

The Relationship of Transformational Leadership with Green Creativity through Green Innovation: An Analysis of Pakistan's Automobile Industry

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ABSTRACT

Keywords:

*Transformational leadership,
Green creativity,
Green Innovation,
Automobile Industry.*

The study was conducted to check the relationship between transformational leadership and green creativity through green innovation in the automobile industry of Pakistan. The objective of the study was to explore the mediating role of green innovation between the transformational leadership and green creativity. The study was conducted among the automobile companies working in Pakistan and employees working in the Honda, Toyota and Suzuki will constitute the study population. By taking the convenient sampling, the study has included 251 employees in the sample size. The data from these employees were collected by using closed ended questionnaire. The questionnaires were distributed among the sample respondents randomly and then collected back after some time when filled by respondents. Different statistical tests have been used in the process of data analysis. Gender, age and experience have significant moderating role between TL and green creativity. The findings of step-wise regression showed that the green innovation has positive mediating role between TL and green creativity. The study findings recommended that; management lead by example, the leadership in these firms must show their leadership skills i.e. leading by example. They must polish their personality so that the followers follow them.

INTRODUCTION

Transformational Leadership (TL) is a style that puts an emphasis on inspiring, encouraging, and motivating people to accomplish group objectives. It inspires followers to use their imagination and hone their leadership abilities (Buil, Martínez & Matute, 2019). TL work to foster an atmosphere of respect and confidence because they value teamwork. They put a lot of effort into fostering bonds with their followers and assisting them in realizing their full abilities.

According to Alameeri, Ajmal, Hussain, & Helo, (2018), transformational leaders empower their followers to take responsibility for their job and to become more independent. TL build a vibrant and interesting workplace by combining vision, inspiration, and communication. In

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times of upheaval, this kind of leadership is especially beneficial since it fosters innovation and helps to create a strong team culture. Any organization may benefit greatly from TL, which has the potential to significantly increase long-term performance (Suliman, Abdou, Ibrahim, Al-Khaldy, & Anas et al., 2023).

Green production needs creative green thinking to be sustainable and clean (Awan, Sroufe, and Kraslawski, 2019; Li et al., 2020). GCT is essential for creating original green concepts that might result in green innovation and manufacturing. Even though a variety of factors, including green passion, green organizational identity, and green intrinsic and extrinsic motivations, impact green creative behavior, the involvement of green leadership is still understudied, especially in automotive in the automotive industry. Unlike fresh ideas, innovation cannot flourish, and lacking creativity, innovative concepts cannot arise. New ideas are formed through the process of creativity, which then produces new ways and new activities. The basis for innovation in any firm is the process of transforming original ideas into effective and practical business practices (Al-Ghazali, Gelaidan, Shah and Amjad, 2022). Due to the fact that creativity serves as a springboard for invention, creativity is an essential phase in the innovation process. The GCT is defined in reference to Amabile (1998) as "the production of new ideas concerning green goods, services, processes, or green behaviors that are regarded to be unique, creative, and helpful."

Scientific investigations have shown that leaders with a green vision are essential to the performance of the green creative sector (Li et al., 2020). Juliet Davenport, CEO of Good Energy, for instance, has the ambition to support Britain's transition to 100% renewable energy by providing 100% electrical gadgets and infrastructure. Leaders have offered their ideas and motivations for addressing climate change, including Elon Musk (CEO of Tesla), Sarah, a spokesperson for green energy (Founder Director of Ashden), and many more (Townsend, 2018). The fight for cleaner manufacturing and emission reduction, meanwhile, is perceived as having lagged after Asia's leadership. According to academics, green transformational leadership (GTL) is characterized by traits that foster creativity and enthusiasm for the development of novel green goods and services (Li et al., 2020). While a few studies (Li et al., 2020) looked at the connection between GTL and green creative outputs and innovation, it is not mentioned in the Chinese automobile sector.

Green innovation is essential in manufacturing organizations for a number of reasons. First and foremost, it improves efficiency by lowering waste and energy use in the manufacturing process to lessen its negative environmental effects (Javaid, 2017). Along with lowering labor costs, green innovation also helps to raise quality and safety standards in the workplace. Green

innovation may also help a company become more competitive by assisting in the development of new goods and services that follow the most recent technical developments. Last but not least, green innovation may enhance a company's reputation and brand image while also luring in new clients and investors (Masri and Jaron, 2017).

The gap of this study lies in the lack of research on how transformational leadership affects green innovation and green creativity in the workplace. While there is a large body of research on transformational leadership, there is a lack of studies that specifically focus on how it affects green innovation and green creativity (Abdou et al., 2022). This gap in the literature provides an opportunity to explore how transformational leadership contributes to green innovation and green creativity in the workplace. In addition, it is important to consider how different approaches to transformational leadership affect green innovation and green creativity. Finally, the study should examine how transformational leadership can be used to create positive change in the workplace towards green innovation and green creativity.

The incorporation of environmentally friendly principles into corporate policies and strategies, such as human resource management (HRM), leadership, innovation, quality environment, and social well-being of the community in which the business operates, can be maintained or enhanced. Implementing green leadership and fostering green innovation can effectively mitigate the detrimental effects of corporate activities on the environment and society (Rossi et al., 2020). Different studies have used green innovation as moderating variable i.e. Al-Ghazali, Gelaidan, Shah and Amjad, (2022) and used SEM model in the SMEs while Suleman et al., (2023) has used GI as moderating variable as predictor of green performance and used SEM model. Therefore, the study has taken the empirical gap for the GI and TL. The empirical gap refers to conflicts that have not yet been evaluated through an empirical approach in any study conducted so far (Müller-Bloch & Kranz, 2014). Al-Ghazali, Gelaidan, Shah and Amjad, (2022) & Suleman et al., (2023) have used GI as moderating but they recommended in their study that GI can be used as mediating for getting more precise and better results as far as the transformational leadership is concerned. Therefore, by taking empirical gap from the above mentioned studies regarding the GI. The present study used GI as mediating between TL and GC.

OBJECTIVES

- To explore the role of transformational leadership in the green creativity in the automobile firms in Pakistan.
- To check the effect of green innovation on the green creativity in the automobile firms in Pakistan.

- To investigate the mediating role of green innovation between the transformational leadership and green creativity.
- To find out the moderating role of age, gender and experience between the transformational leadership and green creativity.

LITERATURE REVIEW

Paulet et al., (2021), the importance of forming HRM practices using a green perspective in fostering corporate sustainability. The research's target participants were executives and HR professionals from five organizations in the UK and ten businesses in Egypt. Just 192 of the predicted 300 human resources directors and representatives gave a favorable response to the poll. The results of the investigation demonstrated how green HRM techniques including green selection and hiring, green training, green performance oversight, and green incentives help businesses achieve sustainable success in terms of their financial, social, and ecological aspects.

Yong et al., (2020), the ability of Green HRM practices to encourage organizations to connect their business strategy with the natural world. The present research used resource-based perspective theory and longitudinal data from 112 big manufacturing companies in Malaysia to examine the effects of green HRM practices on company sustainability. Additionally, the effect of green recruitment and instruction on corporate sustainability was examined. According to the report, in order to minimize any transportation-related environmental effect, applications are accepted using online forms, and telephone or video-based interviews are scheduled. Green training also empowers staff to address environmental problems and improves the sustainability of corporate operations.

Suliman et al., (2023), TL are individuals that forge inspiring visions, inspiring their followers to take charge of finishing the assigned tasks and reaching the desired outcomes. Additionally, the TL style motivates staff to generate original ideas for the company while also taking initiatives to foster creativity. Any creative idea that is advanced within a company must have TL. At an international level, insufficient attention is paid to the transformational leader's active role in attaining environmental sustainability. The study's findings suggested that TL have an impact on how green a company performs. A further investigation showed how adopting a green leadership strategy helps achieve environmental objectives.

Ghazali et al., (2022), Employees' green behaviors are improved through green TL, which in turn affects how well businesses perform in terms of going green. By encouraging environmentally friendly behavior among those who follow them, GTL seek to safeguard the environment of the organization. However, the prior research combined discussion of green

HR management and GTL without taking into account the divergent effects of each construct on employee green behavior. HRM procedures and leadership techniques have various aims when it comes to controlling and leading the organization's workforce.

Zhang, Lu, & Xue (2021) conducted a study on TL and GI in the Chinese automotive industry and establish that TL had a positive impact on green innovation. They suggested that transformational leaders motivate employees to think creatively about ways to reduce environmental impact, and create a culture that values sustainability and innovation.

Cop et al., (2021) authored an academic essay with the goal of highlighting how strong psychological wealth may be built inside a company via its management's capacity to change and address environmental issues. By distributing 351 surveys to hotel staff members, hotels with four or five stars in Turkey provided the supporting data, and the reliability of the surveys was examined using the Amos 20 version. The study came to the conclusion that green transformational leadership motivates and inspires the followers by having them actively participate in collaborating with the followers to minimize the detrimental environmental effects of corporate operations. TL may therefore produce sustainability in the way businesses function while protecting the surroundings.

Begum et al., (2022), as a strategy to lessen the negative effects of industrial contamination and waste, sustainable green management principles and practices have lately attracted interest among businesses and academia. Organizations have been pushed by stakeholders and scholars to create policies that will help them accomplish their cultural, financial, and environmental objectives.

Lopez-Cabrales & DeNisi (2021), the idea of being sustainable can be summed up as "an effort to find a balance between the economic, social, and environmental goals of companies," contextualizing green leadership as a component of sustainability, as opposed to earlier green business models that were primarily concerned with improving environmental process performance and asset utilization. The long-term sustainability of emerging models is improved because they focus on growth planning, manufacturing techniques, and pre- and post design implications.

Li et al., (2020), GR is defined as the creation of original and worthwhile green ideas on manufacturing green goods, processes, and practices, or delivery. Additionally, creativity is defined as the capacity to generate original, inventive, and meaningful ideas. Numerous organizational and human variables influence it.

Shah et al., (2020), according to latest research, environmentally conscious SMEs can help companies reduce their carbon emissions, trash storage, and electricity usage. precisely an

outcome, research in educational and business circles is narrowing its focus from a general debate to a particular subject, which is greening some working divisions, green finance, including GI and GC, and GHRM and the practices.

HYPOTHESES DEVELOPMENT

Transformational leadership is a type of leadership that focuses on encouraging and encouraging staff to meet sustainability goals and go above and beyond the standard degree of green creativity. Current findings has shown that GTL, which has four aspects, individual concern, inspiring drive, and intellectual stimulation—plays a vital role in fostering green creative outputs (Bass, 1985). Charismatic helps leaders to establish strong expectations for green innovation and convey the green idea to the teammates (Chen and Chang, 2013).

H₁: Transformational Leadership is positively related with Green Creativity

Qamaruddin et al., (2021), studied the impact of green creativity on green transformational leadership, the atmosphere for green innovation, and green autonomy is examined by Qamaruddin et al. in their 2021 study. The study looks at how transformational leadership, an environment that fosters innovation, and autonomy affect green creativity. According to the study's findings, transformational leadership, an environment that fosters innovation, and autonomy are all highly associated with green creativity. Transformational leadership and green innovation climate contribute to green creativity by creating an environment that encourages green innovation and creativity. Additionally, green autonomy increases the motivation of individuals to contribute to green creativity. The results of this study provide valuable insights into how organizations can foster green creativity within their organization.

H₂: Transformational Leadership is positively related to Green Innovation

Deshpandé et al., (1993) make the case that creative teams have a special capacity to adapt to customer wants in an efficient manner as well as to the ever-changing market dynamics in a way to capitalize on the opportunities presented by otherwise unpredictable situations. Ford asserted in 1996 that the measure of creativity is how innovative and beneficial the concepts are to the target audience. For businesses, team creativity or group creativity is crucial to fostering a creative culture and improving the creative process (Yoon et al., 2010). Hence, previous analysis suggests that the creativity and also in context "green" ideology, the GCT impacts the creation of green products, the success of green teams, the environment of green in organizations, and the behavior of green employees.

H₃: Green Innovation is positively related to Green Creativity

GC is practiced by GTL workers, and thus promotes green innovation. Leadership must proactively listen to staff members, share expertise, and offer a foundation for growth and

possibilities with long-term vision in achieving GC (Jia et al., 2018). Latest research has demonstrated the relationship among GTL and GC (Mittal and Dhar, 2016). As particular, Mittal & Dhar (2016) discovered that GT increased staff members' green, innovative (GI) behavior for environmental preservation in hotels. In two more investigations, it was shown that there was a favorable correlation among the GTL and GCT of workers in the technology sector and their ability to protect the environment from pollution (Li et al., 2020).

H4: *Green Innovation mediate the relationship between Transformational Leadership and Green Creativity*

METHODOLOGY

The current study employed a quantitative research method for examining the relationship between variables using numerical data and statistical techniques. To compute data from participants, self-administered questionnaires using Google Forms were subsequently shared with project team members working in different construction organizations. Questionnaires provide a cost efficient and economical way to gather data from large group of people. Respondents filled the questionnaire and were assured that data will be strictly used for academic research purposes and their confidentiality was preserved.

There are different companies (automobile parts and assemblies) in the automobile sector and they were taken into the study scope. The employees working in the Honda, Toyota and Suzuki constituted the study population. Total there are 715 employees working in these selected companies. Since the population was unknown, one of the types of non-probability sampling called purposive sampling was employed to acquire data for the research. Under purposive sampling, judgmental sampling was used as sample selection was limited to automobile parts and assemblies sector in the vicinity of Rawalpindi/Islamabad and respondents only include project managers, assistant project managers, team supervisor and leaders, consultants & HR employees. This sampling technique attempts to minimize variance and provide a detailed description of a specific subgroup that have comparable qualities or particular characteristics, such as occupations, cultures, or life experiences. Judgmental sampling is most effective in situations where there are only a restricted number of people in a population who own qualities that a researcher expects from the target population.

Purposive sampling, functions best when you have a lot of baseline knowledge regarding the subject at hand and sought to identify the circumstances, individuals, or organizations most able to help you address your research issue. The study has collected data from the employees working in the automobile companies in Pakistan. Therefore, Purposive sampling technique was adopted for the distribution of questionnaire and data collection.

The present study has explored the mediating role of green innovation between transformational leadership and green creativity. There are different sectors in the market but the present study was conducted in the automobile sector of Pakistan. The study included Honda, Toyota and Suzuki as the sample firms from the Automobile firms as a sample of the study. On the basis of sampling calculations of Rasoft Inc, the study has taken 251 employees for the data collection.

RESULTS AND DISCUSSION

PEARSON CORRELATION

Table 1: *Pearson Correlation*

	TL	GI	GC	Gender	Age	Experience
Transformational leadership	1					
Green Innovation	.790**	1				
Green Creativity	.854**	.469**	1			
Gender	.224**	.017	.479**	1		
Age	.315**	.219**	.563**	.329**	1	
Experience	.013	.339**	.117	.279**	.056	1

The table 1 shows the result of correlation model which has been used in this study to check the correlation between the transformational leadership, green innovation and green creativity. The correlation between transformational leadership and green innovation was found 0.790 which suggests that the transformational leadership and green innovation are having positive strong correlation. This means that when the transformational leadership has been increased then green innovation will show positive change. The p-value of the transformational leadership and green innovation is lower than .05 which concludes that transformational leadership and green innovation are having significant and positive correlation among each other. The correlation between transformational leadership and green creativity was found 0.854 which suggests that the transformational leadership and green creativity are having strong positive correlation. This means that when the transformational leadership has been increased then green creativity will show positive change. The p-value of the transformational leadership and green creativity is lower than .05 which concludes that transformational leadership and green creativity are having significant and positive correlation among each other. The findings of moderating variables i.e. gender, age and experience showed that gender and age showed positive and significant correlation with transformational leadership while experience has weak and insignificant correlation with transformational leadership.

REGRESSION ANALYSIS**Transformational Leadership and Green Creativity**

Table 2: Regression (TL & GC)

	Coeff	SE	T	P	R	R²
Transformational leadership	1.136	0.044	25.88	.000	0.854	0.729

The table 2 is the result of regression model which was used in the study to check the effect of transformational leadership and green creativity. The regression model was used after the assumptions of the regression. The values in the table shows that the transformational leadership and green creativity are having strong relationship as the R/Correlation coefficient value is 0.854. The value of R-square/Coefficient of determination is 0.729 which exhibits that transformational leadership is having strong effect on the green creativity. This value also suggested that the transformational leadership can explained significant variance in the green creativity. The f-value is 669.918 which has been found significantly higher and reported that the selected model has been found statistically significant. The results taken from the above table has showed that the transformational leadership and green creativity are having positive relationship between each other. The beta value of the transformational leadership is 1.136 which means that the transformational leadership can make change of 1.136 units change in the green creativity. The value of beta confirms that the when transformational leadership has been changed then the green creativity will show positive change. The t-value for the transformational leadership and green creativity is 25.883 which has been significantly found higher than the standard value i.e. In this case the alternate hypotheses has been accepted that the transformational leadership has shown significant effect on the green creativity.

Transformational Leadership and Green Innovation

Table 3: Regression (TL & GI)

	Coeff	SE	T	P	R	R²
Transformational leadership	.245	.045	5.48	.000	.328	.108

The table is the result of regression model which was used in the study to check the effect of transformational leadership and green innovation. The regression model was used after the assumptions of the regression. The value in the table shows that the transformational leadership and green innovation are having strong relationship as the R/Correlation coefficient value is 0.328. The value of R-square/Coefficient of determination is 0.108 which exhibits that transformational leadership is having weak effect on the green innovation. This value also suggested that the transformational leadership can explained weak variance in the green innovation. The f-value is 30.027 which has been found significantly higher and reported that

the selected model has been found statistically significant. The results taken from the above table has showed that the transformational leadership and green innovation are having positive relationship between each other. The beta value of the transformational leadership is .245 which means that the transformational leadership can make change of .245 units change in the green innovation. The value of beta confirms that the when transformational leadership has been changed then the green innovation will show positive change. The t-value for the transformational leadership and green innovation is 5.480 which has been significantly found higher than the standard value i.e. In this case the alternate hypotheses has been accepted that the transformational leadership has shown significant effect on the green innovation.

Green Innovation & Green Creativity

Table 4: *Regression (GI & GC)*

	Coeff	SE	T	P	R	R²
Green Innovation	1.174	.033	5.48	.000	.915	.838

The table is the result of regression model which was used in the study to check the effect of green innovation on green creativity. The regression model was used after the assumptions of the regression. The value in the table shows that the green innovation on green creativity is having strong relationship as the R/Correlation coefficient value is 0.328. The value of R-square/Coefficient of determination is 0.838 which exhibits that green innovation is having strong effect on the green creativity. This value also suggested that the green innovation can explained significant variance in the green creativity. The f-value is 1284.76 which has been found significantly higher and reported that the selected model has been found statistically significant. The results taken from the above table has showed that the green innovation is having positive relationship between each other. The beta value of the green innovation is 1.174 which means that the green innovation can make change of 1.174 units change in the green creativity. The value of beta confirms that the when green innovation has been changed then the green creativity will show positive change. The t-value for the green innovation on green creativity is 35.844 which has been significantly found higher than the standard value i.e. In this case the alternate hypotheses has been accepted that the green innovation has shown significant effect on the green creativity

Green Innovation B/W Transformational leadership & Green Creativity

Table 5: *Regression (Mediation GI between TL & GC)*

	Coeff	SE	T	P	R	R²
TLD	1.136	.044	25.883	.000	0.854	0.729
TLD	-3.364	.104	32.41	.000	0.984	0.969
GRI	4.385	.100	43.817	.000		

The table shows the finding of regression model used as mediating role of green innovation between transformational leadership and green creativity. The value of R in the table has been increased from 0.854 to 0.984 when green innovation has been used as mediating variable. The value of R-square has been increased from 0.729 to 0.969 which recommends that the green innovation has makes significant mediation between transformational leadership and green creativity.

CONCLUSION

TL is a style of leadership that focuses on inspiring and encouraging people to achieve at their best. GI is the creation of brand-new goods and services that lessen an organization's environmental footprint. TL is a style that puts an emphasis on inspiring, encouraging, and motivating people to accomplish group objectives. Transformational leadership may encourage employee dedication and engagement that can lead to increased output and work satisfaction. Lastly, this kind of leadership may help establish a distinct vision for the company and give it a feeling of sense of purpose and direction. Green creativity is a style of being and understanding that is centered on social responsibility and preservation of the environment. It entails taking action to reduce environmental damage and maximize advantages to the environment as well as society while also taking into account the environmental and social repercussions of actions. The importance of green innovation is rising as the globe struggles with environmental deterioration and climate change. Green innovation can assist to lessen the negative effects that manufacturing processes have on the environment, increase energy efficiency, and cut waste. It is a leadership style that inspires employees to come up with original solutions to challenges. The followers of transformational leaders are encouraged to think creatively and take calculated risks. They provide workers a strong feeling of direction and purpose, empowering them to advance their careers and reach their full potential. Green innovation is the process of developing sustainable, environmentally friendly goods, services, or operations.

Theoretical Implications

The results of this study contribute to the existing body of research on TL, GI, and GC. The study proposes a theoretical framework elucidating the impact of GTL on GI, subsequently influencing GC. This research includes some specific theoretical contributions derived from the findings. Firstly, the data suggest that fostering a transdisciplinary mindset enhances environmental innovation. Furthermore, the data validates the significance of TL in directly producing GC. Furthermore, GI functions as an intermediary between TL and GC. Furthermore, this study enhances the existing information on GC. Furthermore, this study

contributed to the existing theory by examining the influence of TL's interaction with GT and its consequent effects on green innovation.

No existing investigation has endeavored to ascertain the role of GI mediating the association between TL and GC (Singh et al., 2020; Begum et al., 2022). Furthermore, this study enhances the existing conceptual model by doing an empirical analysis to determine the degree to which green thinking acts as a mediator in the relationship between TL and GC. Green thinkers are employees that possess knowledge of environmental concerns and utilize their cognitive abilities to offer solutions for more environmentally friendly output. Personal cognitive reactions play a crucial role in creating sustainable behaviors that safeguard the environment from the negative impact of traditional product production and disposal. Consequently, we enhance our comprehension of the significant factors that impact GC by presenting the concept of TL and investigating its probable ramifications on GC.

Managerial Implications

The findings of this study hold practical importance for senior executives and the field of management. The results indicate that TL has a substantial influence on GC. The results of our study strongly endorse the implementation of TL to promote GC in the automotive industry of Pakistan. Our research also indicates that managers may enhance their company's reputation by integrating the notion of sustainability into their organizational culture. This involves promoting environmentally friendly thinking and fostering the development of innovative techniques and ways for generating eco-friendly products.

Future Directions

It is important to emphasize the specific constraints of this research. Given that this study focuses on automobile companies in Pakistan, specifically in the Punjab Province, it is necessary to conduct further research across all provinces of Pakistan and in different industries, such as information technology, banking, and healthcare, to verify and extend the results from this study in the future. Furthermore, cultural factors were not included while examining the correlation between GTL and GC.

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