leaders who articulate a clear environmental vision exert a tangible impact on shaping employees' attitudes and behaviors toward the environment [4]. Although previous studies have acknowledged a relationship between green leadership and green creativity, they have primarily focused on the direct impact of green leadership on green creativity, with a limited understanding of the psychological mechanisms that link green leadership to employees' green creativity [5], [6], [7], [8].

Therefore, in this study, the researcher highlights the relationship between green leadership and the green creativity of employees.

Theoretical Issues and Hypothesis

Green leadership:

Green leadership refers to a leader's ability to define realistic environmental policies and their capacity to support those policies. This involves guiding organizational members to endorse environmental policies and participate in environmental activities. A green leader plays a crucial role in fostering a sustainable environment and strengthening support for environmental policies within an organization [9].

Moreover, This type of leadership provides individuals with the necessary resources to engage in future green innovation by understanding their needs, capabilities, and motivations. For management, fostering green creativity among employees is crucial for driving organizational innovation [10].

Green creation of employees

Academic discussions highlight creativity as a key employee attribute in aligning human skills with organizational objectives in specific contexts [10]. Green creativity empowers employees to generate innovative ideas for products and services, which, in turn, encourages them to adopt more environmentally conscious behaviors [11]. Furthermore, the literature on intrinsic motivation [12] and employee behavior and innovation [13] suggests that when employees are intrinsically motivated and find inherent satisfaction in their work, they are more likely to engage in creative problem-solving and exhibit positive work behaviors, including those with an environmental focus. Furthermore, green creation is defined as hardware and software innovation associated with green products or processes including energy storage and conservation, pollution prevention, waste recycling, green product design, and organizational environmental management. Through these measures, green creation contributes to meeting environmental protection and conservation requirements. It places significant emphasis on practices that reduce environmental impact and foster a clean work environment, utilizing green manufacturing processes alongside eco-friendly and recyclable products [14].

The relationship between green leadership and green creativity of employees:

The sustainability and green care is gradually conversed and has become a very related topic now. Green stability occurs as a very significant element in the corporate world in the 21st century [15]. Pollution is seen growing from year to year until the development of a green which offers an method to the use of incomes professionally with savings and green care [2].

In addition, Along with global tests from resource lack and environmental pollution, green leadership has involved widespread attention.

Green creativity refers to employees' ability to generate new and useful ideas for solving environmental problems and improving environmental performance. Through the influence of leadership, it has been demonstrated that leaders who provide employees with autonomy, resources, and psychological safety within a context that encourages experimentation contribute to greater creative engagement by employees in addressing environmental issues and enhancing environmental performance [16].

Hence, further research needs to be carried out for determining the presence/absence of a relationship between green leadership and green creativity of employees in organizations generally and researched organization epically.

Based on the above discussion, the researcher investigated the relationship between the green leadership and green creativity of employees in Director of Electricity Distribution Center Nineveh in Iraq.

Hence, the below-mentioned hypotheses were proposed:

H1: There is a significant correlation between green leadership and green creativity of employees in the researched organization.

H1.1: There is a significant correlation between green leadership (combined) and green creativity of employees (individually) in the researched organization.

H2: There is a significant effect of the green leadership on the green creativity of employees in the researched organization.

H2.1: There is a significant effect of the dimensions of green leadership (combined) on the green creativity of employees (individually) in the researched organization.

Proposed Conceptual Framework

Developing a theoretical model required a thorough investigation of the literature related to the specific topics and formation of speculative suppositions. As a single model cannot clarify the state of the study, the researchers developed a notional model in this study using the configuration proposed by framework included the green leadership and green creativity of employees (Figure 1). Furthermore, the green leadership items were derived from [17], [18]. The green creativity items were derived from the study conducted by [19].

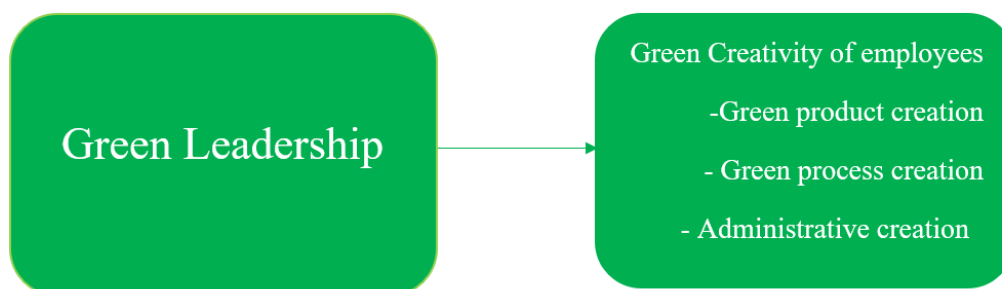


Figure 1. Conceptual Framework

Methods

The researcher implemented a quantitative research technique in the study. All data was collected from the employees working in the Director of Electricity Distribution Center Nineveh in Iraq. The researcher implemented a conceptual framework for determining the relationship between the green leadership and green creativity of employees. They distributed the survey questionnaires physically to the randomly-selected respondents. The questionnaires were written in the Arabic languages. The questionnaires included 4 sections; Section 1 included questions related to the demographic information of the respondents; Section 2 covered the green leadership (10 items); Section 3 highlighted the green creativity of employees (24 items). These questionnaires were distributed amongst 90 employees. Out of the 80 questionnaires that were collected, 3 were filled (i.e., 89%)

Thereafter, these were categorized and analyzed. Thus, it was concluded that the employees were willing to share information with the researcher which increased their trust in the data. Frequencies, percentages, arithmetic means, standard deviations, and relative importance for all items across the questionnaire's dimensions will be extracted using the SPSS, 26.

Results and Discussion

First: Descriptive analysis

A. Descriptive Analysis of Green Leadership Variable Items as shown in the tables below:

Table 1. Description and Diagnosis of Green Leadership Items

Items	Response Scale										Mean	Standard Deviation	Relative Importance (%)
	Strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	F	%	F	%	F	%	F	%	F	%			
GL_1	58	72.5	18	22.5	4	5.0	0	0.0	0	0.0	4.675	0.569	93.5
GL_2	47	58.7	30	37.5	3	3.8	0	0.0	0	0.0	4.550	0.571	91.0
GL_3	22	27.5	55	68.7	3	3.8	0	0.0	0	0.0	4.237	0.509	84.8
GL_4	17	21.3	58	72.5	4	5.0	0	0.0	1	1.2	4.125	0.603	82.5
GL_5	22	27.5	46	57.5	11	13.8	1	1.2	0	0.0	4.112	0.675	82.3
GL_6	27	33.8	40	50.0	13	16.2	0	0.0	0	0.0	4.175	0.689	83.5
GL_7	33	41.3	33	41.2	14	17.5	0	0.0	0	0.0	4.237	0.733	84.8
GL_8	37	46.3	34	42.5	9	11.2	0	0.0	0	0.0	4.350	0.677	87.0
GL_9	38	47.5	29	36.2	10	12.5	3	3.8	0	0.0	4.275	0.826	85.5
GL_10	32	40.0	33	41.3	12	15.0	1	1.2	2	2.5	4.150	0.901	83.0
GL	41.6%		47.0%		10.4%		0.6%		0.4%		4.289	0.675	85.8%
	88.6%						1.0%						

As shown in Table (1), the Green Leadership (GL) variable signified by items GL_1 through GL_10 established an agreement rate ("strongly agree" and "agree") of 88.6% of the total responses from the sample, while the disagreement rate ("disagree" and "strongly disagree") was 1.0%, and the proportion of neutral responses was 10.4%. This is extra supported by a mean score of 4.289, a standard deviation of 0.675, and a response rate of 85.8%. Item GL_1, which states, "It enhances employees' awareness regarding environmental protection," recorded the highest mean score at 4.675, with a standard deviation of 0.569 and a response rate of 93.5%.

B. Green Creativity of Employees

1. Analysis of Green Production creativity Items

Table 2. Description and diagnosis of green production creativity items

Items	Response Scale										Mean	Standard Deviation	Relative Importance (%)
	Strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	F	%	F	%	F	%	F	%	F	%			
GDC_1	31	38.8	25	31.2	22	27.5	2	2.5	0	0.0	4.062	0.876	81.3
GDC_2	24	30.0	39	48.7	15	18.8	2	2.5	0	0.0	4.062	0.769	81.3
GDC_3	21	26.3	40	50.0	18	22.5	1	1.2	0	0.0	4.013	0.738	80.3
GDC_4	44	55.0	32	40.0	4	5.0	0	0.0	0	0.0	4.500	0.595	90.0
GDC_5	42	52.5	33	41.3	4	5.0	0	0.0	1	1.2	4.438	0.709	88.8

Items	Response Scale										Mean	Standard Deviation	Relative Importance (%)
	Strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	F	%	F	%	F	%	F	%	F	%			
GDC_6	32	40.0	40	50.0	8	10.0	0	0.0	0	0.0	4.300	0.644	86.0
GDC_7	31	38.8	38	47.5	10	12.5	1	1.2	0	0.0	4.237	0.716	84.8
GDC_8	32	40.0	39	48.8	7	8.8	1	1.2	1	1.2	4.250	0.771	85.0
GDC	40.2%		44.7%		13.7%		1.1%		0.3%		4.233	0.727	84.7%
	84.9%						1.4%						

As shown in Table (2), the dimension of Green Product Creativity (GDC) represented by items GDC_1 through GDC_8 achieved an agreement rate (combining "strongly agree" and "agree") of 84.9% of the total responses from the sample, while the disagreement rate ("disagree" and "strongly disagree") stood at 1.4%, and neutral responses accounted for 13.7%. This is supported by a mean score of 4.233, a standard deviation of 0.727, and a response rate of 84.7%. Item GDC_4, which states, "Management improves the efficiency of the facilities and reduces their environmental impact," recorded the highest mean score at 4.500, with a standard deviation of 0.595 and a response rate of 90.

2. Analysis of Green Process Creativity Items

Table 3. Description and Diagnosis of Green Process Creativity Items

Items	Response Scale										Mean	Standard Deviation	Relative Importance (%)
	Strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	F	%	F	%	F	%	F	%	F	%			
GCC_1	35	43.8	28	35.0	17	21.2	0	0.0	0	0.0	4.225	0.779	84.5
GCC_2	33	41.3	31	38.8	14	17.5	1	1.2	1	1.2	4.175	0.854	83.5
GCC_3	26	32.5	44	55.0	10	12.5	0	0.0	0	0.0	4.200	0.644	84.0
GCC_4	27	33.8	40	50.0	11	13.8	1	1.2	1	1.2	4.138	0.791	82.8
GCC_5	23	28.8	48	60.0	8	10.0	1	1.2	0	0.0	4.162	0.645	83.3
GCC_6	29	36.2	40	50.0	11	13.8	0	0.0	0	0.0	4.225	0.675	84.5
GCC_7	30	37.5	38	47.5	12	15.0	0	0.0	0	0.0	4.225	0.693	84.5
GCC_8	33	41.2	30	37.5	15	18.8	2	2.5	0	0.0	4.175	0.823	83.5
GCC	36.9%		46.7%		15.3%		0.8%		0.3%		4.191	0.738	83.8%
	83.6%						1.1%						

As shown in Table (3), the dimension of Green Process Creativity (GCC) represented by items GCC_1 through GCC_8 achieved an agreement rate (combining "strongly agree" and "agree") of 83.6% of the total responses from the sample, while the disagreement rate ("disagree" and "strongly disagree") stood at 1.1%, and neutral responses accounted for 15.3%. This is supported by a mean score of 4.191, a standard deviation of 0.738, and a response rate of 83.8%. Items GCC_1, GCC_6, and GCC_7 recorded the highest mean score an identical 4.225 with standard deviations of 0.779, 0.675, and 0.693, respectively, and a response rate of 84.5% for each. These items state: "Providing creative solutions and sustainable technologies to improve the department's environmental performance," "Using clean technology to reduce the impacts of pollution," and "Encouraging green creativity by establishing a robust strategy to motivate employees."

3. Analysis of Administrative Creativity Items:

Table 4. Description and Diagnosis of Administrative Creativity Items

Items	Response Scale										Mean	Standard Deviation	Relative Importance (%)
	Strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	F	%	F	%	F	%	F	%	F	%			
AC_1	37	46.2	35	43.8	7	8.8	0	0.0	1	1.2	4.338	0.745	86.8
AC_2	31	38.8	36	45.0	13	16.2	0	0.0	0	0.0	4.225	0.711	84.5
AC_3	29	36.3	41	51.2	10	12.5	0	0.0	0	0.0	4.237	0.661	84.8
AC_4	29	36.3	45	56.3	5	6.2	1	1.2	0	0.0	4.275	0.636	85.5
AC_5	29	36.3	41	51.2	10	12.5	0	0.0	0	0.0	4.237	0.661	84.8
AC_6	30	37.5	35	43.8	14	17.5	0	0.0	1	1.2	4.162	0.803	83.3
AC_7	23	28.8	38	47.5	16	20.0	1	1.2	2	2.5	3.987	0.879	79.8
AC_8	28	35.0	43	53.8	9	11.2	0	0.0	0	0.0	4.237	0.641	84.8
AC	36.9%		49.1%		13.1%		0.3%		0.6%		4.212	0.717	84.3%
	86.0%						0.9%						

As shown in Table (4), the dimension of administrative creativity (AC) represented by items AC_1 through AC_8 achieved an agreement rate (combining "strongly agree" and "agree") of 86.0% of the total responses from the sample, while the disagreement rate (combining "disagree" and "strongly disagree") was 0.9%, and the proportion of neutral responses was 13.1%. This is supported by a mean score of 4.212, a standard deviation of 0.717, and a response rate of 84.3%. Item AC_1 which states, "Environmentally friendly and sustainable management practices are used in all aspects of the organization's operations" recorded the highest mean score at 4.338, with a standard deviation of 0.745 and a response rate of 86.8%.

Model Evaluation Metrics

Following the descriptive analysis of the data, the study model is evaluated using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach a highly suitable statistical method for testing relationships between latent variables. The evaluation process consists of two primary stages. The first stage involves assessing the measurement model, which aims to verify the quality and reliability of the measurement instruments by testing the validity and reliability of the relationships between latent variables and their respective indicators. The second stage involves assessing the structural model, which aims to test the causal relationships between latent variables, estimate the strength and direction of these relationships, and test the hypotheses upon which the study model is based, using the Smart-PLS 3 software.

1. Measurement Model Evaluation:

This stage aims to ensure the validity and stability of the variables and indicators within the model. Tables (5) and (6) summarize the reliability metrics for the study's items and dimensions.

Table 5. Evaluation Criteria for the Green Leadership Variable Model

Latent Variables	Items	Outer Loading		Internal Consistency		
		≥ 0.7	Remain?	AVE ≥ 0.5	Cronbach's Alpha ≥ 0.7	Composite Reliability ≥ 0.7
Green Leadership	GL_1	0.825	Yes	0.640	0.937	0.947
	GL_2	0.785	Yes			
	GL_3	0.741	Yes			
	GL_4	0.767	Yes			
	GL_5	0.771	Yes			
	GL_6	0.885	Yes			
	GL_7	0.824	Yes			

Latent Variables	Items	Outer Loading		Internal Consistency		
		≥ 0.7	Remain?	AVE ≥ 0.5	Cronbach's Alpha ≥ 0.7	Composite Reliability ≥ 0.7
	GL_8	0.824	Yes			
	GL_9	0.758	Yes			
	GL_10	0.811	Yes			

Table 6. Model evaluation criteria for the green creativity variable

Latent Variables	Items	Outer Loading		Internal Consistency		
		≥ 0.7	Remain?	AVE ≥ 0.5	Cronbach's Alpha ≥ 0.7	Composite Reliability ≥ 0.7
Green Product Creativity	GDC_1	0.830	Yes			
	GDC_2	0.838	Yes			
	GDC_3	0.882	Yes			
	GDC_4	0.835	Yes	0.705	0.940	0.950
	GDC_5	0.840	Yes			
	GDC_6	0.795	Yes			
	GDC_7	0.845	Yes			
	GDC_8	0.850	Yes			
Green Process Creativity	GCC_1	0.825	Yes			
	GCC_2	0.834	Yes			
	GCC_3	0.814	Yes			
	GCC_4	0.798	Yes	0.674	0.931	0.943
	GCC_5	0.858	Yes			
	GCC_6	0.779	Yes			
	GCC_7	0.810	Yes			
	GCC_8	0.850	Yes			
Administrative Creativity	AC_1	0.745	Yes			
	AC_2	0.831	Yes			
	AC_3	0.755	Yes			
	AC_4	0.831	Yes	0.658	0.925	0.939
	AC_5	0.799	Yes			
	AC_6	0.832	Yes			
	AC_7	0.871	Yes			
	AC_8	0.817	Yes			
Green Creation				0.596	0.970	0.973

The results presented in Tables (5) and (6) indicate that the measurement model possesses a high degree of validity and reliability. All outer loadings for the items exceeded the acceptable minimum threshold of 0.70, ranging from 0.741 to 0.885. This demonstrates an acceptable level of association between the study's indicators and their respective latent variables, justifying the retention of all items. Furthermore, the Average Variance Extracted (AVE) values for all dimensions and key variables exceeded the acceptable minimum threshold of 0.50, ranging from 0.596 to 0.705; this confirms the convergent validity of the measurement model's variables.

Regarding internal consistency, all variables and dimensions yielded high values for both Cronbach's alpha and composite reliability. Cronbach's alpha coefficients ranged from 0.925 to 0.970, while composite reliability values ranged from 0.939 to 0.973—all of which surpass the recommended minimum threshold of 0.70. This indicates that the study's measures exhibit a high degree of internal consistency and reliability. Based on these findings, it can be concluded that the measurement model

meets the established criteria for reliability and convergent validity within the PLS-SEM methodology. This supports the validity of the measures employed and paves the way for the subsequent stages of the analysis: completing the evaluation of the measurement and structural models, and testing the study's hypotheses. Discriminant validity is a fundamental criterion for evaluating a measurement model. It aims to verify that each latent variable is distinct from the others, ensuring that the indicators used to measure a specific latent variable do not, in fact, measure a different one. To assess this, the study employed the Heterotrait- Monotrait Ratio (HTMT)—one of the most widely used criteria for evaluating discriminant validity within the Partial Least Squares Structural Equation Modeling (PLS-SEM) framework. Table (7) presents the results for this criterion; all HTMT values fall below the accepted threshold of 0.90. This confirms the presence of discriminant validity among the study's variables, indicating that each latent variable possesses sufficient independence from the others and accurately measures the specific construct it was designed to assess.

Table 7. Results of the HTMT criterion

Variables	GL	GDC	GCC	AC	GC
GL	—				
GDC	0.836	—			
GCC	0.805	0.789	—		
AC	0.804	0.873	0.863	—	
GC	0.809	0.789	0.798	0.819	—

2. Evaluation of the Structural Model

Once the reliability and validity requirements for the measurement model have been met, the next step is to evaluate the structural model. This process aims to test the hypothesized causal relationships between latent variables and to verify the study's hypotheses. The evaluation involves examining the model's explanatory and predictive power using a set of statistical indicators most notably the coefficient of determination (R^2) and the effect size (f^2) as well as ensuring the absence of multicollinearity among the variables by calculating the Variance Inflation Factor (VIF). The results for these indicators are presented below:

a. Variance Inflation Factor (VIF)

Table 8. Variance Inflation Factors

Items	VIF	Items	VIF	Items	VIF	Items	VIF
GL_1	2.628	GDC_1	2.643	GCC_1	2.788	AC_1	1.979
GL_2	2.559	GDC_2	2.768	GCC_2	2.638	AC_2	2.574
GL_3	2.358	GDC_3	3.746	GCC_3	2.362	AC_3	1.991
GL_4	2.108	GDC_4	2.616	GCC_4	2.349	AC_4	2.554
GL_5	2.652	GDC_5	2.919	GCC_5	3.238	AC_5	2.323
GL_6	4.613	GDC_6	2.267	GCC_6	2.150	AC_6	2.928
GL_7	2.764	GDC_7	3.033	GCC_7	2.512	AC_7	3.245
GL_8	3.064	GDC_8	2.973	GCC_8	3.328	AC_8	2.468
GL_9	2.178	—	—	—	—	—	—
GL_10	2.782	—	—	—	—	—	—

Table (8) presents the Variance Inflation Factor (VIF) results for all study indicators. The values range from 1.979 to 4.613, all of which are below the acceptable threshold of 5.00. These results indicate the absence of multicollinearity among the indicators, confirming the independence of the variables and the lack of high correlations that could otherwise compromise the accuracy of the structural model coefficient estimates. Consequently, the study data meet the requirements for testing structural relationships, and the model results can be relied upon to test the study hypotheses.

b. Model Quality Assessment

The quality of the model will be assessed using both (R^2 and F^2) values. Table (9) displays the values for these criteria.

Table 9. Model Quality Criteria Values

Latent Variables	R ²	Explanatory Power	f ²	Effect Size
Administrative Creativity (AC)	0.862	Substantial	6.253	Large
Green Creation (GC)	0.694	Moderate	2.270	Large
Green Process Creativity (GCC)	0.879	Substantial	7.276	Large
Green Product Creativity (GDC)	0.892	Substantial	8.299	Large

Table (9) presents the results of the structural model quality assessment, based on the coefficient of determination (R²) and the effect size (f²). The R² values, ranging from 0.694 to 0.892, indicate that the model possesses a moderate to high explanatory power. The "Green Product Creativity" (GDC) dimension achieved the highest explanatory power at 0.892 meaning 89.2% of its variance is explained by the model followed by "Green Process Creativity" (GCC) at 0.879, and "Administrative Creativity" (AC) at 0.862; all of these fall within the "substantial" level of explanatory power. Conversely, the R² value for the "Green Creativity" (GC) construct was 0.694, indicating that 69.4% of its variance is explained a moderate level of explanatory power according to the PLS-SEM criteria used for classifying results.

Regarding the effect size (f²), the results show that all values fall within the "large" effect category, ranging from 2.270 to 8.299. These figures exceed the 0.35 threshold established by Cohen's criteria for a "large" effect size. The dimension of Green Product Creativity (GDC) recorded the highest effect size value (8.299), followed by Green Process Creativity (GCC) at 7.276, and then Administrative Creativity (AC) at 6.253. Meanwhile, the Green Creativity (GC) variable recorded the lowest value at 2.270—a figure that nonetheless indicates a substantial effect size. Taken together, these results suggest that the model possesses high explanatory power across most variables and dimensions, with significant effect sizes. This reinforces the importance of the explanatory relationships incorporated into the model and paves the way for testing the study's hypotheses and verifying the statistical significance of the posited relationships.

Testing Correlation and Influence Hypotheses

The fit of the study model to the data collected from the sample participants was verified by examining goodness-of-fit indices and ensuring compliance with the required criteria. Consequently, we can now proceed to test the study hypotheses as outlined in the research methodology as follows:

First: Testing Correlation Hypotheses

To examine and validate the first main hypothesis, Spearman's correlation coefficient was calculated using SPSS, 26. The results are presented below:

Testing the First Main Hypothesis

Here, test the first main hypothesis, which states:

(There is a significant correlation between green leadership and green creativity among employees in the organization under study).

Table (10) displays the correlation values between green leadership and green creativity.

Table 10. Correlation Analysis between Green Leadership and Green Creativity

Variables	Green Creation			
	Correlation Coefficient	CI (95%)		Sig
		Lower	Upper	
Green Leadership	0.828	0.727	0.894	<0.001

Table (10) presents the results of the correlation analysis between green leadership and green creativity, using Spearman's correlation coefficient. The results indicate a statistically significant positive correlation between the two variables, with a correlation coefficient of (r = 0.828), suggesting a strong relationship. Furthermore, the significance level (Sig < 0.001) is below the established threshold (0.05), confirming the statistical significance of the relationship. Additionally, the 95% confidence interval for the correlation coefficient ranges from (0.727) to (0.894); since this interval

does not include zero, the reliability of the result is strengthened, and the stability of the correlation coefficient estimate is confirmed. Consequently, the null hypothesis is rejected, and the alternative hypothesis which posits a statistically significant correlation between green leadership and green creativity is accepted.

2. Testing the Sub-hypothesis of the First Main Hypothesis

This section tests the sub-hypothesis of the first main hypothesis, which states:

"There is a significant correlation between green leadership and the green creativity of employees (at the individual level) within the organization under study."

Table (11) displays the correlation values between green leadership and the dimensions of green creativity.

Table 11. Correlation analysis between green leadership and the dimensions of green creativity

Variables	Correlation Coefficient	Green Leadership CI (95%)		Sig
		Lower	Upper	
Green Product Creativity	0.774	0.650	0.858	<0.001
Green Process Creativity	0.840	0.744	0.901	<0.001
Administrative Creativity	0.747	0.613	0.840	<0.001

Table (11) presents the results of the correlation analysis between green leadership and the dimensions of green creativity, using Spearman's correlation coefficient. The results indicate the existence of strong, positive, and statistically significant correlations: the correlation coefficients are 0.774 for green product creativity, 0.840 for green process creativity, and 0.747 for managerial creativity. All these values show a significance level (Sig < 0.001), which is well below the established threshold (0.05). Furthermore, the 95% confidence intervals for all these relationships do not include zero, which reinforces the reliability of the findings. Consequently, the null hypotheses are rejected, and the alternative hypotheses which posit the existence of statistically significant correlations between green leadership and the dimensions of green creativity within the Nineveh Center Electricity Distribution Directorate are accepted.

Second: Testing the Effect Hypotheses

To verify and validate the effect hypotheses, we developed Partial Least Squares Structural Equation Modeling (PLS-SEM) models using the Smart-PLS 3 software, as follows:

1. Testing the Second Main Hypothesis

The second main hypothesis, which states that "there is a significant effect of green leadership on the green creativity of employees in the organization under study," will be tested.

Figure (1) illustrates the model for this hypothesis, while Table (12) presents the results of the structural model analysis, which indicate the rejection of the second main hypothesis.

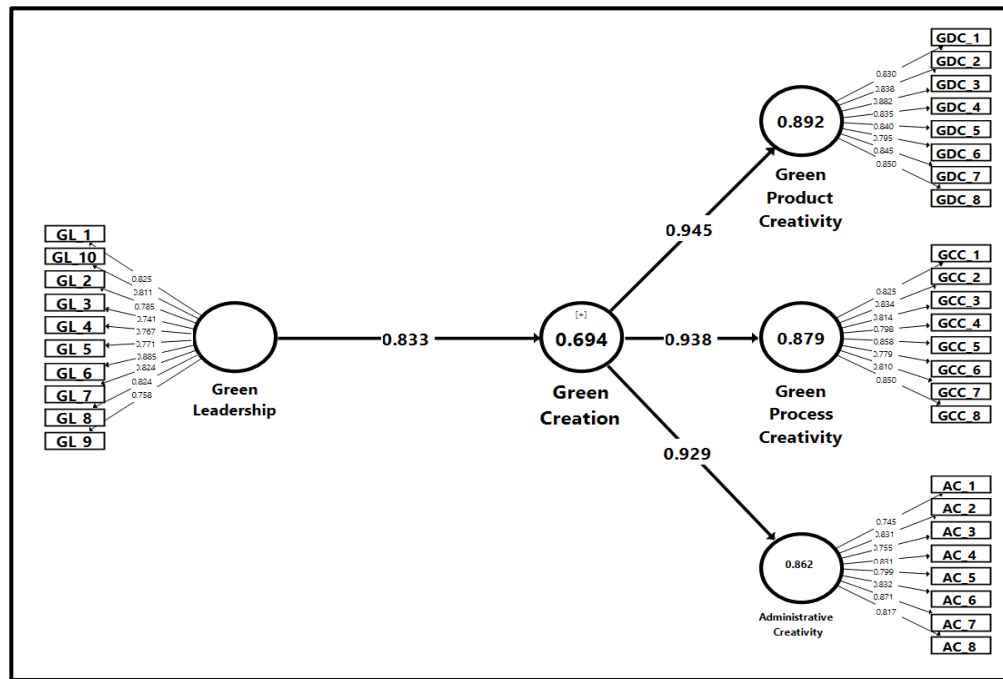


Figure 1. The impact of green leadership on green creativity

Table 12. The impact of green leadership on green creativity

Path	Original Sample (β)	T Statistic	P Value	R ²	CI (95%)	
					Lower	Upper
GL → GC	0.833	24.812	<0.001	0.694	0.761	0.897

Table (12) presents the results of the test regarding the impact of Green Leadership (GL) on Green Creativity (GC) among the staff at the Nineveh Center Electricity Distribution Directorate. The findings indicate a strong, statistically significant positive impact, with a path coefficient (β) of 0.833, a T-statistic of 24.812, and a significance level ($P < 0.001$) well below the established threshold of 0.05. Furthermore, the 95% confidence interval ranges from 0.761 to 0.897; as this interval does not include zero, the statistical significance of the impact is confirmed. The coefficient of determination (R^2) is 0.694, suggesting that Green Leadership accounts for 69.4% of the variance in Green Creativity, while the remaining 30.6% is attributed to factors not included in the model. Consequently, the null hypothesis is rejected, and the alternative hypothesis which posits a statistically significant impact of Green Leadership on Green Creativity is accepted.

3. Testing the Sub-Hypothesis of the Second Main Hypothesis

The sub-hypothesis of the second main hypothesis will be tested, which states:

"There is a significant effect of Green Leadership on the Green Creativity of employees (individually) in the researched organization."

Figure (2) illustrates the model for this hypothesis, while Table (13) presents the results of the structural model analysis, which indicate the rejection of the fifth main hypothesis.

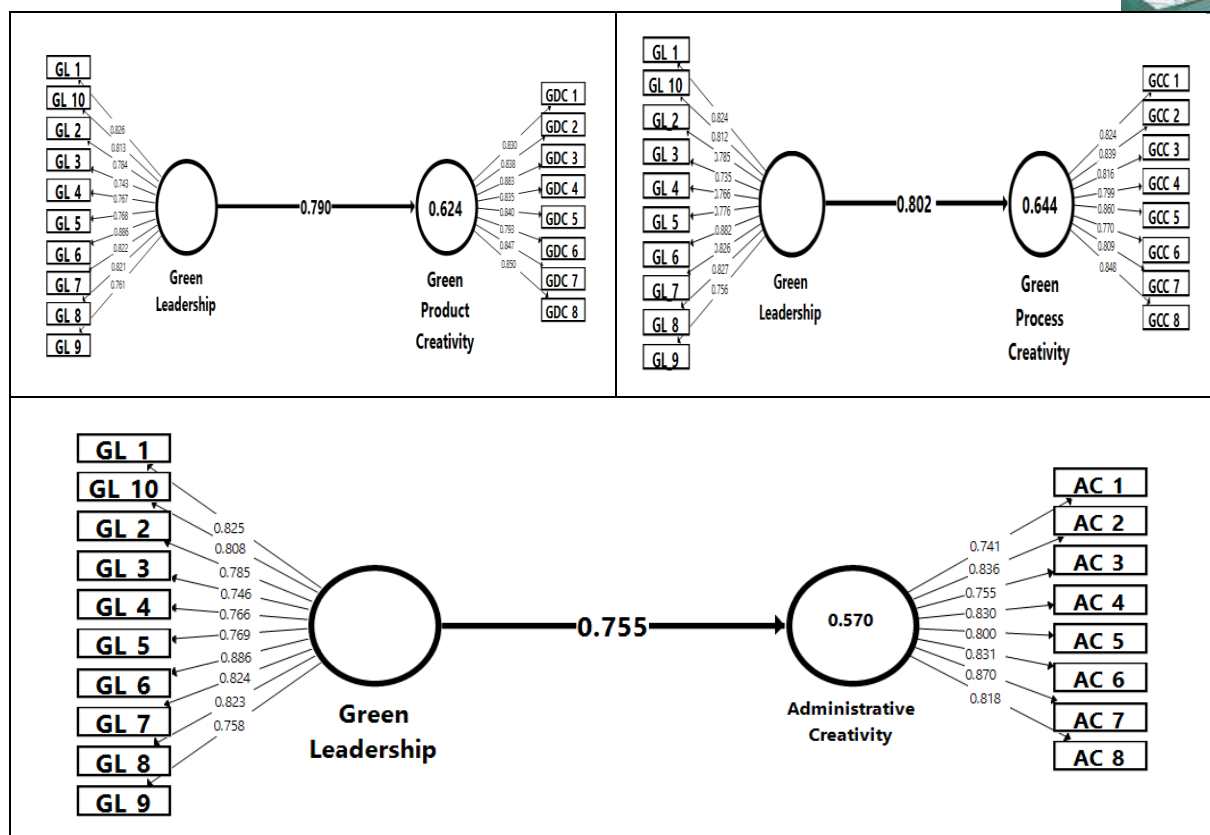


Figure 2. The impact of green leadership on the dimensions of green creativity

Table 13. The impact of green leadership on the dimensions of green creativity

Path	Original Sample (β)	T Statistic	P Value	R ²	CI (95%)	
					Lower	Upper
GL → GDC	0.790	21.304	<0.001	0.624	0.715	0.857
GL → GCC	0.802	21.869	<0.001	0.664	0.722	0.871
GL → AC	0.755	16.162	<0.001	0.570	0.658	0.844

Table (13) presents the results of testing the impact of Green Leadership (GL) on the dimensions of Green Creativity among the staff at the Nineveh Center Electricity Distribution Directorate. The findings indicate strong, statistically significant positive effects across all dimensions. The "Green Process Creativity" (GCC) dimension recorded the highest impact coefficient ($\beta = 0.802$, $T = 21.869$), followed by "Green Product Creativity" (GDC) ($\beta = 0.790$, $T = 21.304$), and then "Administrative Creativity" (AC) ($\beta = 0.755$, $T = 16.162$). All results were significant at the $P < 0.001$ level, confirming their statistical significance. The coefficients of determination (R^2) for the three dimensions were 0.664, 0.624, and 0.570, respectively, suggesting that Green Leadership accounts for varying proportions of the variance in the dimensions of Green Creativity. Furthermore, the 95% confidence intervals for all relationships do not include zero, which reinforces the reliability of the findings. Consequently, the hypothesis which posits that Green Leadership has a statistically significant impact on each dimension of Green Creativity within the studied directorate is accepted.

Conclusions and Recommendations

The results noted in this study highlighted the positive relationship between green leadership and green creativity of employees. It was also noted that green leadership has a positive effect on green creativity of employees. There is limited empirical evidence regarding the relationship between green leadership and green creativity of employees. Very few studies were examined this relationship, as [20] but, here green creativity has role a mediator variable. This was one of the first studies that attempted to investigate different variables in the Director of Electricity Distribution Center Nineveh in Iraq . Hence, the results of this study could fill the gap existing in the empirical data regarding green leadership. In this study, the researcher used green leadership as an independent variable, like the earlier studies considered green leadership as the independent variable as [20] have investigated the effect of green leadership on employee green innovation with the mediating role of green creativity and environmental commitment.

Now, Green creativity among employees is accomplished through green leadership by setting an environmental sample, relating organizational objectives to sustainability, providing ongoing training, and offering incentives and rewards for environmentally friendly initiatives. This approach builds a conscious organizational culture that motivates employees to decrease waste and rationalize resource consumption on an ongoing, self-directed basis. In this study, the researcher have investigated the relationship between the green leadership and green creativity of employees. Here, the data has offered empirical support which highlighted the effect of green leadership on green creativity of employee. Further research could provide a better understanding and support for the effect of green leadership on green creativity of employees.

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