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The Role of Environmental Ethics and Training in Enhancing Performance and Competitive Advantage

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ABSTRACT

Purpose – This study emphasizes the importance of environmental ethics, education and training in the progress of environmental performance, competitive advantage and the sustainability of organizations. It seeks to evaluate both the direct and indirect impacts of these factors on companies' long-term strategic positioning.
Design/methodology/approach – This research utilizes a quantitative method and is based on administering a survey comprising data on 424 middle-level managers from various sectors in the UAE. SEM analysis on environmental ethics, education, training, performance, and competitive advantage.
Findings – The study sends a message that environmental ethics have a positive influence on environmental performance, education and internal operation training, which will improve competitive advantage. Moreover, environmental training on firm performance and competitive positioning is highly significant. Other effects are indirect where performance and education function as mediators.
Originality/value – This research empirically investigates how environmental ethics, education and training could help firms to attain sustainability and competitive advantage. These results underscore the strategic significance of embracing environmental initiatives within corporate policies.
Research Implications – The findings highlight the critical need for companies to invest in environmentally ethical operational practices, capabilities, and education to foster sustainability. Further research may investigate the sector-specific effects, and further explore the structural relationships over the longer term, via longitudinal data.

1. Introduction

The environmental sustainability is one of the main concerns for businesses for recent years. Shahid et al. (2024) the data are still confined to October 2023. In recent times, the developing global ecological issue has focused on concerns, for example, environmental change, loss of resources and contamination, which have brought about the usage of harmless to the ecosystem practices (Bashir et al. 2020). Additionally, pressures from stakeholders and regulations have intensified driving firms towards sustainability (Shahidul Islam and Tanaka 2004; Shahzad et al. 2024). The investors and consumers who prefer companies practicing CSR and environmental accountability also drew attention to the significance of environmental ethics (Chatzitheodorou et al. 2019; Kuokkanen and Sun 2020). Recent empirical studies highlight that environmental ethics can lead to superior long-term financial performance for firms since such firms can tap into a pool of both eco-friendly consumers and investors, in addition to avoiding fines and penalties from non-compliance of environmental regulations (QUAH and TAN 2022). We discuss the relationship between environmental ethics, environmental training, firm performance, and competitive advantage, a relationship suggested by increasing interest in corporate environmental responsibility.

The importance of environmental sustainability continues to increase however companies struggle to embed environmental ethics into their operational structures (Angell and Klassen 1999; Kolk 2016; Negri et al. 2021). These greenwashing activities are part of one of the hot topics in this field which constitutes a gap between commitment level and actual performance (Lee and Raschke 2023; Lee, Raschke, and Krishen 2022; Torelli, Balluchi, and Lazzini 2020). Furthermore, organizations find it challenging to appropriately balance profit and the environment and tends to view sustainable practices as a cost rather than a benefit (van Bommel 2018; Henao, Sarache, and Gómez 2019). A

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further challenge lies in the lack of readily applicable and effective environmental training programs that integrate with organizational objectives and existing statutory demands (Chams and García-Blandón 2019; Panghal et al. 2018). Although environmental education is considered a key aspect of corporate sustainability strategies, very little evidence is available on how it impacts competitive advantage and firm performance Gupta and Gupta (2020), Singh et al. (2019), We aim to fill these gaps through a study of environmental ethics, training and education, and how they play a role in firm performance and competitive advantage in various industrial contexts.

This study is chiefly grounded on stakeholder theory and resource-based view (RBV) theoretical frameworks. Just like the 2020 stakeholder theory, which claims that business organizations need to weigh all stakeholders (customers, investors, and employees) as well as the interests of environmental agencies Barauskaite (2021) Cornell and Shapiro (2021), to achieve sustainable success. Aligning with environmental principles helps businesses to build positive associations with customers and investors (Lončar et al. 2019; Zhang et al. 2023). Moreover, the RBV theory continues to strengthen the notion that firms would benefit from developing unique environmental skills like sustainable innovation and green supply chain management (Barney 2018). This creates the capabilities needed to practice environmentalism, capabilities that are instilled by environmental training, where employees are educated and trained on how to engage in environmentally friendly practices (Al-Ghazali and Afsar 2021; Kim et al. 2020). Using these theoretical perspectives, the current study explores the relationship between environmental ethics, training, firm performance, and competitive advantage.

Many previous studies have focused on the role of environmental ethics in corporate performance and competitive advantage, but conclusions have not been consistent. According to some studies, a significant positive correlation has been stated that companies integrating environmental ethics can produce better financial and operational results (Danso et al. 2020; Yu and Huo 2019). Such firms are usually rewarded with strong brand loyalty, consumer trust, and low regulatory risks, ensuring sustainability in the long run (Chuah et al. 2020; Naidoo and Gasparatos 2018). On the flip side, different studies show that access to environmental ethics cannot guarantee better performance, because firms incur high costs in sustainable investment (Chen et al., 2020). The question over whether environmental training is effective is also a notable research gap, as some argue that environmental training improves environmental performance while others maintain that organizational resistance to change and a lack of resources renders it ineffective (Liu & Adams, 2022; Gomez et al., 2023). A further gap is the marginal consideration of the mediating effect of environmental education on the relationships between environmental ethics and competitive advantage (Fernandez et al., 2024). This study attempts to fill in these inconsistencies by allowing flowing of a holistic model that examines the mediating and direct impact of environmental ethics, training, and education on the firm performance. This research provides novel insights into the specific strategic significance of environmental ethics and environmental training for companies striving for a sustainable competitive advantage by filling these gaps.

The consideration of environmental ethics is to be contemplated in this study and its effects on firm performance and competitive advantage, as well as the mediating effects of environmental education accompanied by the moderating effect of environmental training. In particular, the this research examines the influence of environmental ethics on environmental performance, competitive edge, and environmental education, and the interaction effect of environmental training on firm-level sustainability practices. These insights will contribute to the existing knowledge on how to incorporate environmental ethics and training into corporate sustainability strategies, benefiting managers, policymakers, and researchers alike.

2. Method Innovation

2.1 Details of the sample

This study utilized a survey-based quantitative method to study how environmental ethics, environmental training, environmental performance, and competitive advantage are related. Insome (2010) Data were collected from middle-level managers in operations, production, supply chain, environmental compliance, manufacturing, and machine maintenance departments using structured questionnaires. It constituted 424 respondents from sixteen private, semi-government and government organisations in the United Arab Emirates (UAE) in 2024. Using purposive sampling, participants were selected if respondents had relevant knowledge and experience in

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environmental management and corporate sustainability practices. To reduce response bias, we carried out nonresponse bias testing to compare early and late respondents using Levene's test for equality of variances and t-tests for equality of means. These results are outlined in Table 1 and suggest that nonresponse bias was not a major concern.

As can be observed from the nonresponse bias test, there were no significant differences between early and slow respondents attributable to all constructs in the study, indicating the lack of any response bias. Environmental Ethics |Levene's Test significance value of 0.412 |t-test significance at 0.529 |Measurement consistency Environmental Performance in this context exhibited a Levene's Test significance of 0.367 and a t-test significance of 0.482 (which again validates its reliability). Environmental Education showed a Leven's Test significance of 0.398, and a t-test significance of 0.505, displaying similar answers. In a similar manner, **Environmental Training confirmed no significant differences in responses, with Levene's Test showing significance of 0.432 and t-test significance of 0.517. Competitive Advantage produced a Levene's Test significance of 0.387 and t-test significance of 0.491, showing consistent responses. Finally, Organizational Sustainability showed a Levene's Test significance of 0.409 and a t-test significance of 0.528, further strengthening the reliability of the data obtained. These results demonstrate that nonresponse bias does not threaten this study, increasing the robustness and generalizability of the results.

Table 1
Nonresponse bias test

Construct	Sig. Levene's Test	Sig. t-test for Equality of Means
Environmental Ethics	0.412	0.529
Environmental Performance	0.367	0.482
Environmental Education	0.398	0.505
Environmental Training	0.432	0.517
Competitive Advantage	0.387	0.491
Organizational Sustainability	0.409	0.528

Source; Author 2025

Some of key demographic and structural insights from the 424 respondents based on the sample and organizational information. In terms of gender distribution, 61.3%, (260 respondents) were male, and 38.7%, (164 respondents) were Female. In terms of age, 20.0% (85 respondents) were aged 30 or younger, 26.4% (112 respondents) were between 31–35 years of age, 31.6% (134 respondents) were between 36–40 years of age, and 21.9% (93 respondents) were 41 years or older. Industry Representation 17.5% (74 respondents) from Health care, 20.8% (88 respondents) oil and gas, 13.4% (57 respondents) logistics, and 21.7% (92 respondents) telecom. As for their education level, 10.6% (45 respondents) had a high school diploma, 20.5% (87 respondents) held a diploma, 40.6% (172 respondents) had a bachelor degree, 21.0% (89 respondents) held a master degree, 7.3% (31 respondents) held a Ph. D. The organizational type for the respondents was 46.7% (198 respondents) in private organizations, 33.7% (143 respondents) in semi-government organizations and 19.6% (83 respondents) in public sector organizations. Finally, with organization size, 32.8% (139 respondents) worked with 1,000 employees or fewer, 40.8% (173 respondents) were in organizations with 1,001–5,000 employees, and 26.4% (112 respondents) were in organizations with more than 5,001 employees. Data includes various passages, statistics, and even comparisons of environmental ethics, training, and education on competitive advantage and sustainability.

Table 2
Sample and organisational information.

Variables	Sample (n = 424)	Percentage (%)
Gender		
Male	260	61.3%
Female	164	38.7%
Age		

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Variables	Sample (n = 424)	Percentage (%)
≤30 years	85	20.0%
31–35 years	112	26.4%
36–40 years	134	31.6%
41 years and above	93	21.9%
Industry		
Healthcare	74	17.5%
Oil & Gas	88	20.8%
Logistics	57	13.4%
Telecommunication	92	21.7%
Education Level		
High School	45	10.6%
Diploma	87	20.5%
Bachelor Degree	172	40.6%
Master Degree	89	21.0%
Ph.D. Degree	31	7.3%
Organization Type		
Private	198	46.7%
Semi-Government	143	33.7%
Public	83	19.6%
Organization Size		
≤1000 employees	139	32.8%
1001–5000 employees	173	40.8%
≥5001 employees	112	26.4%

Source; Author 2025

2.2 Variable measurements

Results of convergent validity test confirm strong reliability and validity for all constructs. Environmental Ethics had a standardized loading of 0.782, AVE of 0.611, and SCR of 0.847, confirming its strong measure of corporate ethical policies, environmental responsibility, and sustainability principles. For example, the factor, Environmental Performance, with respect to its standardized loading (0.811), average variance extract (0.629), and standardized composite reliability (0.859) indicates it as a confirming determinant toward the assessment of waste reduction, carbon footprint minimization, and compliance with environmental regulations. Environmental Education scored standardized loading of 0.793, with an AVE 0.617 and SCR 0.841, confirming employee awareness program, sustainability training and organizational knowledge-sharing on ecological issues. Environmental Training yielded a standardized loading of 0.829, AVE of 0.641, and SCR of 0.872, confirming the engagement of green skills, employee workshops, and sustainability throughout professional development. One of these dimensions of Competitive Advantage was a standardized loading of 0.801, an AVE of 0.621 and an SCR of 0.854, further strengthening its reliability through cost leadership, market differentiation and the reinforcement of a brand image focused on environmental issues. Finally, organizational sustainability recorded a standard loading of 0.815, an AVE of 0.633, and an SCR of 0.862, demonstrating the soundness of this construct in assessing long-term economic, environmental, and social performance, as well as resilience to environmental risks. All measurement items pass the validity threshold, enabling correct hypothesis testing via these results.

Table 3
Test of the convergent validity.

Indicators	Std Loading	Variance Error	SCR	AVE

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Environmental Ethics	0.782	0.212	0.847	0.611
Environmental Performance	0.811	0.198	0.859	0.629
Environmental Education	0.793	0.205	0.841	0.617
Environmental Training	0.829	0.192	0.872	0.641
Competitive Advantage	0.801	0.203	0.854	0.621
Organizational Sustainability	0.815	0.197	0.862	0.633

Source; Author 2025

3. Results

3.1 Validation of the measurement scale

Table 4 presents the results of a discriminant validity test, which shows that all constructs have shown sufficient validity because their average variances extracted (AVEs) square root is greater than correlation coefficients of them. AVE value of 0.782 indicates that this variable Environmental Ethics (M = 4.21, SD = 0.68) is significantly different from other variables. Likewise, both Environmental Performance (M = 4.19, SD = 0.72) and Environmental Education (M = 4.32, SD = 0.66) show AVE values of 0.811 and 0.793, respectively, confirming independence of constructs. Environmental Training (M = 4.27, SD = 0.71) achieved discriminant validity with an AVE of 0.829; Competitive Advantage (M = 4.11, SD = 0.75) recorded an AVE of 0.801, and Organizational Sustainability (M = 4.25, SD = 0.69), 0.815. These highlight the Fornell-Larcker criterion, indicating that each construct possesses a meaningful theoretical focus, which supports the effectiveness of the measurement model for evaluating how environmental ethics and environmental training affect corporate performance and sustainability.

Table 4
Discriminant validity tests.

Constructs	Mean	S.D.	1	2	3	4	5	6
1. Environmental Ethics	4.21	0.68	0.782	-	-	-	-	-
2. Environmental Performance	4.19	0.72	0.548	0.811	-	-	-	-
3. Environmental Education	4.32	0.66	0.502	0.567	0.793	-	-	-
4. Environmental Training	4.27	0.71	0.531	0.589	0.601	0.829	-	-
5. Competitive Advantage	4.11	0.75	0.498	0.542	0.579	0.604	0.801	-
6. Organizational Sustainability	4.25	0.69	0.517	0.573	0.596	0.622	0.581	0.815

Source; Author 2025

3.2 Testing for direct effects

As shown in Table 5, the direct effect analysis demonstrates that all the proposed relationships are significant at level 0.001, supporting the proposed theoretical framework. Environmental Ethics has a significant positive impact on Competitive Advantage ($\beta = 0.412$, $t = 7.36$ - $p < 0.001$), Environmental Performance ($\beta = 0.529$, $t = 10.80$ - $p < 0.001$), and Environmental Education ($\beta = 0.487$, $t = 9.55$ - $p < 0.001$), signifying the critical importance of this approach for practices that aim to align with sustainable principles of businesses. In addition, Environmental Training plays an important role in improving Environmental Performance ($\beta = 0.463$, $t = 8.12$, $p < 0.001$), which indicates that green training and education initiative creates a need-based reinforcement to establish learning dimensions towards the environment. They also indicate the above-mentioned statements of Environmental Education contribute to Competitive Advantage ($\beta = 0.398$, $t = 7.51$, $p < 0.001$), which, according to the above statements, seems to naturally offer a contribution of the same nature; therefore, ecological awareness of staff contributes to corporate differentiation on the market, as well as an increase in the reputation of the enterprise. Moreover, Environmental Training has a significant direct impact on Competitive Advantage ($\beta = 0.441$, $t = 8.02$, $p < 0.001$), confirming the relevance of Environmental Training in developing a sustainable competitive advantage. The study supports that policies based on sustainability practices whose conceptualization is ethical, but also training-driven generate better environmental and business performance.

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Table 5
Testing for direct effect.

Relationships	Standardized Direct Effect	Standard Error	t-Value	Sig. Level	Hypothesis
Environmental Ethics → Competitive Advantage	0.412	0.056	7.36	0.000	Supported
Environmental Ethics → Environmental Performance	0.529	0.049	10.80	0.000	Supported
Environmental Ethics → Environmental Education	0.487	0.051	9.55	0.000	Supported
Environmental Training → Environmental Performance	0.463	0.057	8.12	0.000	Supported
Environmental Education → Competitive Advantage	0.398	0.053	7.51	0.000	Supported
Environmental Training → Competitive Advantage	0.441	0.055	8.02	0.000	Supported

Source; Author 2025

3.3 Testing for Indirect effects

Table 6 shows that all indirect effects are statistically significant as indicated by the results of the test for indirect effects (Table 6), and thus supports all the proposed indirect pathways. Indirect Environmental Performance as Competitive Advantage (β = 0.267, p = 0.001, 95% CI [0.184, 0.349]), which is a positive sign to an improvement of operational sustainability due to ethical commitments that enhance market positioning. Moreover, Environmental Ethics on Competitive Advantage through Environmental Education (β = 0.194, p = 0.002, 95% CI [0.115, 0.268]), reinforces positive Proxy of sustainability accruing competitive advantage. Moreover, Environmental Ethics affects Competitive Advantage indirectly through Environmental Training (β = 0.215, p = 0.001, 95% CI [0.142, 0.297]), emphasizing the necessity of skill training to buttress ethical business practices. Moreover, Environmental Training affects Competitive Advantage via Environmental Performance (β = 0.241, p = 0.001, 95% CI [0.167, 0.322]), the rationale being that firms that pay attention to sustainability-based training investments enhance their operational efficiency, which results in a competitive advantage. These insight substantiate the mediating effect of environmental education, training and performance to channel ethical business practices into lasting advantages in the marketplace.

Table 6.
Indirect Effects Test

Relationships	Standardized Indirect Effect	Sig. Level	Lower Bound	Upper Bound	Hypothesis Testing
Environmental Ethics → Environmental Performance → Competitive Advantage	0.267	**0.001**	0.184	0.349	Supported
Environmental Ethics → Environmental Education → Competitive Advantage	0.194	**0.002**	0.115	0.268	Supported
Environmental Ethics → Environmental Training → Competitive Advantage	0.215	**0.001**	0.142	0.297	Supported
Environmental Training → Environmental Performance → Competitive Advantage	0.241	**0.001**	0.167	0.322	Supported

Source; Author 2025

4. Discussion

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4.1 Competitive Advantage Based on Environmental Ethics

These study findings on environmental ethics involvement in firm performance and competitive advantage confirm the importance of environmental ethics. Competitive advantage, environmental performance, environmental education are affected by environmental ethics; hence why environmental ethics has appeared to be the foundation of sustainability that builds on business strategies. These findings are in line with previous studies showing that ethical commitments improve corporate reputation, operational efficiency, and stakeholder trust (Delmas & Pekovic, 2019; González-Rodríguez et al., 2021). Aligning environmental ethics with strategic decision-making can help organizations not only diminish their environmental impact but also ensure long-term financial viability (Bansal & DesJardine, 2020). The cultivation of an ethical corporate culture allows firms not only to adhere to regulatory compliance, but also to appeal to environmentally conscious consumers and investors, thereby gaining a competitive advantage (Chang, 2021).

4.2 Sustainability, eco-performance and education

Environmental performance was positively influenced by environmental ethics and environmental training, suggesting the importance of ethical leadership and environmental skill development for attaining sustainability objectives. The academic literature has provided links between corporate sustainability and a range of impacts up to corporate recognition, as companies that emphasize waste reduction, the minimization of corporate carbon footprint, and compliance with environmental regulations will outperform non-sustainable companies on both financial and non-financial measures (Dangelico et al., 2022). Such findings align with prior studies that demonstrated improved operational efficiencies and resource optimization among firms that embrace proactive environmental strategies (Sarkis et al., 2020). Moreover, the training process enables the increase of employee competence regarding environmental activities, which reflects in better environmental behaviour across the company (Jabbour & de Sousa Jabbour, 2020). Structured training programs allow employees to pave a way for solutions for sustainability-related challenges that not only enhance adherence to the relevant regulations but also help mitigate environmental risks (Zailani et al., 2021).

4.3 The relationship between environmental education and a competitive edge

It also shows how competitive advantage is reinforced through environmental education. Education focused on sustainability increases the likelihood that employees will adopt eco-friendly practices, which strengthens corporate reputation and brand differentiation (Singh et al., 2023). This is consistent with findings that suggest that firms that teach sustainability concepts often experienced greater customer loyalty and market expansion as a result of their perceived corporate social responsibility (Torelli et al., 2021) [KOP1(lm_i1,2)]. Additionally, environmental education promotes a culture of lifelong learning and innovation that assists organizations in adapting to changing environmental regulations and marketplace expectations (García-Machado & Martínez-Ávila, 2020). The close relationship between environmental education and competitive advantage indicates that organizations need to embed sustainability as part of their employee training programs to ensure long-term success, attractiveness and viability in the market (Baah & Jin, 2022).

4.4 *The Direct and Indirect effects of environmental training on Competitive Advantage*

It also demonstrates the direct and indirect relationship between environment training and competitive edge. Through training programs, employees gain the skills necessary to implement green innovations, enabling cost efficiencies and creating competitive differentiation (Liu et al., 2021). Previous studies support this claim, underlining how companies that strategically invest in sustainability related training not only improve their operational resiliency but also generate unique competitive advantages in the market (Hartmann & Uhlenbruck, 2022). The identified indirect pathways in this study provides more support that environmental training leads to competitive advantage by enhancing environmental performance (Zameer et al., 2020). This highlights the need for businesses to integrate sustainability training as a fundamental aspect of their strategic human resource development activities (Yadav et al., 2023).

4.5 *Environmental ethos and corporate sustainability through sustainable performance, education and training*

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Lastly, the study adds an empirical basis to the interlinkage of environmental ethics, performance, education, and training in enhancing organizational sustainability. The positive relationships recognized indicate that sustainability can be strategic, rather than a matter of ethics or compliance (Montiel & Delgado-Ceballos, 2021). Companies that have environmental ethics embedded in their corporate governance directly gain a competitive edge in coping up with market uncertainties and regulatory complexities (Raut et al., 2021). Additionally, the rise in global demands for sustainability reporting and ESG metrics highlights the importance of ethical leadership in building successful businesses (Orlitzky et al., 2022). In light of these dynamics, firms that integrate economic environmental training, education, and performance monitoring into their business models are likely to achieve long-term profitability while positively contributing to broader societal and ecological sustainability (Sharma and Pizmony-Levy, 2022).

5 Conclusion

The findings indicate that environmental ethics, education, training, and performance are timely ways for ensuring competitive advantage and organization sustainability. Results show that firms that value firms are more likely to have better environmental performance, which further improves their competitiveness. The results further suggest that (i) environmental training and education is a driving force facilitating sustainability-oriented innovation and efficiency, and (ii) are therefore key to establishing long-term competitive advantage through strategic intangible assets. These findings illustrate that the interplay of direct and indirect effects of these factors yield a complete picture for sustainability of business advancement. As companies strive to stay competitive while adapting to this new mindset, incorporating ethical leadership, employee training, and environmental education within corporate strategies allows for a balance of profit and sustainability in order to achieve long-term growth in an environmentally conscious economy.

Although valuable to know, this study has several limitations. First, the study uses cross-section data that restricts the authors from observing long-term causal relationships of environmental strategies competitive advantage. Longitudinal studies could be run followed by qualitative analysis to see the transformation of sustainability initiatives over time. Second, the study is contextually bounded to a specific industry, which may hinder transferable insights to other sectors. Future research that investigates such relationships in a wider range of industries and across different geographical regions could yield a more robust set of findings. Finally, despite the contributions made by this study through the targeted focus on key sustainability variables, future studies should explore other potential moderating factors that can provide deeper insights into potential mechanisms through which environmental strategies may relate to firm performance (for example, regulatory policies, governance structures, technological advancements, etc.).

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Credit authorship contribution statement

Shahid Al Basheer: Conceptualization, Methodology, Data Collection, Formal Analysis, Writing – Original Draft. Sayedy Javad: Supervision, Review & Editing, Validation, Interpretation of Results.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

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