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Role of Learning Orientation, Green Innovations, and Sustainable Business Practices on Sustainable Firm Performance: An Empirical Study in Manufacturing Organisations

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ABSTRACT
Looking at the response to the weakening of the global environment, most business firms have started adopting green strategies, also called ***eco-friendly strategies***, like learning orientation, green innovation and other sustainable business practices. Green innovation strategies are ideas for environmentally friendly inventive options that influence achieving sustainable goals. Global warming and environmental degradation have brought many challenges to humankind in the 21st century. Therefore, business firms adopt sustainable methods for producing environmental products and services. Specifically, manufacturing organisations adopt green practices to achieve sustainable firm performance. Green innovation has been studied to determine whether it impacts a firm's performance and whether green entrepreneurship sustainability influences both. Protection of the environment is a matter of market rivalry and competitive advantage. Thus, green innovation, learning orientation, and sustainable business practices have become a matter of concern in the past few decades. A sample of 203 respondents was collected to find the result of the study.

Keywords: Green Innovation Strategy, sustainability, performance, Technology Orientation, environmental entrepreneurial orientation, green innovation

Introduction
Green innovation, learning orientation, and sustainable business practices have become popular and known concepts in the past few years because of the rising concern related to global warming and the degrading environment. Following the green growth path is highly essential to achieve sustainability. It is clear that green innovation and development are the ways that have achieved strong policy support. However, whether a general macro-level strategy development remains consistent with the micro-level inducements remains. It has been found that green innovation is driven by social and economic pressures to chase sustainable growth. The ability is a crucial concern, calling for green growth as an urgency. It is undoubtful that the progress of technology is one of the essential forces that enable green development. However, innovation is generally costly.

Thus, the main issue is whether green innovation can improve and grow while maintaining environmental advantages **(Zhang, Rong & Ji, 2019).** A green innovation strategy is a strategy that creates environmental performance. The adoption of green technology is a growing challenge all over the world, motivating organisations for the development of green innovation strategies. A green innovation strategy is carried out to adopt green technology for the reduction of environmental pollution, conservation of resources, reduction of wastes and improvement of the environment and is in line with the organisational conditions. Organisations engaged in green innovation can meet the requirements of government and industry while reducing pollution and waste, protecting the environment, and bringing many positive influences towards environmental performance that increase the share in the market, improving the financial performance of the company and achieving sustainable competitive advantage **(Purwanto, 2024).** Green product innovation is resource-intensive, and business organisations are highly concerned about expanding investment in green product innovation that improves financial performance. Though green product innovation is market-centred, many studies have unnoticed the moderating roles of marketing resources and organisations' activities in clarifying the association between the innovation of green products and financial performance. Green marketing innovation, including practices related to the environment, might function as a crucial organisational condition enabling organisations to successfully understand the economic and market value related to green product innovation. Innovation orientation includes learning the philosophy of the organisation, strategic direction, and cross-functional beliefs defining and guiding its strategies and actions towards the development of specific innovation that enables capabilities and processes. Green marketing actions need companies to cooperate with downstream partners to inform and educate customers about the nature of green products and their advantages. With the adoption of innovative marketing strategies, companies can align business objectives with ecological concerns, distinguish themselves in the market, and contribute to environmental preservation. Green marketing innovation is core to green marketing, including developing and implementing new marketing strategies and practices for promoting environmentally sustainable services, products, and behaviour **(Appiah & Essuman, 2024).**

Naturalists and environmentalists permitted organisations to incorporate advanced knowledge and green ideas into manufacturing to benefit increased business sustainability. Green innovation refers to the advancement of technology used to manage the environment, prevent pollution, reduce waste, and conserve energy. Green innovation helps businesses improve by reducing waste and costs for the sustainability of the environment. Organisations need green absorptive competencies to generate creative and inventive ideas for knowledge of the environment to develop sustainable competitive advantage through green innovation **(Baeshen, Soomro & Bhutto, 2021).**
The green creativity of employees is seen as the driver of a firm's green innovation, and the green behaviour of employees is a vital sign to measure the green creativity of employees. Green innovation is attained through the application of technological advancement, helping reduce production costs and pollution and increasing the company's market share. It also grows innovative products and services, develops well-known brands, and attains competitive advantage **(Bassem, 2023).**

Literature Review

"Entrepreneurial Orientation (EO)" is a substantial contributor towards the organisation's success, and it encompasses three dimensions: innovativeness, proactiveness, and risk-taking. Innovativeness shows the willingness of the firm to generate new inventions, while proactiveness includes behaviour and the capability of seizing evolving prospects. Risk-taking capability shows the exercise of making firm decisions to bring exceptional and creative ideas, with the probability of leading to either failure or success. Incorporation of all such dimensions in the firm's strategies can make a significant impact

on its growth and financial performance. “Green entrepreneurial orientation” is an intellectual choice made by top management and is an element of the sustainability of a firm's performance. The association between “entrepreneurial orientation” and “sustainable firm performance” has been studied in this part, with innovation output mediating this association. Incorporating green entrepreneurial orientation and environmental performance in a firm has always been an interesting subject in the domain of sustainability that focuses on restraining the role of environmental dynamism. The strategic orientation of green entrepreneurship significantly impacts competitive advantage, with the incorporation of market orientation and environmental orientation in green entrepreneurial activities **(Mishra, Thakur & Dhakal, 2024).**

The initiative for promoting “green entrepreneurial orientation” involving green innovations, a proactiveness in capturing probable prospects, and risk-taking behaviour assists organisations in positively influencing performance. The green initiative needs the strategy of market orientation, which is becoming an important ingredient for learning organisations. There is a need for further investigation on various levels of entrepreneurial orientation's effect on firms' sustainable competitive advantage. **(Pratono et al., 2019).**

Loss of water and soil, global warming, soil and water pollution, safety of food, and many other environment-related issues have become threats to humans. Therefore, the government, nongovernmental firms, and consumers have started concentrating on the organisation's environmental behaviour. In the environmental process, organisations should maintain a balance between economic and environmental goals and management. Thus, environmental entrepreneurship, which is based on sustainable growth and protecting the environment, is becoming a critical challenge in entrepreneurial studies. For organisations, "environmental entrepreneurial orientation (EEO)" is an inclination to be proactive, risk-taking and inventive in search of opportunities providing economic as well as ecological advantages **(Guo & Wang, 2022).**

The green performance of a firm is affected by its green entrepreneurial orientation. Green innovation, exploratory and exploitative, plays a mediating role between green entrepreneurial orientation and green performance. The result of moderated mediation shows that when there is a high level of resource orchestration capacity, there is a greater mediating impact of exploitative green innovation on green entrepreneurial orientation and performance. The requirement for environmental conservation management has grown quickly in an incredible manner, and green management has appeared as a vital tool for the business. The manufacturing industry cannot be excluded from such environmentally conscious movements **(Baquero, 2024).**

“Green entrepreneurship” is the implementation of ideas for environmental protection. Green entrepreneurs are those who develop sustainable business enterprises for the protection of the environment. Investing in green entrepreneurship creates the required returns for the firm and has an advantageous influence on society. “Green entrepreneurship” motivates green growth and the creation of sustainable development for the sector. With increasing environmental issues and the damaging influence of business activities on the environment, sustainability has become a strategic foundation in business decisions. However, many business firms have not yet been constantly looking for investment prospects that are friendly to the environment for the development of the firm's performance. Organisations that are already aware of the issues and challenges related to the environment have the propensity to implement green practices **(Rofiaty. et al., 2024).**
Facing the rising pressure of institutions, environment and consumers, green entrepreneurship, as an essential way to provide eco-friendly products, solve environmental-related issues and undertake

corporate social responsibility, has become the development direction. Many organisations are looking for such opportunities, not just to obey the regulations of the environment. Thus, organisations must concentrate on the environmental issues and challenges in strategic selection and conduct business activities in competitive and sustainable ways that are environmentally sensitive **(Zhang et al., 2024).**

Business organisations need to adopt green practices as consumers today have become aware of environmental issues and have begun to demand products and services that are environmentally friendly. Business organisations have started to embrace green entrepreneurial activities, assisting them to attain competitive benefits, concentrating on green products, and enhancing a firm's performance. Green entrepreneurship enables organisations to distinguish themselves from competitors by addressing issues related to the environment that increase the firm's performance and attain competitive advantage **(Ozturk, 2024).**

Objective

To explore the different roles of learning orientation, green innovations, and sustainable business practices on sustainable firm performance.

Methodology

A sample of 203 employees from manufacturing companies were surveyed to explore the different roles of learning orientation, green innovations, and sustainable business practices on sustainable firm performance. The survey was conducted through a structured questionnaire.

Study's Findings

The below table shows that males contribute 57.1% to the total study survey population, and the rest, 42.9%, are female. 30.1% are below 32 years of age, 43.8% are 32-38 years, and 26.1% are above 38 years. 15.8% are in the HR department, 25.1% are in sales, 19.7% in marketing, 18.2% in R&D, and the rest, 21.2%, are working in another company's department. 36.0% are working for less than 5 years, 43.3% from 5-8 years and 20.7% are working for more than 8 years.

"Table 1 Demographic details"

"Variable"	**"Respondents"**	**"Percentage"**
Gender		
Male	116	57.1
Female	87	42.9
Total	**203**	**100**
Age		
Below 32 yrs	61	30.1
32-38	89	43.8
Above 38 yrs	53	26.1
Total	**203**	**100**
Department		
HR department	32	15.8
Sales	51	25.1
Marketing	40	19.7
R&D	37	18.2
Others	43	21.2

Total	**203**	**100**
Work experience		
Less than 5 yrs	73	36.0
5-8 yrs	88	43.3
More than 8 yrs	42	20.7
Total	**203**	**100**

"Table 2 KMO and Bartlett's Test"

"Kaiser-Meyer-Olkin Measure of Sampling Adequacy"		.868
"Bartlett's Test of Sphericity"	"Approx. Chi-Square"	1561.824
	"df"	66
	"Sig."	.000

The "KMO value" is 0.868, and "Barlett's Test of Sphericity" is significant.

"Table 3 Total Variance Explained"

"Component"	**"Initial Eigenvalues"**			**"Rotation Sums of Squared Loadings"**		
	"Total"	**"% of Variance"**	**"Cumulative %"**	**"Total"**	**"% of Variance"**	**"Cumulative %"**
1	5.601	46.673	46.673	3.154	26.285	26.285
2	1.792	14.931	61.604	2.978	24.820	51.105
3	1.616	13.471	75.075	2.876	23.970	75.075
4	.569	4.739	79.814			
5	.465	3.877	83.691			
6	.431	3.595	87.285			
7	.367	3.061	90.347			
8	.303	2.527	92.874			
9	.285	2.378	95.252			
10	.241	2.007	97.258			
11	.203	1.688	98.946			
12	.126	1.054	100.000			

"Principal component analysis" shows 12 variables from 3 Factors. The factors explained the variance of 26.285%, 24.820% and 23.970% respectively. The total variance explained is 75.075%.

"Table 4 Rotated Component Matrix"

"S. No."	**"Statements"**	**"Factor Loading"**	**"Factor Reliability"**
	Learning Orientation		**.897**
1	Learning orientation is effective at adjusting environmental stresses	.911	
2	Creates opportunities for constant improvement throughout the company	.867	

3	Continual learning is associated with efficiency and sustainability	.801	
4	Help firms to work with stakeholders that support responsible resource use	.768	
	Green Innovations		**.881**
5	Green innovations revolutionise business operations	.873	
6	Enable sustainable and resilient business models	.831	
7	Enhance competitive advantage through organisational learning	.817	
8	Maximise resources, minimise waste and energy consumption	.775	
	Sustainable Business Practices		**.870**
9	Sustainable Business Practices make individual firms more suitable to meet environmental problems	.898	
10	Help to implant environmental responsibility within corporate policies	.814	
11	Empower organisations to improve supply chain sustainability with responsible sourcing	.809	
12	Helps in ethics in procurement and circular economy orientation	.702	

Table 4 shows factors determining the different roles of learning orientation, green innovations, and sustainable business practices on sustainable firm performance. Factor "Learning Orientation" includes variables like learning orientation, which effectively adjusts environmental stresses and creates opportunities for constant improvement throughout the company. Continual learning is associated with efficiency and sustainability and helps firms work with stakeholders that support responsible resource use. Factor "Green Innovations" includes variables like green innovations revolutionising business operations, enabling sustainable and resilient business models, enhancing competitive advantage through organisational learning and maximising resources, and minimising waste and energy consumption. Factor "Sustainable Business Practices" includes the variables like Sustainable Business Practices make individual firms more suitable to meet environmental problems, help to implant environmental responsibility within corporate policies, Empower organisations to improve supply chain sustainability with responsible sourcing and help in ethics in procurement, and circular economy orientation.

“Table 5 Reliability Statistics”

“Cronbach's Alpha”	“N of Items”
.892	12

The Total reliability is 0.892 for three constructs, including twelve variables.

Findings from the study:

The study attempts to examine how specific organisational strategies and innovations can impact the long-term performance of manufacturing firms, mainly regarding sustainability. The study's findings show that firms with strong learning orientations are likely to outperform their competitors in terms of sustainability by adopting new and innovative practices that would help reduce environmental

practices. Companies investing in green innovations, like energy-efficient manufacturing processes, waste reduction technology, and environment-friendly products, experience improved sustainable firm performance. Organisations adopting sustainable business practices like reduction in resource consumption and following ethical standards tend to perform better in the market. The study suggests that organisations prioritising learning, innovating with sustainability, and implementing sustainable practices are more likely to achieve superior long-term performance.

Conclusion

With the rising strictness of environmental rules and regulations, organisations are encouraged and guided to be more responsible for the environment. The study emphasises that for manufacturing organisations to achieve sustainable firm performance, it is important to create a synergetic environment where learning orientation, green innovation, and sustainable business practices are mutually implemented. With the increasing knowledge, many people are buying green products to minimise their environmental impact. A green market is a market where competitors and consumers are aware of the products and processes that are environmentally friendly. Therefore, green market orientation must be the organisation's focus in the era of sustainability development. Greenmarket orientation impacts the performance of the business as it raises the level of awareness among people about the protection of the environment, thus activating organisations to accept and adopt business practices that are environmentally friendly (Tjahjadi et al., 2020). Green entrepreneurial orientation designs new services and products to help address environmental challenges. Green innovation as a concept refers to the enhancement and innovation in product processing that improves the organisation's environmental performance. Due to increased internal and external pressure to comply with environmental regulations, firms are implementing green strategies comprehensively (Muangmee et al., 2021). This study concludes that learning orientation effectively adjusts environmental issues, creates opportunities for improvement and helps in the responsible usage of resources. Green innovation enhances competitive advantage, minimises energy consumption and minimises waste, and sustainable business practices make the firm suitable to meet environmental issues and challenges.

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