

A Study of Impacts of Environmental Leadership on Environmental Management and Organizational Performance

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Abstract

In the 21st century, corporate sustainable operation is implanted in the tradition as well as the commitment to improve people's quality of life. It represents the business attitude towards the balance between economic benefits, social responsibility and environmental protection after careful considerations of social responsibility. Due to the needs in the internationalization trend and the requirement of domestic environmental protection regulations, it is necessary to establish the environmental management system in environmental protection industry.

This study focused on professionals in Taiwan's environmental protection industry. A total of 360 questionnaires were distributed, and 237 valid questionnaires were returned, with a return rate of 66%. According to the results, suggestions are proposed, expecting to help environmental protection industry reinforce the promotion of environmental management for the economic and environmental balance.

Keywords: Environmental Protection Industry, Environmental Leadership, Environmental Management, Organizational Performance

Introduction

Corporate sustainability is rooted in a company's tradition and reflects its commitment to improving people's quality of life. It represents a company's attitude of striving to achieve a balance between economic benefits, social responsibility, and environmental protection after careful consideration of its social responsibilities. The development of modern enterprises is facing larger environmental management and social responsibility pressure. Sustainable development is a major change in traditional economic development models, stressing on the coordination between economy and environment. Similar to the problem of ozone hole, global warming is a globally environmental problem. To release climate change is the common efforts for countries in the world. In the 21st century, business operation should not simply pursue profits but ignore environmental protection.

In face of such an environmental protection trend, domestic environmental protection industry is encountering increasing pressure. In order not to be restricted to trade barrier in international markets, the efforts and management costs for pollution control are enhanced. Due to the needs in the internationalization trend and the requirements for domestic environmental protection regulations, it is necessary to establish environmental management systems in environmental protection industry. Especially, domestic material market is getting saturated; in addition to domestic competition from the same trade, foreign environmental protection industry enters domestic market with joint venture for the competition. Moreover, environmental protection industry is facing the impact of various environmental protection issues. In addition to the strict control of governmental environmental protection act, there are competition from the same trade and the strong fight from surrounding citizens. To conform to the regulations in environmental protection act (air, water, waste, toxic, noise), the improvement of pollutant emission, especially air pollution, noise control, and material waste, is essential. This study expects to help environmental protection industry reinforce the promotion of environmental management for the economic and environmental balance.

Literature review

I. Environmental leadership

Lu et al. (2018) simply defined leadership as the ability to affect groups achieving the goals. A leader played the critical decision-making role to transform the acquisition, development, and allocation of organizational resources into valuable products and service for stakeholders. De Sousa Jabbour et al. (2017) considered that, regardless the size of an organization and the commitment to environment, a leader apparently played the critical role in the implementation of organizational greenification. A leader should affect individuals and improve the organization through the construction of needs and planning definite vision and goals as well as integrate the vision of ecological sustainability into the organization in order to really implement environmental leadership. Al-Ghwayeen & Abdallah (2018) Environmental leadership is defined as the ability of an individual or organization to lead others in collaboration toward a vision of a better

environment. The vision established by such type of leaders was deeply affected by environmental value and could be the motivation to protect and positively improve environment. Jang et al. (2017) mentioned that a leader implementing environmental leadership could clearly outline the vision of environmental protection, improve the cognition of environment, and present individual behavior to environmental commitment. To overcome the internal restriction of an organization with transformational leadership allowed the followers accepting new belief and constructing new market opportunities.

Liu et al. (2018), this study divides environmental leadership into four dimensions. Vision creation: A leader should construct needs and plan definition vision and goals.

- (1) Ability guidance: Using vision and goals for affecting individuals and improving organizations as well as integrating the vision of ecological sustainability into organizations.
- (2) Inspiration and motivation: Inspiring and motivating organizational members to regard organizational vision as the common goal and enhance the responsibility.
- (3) Environmental sensitivity: Environment related issues are composed of various complicated and cross-type problems and even pressure from different institutions that good environmental sensitivity and problem-solving ability are required.

II. Environmental management

Jiang et al. (2018) defined as an enterprise that uses management concepts, knowledge, methods and tools to address and solve environmental problems, and to improve the quality of life and pursue public welfare. Geng et al. (2017) indicated that an enterprise integrating the concept of environmental protection with the policy, organization, product, and marketing, transforming the threat of environmental protection into opportunities, and pursuing the excellence of environmental protection was regarded as environmental protection oriented corporate management, or environmental management. Aslam et al. (2018) referred environmental management as the management deeds adopted by an enterprise when the products, production process, and organization impacted physical, ecological, and cultural systems. Scur & Barbosa (2017) mentioned

that CEOs' value and traits could be used for speculating the strategy selection of an organization as well as the impacts on organizational performance. Apparently, CEOs with environmental protection related knowledge and emphasis on nature related issue would more possibly present organizational commitment and behavior on environmental protection.

Chen et al. (2018) mentioned the environmental management contains three dimensions in this study.

- (1) Production operation: Process improvement, energy saving, waste reduction, and resource recycling of an enterprise.
- (2) Administrative management: ISO14000, environmental protection check, environmental protection in office, active participation in community activity.
- (3) Marketing program: Research and development of green products, promotion and communication.

III. Organizational performance

Chu et al. (2017) regarded organizational performance as to measure the resource allocation and application result; when selecting the measuring indices for performance, the ability and conditions of the organization should be taken into account to make a feasible goal for the practice; organizational performance therefore was an important result variable in business operation. Ali et al. (2017) regarded performance is the achievement of a manager to various work goals on the position. It was indicated that performance was the degree of employees implementing the works, which reflected the degree of employees implementing work needs; and, job performance referred to the net effect of employees' efforts, which were affected by employees' ability and role awareness. Zuo et al. (2017) proposed performance as the measurement of an organization achieving the goals. Burki et al. (2018) stated that performance evaluation, as an examination of an organization, could evaluate the quality of the organization and the achievement of goals as well as discover problems as early as possible for adopting coping measures. The performance evaluation result was the beneficial reference for an organization engaging in operation activity and resource allocation as well as modifying management strategies and planning future directions.

Referring to Foo et al. (2018), organizational performance contains three dimensions in this study.

- (1) Financial performance: a common measurement method.
- (2) Operating performance: non-financial indicators of market share, product quality, and added value.
- (3) Organizational effectiveness: non-financial indicators of employee morale and turnover.

IV. Research hypothesis

Ma et al. (2018) mentioned that, under limited organizational resources, a leader, from the construction of organizational vision, would inspire and encourage employees to enhance the sensitivity to environmental changes and cognition of environment related issues, through the guidance of environmental leadership. It highlighted the critical role of a leader. To implement the making and practice of strategies, natural environment related issues should be taken into account in order not to affect the balance of the nature through good plans and management deeds. In this case, a leader's good environmental leadership could enhance the emphasis of the organization on environmental sustainability. Bai et al. (2017) discovered that the CEO team members' environmental ethics value would affect the environmental management policy and practice of an enterprise. According to the environmental leadership of CEOs, when the value and belief stressed on environmental protection, the CEO team was more possible to practice corporate environmental management. Wu et al. (2018) indicated that a lot of past research proved the connection between the environmental commitment of an organization and leaders' actions, which play the role of initiator to actively implement environmental management and enhance environmental performance. From above literatures review, the following hypothesis is inferred.

Hypothesis (H1): Environmental leadership presents positive correlations with environmental management.

Xiao et al. (2018) said that the implementation of environmental management will significantly benefit environmental performance and competitive advantage and even reinforce competitive advantage through organizational performance. For this reason, the

implementation of environmental management conformed to environmental protection act and could reduce damage to environment. Famiyeh et al. (2018) indicated that corporate environmental management could enhance an enterprise's competitive advantage and acquire better organizational performance. Wang et al. (2017) stated that, when an enterprise's specific implementation of environmental management reflected on the organizational performance, the employees would precede evaluation and measurement as well as inspect the conformity to individual value of environmental protection; the degree of employees being willing to work for the organization would inspect the organizational performance conforming to the value. According to above literatures, the following hypothesis is proposed.

Hypothesis (H2): Environmental management shows positive correlations with organizational performance.

Wang & Zhao (2018) described the personality traits of CEO as to help an organization shape the final pattern; and, a leader's personal value was broadly discussed and studied. Along with the emphasis on environment issues, a critical leader' environmental commitment, value, belief, and attitude would affect the environmental protection deeds of the enterprise. Zeng et al. (2017) indicated that an executer's leadership could effective predict the organizational performance and effectiveness; however, financial performance, due to time gap, did not show direct and remarkable relationship, but could actually affect the future development direction of the organization and gain the reputation from internal and external stakeholders. Zhang et al. (2018) mentioned that CEOs would made efforts on the practice of environmental leadership inside and outside the enterprise and effectively integrating corporate process and environment related issues to become the competitive advantage, through good environmental management, and maintain the leading status in the industry and enhance the growth of organizational performance. From above literatures, the following hypothesis is further inferred.

Hypothesis (H3): Environmental leadership reveals positive correlations with organizational performance.

The Sample and measuring index

I. Sample and Subjects

This study focused on professionals in Taiwan's environmental protection industry. A total of 360 questionnaires were distributed, and 237 valid questionnaires were returned, with a return rate of 66%.

II. Reliability and validity test

This study conducted an overall structural causal relationship test on three dimensions: environmental leadership, environmental management, and organizational performance. The study used the item-total score correlation coefficient to test the structural validity of the questionnaire content, i.e., to perform reliability analysis. The item-total score correlation coefficients for each dimension were all higher than 0.7, indicating that each dimension has a certain degree of structural validity. A higher Cronbach's α coefficient indicates better reliability. The formal questionnaire in this study was developed according to standards, and the measured Cronbach's α values were between 0.70 and 0.90, clearly within the reliability range. Pears in 0.70~0.90, apparently conforming to the reliability range.

Empirical result analysis

I. LISREL model evaluation indicator

The research data are organized in Table 1. The preliminary fit, internal fit, and overall fit of the model are explained as followings.

As shown in Table 1, the complete model analysis results indicate that the four dimensions of environmental leadership (vision creation, capability guidance, motivation, and environmental sensitivity) significantly explain environmental leadership ($t > 1.96$, $p < 0.05$); the three dimensions of environmental management (production operations, administration, and marketing planning) significantly explain environmental management ($t > 1.96$, $p < 0.05$); and the three dimensions of organizational performance (financial performance, operational performance, and organizational effectiveness) significantly explain organizational performance ($t > 1.96$, $p < 0.05$). Clearly, the overall model in this study has good preliminary fit.

To internal fit, environmental leadership and environmental management expressed a significant positive correlation (0.871, $p < 0.01$), environmental management expressed a significant positive correlation (0.845, $p < 0.01$), and environmental leadership also expressed a significant positive correlation (0.856, $p < 0.01$). Therefore, environmental leadership and organizational performance also expressed a significant positive correlation (0.856, $p < 0.01$). Thus, in terms of overall model fit, the overall model fit standard $\chi^2/Df =$

1.186 is less than the standard value of 3, and $RMR = 0.005$, indicating that both χ^2/Df and RMR values are within a reasonable range. Furthermore, the chi-square test is sensitive to sample size and is therefore not suitable for directly judging model fit. However, the overall model fit standards $GFI = 0.977$ and $AGFI = 0.931$ are both higher than the standard value of 0.9 (the closer GFI and $AGFI$ are to 1, the better the model fit), indicating that the model has good fit indices.

Table 1 Overall linear structure model analysis result

evaluation item	parameter/evaluation standard		result	t
Preliminary Fit	Environmental Leadership	Vision Creation	0.724	8.74**
		Ability Guidance	0.713	7.96**
		Inspiration And Motivation	0.707	7.64**
		Environmental Sensitivity	0.719	8.12**
	Environmental Management	Production Operation	0.746	9.89**
		Administrative Management	0.738	9.35**
		Marketing Program	0.752	10.49**
	Organizational Performance	Financial Performance	0.769	11.25**
		Operating Performance	0.784	12.61**
		Organizational Effectiveness	0.775	12.17**
Internal Fit	Environmental Leadership→Environmental Management		0.871	42.87**
	Environmental Management→Organizational Performance		0.845	27.33**
	Environmental Leadership→Organizational Performance		0.856	31.53**
Overall Fit	GFI		0.977	
	χ^2/Df		1.186	
	RMR		0.005	
	AGFI		0.931	

Note: ** stands for $p < 0.01$

Table 2 Hypothesis test

Research Hypothesis	Correlation	Empirical Result	P	Result
Hypothesis (H1)	+	0.871	P<0.01	supported
Hypothesis (H2)	+	0.845	P<0.01	supported
Hypothesis (H3)	+	0.856	P<0.01	supported

Conclusion

Research indicates that leadership behavior plays a crucial role in organizational shaping within the environmental protection industry. While prioritizing environmental issues, the environmental protection industry's impact on the natural environment cannot be ignored. Environmental leadership within the industry can enhance an organization's environmental commitment and awareness. Furthermore, leaders play a key role in shaping organizational vision, inspiring employee environmental awareness, and improving the organization's environmental sensitivity. The environmental protection industry can establish its commitment to the environment through leadership. A lot of past enterprises implementing environmental management were based on the considerations of external factors, such as the government making relevant environmental protection act or considering the effects on stakeholders. Nonetheless, forcing environmental protection industry to execute relevant responses, through external legal pressure, suggestions of environmental protection groups, and exposure of community media, is a negative method. Besides, such measures are not permanent methods. To induce environmental protection industry actively and positively presenting the environmental concerns, the environmental leadership could guide the organization towards active implementation of environmental management to really achieve the goal of environmental sustainable development.

Suggestion

The following practical suggestions are proposed in this study.

1. A material organization could internally induce the employees dealing with environmental protection related problems in the company and externally

concern about stakeholders' appeal and expectation of environment. Such internal and external points of view could implement good environmental management to promote organizational performance and lead to sustainable operation

2. Environmental protection industry, in the product supply end, should apply zero-pollution materials and cooperate with manufacturers with related environmental protection certificates. In the production end, it could practice clean operation and production and introduce the idea of green production line. In the sales end, it could apply green marketing and deliver the value of green culture to consumers to enhance the public agreement with environmental concerns.
3. Environmental protection industry could invest certain capitals and resources in the research and development of environmental protection equipment, the creation of innovative green products or service, and environmental protection related education and training. On the other hand, environmental protection industry could recruit executives or employees with good awareness of environmental protection to promote good environmental management systems and collaboratively establish relevant systems.

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