

## Article

# Impact of Environmental Leadership on Environmental Behavior: The Mediating Effects of Green Culture, Environmental Management, and Strategic Corporate Social Responsibility

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**Abstract:** With rising global environmental concerns, businesses are prioritizing environmental preservation alongside economic growth. This research investigates the influence of environmental leadership on corporate green culture, environmental management, strategic corporate social responsibility (CSR), and environmental behavior. Surveying high-tech industry professionals in southern Taiwan, the study obtained 479 out of 600 questionnaires that were valid, yielding an 80% response rate. Key findings include the following. (1) Environmental leadership positively impacts green culture, environmental management, strategic CSR, and environmental behavior. (2) Green culture and environmental management mediate the relationship between environmental leadership and environmental behavior. (3) Strategic CSR mediates the influence of environmental leadership on environmental behavior. Through environmental leadership, knowledge dissemination, and attitude shaping, the paper proposes that high-tech industries can alter their worldview and daily practices, thus addressing environmental degradation at its core.



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**Keywords:** environmental leadership; green culture; environmental management; strategic corporate social responsibility; environmental behavior

## 1. Introduction

With the evolution of the times and the vigorous development industries, in addition to obtaining economic profits, society has begun to perceive the limited nature of natural resources and the derivation of related problems such as environmental protection [1]. Starting from the innovation of the industrial revolution, as technology has developed by leaps and bounds, high economic benefits have ensued, and the quality of life is better than before. Developing countries are gradually becoming industrialized, and various products are constantly introduced [2]. A global village of common existence and prosperity has taken shape, which not only meets the needs of human life, but also improves its quality. On the contrary, as mankind wantonly abuses the resources on the earth, thinking that they are inexhaustible, development under the background of globalization has also caused damage to the ecological environment of the earth. Society is facing the imminent depletion of the earth's resources and ecological hazards, such as the greenhouse effect, hole in the ozoneosphere, air pollution, and water pollution [3].

Under these increasingly serious environmental and ecological changes, climate anomalies and environmental ecology due to global warming threaten human beings. This has caused an unprecedented resource crisis, making human beings know that the resources endowed by the natural environment are not inexhaustible, and some even cannot be restored after use [4]. As a result, people, organizations, and governments in advanced countries such as those in Europe and the United States have started to reflect

on these issues. The excessive pursuit of human beings has produced bitter fruits, which further positively promote green-culture development [5].

As environmental awareness increases, many international agreements on environmental protection have been entered into, and governments have also formulated environmental regulations for enterprises. For example, the European Union issued the Waste Electrical and Electronic Equipment Directive, the Restriction of Hazardous Substances Directive, and the Eco-Design Directive on Energy-using Products. Many countries have also formulated relevant environmental protection directives and encouraged enterprises to implement environmental protection, energy conservation, and carbon reduction activities through some policies. This wave of environmental protection also influences people's increasing attention to the concept of environmental protection, resulting in consumers demanding that enterprises should have more environmentally friendly actions, such as developing energy-saving products, reducing packaging, and cutting environmental pollution [6].

In the era of greater environmental awareness, business operations have a great impact on environmental change. Shrivastava [1] reported that the large-scale production and development of enterprises have led to a global ecological environment crisis. Therefore, enterprises are duty-bound to protect the natural environment. As environment-related issues gain public attention, scholars have begun to call for the importance of environmental leadership behavior in organizations.

Many studies have confirmed that environmental leadership can promote the sustainable development of enterprises [7–10]. For example, Hambrick and Manson [11] found that the top leader of an organization (CEO) will affect the identity and development of the organization, as well as its strategy and performance, and the CEO plays a pivotal role in organizational leadership. Egri and Herman [12] believed that when leaders demonstrate environmental leadership behaviors, they can construct a vision of organizational greening and improve the thoughts and actions of organizations and members on environmental protection and care. CEOs have a great influence on organizations' environmental commitment, protection, and performance. The demonstration of environmental leadership behavior by the CEO can direct the organization's perception of environmental protection.

Studies have mentioned that the implementation of environmental management can minimize the impact on the natural environment during the product life cycle, and environmental performance can be used to test the results of the implementation of environmental management by organizations [13]. Judge and Douglas [14] indicated that if leaders integrate environmental management issues with strategic planning, then enterprises will have better environmental and financial performances. Dechant and Altman [15] pointed out that environmental performance may be one of the important factors to promote the growth of organizational performance because internal employees or external stakeholders may review the actions related to corporate social responsibility, audit and certification of environmental protection regulations, and other environmental protection methods. On the one hand, it can review the enterprise's ability to adjust to the external environment and its emphasis on environmental protection. The above factors also shape the effectiveness of employees in the organization and can even serve as one basis by which shareholders measure their willingness to invest. Fan, Lin, Chung and Huang [16] argued that environmental management plays an indispensable avenue for a CEO to demonstrate environmental leadership and organizational performance. However, relevant studies have explored its connection and impact at the same time.

As people's awareness of environmental protection and green consumption increases, they also know that natural resources are not inexhaustible. Moreover, governments have also formulated environmental laws and regulations to urge enterprises to make clear their social responsibilities and play their part, so that enterprises have to face the changes of corporate culture and product technology readjustment. However, will these changes bring the enterprise a new look and image, which in turn will lead to positive reviews and increased sales? Entrepreneurs who grasp the pulse of the world must have considerable

planning and organizational capabilities to take on the important task of protecting the environment and maintaining natural harmony [6]. However, the spontaneity of the public and their expectations towards a company often drive leaders to adjust organizational culture and behavior within the company.

Thought is the foundation of behavior, and all walks of life also seek their own sustainable development. One business philosophy is to present a good corporate image to the public, comprehensively promote resource reuse and greening, seek new changes, and integrate them. Enterprises hope to be the first and occupy a place in the minds of the public. Therefore, the greening of organizational culture has a certain influence on the greening of organizational behavior and employee behavior [5]. If enterprises shoulder social responsibility, not only for employees, customers, and manufacturers, but also for environmental protection, then this in turn becomes a competitive advantage for them. However, leaders and senior management can practice the social responsibility of global environmental protection and greening through business philosophy and strategy, so that environmental protection and greening are closely related to the pulse of the enterprise. Moreover, enterprise leaders and senior managers attach importance to environmental protection and green energy, which affect the enterprise's business philosophy and strategy and also have a positive impact on internal organization operation and employee behavior and attitude [17].

As policies and regulations have been implemented and public awareness of environmental protection has risen, enterprises must also focus more on environmental protection efforts and actions than ever before, such as saving energy, electricity, and water; and recycling and reusing. Such efforts and actions can help enterprises to reduce costs, which are beneficial to them and can improve their good image in people's eyes by fulfilling their corporate social responsibility [5]. In the implementation of environmental protection activities, an important factor is that employees must understand the necessity of environmental protection. Therefore, enterprises should first improve employees' awareness of environmental protection so that they can obtain basic environmental protection knowledge and implement environmental actions [17]. Encouraging employees to carry out environmental protection actions can be regarded as a behavioral organizational change, in which the leadership of supervisors is very important. If supervisors attach importance to environmental protection issues and advocate environmental protection practices, then it will help enrich employees' knowledge about environmental protection, cultivate their positive attitude towards environmental protection actions, and improve their willingness to engage in environmental protection activities [5]. Therefore, this study explores the impact of environmental leadership on green culture, environmental management, strategic CSR, and environmental behavior in order to help the high-tech industry change its views on the world and daily behaviors through environmental leadership, knowledge transmission, attitude cultivation, and action formation.

## 2. Literature Review and Hypotheses' Development

### 2.1. Environmental Leadership and Green Culture

Environmental leadership refers to the leadership ability that can influence individuals and even mobilize an organization to realize a vision of the long-term ecological sustainable development of the entire organization and the enterprise. Green leadership helps better expand the breadth of this ability. Leadership is usually top-down. The clear commitment of top management is the most important driving force for enterprises to carry out green reform [12]. As the leader's attitude will dominate the environmental performance of the enterprise, when a leader is equipped with green leadership ability, the leader's attitude, values, and behaviors will have a profound impact on the greening of the enterprise, and the leader's own values and ethics on the environment and green will also impact the entire organization. Such impacts and commitment to the organization can control the enterprise's investment in financial, human, and material resources and even formulate environmental policies to achieve the goal of corporate greening [7]. Therefore, effective

green leadership enables the leader to understand the environment and green values more thoroughly, to see his own interests, and, more importantly, to extend his observation to the expectations of all stakeholders related to the enterprise. Thus, he will try to lead the organization to green transformation, assist the organization in achieving the green goal, and improve the green awareness, behavior shaping, transformation, and development of the organization [18,19]. Accordingly, this study proposes H1.

**H1.** *Environmental leadership has a significantly positive impact on green culture.*

## 2.2. Research on the Correlation between Environmental Leadership and Environmental Management

At the actual management level, the top leader has a certain influence on the form and development of the organization. Through the characteristics of senior leaders, we can understand the reasons why enterprises carry out specific management actions [20]. For example, Pelster and Schaltegger [21] pointed out that the environmental ethical values of senior leadership team members will affect the policies and implementation guidelines of environmental management in enterprises. Saeed et al. [22] suggested that the environmental values of senior corporate leaders will impact the implementation of environmental management by enterprises, and environmental leadership will affect the attention paid by senior management teams to environmental issues. During the discussion on the development and formulation of corporate strategies, nature-related issues such as the environment are more likely to be taken into account.

In terms of corporate management, environmental leadership is more likely to be followed in executing and implementing environmental management. According to Zhang and Zhu [23], through environmental leadership, internal members can understand the goals of the organization, make efforts for the organization, create new customer-oriented quality services, and present the cultural characteristics of the organization. In addition, the establishment of a management system must be planned by senior managers and other leaders. Brink [24] found that if an enterprise wants to implement environmental management, then the leadership of the supervisor plays an important role, and the manager who implements environmental management can lead the environmental impact and mobilize all organization members to realize the vision of the ecological sustainable development of the entire enterprise. Moreover, a clear commitment from managers to policies is the most important factor for enterprises to undertake green reforms in order to reduce waste generation, increase productivity, and promote corporate environmental management expertise and knowledge. Accordingly, this study proposes H2.

**H2.** *Environmental leadership has a significantly positive impact on environmental management.*

## 2.3. Environmental Leadership and Strategic Corporate Social Responsibility

When strategic social responsibility becomes a clear goal and strategic policy of an organization, the supervisors' leadership plays an important role in how the strategy is introduced into the management system, and how the employees can implement the concept and policy, with it penetrating into the core of the enterprise's operation. Moreover, the leader is an important key who influences the enterprise's operation. Schein [25] proposed from a study on the formation process of enterprises that the founders and important leaders of enterprises impact the culture and decision-making within the organization, and the values of leaders can strengthen the value system of enterprises. Schein also believed that senior executives are an important key for enterprises to implement strategic social responsibility, and the core values within the enterprise need to be connected through the leader's strategic vision.

Shamir, House and Arthur [26] pointed out that the charm of environmental leadership will affect followers' concept of social responsibility. If the leader conveys his philosophy and moral values in the nature of his work, then this will influence and motivate subordinates to achieve goals and realize the vision of the organization. When members of the

organization discuss the goal of fulfilling social responsibility, the leader can arouse and change subordinates' cognition of problems and solutions through intellectual inspiration, let them generate new perspectives, and make the entire organization understand the importance of corporate social responsibility.

Li et al. [27] mentioned that the leader is the benchmark for the implementation of the corporate governance system, and the leader is the person with moral and social responsibility who promotes environmental strategy. When corporate social responsibility issues include human rights, employee rights, environment, community participation, supply chain relations, corporate governance, supervision mechanism of the board of supervisors, stakeholder rights, etc., then, based on the stakeholder theory, enterprises can emphasize that corporate leadership and CSR are closely related because the purpose of both is to protect the interests of stakeholders. However, an enterprise is established mainly for profit, and managers often pursue the goal of maximizing profit and neglect the due diligence of CSR. Accordingly, this study proposes H3.

**H3.** *Environmental leadership has a significantly positive impact on strategic corporate social responsibility.*

#### *2.4. Research on the Correlation between Environmental Leadership and Environmental Behavior*

Hobfoll et al. [28] reported that environmental leaders can further encourage employees to ask questions about environmental problems, think about new ways to solve environmental problems, and appeal to high values through new thinking logic (e.g., health, a more natural environment for the next generation, maintaining a natural way of life, clearly pointing out environmental protection goals). Thus, employees can accept environmental thinking and internalize the concept conveyed by environmental leaders, so as to increase their sense of identity for environmental protection, make them aware of the significance of environmental protection activities and the necessity of implementation, and gradually enable them to develop environmentally friendly behavior and enhance the voluntary implementation of environmental protection.

Vicente-Molina, Fernández-Sainz and Izagirre-Olaizola [29] suggested that environmental leaders can suggest how employees can realistically implement environmental planning in the workplace to make work activities more environmentally sustainable. They can also talk to employees about how they should carry out environmental activities in the work environment in the future and feel confident in the ability of employees. According to the characteristics of leaders, Luu [30] summarized and integrated environmental issues and then proposed the concept of environmental leadership. Luu pointed out that environmental leaders, within the scope of their responsibilities, convey a clear and consistent vision of environmental protection to employees, support environmental protection by example to serve as a model for employees, share environmental values with employees and discuss the importance of sustainable development, commit to practical actions as proof, and lead employees to solve environmental problems together.

Alkurdi, Amosh and Khatib [31] aimed to examine the influence of board attributes on environmental, social, and governance (ESG) performance and to explore the mediating role of carbon emissions in this relationship. Using panel data from 1621 European companies from 2017 to 2021, the findings indicate that board gender diversity, audit committee independence, expertise, and board meeting attendance positively contribute to ESG performance. In contrast, board size and composition do not have a significant effect on ESG performance. The outcomes of this study have substantial implications for company managers, enhancing the effectiveness of board decisions regarding environmental practices important to various stakeholder groups. Moreover, the study offers valuable insights for regulators and policymakers on strengthening regulations and control mechanisms that boost environmental performance. Accordingly, this study proposes H4.

**H4.** *Environmental leadership has a significantly positive impact on environmental behavior.*



### 2.5. Green Culture and Environmental Behavior

Organ [32] found when constructing the theory of organizational citizenship behavior that organizational culture closely relates to the behavior of an organization's employees. Moreover, when the organization's members accept the organizational culture of the company and their personal values are similar to the organizational values, they will perform better beyond their personal roles and exceed the standards. There is a very close relationship between organizational culture and employee behavior. When an organization's members accept the culture emphasized by the organization, individual behavior will increase and improve. According to Turnipseed [33], the greater the gap is between the internal integration values of individual employees and corporate executives, the lower is the sense of commitment, altruistic behavior, and obedient behavior of individual employees to the company.

In the research on employee personality traits, organizational structure, and organizational employee behavior, Chien [34] found that organizational culture positively correlates with organizational employee behavior. Hojnik, Ruzzier and Manolova [35] pointed out that because the leader's attitude dominates the organization's performance in environmental behavior, when the leader is equipped with environmental leadership ability, the leader's attitude, values, and behavior will all have a profound impact on the organization's green culture. When the leader's own environment, green, and moral values also have an impact on the environmental culture of the entire organization, then the leader's commitment to the organization can control the financial, human, and material resources invested by the enterprise, and even the formulation of environmental policies can achieve the purpose of greening the enterprise environment, thus improving the organization's environmental behavior.

Li et al. [27] argued that effective environmental leadership can enable leaders to have a more thorough understanding of environmental culture and green values. They not only see their own interests, but also extend their observations to the hope of all stakeholders associated with the enterprise so as to strive to lead the organization to green transformation. Hazaea et al. [36] found that when the green culture is strong, environmental behavior becomes an integral part of an organization's identity. It influences how decisions are made, from product design and manufacturing to marketing and disposal. The ripple effect of this alignment results in a reduced carbon footprint, conservation of resources, and a positive contribution to the global goal of sustainability. Hence, nurturing a green culture is essential for shaping environmental behavior that aligns with a sustainable future. This assists the organization in achieving green goals and improves its environmental awareness, friendly environmental behavior, change, and development. Accordingly, this study proposes H5 and H6.

**H5.** *Green culture has a significantly positive impact on environmental behavior.*

**H6.** *Green culture has a mediating effect under the influence of environmental leadership on environmental behavior.*

### 2.6. Environmental Management and Environmental Behavior

Zhang et al. [37] suggested that the implementation of environmental management plays a significant role in both environmental performance and competitive advantage, and environmental performance can even further strengthen the competitive advantage of an enterprise. The implementation of environmental management not only meets the requirements of environmental protection laws and stakeholders, but also reduces the harm caused to the environment. An enterprise's environmental management not only can improve its competitive advantage, but also can help the enterprise achieve better environmental performance. Robertson and Carleton [38] pointed out that as enterprises are increasingly constrained by the natural environment, the development of pollution prevention and control ability reduces the relative cost and emissions of pollution. They

believed that the environmental management implemented by enterprises can be reflected in their environmental performance, and employees within the organization will also evaluate, measure, and check whether their environmental behavior is consistent with their own environmental protection.

Zhang and Zhu [23] found that the more issues there are that relate to environmental management and are integrated into the strategic planning process, the better the environmental performance and environmental behavior will be. When environmental leaders implement environmental management, they must hope that the negative impact of the products and services provided by the organization on the environment will be minimized, or even the effect of greening the environment can be achieved. Environmental behavior is the result of testing the enterprise's environmental management. Hazaea et al. [36] used the theory of planned behavior framework to understand the private behaviors of consumers, particularly how their subjective attitudes and behaviors can predict their intentions, and, hence, their actual conduct. It emphasizes that consumer attitudes towards their actions are influenced by personal beliefs about a product and knowledge-based assessments of the decision to buy the product. These attitudes and intentions can be affected by personal criteria and more objective specifications of belief in consumption and the consumer's purchase motives. To examine factors affecting consumers' intentions when deciding to purchase green products, we consider aspects such as social benefits, individual benefits, environmental responsibility, willingness to pay, convenience, self-efficacy, values, and environmental literacy. Accordingly, this study proposes H7 and H8.

**H7.** *Environmental management has a significantly positive impact on environmental behavior.*

**H8.** *Environmental management has a mediating effect under the influence of the relationship between environmental leadership and environmental behavior.*

### 2.7. Strategic Corporate Social Responsibility and Environmental Behavior

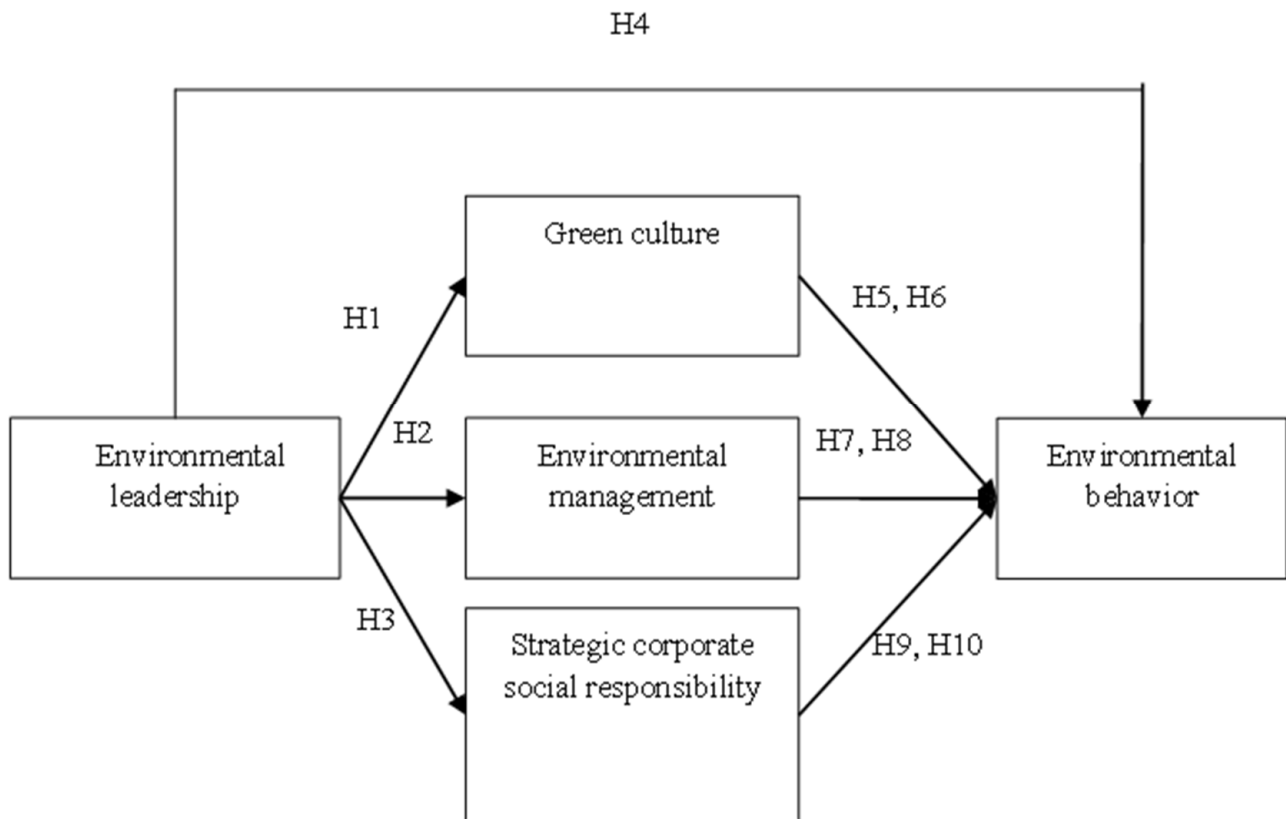
Chu et al. [39] pointed out that enterprises that engage in CSR perform better in business operations and environmental behavior. From the observation of specific social phenomena, food safety incidents cause panic among the public and have a great impact on the affected production enterprises. In contrast, enterprises that engage in social responsibility can mitigate the severity of the damage to their corporate image and allow consumers to restore confidence in their brand in the short term. Wang, Yuan and Wu [40] indicated that enterprises that emphasize CSR carry out active environmental management by preventing the impact of business activities on the environment in advance, actively improving corporate environmental behavior, and taking countermeasures to reduce the negative impact of pollution on the environment, so as to protect and strengthen the corporate image.

Wu, Zhang and Lu [41] found that many enterprises that produce electronic equipment have started to recycle and reuse equipment, effectively dispose of waste, implement environmental responsibility and management through social responsibility, improve environmental behavior, and gradually enhance corporate image and visibility. Shin et al. [42] pointed out that if environmental leaders can outline a better future for the entire organization and plan how to implement it, employees, as followers and advocates, will also develop a sense of trust and belonging in the organization and will be more willing to obey environmental leadership. Accordingly, this study proposes H9 and H10.

**H9.** *Strategic corporate social responsibility has a significantly positive impact on environmental behavior.*

**H10.** *Strategic corporate social responsibility has a mediating effect under the influence of environmental leadership on environmental behavior.*

Through the literature review, this study shows that environmental leadership, green culture, environmental management, strategic CSR, and environmental behavior are all correlated. It, thus, proposes a framework as shown in Figure 1.



**Figure 1.** Research framework diagram.

### 3. Research Method and Procedure

#### 3.1. Research Subjects

In this study the questionnaires were distributed in a convenient sampling way, and the research subjects were executives and employees in the high-tech industry in southern Taiwan. The questionnaire survey was conducted from 1 December 2022 to 30 December 2022. Specifically, 600 questionnaires were sent out, and 479 valid questionnaires were retrieved, for an effective questionnaire retrieval rate of 80%.

#### 3.2. Measurement of Research Variables

The measurement of environmental leadership, green culture, environmental management, strategic corporate social responsibility, and environmental behavior was scored using a Likert 5-point scale, where 1 point means strongly disagree and 5 points means strongly agree (see Appendix A).

##### 3.2.1. Environmental Leadership Scale

The questionnaire design of this study was based on the research questionnaire of Zhang et al. [43] and was modified. The constructs of environmental leadership are: charisma influence, vision presentation, intellectual inspiration, and individual care, as shown in Table 1.



**Table 1.** Environmental leadership scale.

Construct	Item
Charisma influence	1. My supervisor draws an attractive blueprint for the future for our organization. 2. My supervisor is able to get colleagues to agree with his or her expectations for the future of the organization. 3. My supervisor sets a good example that employees can follow. 4. My supervisor inspires colleagues with his or her future plans.
Vision presentation	1. On environmental issues, my supervisor is very clear about our future direction. 2. On environmental issues, my supervisor can clearly state his/her vision for the future. 3. My supervisor motivates us with his/her future plans for environmental issues. 4. My supervisor convinces us of his/her goals and dreams for environmental issues.
Intellectual inspiration	1. My supervisor inspires us to think about old problems in new ways. 2. My supervisor cultivates our team spirit. 3. My supervisor encourages us to be part of the team. 4. My supervisor motivates us to work towards the same goal.
Individual care	1. My supervisor respects my personal feelings. 2. My supervisor takes my personal needs into consideration when doing things. 3. My supervisor asks questions to help me think. 4. My supervisor inspires me to rethink the way I do things.

1. Charisma influence: The leader sets an environmental concept and behavior model for employees to follow and support his beliefs.
2. Vision presentation: The leader has clear environmental goals and green actions to help his unit/department/company create new opportunities and clearly inspire others towards a green vision of the future.
3. Intellectual inspiration: The leader encourages his subordinates to absorb new concepts and knowledge related to environmental protection and to brainstorm ideas through the exchange of views that stimulate subordinates' creativity and enhance their problem-solving ability.
4. Individual care: The leader pays attention to the individual differences of his subordinates, cares about changes in their thinking and behavior regarding green environment, listens to the ideas of the subordinates, and arranges appropriate work according to their abilities to realize their potential.

### 3.2.2. Green Culture Scale

The questionnaire development of green culture in this study is based on Ansoff's [44] definition of green culture, with a view to providing the scale as a measure of green culture, as shown in Table 2.

**Table 2.** Green culture scale.1.

Construct	Item
Communication and coordination	1. The company continues to promote environmental protection related publicity. 2. The company actively publicizes the values of environmental protection to external stakeholders. 3. The company is unable to use internal mechanisms/channels to communicate on environmental awareness.
Innovation and creation	1. The company should actively fulfill its obligation/responsibility of environmental protection and community care to society. 2. The company's corporate culture encourages employees to proactively identify and solve problems related to environmental issues. 3. The company's supervisors actively support employees' suggestions on environmental issues and provide resources/opportunities for employees to implement them.

**Table 2.** *Cont.*

Construct	Item
Trust and cooperation	<ol style="list-style-type: none"> <li>1. The company is able to cooperate with the government/stakeholders on environmental issues.</li> <li>2. The company's employees are unable to work together across departments to achieve the company's environmental goals/vision.</li> <li>3. The employees of all departments of the company are dedicated to effectively implementing energy saving and carbon reduction measures.</li> </ol>

1. Communication and coordination: The company continues to promote environmental protection and actively publicizes the values of environmental protection.
2. Innovation and creation: The company actively fulfills its environmental protection obligations to society and provides employees with resources/opportunities to achieve environmental protection.
3. Trust and cooperation: On environmental protection issues, the company effectively implements energy saving and carbon reduction measures.

### 3.2.3. Environmental Management Scale

The questionnaire design of this study is based on the research questionnaire of Jiang, Gu and Tang [45] and modified. The questionnaire is mainly divided into three constructs, as shown in Table 3.

**Table 3.** Environmental management scale.2.

Construct	Item
Green marketing	<ol style="list-style-type: none"> <li>1. Environmental protection is a fundamental value of the company.</li> <li>2. The company's environmental protection goals are very clear.</li> <li>3. The company actively takes environmental improvement measures, such as energy saving, purification treatment, waste treatment, resource recycling, and sewage recycling.</li> </ol>
Administrative management	<ol style="list-style-type: none"> <li>1. The company uses its best efforts to replace more-polluting items with less-polluting raw materials or products.</li> <li>2. The company is good at using environmental management tools (such as carbon footprint analysis and life cycle assessment).</li> <li>3. The company invests a lot of resources and time to organize environmental education and training.</li> </ol>
Green design	<ol style="list-style-type: none"> <li>1. The company submits environmental management reports to shareholders or top management on a regular basis.</li> <li>2. The company reports to customers (clients) on the relevant environmental protection measures.</li> <li>3. The company requires suppliers to obtain environmental-protection-related certification.</li> </ol>

1. Green marketing: It refers to the promotion of green environmental protection ideas and activities.
2. Administrative management: There are clear environmental protection policies and implementation goals.
3. Green design: It refers to intensification and control for energy saving and waste reduction.

### 3.2.4. Strategic Corporate Social Responsibility Scale

The questionnaire development of strategic social responsibility in this study is based on the definition of strategic social responsibility research by Kellie McElhaney [46], with a view to providing the scale as a measure of strategic social responsibility, as shown in Table 4.

**Table 4.** Strategic corporate social responsibility scale.3.

Construct	Item
Support and management	<ol style="list-style-type: none"> <li>1. The management of the company has a considerable degree of support and commitment to corporate social responsibility.</li> <li>2. The company integrates social responsibility into the management system and encourages employees to engage in social responsibility.</li> <li>3. The company's incentive system and performance management system encourage employees to engage in social responsibility.</li> </ol>
Corporate objectives	<ol style="list-style-type: none"> <li>1. I think the company is strategic in its choice of public welfare investment projects.</li> <li>2. I think the company has incorporated corporate social responsibility into its plans and goals.</li> <li>3. The company cooperates with charitable foundations, rescue associations, and other non-profit organizations to engage in public welfare activities that enhance its ability to engage in social responsibility.</li> </ol>
Core competence	<ol style="list-style-type: none"> <li>1. The company combines its own expertise and assets in the target of public welfare investment.</li> <li>2. I think that the company not only provides products and services, but also helps solve social problems (for example, sponsoring public welfare and charitable donations and providing personnel to do volunteer work).</li> <li>3. The company's engagement in social responsibility improves the overall performance within the company (e.g., reputation, market share, performance, employee satisfaction, etc.).</li> </ol>

1. Support and management: It refers to the company's leadership and management to support and promote the company to engage in social responsibility and green management.
2. Corporate objectives: Green management and social responsibility are the main objectives of the company.
3. Core competence: It refers to the integration of social responsibility into the assets and expertise of the company, making it a capability.

### 3.2.5. Environmental Behavior Scale

The questionnaire design of this study is based on the research questionnaire of environmental behavior proposed by Yang, Ye and Guo [47] and is modified. The questionnaire includes the following three constructs, as shown in Table 5.

**Table 5.** Environmental behavior scale.4.

Construct	Item
Ecological management	<ol style="list-style-type: none"> <li>1. When purchasing various supplies in daily life, the company takes whether the product is environmentally friendly as the main consideration.</li> <li>2. The company gives priority to the use of environmentally friendly products.</li> <li>3. It is significant for the company to support resource recovery activities.</li> </ol>
Economic behavior	<ol style="list-style-type: none"> <li>1. The company resists manufacturers that destroy natural ecology.</li> <li>2. The company supports manufacturers with a natural environment conservation policy.</li> <li>3. The company is willing to donate money to support ecological conservation.</li> </ol>
Persuasive action	<ol style="list-style-type: none"> <li>1. When the company finds that others destroy the ecology or the environment, it tries to persuade them to stop it.</li> <li>2. If the company finds that the natural environment is damaged, it reports this to the relevant authorities.</li> <li>3. The company actively participates in environmental protection associations or community activities on environmental issues.</li> </ol>

1. Ecological management: Actions taken on the environment in daily life directly achieve the purpose of protecting the environment.

2. Economic behavior: It refers to financial support or resistance for the achievement of environmental protection objectives.
3. Persuasive action: It means influencing others to support environmental protection through persuading and persuasive actions on environmental issues.

### 3.2.6. Data Analysis Methods

This study analyzed the data collected by the questionnaire. The data analysis tool was SPSS 25 software for factor analysis (to confirm the applicability of the scale, this study conducts factor analysis on all scales in the questionnaire survey), reliability analysis (Cronbach's  $\alpha$  coefficient is used to test for consistency of internal measurement among variables for each construct factor), multiple regression analysis (to predict variable items with multiple independent variables and to analyze the independent influence of each variable on the variable item, as well as the relationship between variables such as environmental leadership, green culture, environmental management, strategic corporate social responsibility, and environmental behavior), and hierarchical regression analysis (to explore and verify whether the intermediary effect of green culture, environmental management, and strategic corporate social responsibility exists).

## 4. Results

### 4.1. Basic Data Analysis

From the 479 valid questionnaires in this study, the number of supervisors is 119, accounting for 24.8%, and the number of employees is 360, covering 75.2%. In terms of gender, 144 subjects are male at 30.1% of all respondents. The number of female subjects is 335 or 69.9% of all subjects. For age, the sample size of 20-year-olds (including those under 20) is 23 (4.8%), the sample size of 21–30-year-olds is 216 (45.1%), the sample size of 31–40-year-olds is 121 (25.3%), the sample size of 41–50-year-olds is 72 (15.0%), and the sample size of over-51-year-olds is 47 (9.8%). For education level, the number with a secondary school education is 23 (4.8%), the number with a high school (vocational) education is 95 (19.8%), the number with a university (college) education is 243 (50.7%), and the number with a graduate school (or above) education is 118 (24.6%). For marital status, the number of unmarried is 262 (54.7%), and the number of married is 217 (45.3%). For working years, 70 people had worked for less than three years (14.6%), 193 people had worked for three years to five years (40.3%), 121 people had worked for five years to eight years (25.3%), 48 people had worked for eight years to eleven years (10.0%), and 47 people had worked for more than eleven years (9.8%).

### 4.2. Factor Analysis and Reliability Test of the Questionnaire Scale

This study mainly conducts factor analysis and a validity and reliability test on environmental leadership, green culture, environmental management, strategic corporate social responsibility, environmental behavior, and other variables. The constructs of the environmental leadership scale in this study are charisma influence (eigenvalue = 1.693,  $\alpha$  = 0.88), vision presentation (eigenvalue = 2.061,  $\alpha$  = 0.90), intellectual inspiration (eigenvalue = 5.895,  $\alpha$  = 0.93), and individual care (eigenvalue = 3.010,  $\alpha$  = 0.92), and the common cumulative variance is 79.115%. The constructs of the green culture scale are communication and coordination (eigenvalue = 3.996,  $\alpha$  = 0.93), innovation and creation (eigenvalue = 1.722,  $\alpha$  = 0.91), and trust and cooperation (eigenvalue = 1.251,  $\alpha$  = 0.66), and the common cumulative explanatory variance is 77.437%. The measurement constructs of the environmental management scale are green marketing (eigenvalue = 1.332,  $\alpha$  = 0.82), administrative management (eigenvalue = 1.360,  $\alpha$  = 0.86), and green design (eigenvalue = 4.710,  $\alpha$  = 0.96), and the common cumulative variance is 82.253%. The constructs of the strategic corporate social responsibility scale are support and management (eigenvalue = 4.156,  $\alpha$  = 0.94), corporate objectives (eigenvalue = 1.711,  $\alpha$  = 0.91), and core competence (eigenvalue = 1.298,  $\alpha$  = 0.71), and the common cumulative explanatory variance is 79.609%. The constructs of environmental behavior scale are ecological manage-

ment (eigenvalue = 1.330,  $\alpha = 0.81$ ), economic behavior (eigenvalue = 1.407,  $\alpha = 0.88$ ), and persuasive action (eigenvalue = 4.720,  $\alpha = 0.96$ ), and the common cumulative explanatory variance is 82.859%. Based on the above analysis results, this study finds that the scales of variables such as environmental leadership, green culture, environmental management, strategic corporate social responsibility, and environmental behavior have appropriate construction validity.

#### 4.3. Regression/Hierarchical Regression Analysis

This study applies the regression analysis of environmental leadership on green culture, environmental leadership on environmental management, environmental leadership on strategic corporate social responsibility, environmental leadership on environmental behavior, green culture on environmental behavior, environmental management on environmental behavior, and strategic corporate social responsibility on environmental behavior. Following that, a hierarchical regression analysis targets the impact of the green culture of environmental leadership on environmental behavior, the impact of the environmental management of environmental leadership on environmental behavior, and the impact of the strategic corporate social responsibility of environmental leadership on environmental behavior.

As for the regression analysis of environmental leadership on communication and coordination, Table 6 shows that environmental leadership has a significant impact on communication and coordination. Specifically, the impact of charisma influence on the communication and coordination construct of green culture is  $\beta = 0.329$  with significance  $p < 0.001$ . The impact of vision presentation on the communication and coordination construct of green culture is  $\beta = 0.194$  with significance  $p < 0.001$ . The impact of intellectual inspiration on the communication and coordination construct of green culture is  $\beta = 0.120$  with significance  $p < 0.01$ . The impact of individual care on the communication and coordination of green culture is  $\beta = 0.128$  with significance  $p < 0.01$ .

**Table 6.** Regression analysis of environmental leadership on green culture.

Item	Green Culture		
Environmental Leadership	Communication and Coordination	Innovation and Creation	Trust and Cooperation
Charisma influence	0.329 ***	0.216 ***	0.186 ***
Vision presentation	0.194 ***	0.232 ***	0.238 ***
Intellectual inspiration	0.120 **	0.174 ***	0.118 **
Individual care	0.128 **	0.048	0.030
F value	54.921	42.984	32.206
Significance	0.000 ***	0.000 ***	0.000 ***
R <sup>2</sup>	0.317	0.266	0.214
Adjusted R <sup>2</sup>	0.311	0.260	0.207

\*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ .

Environmental leadership has a significant impact on innovation and creation. Specifically, the impact of charisma influence on the innovation and creation construct of green culture is  $\beta = 0.216$  with significance  $p < 0.001$ . The impact of vision presentation on the innovation and creation construct of green culture is  $\beta = 0.232$  with significance  $p < 0.001$ . The impact of intellectual inspiration on the innovation and creation construct of green culture is  $\beta = 0.174$  with significance  $p < 0.001$ .

Environmental leadership has a significant impact on trust and cooperation. Specifically, the impact of charisma influence on the trust and cooperation construct of green culture is  $\beta = 0.186$  with significance  $p < 0.001$ . The impact of vision presentation on the



trust and cooperation construct of green culture is  $\beta = 0.238$  with significance  $p < 0.001$ . The impact of intellectual inspiration on the trust and cooperation construct of green culture is  $\beta = 0.118$  with significance  $p < 0.01$ . Therefore, H1 “Environmental leadership has a significantly positive impact on green culture” is partially supported.

In terms of the regression analysis of environmental leadership on environmental management, the results in Table 7 show that environmental leadership has a significant impact on the green marketing construct of environmental management. Specifically, the impact of charisma influence on green marketing is  $\beta = 0.350$  with significance  $p < 0.001$ . The impact of vision presentation on green marketing is  $\beta = 0.173$ , with significance  $p < 0.001$ . The impact of intellectual inspiration on green marketing is  $\beta = 0.138$  with significance  $p < 0.001$ .

**Table 7.** Regression analysis of environmental leadership on environmental management.

Item	Environmental Management		
	Green Marketing	Administrative Management	Green Design
Charisma influence	0.350 ***	0.215 ***	0.318 ***
Vision presentation	0.173 ***	0.223 ***	0.147 ***
Intellectual inspiration	0.138 ***	0.334 ***	0.164 ***
Individual care	0.019	0.013	0.141 ***
F value	48.097	84.985	68.068
Significance	0.000 ***	0.000 ***	0.000 ***
R <sup>2</sup>	0.289	0.418	0.365
Adjusted R <sup>2</sup>	0.283	0.413	0.359

\*\*\*  $p < 0.001$ .

Environmental leadership has a significant impact on the administrative management construct of environmental management. Specifically, the impact of charisma influence on administrative management is  $\beta = 0.215$  with significance  $p < 0.001$ . The impact of vision presentation on administrative management is  $\beta = 0.223$  with significance  $p < 0.001$ . The impact of intellectual inspiration on administrative management is  $\beta = 0.334$  with significance  $p < 0.001$ .

Environmental leadership has a significant impact on the green design construct of environmental management. Specifically, the impact of charisma influence on green design is  $\beta = 0.318$  with significance  $p < 0.001$ . The impact of vision presentation on green design is  $\beta = 0.223$  with significance  $p < 0.001$ . The impact of intellectual inspiration on green design is  $\beta = 0.164$  with significance  $p < 0.001$ . The impact of individual care on green design is  $\beta = 0.141$  with significance  $p < 0.001$ . Therefore, H2 “Environmental leadership has a significantly positive impact on environmental management” is partially supported.

In terms of the regression analysis of environmental leadership on strategic corporate social responsibility, the results in Table 8 show that environmental leadership has a significant impact on support and management. Specifically, the impact of charisma influence on support and management is  $\beta = 0.197$  with significance  $p < 0.001$ . The impact of vision presentation on support and management is  $\beta = 0.161$  with significance  $p < 0.01$ . The impact of intellectual inspiration on support and management is  $\beta = 0.103$  with significance  $p < 0.05$ . The impact of individual care on support and management is  $\beta = 0.100$  with significance  $p < 0.05$ .

**Table 8.** Regression analysis of environmental leadership on strategic corporate social responsibility.

Item	Strategic Corporate Social Responsibility		
	Environmental Leadership	Support and Management	Corporate Objectives
Charisma influence	0.197 ***	0.147 **	0.142 **
Vision presentation	0.161 **	0.169 ***	0.152 **
Intellectual inspiration	0.103 *	0.133 **	0.074
Individual care	0.100 *	0.008	0.004
F value	24.549	18.181	12.535
Significance	0.000 ***	0.000 ***	0.000 ***
R <sup>2</sup>	0.172	0.133	0.096
Adjusted R <sup>2</sup>	0.165	0.126	0.088

\*  $p < 0.05$ , \*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ .

Environmental leadership has a significant impact on the corporate objectives. Specifically, the impact of charisma influence on corporate objectives is  $\beta = 0.147$  with significance  $p < 0.01$ . The impact of vision presentation on corporate objectives is  $\beta = 0.169$  with significance  $p < 0.001$ . The impact of intellectual inspiration on corporate objectives is  $\beta = 0.133$  with significance  $p < 0.01$ .

Environmental leadership has a significant impact on core competence. Specifically, the impact of charisma influence on core competence is  $\beta = 0.142$  with significance  $p < 0.01$ . The impact of vision presentation on core competence is  $\beta = 0.152$  with significance  $p < 0.01$ . Therefore, H3 “Environmental leadership has a significantly positive impact on strategic corporate social responsibility” is partially supported.

In terms of the regression analysis of environmental leadership on environmental behavior, the results in Table 9 show that environmental leadership has a significant impact on ecological management. Specifically, the impact of charisma influence on ecological management is  $\beta = 0.284$  with significance  $p < 0.001$ . The impact of vision presentation on ecological management is  $\beta = 0.284$  with significance  $p < 0.001$ .

**Table 9.** Regression analysis of environmental leadership on environmental behavior.

Item	Environmental Behavior		
	Ecological Management	Economic Behavior	Persuasive Action
Charisma influence	0.284 ***	0.169 ***	0.260 ***
Vision presentation	0.102 *	0.149 **	0.077
Intellectual inspiration	0.070	0.265 ***	0.100 **
Individual care	0.063	0.049	0.180 ***
F value	24.272	40.880	37.294
Significance	0.000 ***	0.000 ***	0.000 ***
R <sup>2</sup>	0.170	0.256	0.239
Adjusted R <sup>2</sup>	0.163	0.250	0.233

\*  $p < 0.05$ , \*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ .

Environmental leadership has a significant impact on economic behavior. Specifically, the impact of charisma influence on economic behavior is  $\beta = 0.169$  with significance  $p < 0.001$ . The impact of vision presentation on economic behavior is  $\beta = 0.149$  with

significance  $p < 0.01$ . The impact of intellectual inspiration on economic behavior is  $\beta = 0.265$  with significance  $p < 0.001$ .

Environmental leadership has a significant impact on persuasive action. Specifically, the impact of charisma influence on persuasive action is  $\beta = 0.260$  with significance  $p < 0.001$ . The impact of intellectual inspiration on persuasive action is  $\beta = 0.100$  with significance  $p < 0.01$ . The impact of individual care on persuasive action is  $\beta = 0.180$  with significance  $p < 0.001$ . Therefore, H4 “Environmental leadership has a significantly positive impact on environmental behavior” is partially supported.

In terms of the regression analysis of green culture on environmental behavior, the results in Table 10 show that green culture has a significant impact on ecological management. Specifically, the impact of communication and coordination on ecological management is  $\beta = 0.159$  with significance  $p < 0.001$ . The impact of innovation and creation on ecological management is  $\beta = 0.237$  with significance  $p < 0.001$ . The impact of trust and cooperation on ecological management is  $\beta = 0.130$  with significance  $p < 0.01$ .

**Table 10.** Regression analysis of green culture on environmental behavior.

Item	Environmental Behavior		
	Ecological Management	Economic Behavior	Persuasive Action
Communication and coordination	0.159 ***	0.217 ***	0.159 ***
Innovation and creation	0.234 ***	0.198 ***	0.307 ***
Trust and cooperation	0.130 **	0.138 **	0.167 ***
F value	30.900	36.747	63.382
Significance	0.000 ***	0.000 ***	0.000 ***
R <sup>2</sup>	0.163	0.188	0.286
Adjusted R <sup>2</sup>	0.158	0.183	0.281

\*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ .

Green culture has a significant impact on economic behavior. Specifically, the impact of communication and coordination on economic behavior is  $\beta = 0.217$  with significance  $p < 0.001$ . The impact of innovation and creation on economic behavior is  $\beta = 0.198$  with significance  $p < 0.001$ . The impact of trust and cooperation on economic behavior is  $\beta = 0.138$  with significance  $p < 0.01$ .

Green culture has a significant impact on persuasive action. Specifically, the impact of communication and coordination on persuasive action is  $\beta = 0.159$  with significance  $p < 0.001$ . The impact of innovation and creation on persuasive action is  $\beta = 0.307$  with significance  $p < 0.001$ . The impact of trust and cooperation on persuasive action is  $\beta = 0.167$  with significance  $p < 0.001$ . Therefore, H5 “Green culture leadership has a significantly positive impact on environmental behavior” is partially supported.

In terms of the regression analysis of environmental management on environmental behavior, the results in Table 11 show that environmental management has a significant impact on ecological management. Specifically, the impact of green marketing on ecological management is  $\beta = 0.878$  with significance  $p < 0.001$ .

**Table 11.** Regression analysis of environmental management on environmental behavior.

Item	Environmental Behavior		
	Environmental Management	Economic Behavior	Persuasive Action
Green marketing	0.878 ***	−0.099 ***	−0.088 **
Administrative management	−0.062 *	0.906 ***	−0.035
Green design	−0.066 *	−0.050	0.856 ***
F value	458.958	492.276	346.963
Significance	0.000 ***	0.000 ***	0.000 ***
R <sup>2</sup>	0.744	0.757	0.687
Adjusted R <sup>2</sup>	0.742	0.755	0.685

\*  $p < 0.05$ , \*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ .

Environmental management has a significant impact on economic behavior. Specifically, the impact of administrative management on economic behavior is  $\beta = 0.906$  with significance  $p < 0.001$ .

Environmental management has a significant impact on persuasive action. Specifically, the impact of green design on persuasive action is  $\beta = 0.856$  with significance  $p < 0.001$ . Therefore, H7 “Environmental management has a significantly positive impact on environmental behavior” is partially supported.

In terms of the regression analysis of strategic corporate social responsibility on environmental behavior, the results in Table 12 show that strategic corporate social responsibility has a significant impact on ecological management. Specifically, the impact of corporate objectives on ecological management is  $\beta = 0.175$  with significance  $p < 0.001$ .

**Table 12.** Regression analysis of strategic corporate social responsibility on environmental behavior.

Item	Environmental Behavior		
	Ecological Management	Economic Behavior	Persuasive Action
Strategic Corporate Social Responsibility			
Support and management	0.092	0.166 ***	0.091 *
Corporate objectives	0.175 ***	0.174 ***	0.266 ***
Core competence	0.069	0.076	0.110 *
F value	11.848	19.338	30.786
Significance	0.000 ***	0.000 ***	0.000 ***
R <sup>2</sup>	0.070	0.109	0.163
Adjusted R <sup>2</sup>	0.064	0.103	0.157

\*  $p < 0.05$  and \*\*\*  $p < 0.001$ .

Strategic corporate social responsibility has a significant impact on economic behavior. Specifically, the impact of support and management on economic behavior is  $\beta = 0.166$  with significance  $p < 0.001$ . The impact of corporate objectives on economic behavior is  $\beta = 0.174$  with significance  $p < 0.001$ .

Strategic corporate social responsibility has a significant impact on persuasive action. Specifically, the impact of support and management on persuasive action is  $\beta = 0.091$  with significance  $p < 0.05$ . The impact of corporate objectives on persuasive action is  $\beta = 0.266$  with significance  $p < 0.001$ . The impact of core competence on persuasive action is  $\beta = 0.110$

with significance  $p < 0.05$ . Therefore, H9 “Strategic corporate social responsibility has a significantly positive impact on environmental behavior” is partially supported.

Through hierarchical regression analysis, this study tests the mediating effect of green culture under the influence of environmental leadership on environmental behavior. According to level 2 of Table 13, the  $\beta$  value of charisma influence significantly decreases from 0.284 ( $p < 0.001$ ) to 0.213 ( $p < 0.001$ ), while the  $\beta$  value of vision presentation significantly decreases from 0.102 ( $p < 0.05$ ) to 0.032 ( $p > 0.05$ ). The results support H6 “Green culture has partial and complete mediating effects under the influence of environmental leadership on ecological management”.

**Table 13.** Hierarchical regression analysis of environmental leadership and green culture on ecological management.

	Ecological Management (Dependent Variable)	
	Level 1	Level 2
Environmental leadership (independent variable)		
Charisma influence	0.284 ***	0.213 ***
Vision presentation	0.102 *	0.032
Intellectual inspiration	0.070	0.024
Individual care	0.063	0.045
Green culture (independent variable)		
Communication and coordination		0.059
Innovation and creation		0.171 ***
Trust and cooperation		0.079
F value	24.272	17.347
Significance	0.000 ***	0.000 ***
R <sup>2</sup>	0.170	0.205
$\Delta R^2$	0.170	0.035

\*  $p < 0.05$  and \*\*\*  $p < 0.001$ .

Under the influence of environmental leadership on environmental behavior towards green culture, according to level 2 of Table 14, the  $\beta$  value of charisma influence significantly decreases from 0.169 ( $p < 0.001$ ) to 0.108 ( $p < 0.05$ ), the  $\beta$  value of vision presentation significantly decreases from 0.149 ( $p < 0.01$ ) to 0.095 ( $p < 0.05$ ), and the  $\beta$  value of intellectual inspiration significantly decreases from 0.265 ( $p < 0.001$ ) to 0.222 ( $p < 0.001$ ). This suggests that green culture weakens the direct effect of intellectual inspiration on economic behavior. The results support H6 “Green culture has a partial mediating effect under the influence of environmental leadership on economic behavior”.

Under the influence of environmental leadership on environmental behavior towards green culture, this study finds, according to level 2 of Table 15, that the  $\beta$  value of charisma influence significantly decreases from 0.260 ( $p < 0.001$ ) to 0.156 ( $p < 0.001$ ), the  $\beta$  value of intellectual inspiration significantly decreases from 0.100 ( $p < 0.01$ ) to 0.031 ( $p > 0.05$ ), and the  $\beta$  value of individual care significantly decreases from 0.180 ( $p < 0.001$ ) to 0.154 ( $p < 0.001$ ). From the results, H6 “Green culture has partial and complete mediating effects under the influence of environmental leadership on persuasive action” is partially supported.



**Table 14.** Hierarchical regression analysis of environmental leadership and green culture on economic behavior.

	Economic Behavior (Dependent Variable)	
	Level 1	Level 2
Environmental leadership (independent variable)		
Charisma influence	0.169 ***	0.108 *
Vision presentation	0.149 **	0.095 *
Intellectual inspiration	0.265 ***	0.222 ***
Individual care	0.049	0.031
Green culture (independent variable)		
Communication and coordination		0.095 *
Innovation and creation		0.090 *
Trust and cooperation		0.058
F value	40.880	25.638
Significance	0.000 ***	0.000 ***
R <sup>2</sup>	0.256	0.276
$\Delta R^2$	0.256	0.020

\*  $p < 0.05$ , \*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ .

**Table 15.** Hierarchical regression analysis of environmental leadership and green culture on persuasive action.

Hierarchy Variable	Persuasive Action (Dependent Variable)	
	Level 1	Level 2
Environmental leadership (independent variable)		
Charisma influence	0.260 ***	0.156 ***
Vision presentation	0.077	−0.028
Intellectual inspiration	0.100 **	0.031
Individual care	0.180 ***	0.154 ***
Green culture (independent variable)		
Communication and coordination		0.072
Innovation and creation		0.257 ***
Trust and cooperation		0.130 **
F value	37.294	33.688
Significance	0.000 ***	0.000 ***
R <sup>2</sup>	0.239	0.334
$\Delta R^2$	0.239	0.095

\*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ .

Under the influence of environmental leadership on environmental behavior towards environmental management, according to level 2 of Table 16, this study finds that the  $\beta$  value of charisma influence decreases significantly from 0.284 ( $p < 0.001$ ) to 0.008 ( $p > 0.05$ ), and the  $\beta$  value of the vision presentation significantly decreases from 0.102 ( $p < 0.05$ ) to −0.030 ( $p > 0.05$ ). The results support H8 “Environmental management has a complete mediating effect under the influence of environmental leadership on ecological management”.

**Table 16.** Hierarchical regression analysis of environmental leadership and environmental management on ecological management.

Hierarchy Variable	Ecological Management (Dependent Variable)	
	Level 1	Level 2
Environmental leadership (independent variable)		
Charisma influence	0.284 ***	0.008
Vision presentation	0.102 *	−0.030
Intellectual inspiration	0.070	−0.025
Individual care	0.063	0.057
Environmental management (independent variable)		
Green marketing		0.882 ***
Administrative management		0.046
Green design		0.073 *
F value	24.272	198.643
Significance	0.000 ***	0.000 ***
R <sup>2</sup>	0.170	0.747
ΔR <sup>2</sup>	0.170	0.577

\*  $p < 0.05$  and \*\*\*  $p < 0.001$ .

Under the influence of environmental leadership on environmental behavior toward environmental management, according to level 2 of Table 17, the  $\beta$  value of charisma influence significantly decreases from 0.169 ( $p < 0.001$ ) to 0.023 ( $p > 0.05$ ), the  $\beta$  value of vision presentation significantly decreases from 0.149 ( $p < 0.01$ ) to −0.032 ( $p > 0.05$ ), and the  $\beta$  value of intellectual inspiration significantly decreases from 0.265 ( $p < 0.001$ ) to 0.029 ( $p > 0.05$ ). The results support H8 “Environmental management has a complete mediating effect under the influence of environmental leadership on economic behavior”.

Under the influence of environmental leadership on environmental behavior towards environmental management, according to level 2 of Table 18, the  $\beta$  value of charisma influence significantly decreases from 0.260 ( $p < 0.001$ ) to 0.033 ( $p > 0.05$ ), the  $\beta$  value of intellectual inspiration significantly decreases from 0.100 ( $p < 0.01$ ) to −0.014 ( $p > 0.05$ ), and the  $\beta$  value of individual care significantly decreases from 0.180 ( $p < 0.001$ ) to 0.064 ( $p < 0.05$ ). The results suggest that H8 “Environmental management has partial and complete mediating effect under the influence of environmental leadership on persuasive action” is partially supported.

Under the influence of environmental leadership on environmental behavior towards strategic corporate social responsibility, according to level 2 of Table 19, this study finds that the  $\beta$  value of charisma influence decreases significantly from 0.284 ( $p < 0.001$ ) to 0.268 ( $p < 0.001$ ), and the  $\beta$  value of the vision presentation significantly decreases from 0.102 ( $p < 0.05$ ) to 0.083 ( $p > 0.05$ ). The results support H10 “Strategic corporate social responsibility has partial and complete mediating effects under the influence of environmental leadership on ecological management”.

**Table 17.** Hierarchical regression analysis of environmental leadership and environmental management on economic behavior.

Hierarchy Variable	Economic Behavior (Dependent Variable)	
	Level 1	Level 2
Environmental leadership (independent variable)		
Charisma influence	0.169 ***	0.023
Vision presentation	0.149 **	−0.032
Intellectual inspiration	0.265 ***	−0.029
Individual care	0.049	0.047
Environmental management (independent variable)		
Green marketing		0.098 ***
Administrative management		0.922 ***
Green design		0.057
F value	40.880	213.047
Significance	0.000 ***	0.000 ***
R <sup>2</sup>	0.256	0.760
ΔR <sup>2</sup>	0.256	0.504

\*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ .

**Table 18.** Hierarchical regression analysis of environmental leadership and environmental management on persuasive action.

Hierarchy Variable	Persuasive Action (Dependent Variable)	
	Level 1	Level 2
Environmental leadership (independent variable)		
Charisma influence	0.260 ***	0.033
Vision presentation	0.077	−0.023
Intellectual inspiration	0.100 **	−0.014
Individual care	0.180 ***	0.064 *
Environmental management (independent variable)		
Green marketing		0.092
Administrative management		0.033
Green design		0.836 ***
F value	37.294	150.937
Significance	0.000 ***	0.000 ***
R <sup>2</sup>	0.239	0.692
ΔR <sup>2</sup>	0.239	0.095

\*  $p < 0.05$ , \*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ .

Under the influence of environmental leadership on environmental behavior toward strategic corporate social responsibility, this study finds, according to level 2 of Table 20, that the  $\beta$  value of charisma influence significantly decreases from 0.169 ( $p < 0.001$ ) to 0.145 ( $p < 0.001$ ), the  $\beta$  value of vision presentation significantly decreases from 0.149 ( $p < 0.01$ ) to 0.124 ( $p < 0.01$ ), and the  $\beta$  value of intellectual inspiration significantly decreases from 0.265 ( $p < 0.001$ ) to 0.238 ( $p < 0.001$ ). The results support H10 “Strategic corporate

social responsibility has a partial mediating effect under the influence of environmental leadership on economic behavior”.

**Table 19.** Hierarchical regression analysis of environmental leadership and strategic corporate social responsibility on ecological management.

Hierarchy Variable	Ecological Management (Dependent Variable)	
	Level 1	Level 2
Environmental leadership (independent variable)		
Charisma influence	0.284 ***	0.268 ***
Vision presentation	0.102 *	0.083
Intellectual inspiration	0.070	0.056
Individual care	0.063	0.063
Green culture (independent variable)		
Communication and coordination		−0.017
Innovation and creation		0.106 *
Trust and cooperation		0.022
F value	24.272	14.876
Significance	0.000 ***	0.000 ***
R <sup>2</sup>	0.170	0.181
ΔR <sup>2</sup>	0.170	0.011

\*  $p < 0.05$  and \*\*\*  $p < 0.001$ .

**Table 20.** Hierarchical regression analysis of environmental leadership and strategic corporate social responsibility on economic behavior.

Hierarchy Variable	Economic Behavior (Dependent Variable)	
	Level 1	Level 2
Environmental leadership (independent variable)		
Charisma influence	0.169 ***	0.145 ***
Vision presentation	0.149 **	0.124 **
Intellectual inspiration	0.265 ***	0.238 ***
Individual care	0.049	0.044
Green culture (independent variable)		
Communication and coordination		0.046
Innovation and creation		0.081
Trust and cooperation		0.025
F value	40.880	24.680
Significance	0.000 ***	0.000 ***
R <sup>2</sup>	0.256	0.268
ΔR <sup>2</sup>	0.256	0.012

\*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ .

Under the influence of environmental leadership on environmental behavior toward strategic corporate social responsibility, according to level 2 of Table 21, this study finds that the  $\beta$  value of charisma influence decreases significantly from 0.260 ( $p < 0.001$ ) to 0.224

( $p < 0.001$ ), and the  $\beta$  value of intellectual inspiration significantly decreases from 0.100 ( $p < 0.01$ ) to 0.070 ( $p < 0.05$ ). The results support H10 “Strategic corporate social responsibility has a partial and mediating effect under the influence of environmental leadership on persuasive action”.

**Table 21.** Hierarchical regression analysis of environmental leadership and strategic corporate social responsibility on persuasive action.

Hierarchy Variable	Persuasive Action (Dependent Variable)	
	Level 1	Level 2
Environmental leadership (independent variable)		
Charisma influence	0.260 ***	0.224 ***
Vision presentation	0.077	0.035
Intellectual inspiration	0.100 **	0.070 *
Individual care	0.180 ***	0.180 ***
Green culture (independent variable)		
Communication and coordination		−0.020
Innovation and creation		0.204 ***
Trust and cooperation		0.071
F value	37.294	28.105
Significance	0.000***	0.000 ***
R <sup>2</sup>	0.239	0.295
$\Delta R^2$	0.239	0.056

\*  $p < 0.05$ , \*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ .

## 5. Discussion and Conclusions

This research probes into the impact of environmental leadership on green culture, environmental management, strategic corporate social responsibility, and environmental behavior. The study focuses on the importance of environmental and green development in industry and demonstrates the relationship between environmental leadership, green culture, environmental management, strategic corporate social responsibility, and environmental behavior. The findings are described as follows.

### 5.1. Theoretical Implication

#### 5.1.1. Impact of Environmental Leadership on Green Culture

Environmental leadership has a significant impact on communication and coordination. Specifically, charisma influence, vision presentation, intellectual inspiration, and individual care in environmental leadership have a significantly positive impact on the communication and coordination construct of green culture [7]. Environmental leadership has a significant impact on innovation and creation. Specifically, charisma influence, vision presentation, and intellectual inspiration in environmental leadership have a significantly positive impact on the innovation and creation construct of green culture [18,19]. Environmental leadership has a significant impact on trust and cooperation. Specifically, charisma influence, vision presentation, and intellectual inspiration in environmental leadership have a significantly positive impact on the trust and cooperation construct of green culture.

#### 5.1.2. Impact of Environmental Leadership on Environmental Management

Environmental leadership has a significant impact on the green marketing construct of environmental management [20]. Charisma influence, vision presentation, and intellectual inspiration have a significantly positive impact on green marketing. Environmental



leadership has a significant impact on the administrative management construct of environmental management. Charisma influence, vision presentation, and intellectual inspiration have a significantly positive impact on administrative management [23]. Environmental leadership has a significant impact on the green design construct of environmental management [24]. Charisma influence, vision presentation, intelligence inspiration, and individual care have a significantly positive impact on green design.

#### 5.1.3. Impact of Environmental Leadership on Strategic Corporate Social Responsibility

Environmental leadership has a significant impact on support and management. Specifically, charisma influence, vision presentation, intellectual inspiration, and individual care in environmental leadership have a significantly positive impact on support and management [25]. Environmental leadership has a significant impact on corporate objectives. Specifically, charisma influence, vision presentation, and intellectual inspiration in environmental leadership have a significantly positive impact on corporate objectives [26]. Environmental leadership has a significant impact on core competence. Specifically, charisma influence and vision presentation in environmental leadership have a significantly positive impact on core competence [25–27].

#### 5.1.4. Impact of Environmental Leadership on Environmental Behavior

Environmental leadership has a significant impact on ecological management. Specifically, charisma influence and vision presentation in environmental leadership have a significantly positive impact on ecological management [28–30]. Environmental leadership has a significant impact on economic behavior. Specifically, charisma influence, vision presentation, and intellectual inspiration in environmental leadership have a significantly positive impact on economic behavior [29]. Environmental leadership has a significant impact on persuasive action. Specifically, charisma influence, intellectual inspiration, and individual care in environmental leadership have a significantly positive impact on persuasive action [30].

#### 5.1.5. Impact of Green Culture on Environmental Behavior

Green culture has a significant impact on ecological management. Specifically, communication and coordination, innovation and creation, and trust and cooperation in green culture have a significantly positive impact on ecological management [35]. Green culture has a significant impact on economic behavior. Specifically, communication and coordination, innovation and creation, and trust and cooperation in green culture have a significantly positive impact on economic behavior [27]. Green culture has a significant impact on persuasion actions. Specifically, communication and coordination, innovation and creation, and trust and cooperation in green culture have a significantly positive impact on persuasive action [27,33–35].

#### 5.1.6. Impact of Environmental Management on Environmental Behavior

Environmental management has a significant impact on ecological management. Specifically, green marketing in environmental management has a significantly positive impact on ecological management [37]. Environmental management has a significant impact on economic behavior. Specifically, administrative management in environmental management has a significantly positive impact on economic behavior [37,38]. Environmental management has a significant impact on persuasive action. Specifically, green design in environmental management has a significantly positive impact on persuasive action [23].

#### 5.1.7. Impact of Strategic Corporate Social Responsibility on Environmental Behavior

Strategic corporate social responsibility has a significant impact on ecological management. Specifically, corporate objectives in strategic corporate social responsibility have a significantly positive impact on ecological management [39–42]. Strategic corporate social responsibility has a significant impact on economic behavior. Specifically, support and

management and corporate objectives in strategic corporate social responsibility have a significantly positive impact on economic behavior [40]. Strategic corporate social responsibility has a significant impact on persuasive action. Specifically, support and management, corporate objectives, and core competence in strategic corporate social responsibility have a significantly positive impact on persuasive action [42].

#### 5.1.8. Analysis of the Influence of the Mediating Effect

According to level 2 of Table 13 and considering the four constructs of environmental leadership and the impact of green culture on ecological management, this paper discusses the mediating effect of green culture. We find that green culture weakens the direct effect of charisma influence on ecological management, while green culture weakens the direct effect of vision presentation on ecological management. The results show that green culture has partial and complete mediating effects under the influence of environmental leadership on ecological management [32–34].

According to level 2 of Table 14 and considering the four constructs of environmental leadership and the impact of green culture on economic behavior, this paper discusses the mediating effect of green culture. We find that green culture weakens the direct effect of charisma influence on economic behavior, green culture weakens the direct effect of vision presentation on economic behavior, and green culture weakens the direct effect of intellectual inspiration on economic behavior. The results show that green culture has a partial mediating effect under the influence of environmental leadership on economic behavior [27].

According to level 2 of Table 15 and considering the four constructs of environmental leadership and the impact of green culture on persuasive action, this paper discusses the mediating effect of green culture. We find that green culture weakens the direct effect of charisma influence on persuasive action, green culture weakens the direct effect of intellectual inspiration on persuasive action, and green culture weakens the direct effect of individual care on persuasive action [35]. The results show that green culture has partial and complete mediating effects under the influence of environmental leadership on persuasive action.

According to level 2 of Table 16 and considering the four constructs of environmental leadership and the impact of environmental management on ecological management, this paper discusses the mediating effect of environmental management. We find that environmental management weakens the direct effect of charisma influence on ecological management, and environmental management weakens the direct effect of vision presentation on ecological management [23,37]. The results show that environmental management has a complete mediating effect under the influence of environmental leadership on ecological management.

According to level 2 of Table 17 and considering the four constructs of environmental leadership and the impact of environmental management on economic behavior, this paper discusses the mediating effect of environmental management. We find that environmental management weakens the direct effect of charisma influence on economic behavior, environmental management weakens the direct effect of vision presentation on economic behavior, and environmental management weakens the direct effect of intellectual inspiration on economic behavior [23,38]. The results show that environmental management has a complete mediating effect under the influence of environmental leadership on economic behavior.

According to level 2 of Table 18 and considering the four constructs of environmental leadership and the impact of environmental management on persuasive action, this paper discusses the mediating effect of environmental management. We find that environmental management weakens the direct effect of charisma influence on persuasive action, environmental management weakens the direct effect of intellectual inspiration on persuasive action, and environmental management weakens the direct effect of individual care on persuasive action [23,37,38]. The results show that environmental management has par-

tial and complete mediating effects under the influence of environmental leadership on persuasive action.

According to level 2 of Table 19 and considering the four constructs of environmental leadership and the impact of strategic corporate social responsibility on ecological management, this paper discusses the mediating effect of strategic corporate social responsibility. We find that strategic corporate social responsibility weakens the direct effect of charisma influence on ecological management, and strategic corporate social responsibility weakens the direct effect of vision presentation on ecological management [39]. The results show that strategic corporate social responsibility has partial and complete mediating effects under the influence of environmental leadership on ecological management.

According to level 2 of Table 20 and considering the four constructs of environmental leadership and the impact of strategic corporate social responsibility on economic behavior, this paper discusses the mediating effect of strategic corporate social responsibility. We find that strategic corporate social responsibility weakens the direct effect of charisma influence on economic behavior, strategic corporate social responsibility weakens the direct effect of vision presentation on economic behavior, and strategic corporate social responsibility weakens the direct effect of intellectual inspiration on economic behavior [40]. The results show that strategic corporate social responsibility has a partial mediating effect under the influence of environmental leadership on economic behavior.

According to level 2 of Table 21 and considering the four constructs of environmental leadership and the impact of strategic corporate social responsibility on persuasive action, this paper discusses the mediating effect of strategic corporate social responsibility. We find that strategic corporate social responsibility weakens the direct effect of charisma influence on persuasive action, and strategic corporate social responsibility weakens the direct effect of intellectual inspiration on persuasive action [41,42]. The results show that strategic corporate social responsibility has a partial mediating effect under the influence of environmental leadership on persuasive action.

## 5.2. Managerial Implications

According to the results of this study, the leadership behavior of managers plays an important role in the process of shaping an organization's identity. With the attention paid to environment-related issues, the impact of enterprises on the natural environment cannot be underestimated [25]. By demonstrating environmental leadership behavior through the management of an organization, the organization's commitment to and protection of the environment can be enhanced, its green culture can be shaped, and its strategic corporate social responsibility can be demonstrated. In other discussions on environmental leadership issues, the focus was often placed on the development of environmental leadership, the inherent characteristics that leaders should possess, and the recommendations for organizational actions [29]. In addition, the management of an organization is responsible for implementing the construction of organizational vision, inspiring employees' awareness of environmental protection, and improving the sensitivity of the organization's environment. Through its management, an organization can establish its own attention to the environment.

This study also adds the construction of pre-factors of environmental management, confirming that environmental leadership has an important impact on the implementation of environmental management by organizations, thus filling the gap in academic research that environmental leadership is not linked with environmental management. Factors affecting the implementation of environmental management by enterprises have always been an important topic discussed in related fields. Many enterprises have implemented environmental management based on the consideration of external factors, such as the formulation of relevant environmental laws by the government or the consideration of stakeholders' influence [27]. However, external regulatory pressure, calls from environmental groups, and disclosure from social media are usually only negative ways to force enterprises to implement relevant responses, and such practices are not long-term solutions

to encourage them to take the initiative and actively demonstrate their concern for the environment. Only through the environmental leadership behavior of the CEO can the organization be guided towards the active implementation of environmental management and, thus, truly achieve the goal of environmental sustainability.

### 5.3. Research Suggestions

1. To go green in enterprises, leaders must lead by example. If senior leaders support green programs and actions across the organization, then an up-bottom effect will be generated. The attitude of environmental leaders will influence the behavior and attitude of employees. In the future, the behavior of the entire organization and the enterprise will also turn green, and the effect of greening of the enterprise will be more prominent. Because culture can influence the attitudes and behaviors of an organization's members through shared concepts, values, mutual trust, or internalized norms, when a company wants to go green, the most direct and deepest way to penetrate the organization and its members is to go beyond green. Culture shapes the organization. Because a common culture is conducive to the integration of ideas and follow-up activities within the organization, it is necessary to use green culture to firmly implant green ideas into the hearts of the organization and its members, so that they can begin to radiate green from their hearts and make their green behavior concepts possible. A concept needs to be internalized into the DNA of the company to embody the consensus of all employees and to help the company achieve the goal of sustainable operation.
2. The concept and implementation of greening are still very new. Therefore, most members of an organization do not have a correct or in-depth understanding of greening. If an organization's members have a deeper understanding of its content, then they will actively participate in greening or promote green organizational behavior, which will help improve corporate performance.
3. If an enterprise puts forward a set of environmental management policies and fails to fully implement them, then it is just empty talk. The effectiveness of this set of policies needs to be implemented by all employees. Therefore, it is important for employees to comply with and implement the policies, but it is more important for employees to be green and environmentally friendly. It is also necessary to educate and cultivate employees' knowledge, experience, technology, ability, attitude, and commitment in environmental management. Employees should save the internal energy of the company, such as water resources, turn off lights, and reduce waste generation, and they should implement and comply with environmental management policies. Externally, the employees should promote the company's environmental protection policies and concepts to customers. Once internal employees have a positive attitude, cognition, and actual behavioral ability towards green environmental protection, they will be able to obtain twice the result with half the effort and greatly improve the effectiveness of this set of policies.
4. In addition to internal policies, employee education and training, and implementation of environmental management in an effort to protect the earth's environment, enterprises also need to be competitive. The strategic social responsibility of an enterprise can be implemented by investing in public welfare, increasing green environmental protection activities, promoting the green environmental protection concept of the enterprise, and giving play to the expertise of the enterprise to invest in a specific public welfare projects. For example, the biggest advantage of the high-tech industry is that it has a large number of human resources, which can be invested in the form of environmental protection volunteers, tree planting, and other green public welfare activities. On the one hand, it will show the excellent environmental attitude and quality of the high-tech industry; on the other hand, it will publicize the environmental concept, win the perception and trust of the public, enhance the visibility of the high-tech industry, and promote the green enterprise concept while bringing

about healthy competitiveness. By doing so, the enterprise can achieve high business performance and enhance its competitiveness.

#### 5.4. Limitations

1. Expand and improve the framework: Although this study is based on the literature, it only discusses the five variables of environmental leadership, green culture, environmental management, strategic corporate social responsibility, and environmental behavior. Researchers can add other relevant variables to develop a more complete framework, which will help to better evaluate the impact of these variables.
2. Expand to other areas: The subjects of this study are executives and employees of high-tech industries in southern Taiwan. It is suggested that the research sample can be further expanded, and even regional differences can be used for discussion or integration. This will more comprehensively display the space for improvement of high-tech industries in the future.
3. Conduct research on other related industries: This study only took a survey within the high-tech industry. It is suggested that the scope of the survey be expanded to check whether environmental leadership, green culture, environmental management, strategic corporate social responsibility, and environmental behavior differ from industry to industry. The study should be more extensive in terms of academic research and provide many more industries with a reference for improving customer value and enterprise competitiveness.

#### 5.5. Future Research

1. Leadership Example: It is suggested that to effectuate green initiatives in businesses, leaders must act as role models. The attitudes of environmental leaders are pivotal as they shape the behaviors and attitudes of employees, cascading down to the entire organization, which could lead to more pronounced green effects within the enterprise.
2. Understanding Greening Concepts: Since greening concepts are relatively new, most organizational members lack a deep understanding. Enhancing this understanding can lead to more active participation in greening activities, promoting green organizational behavior and potentially boosting corporate performance.
3. Policy Implementation: For environmental management policies to be effective, they need to be actively implemented by all employees. The study emphasizes the importance of employee adherence to green policies and the necessity of educating employees about environmental management. This ensures that policies are not just theoretical but translate into actual, environmentally friendly behaviors within the company.
4. Strategic Social Responsibility: Beyond internal policies and training, companies must remain competitive while protecting the environment. Strategic social responsibility can be manifested through investments in public welfare and green activities, promoting the enterprise's green concept, and utilizing the company's expertise in specific public welfare activities.

The limitations section also acknowledges that while the study is based on the literature and focuses on five variables, future researchers could expand the framework to include additional relevant variables for a more comprehensive evaluation. It also suggests expanding the research to other regions and industries to better understand the variability of environmental leadership, green culture, environmental management, strategic corporate social responsibility, and environmental behavior across different contexts.

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**Informed Consent Statement:** This study provides participants with information about the purpose of the study and participant selection to help participants make an informed and autonomous decision.

**Data Availability Statement:** For academic research purposes, researchers can contact the corresponding author to request data.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

### Impact of Environmental Leadership on Environmental Behavior: The Mediating Effects of Green Culture, Environmental Management, and Strategic Corporate Social Responsibility

Thank you for taking this survey in your busy schedule. The questionnaire is an academic research questionnaire; therefore, your valuable feedback is not only important for academic research, but may also serve as a reference for the future development and growth of the company. The research is anonymous and the correctness of the answers is not important. Please fill in your answers according to your actual feelings and do not miss any questions. The information in the questionnaire is used for overall statistical analysis. All information is kept strictly confidential. Thank you for your support and assistance.

I wish you all the best in your endeavors!

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#### Part 1—Environmental leadership

The answers to each question are divided into 5 levels from “Strongly Agree” to “Strongly Disagree”. Please use “✓” to check the appropriate ones in the following boxes (□) based on your actual feelings after reading the previous story.

	Strongly Agree	Agree	Normal	Disagree	Strongly Disagree
1. My supervisor draws an attractive blueprint for the future for our organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. My supervisor is able to get colleagues to agree with his or her expectations for the future of the organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. My supervisor sets a good example that employees can follow.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. My supervisor inspires colleagues with his or her future plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. On environmental issues, my supervisor is very clear about our future direction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. On environmental issues, my supervisor can clearly state his/her vision for the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. My supervisor motivates us with his/her future plans for environmental issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. My supervisor convinces us of his/her goals and dreams for environmental issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. My supervisor inspires us to think about old problems in new ways.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. My supervisor cultivates our team spirit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. My supervisor encourages us to be part of the team.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. My supervisor motivates us to work towards the same goal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. My supervisor respects my personal feelings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. My supervisor takes my personal needs into consideration when doing things.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. My supervisor asks questions to help me think.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. My supervisor inspires me to rethink the way I do things.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Part 2—Green culture

The answers to each question are divided into 5 levels from “Strongly Agree” to “Strongly Disagree”. Please use “✓” to check the appropriate ones in the following boxes (□) based on your actual feelings after reading the previous story.

	Strongly Agree	Agree	Normal	Disagree	Strongly Disagree
1. The company continues to promote environmental protection related publicity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The company actively publicizes the values of environmental protection to external stakeholders.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The company is unable to use internal mechanisms/channels to communicate on environmental awareness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The company should actively fulfill its obligation/responsibility of environmental protection and community care to society.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The company's corporate culture encourages employees to proactively identify and solve problems related to environmental issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The company's supervisors actively support employees' suggestions on environmental issues and provide resources/opportunities for employees to implement them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The company is able to cooperate with the government/stakeholders on environmental issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The company's employees are unable to work together across departments to achieve the company's environmental goals/vision.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. The employees of all departments of the company are dedicated to effectively implementing energy saving and carbon reduction measures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Part 3—Environmental management

The answers to each question are divided into 5 levels from “Strongly Agree” to “Strongly Disagree”. Please use “✓” to check the appropriate ones in the following boxes (□) based on your actual feelings after reading the previous story.

	Strongly Agree	Agree	Normal	Disagree	Strongly Disagree
1. Environmental protection is a fundamental value of the company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The company's environmental protection goals are very clear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The company actively takes up environmental improvement measures, such as energy saving, purification treatment, waste treatment, resource recycling, and sewage recycling.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly Agree	Agree	Normal	Disagree	Strongly Disagree
4. The company uses its best efforts to replace more polluting items with less polluting raw materials or products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The company is good at using environmental management tools (such as carbon footprint analysis and life cycle assessment).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The company invests a lot of resources and time to organize environmental education and training.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The company submits environmental management reports to shareholders or top management on a regular basis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The company reports to customers (clients) on the relevant environmental protection measures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. The company requires suppliers to obtain environmental protection related certification.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### Part 4—Strategic corporate social responsibility

The answers to each question are divided into 5 levels from “Strongly Agree” to “Strongly Disagree”. Please use “✓” to check the appropriate ones in the following boxes (□) based on your actual feelings after reading the previous story.

	Strongly Agree	Agree	Normal	Disagree	Strongly Disagree
1. The management of the company has a considerable degree of support and commitment to corporate social responsibility.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The company integrates social responsibility into the management system and encourages employees to engage in social responsibility.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The company's incentive system and performance management system encourage employees to engage in social responsibility.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I think the company is strategic in its choice of public welfare investment projects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I think the company has incorporated corporate social responsibility into its plans and goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The company cooperates with charitable foundations, rescue associations, and other non-profit organizations to engage in public welfare activities that enhance its ability to engage in social responsibility.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly Agree	Agree	Normal	Disagree	Strongly Disagree
7. The company combines its own expertise and assets in the target of public welfare investment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I think that the company not only provides products and services, but also helps solve social problems (for example, sponsoring public welfare and charitable donations and providing personnel to do volunteer work).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. The company's engagement in social responsibility improves the overall performance within the company (e.g., reputation, market share, performance, employee satisfaction, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### Part 5—Environmental behavior

The answers to each question are divided into 5 levels from “Strongly Agree” to “Strongly Disagree”. Please use “✓” to check the appropriate ones in the following boxes (□) based on your actual feelings after reading the previous story.

	Strongly Agree	Agree	Normal	Disagree	Strongly Disagree
1. When purchasing various supplies in daily life, the company takes whether the product is environmentally friendly as the main consideration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The company gives priority to the use of environmentally friendly products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. It is significant for the company to support resource recovery activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The company resists manufacturers that destroy natural ecology.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The company supports manufacturers with a natural environment conservation policy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The company is willing to donate money to support ecological conservation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. When the company finds that others destroy the ecology or the environment, it tries to persuade them to stop it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. If the company finds that the natural environment is damaged, it reports this to the relevant authorities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. The company actively participates in environmental protection associations or community activities on environmental issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Part 6—General Information

For the following questions, please check the appropriate answer in the box below, depending on your situation. Thank you!

Rank: ☐ Supervisor ☐ Employee

Gender: ☐ Male ☐ Female

Age: ☐ (1) Below 20 years old ☐ (2) 21 to 30 years old ☐ (3) 31 to 40 years old ☐ (4) 41 to 50 years old ☐ (5) Above 50 years old

Education level: ☐ Middle school ☐ High school (vocational) ☐ University (college) ☐ Graduate school or above

Marital Status: ☐ Unmarried (including single) ☐ Married

Work experience: ☐ Less than 3 years ☐ 3 to 5 years ☐ 5 to 8 years ☐ 8 to 11 years ☐ more than 11 years

This questionnaire ends here. Please check again to see if there are any missing questions. Thank you very much for your help!

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