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Based on Environmental Management to Discuss the Effect of Food Service Businesses' Social Responsibility on Environmental Performance

Chih-Hung PAI[1], Wen-Cheng WANG[2], Ching-Hwa YU[3], Hongwei XU[4]

Abstract

When the public gets busy at work, a lot of people are used to eating out to solve the trouble with having meals. It therefore booms food service. Food service presents the responsibility to provide people with healthy food and environment and is the most important and the best place to promote food safety and hygiene. Food hygiene is an important part in nutrition education and reveals close relationship with people's physical and mental health. Aiming at food service employees in Fujian Province, total 500 copies of questionnaire are distributed, with random sampling, in this study. 348 valid copies are retrieved, with the retrieval rate 70%. The retrieved questionnaire data are analyzed with statistical software. The research results show remarkable correlations between environmental management and social responsibility, social responsibility and environmental performance, and environmental management and environmental performance. According to the results, suggestions are proposed, expecting to help food service businesses present correct food hygiene cognition, attitude, and behavior, deliver correct information to food service employees, and become the learning model of food service employees. It would improve the public food hygiene and promote national health.

Keywords: food service, environmental management, social responsibility, environmental performance.

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Introduction

With increasing leisure time of people and changes in domestic family structure, small families are increasing and female labor participation rate is enhanced to increase the opportunities of people traveling and eating out. The vision of hospitality industry is therefore emphasized. The progress of industrial and commercial industries in past years enhances the rapid development of economy. With enhancing living standards, people increase the demand for food. In addition to nutrition and health, safety and hygiene are required for conforming to environmental protection demand. Along with changing lifestyles, eating habit appears distinct changes to present various requirements for food hygiene and safety at different stages. Food service is responsible for providing people with healthy food and environment and is the most important and the best place to promote food safety and hygiene. Food hygiene is a primary part in nutrition education, and food service shows close relationship with people's public physical and mental health.

As people are getting busy at work nowadays, a lot of people are used to eating out to solve the trouble of having meals. It therefore booms food service. Eating out shows various convenience and advantages, but food problems happens every year. With such numerous people relying on food service, once there is food poisoning, the number of patients would reach up to dozens and even hundreds of people. In addition to providing nutritious meals, food service without strictly checking drinking water would damage people's physical and mental health. It is not expected by anyone. It is expected that the public could eat and drink healthily. Drinking water systems provided in food service are related to people's eating health and safety. Appropriate source and examination of water, maintenance of drinking water systems, and establishment of drinking water systems could ensure the hygiene of drinking water. In addition to food poisoning and quality of drinking water, environmental protection problems and environmental sanitation are the hidden worries in food service. It is not simply the problem of food hygiene, but also the environmental protection problem. Such problems are resulted from food service not doing well on food management, food hygiene education, and environmental education. It might be that food service, in the food hygiene education process, stresses more on health education and the effect on human health, but seldom considers food hygiene and environmental protection and the explanation of environmental education relevance. Current domestic research on food hygiene in food service mainly relates to nutrition education, eating behavior, and nutrition lunch, but lacks environmental protection related food hygiene issues in food service. For this reason, the effect of food service businesses' social responsibility on environmental performance based on environmental management is discussed in this study. It is expected to help food service businesses present correct food hygiene cognition, attitude, and behavior and deliver correct information to food

service employees to become the learning model of food service employees. It would improve the public food hygiene and promote national health.

Literature review

Li *et al*. (2018) defined corporate social responsibility as the reaction period of an enterprise stressing on ethics and environmental benefits. In a part of social responsibility, international organizations such as World Business Council for Sustainable Development, European Union, World Bank, and United States Chamber of Commerce included environmental management in the definition of corporate social responsibility. Many researchers also regarded environmental management as the indicator of corporate social responsibility in the definitions. Chen *et al*. (2018) proposed that an enterprise, in order to reduce opposition and enhance reputation, would engage in social responsibility for the compensation, such as community maintenance and environmental management. Wang *et al*. (2018) further indicated that an enterprise with negative image would especially engage in environmental management for "green washing", attempting to cover the social irresponsibility problem. Xiao *et al*. (2018) stated that an enterprise would change the negative image with social responsibility behavior, especially environmental management problems emphasized by the government, the media, and the public. Liu *et al*. (2018) proved in the research that an enterprise engaging in environmental management aimed to cover the negative behavior and expose the positive contribution in order to promote the corporate social responsibility. As a result, the following hypothesis is proposed in this study.

H1: Environmental management presents significant correlations with social responsibility.

Chu *et al*. (2017) mentioned that most related research pointed out better environmental performance of enterprises with corporate social responsibility. By observing the specific social phenomena, "Chinese tainted milk" panicked people and resulted in serious damage on businesses; enterprises engaging in social responsibility, on the other hand, would release the seriousness of corporate image being damaged and allow consumers recovering the confidence in the brand in short period. Wang *et al*. (2017) emphasized that an enterprise with corporate social responsibility would actively engage in environmental management to prevent the impact of business activity on the environment, actively promote corporate environmental performance to reduce the negative effect of pollution on the environment with strategies, and protect and reinforce the corporate image. Wu *et al*. (2018) indicated that many electronic equipment manufacturers preceded the actions of equipment recycle and reuse, effectively processed waste, and practiced environmental responsibility and management through social responsibility to

enhance environmental performance and gradually promote the corporate image and reputation. In this case, the following hypothesis is proposed in this study.

H2: Social responsibility shows remarkable correlations with environmental performance.

Ma *et al*. (2018) stated that, from the development model of environmental management, managers constantly sought for and adopted more creative green innovation activity to solve environment and environmental protection problems as well as changed the attitude responding to the environment from passive coping into proactive. In other words, an enterprise adopting active environmental management strategy of pollution control would combine the goal and task of environmental protection with the functions of various departments and apply new environmental technology and methods to solve environmental pollution problems from the source. In comparison with enterprises taking passive environmental management strategies, an enterprise with active strategies would regard environmental challenge as an opportunity, rather than a threat. Foo *et al*. (2018) mentioned that an enterprise with active corporate environmental management would predict the impact of environment on the business, take strategies to reduce negative effects of pollution on the environment, and apply new green technology to promote the environmental performance. Under strict environmental protection regulations, an enterprise could protect and reinforce the corporate image and make positive responses to the government and stakeholders to develop new market opportunities. Zeng *et al*. (2017) discovered that an enterprise taking environmental management coping strategies would use the strategy of pollution control, while the other enterprise taking proactive environmental management strategies would deal with environmental protection with pollution control. An enterprise taking proactive environmental management strategies generally presented better environmental performance. Accordingly, the following hypothesis is proposed in this study.

H3: Environmental management reveals notable correlations with environmental performance.

Methodology

Operational definition

1. *Environmental management*. Referring to Zhang *et al*. (2018), environmental management in this study is divided into three dimensions: (1) *Production operation*: An enterprise applies process improvement, energy saving, waste reduction, and resource regeneration; (2) *Administrative management*: ISO14000, environmental protection inspection, office environmental protection, and active participation in community activity; (3) *Marketing program*:

research and development, promotion, and communication of green products.

2. *Social responsibility.* Referring to Jiang *et al*. (2018), social responsibility in this study is measured with following dimensions: (1) Corporate governance: Using board independence and corporate transparency as the evaluation indicators; (2) *Business commitment*: Taking commitment to consumers, training and care of employees, and investment in R&D innovation as the evaluation standards; (3) *Social participation*: Based on long-term social involvement and development of social effects; (4) *Environmental protection*: Focusing on the devotion to energy saving in environmental protection.
3. *Environmental performance.* Referring to Lu *et al*. (2018), environmental performance in this study contains two dimensions: (1) *Management performance*: Mainly measuring the promotion of corporate image, the increase in profits, the enhancement of internal management and information communication, and the cognition and grasping of regulations; (2) *Operation performance*: Mainly measuring the use of energy (resource) saving, the reduction of waste emission, and the improvement of process management.

Method model

AMOS 7.0 is used in this study for path analysis with structural equation model to process latent variables, test path causal relation, and measure the model fit. The match of hypothesis models and the actual data should simultaneously taking preliminary fit index, overall model fit index, and fit of internal structure index into account.

In terms of preliminary fit index: 1.the existence of negative error variance, 2.all error variance achieving the significance (t = 1.96), 3.standardized coefficient exceeding or close 1, where 0.95 is the threshold, 4.large standard error, and 5.factor loading between latent variables and the measurement indices being in 0.5 - 0.95. In regard to overall model fit index: 1.absolute fit index, which is tested by following indices, including (1)chi-square test: the smaller the better, (2)GFI (goodness-of-fit index): being 0.9 to achieve the fit, (3)AGFI (adjusted goodness-of-fit index): adjustment of GFI according to degree of freedom, which shows the model reaching the fit when being 0.9, (4)RMR (root-mean-square error): revealing the model achieving the fit when being 0.05, and (5)RMSEA (root-mean-square error of approximation), presenting the model reaching the fit when being 0.05, 2.incremental goodness-of-fit index, which is measured with following five indices, containing (1)NFI (normed-fit index): showing the model reaching the fit when being 0.9, (2)RFI (relative fit index): derived from NFI, which presents the model achieving the fit when being 0.9, (3)IFI (incremental fit index): revealing the model reaching the fit when being 0.9, (4)TLI (Tacker-Lewis index): showing the model achieving the fit when being 0.9, and (5)CFI comparative fit index: revealing the model reaching the fit when being 0.9, and 3.parsimonious goodness-

fit index, which is tested by following indices, including (1)PGFI (Parsimonious goodness-fit index): showing the model achieving the fit when being 0.5, (2)PNFI: the modification of NFI, which present the model reaches the fit when being 0.5, (3) χ_2/df (the ratio to degree of freedom): taking the ratio to degree of freedom as the overall fit index, which shows the model achieving the fit when being <3. Regarding fit of internal structure index: 1.the estimates of all parameter statistics reaching the significance, 2.the absolute standardized residual being smaller than 2.58, 3.the item reliability of individual observed variable being 0.5, 4.composite reliability being 0.6, which is the index to test the reliability of latent variables and reveals good internal quality of the model when being above 0.6, and 5.average variance extracted (AVE) being 0.5.

Research sample and object

Aiming at food service employees in Fujian Province, total 500 copies of questionnaire are distributed with random sampling, and 248 valid copies are retrieved, with the retrieval rate 70%. The retrieved questionnaire data are analyzed with statistical software.

Reliability and validity test

Validity refers to a measurement scale being able to actually measure what a researcher intends to measure. General validity contains "content validity", which tends to qualitative test, "criterion validity", which evaluates with known external criteria and the correlation coefficient of the test, and "construct validity", which is used for evaluating the theoretical consistency of the measurement to other observable variables. This study is based on past questionnaire content and referred to the actual condition of research objects to design the measurement which could authentically express the essence of objects and the complete representativeness so as to ensure the content validity of the questionnaire. Besides, final commonality estimate of factor analysis results is applied to test the construct validity of the items, and the calculated validity appears in 0.8~0.9, showing good validity test of the questionnaire.

Results

Model fit test

"Maximum likelihood method" estimate is applied to this study, the analysis result achieves convergence. Overall speaking, the overall model fit indices pass the test, Table 1, fully reflecting good external quality of the model.

Table 1: Model analysis result

	Evaluation index	Judgment standard	Result
overall fit	p -value	p -value > 0.05	0.000
	χ_2/d.f.	< 3	1.375
	GFI	> 0.9	0.968
	AGFI	> 0.9	0.913
	CFI	> 0.9	0.954
	RMR	< 0.05, < 0.025 excellent	0.017
	RMSEA	0.05~0.08 good < 0.05 excellent	0.024
	NFI	> 0.9	0.941
	IFI	> 0.9	0.932

Path relationship test

In regard to internal model quality test, the SMC of manifest variables is higher than 0.5 (*Table 2* & *Table 3*), revealing good measuring indices of latent variables. Furthermore, latent variables of environmental management, social responsibility, and environmental performance appear the component reliability higher than 0.6, and the average variance extracted of the dimensions is higher than 0.5 (Table 4), apparently conforming to the requirement for internal quality of model.

Table 2: SMC of variable to dimension

environmental management		
production operation	administrative management	marketing program
0.72	0.78	0.83

Table 3: SMC of variable to dimension

social responsibility				environmental performance	
corporate governance	business commitment	social participation	environmental protection	management performance	operation performance
0.74	0.77	0.80	0.85	0.71	0.76

Table 4: Component reliability and average variance extracted of variable

item	environmental management	social responsibility	environmental performance
component reliability	0.846	0.857	0.872
average variance extracted	0.82	0.84	0.86

From the model analysis result, *Table 5*, environmental management shows positive and significant correlations with social responsibility (0.883) social responsibility reveals positive and remarkable correlations with environmental performance (0.849), and environmental management reveals positive and notable correlations with environmental performance (0.863) that H1, H2, and H3 are supported.

Table 5: Linear structural model analysis result

Evaluation item	Parameter/evaluation standard	result	t
internal fit	environmental management→social responsibility	0.883	34.62**
	social responsibility→environmental performance	0.849	18.36**
	environmental management→environmental performance	0.863	25.18**

Conclusion

The research results reveal that social responsibility should be a core business strategy of food service businesses, rather than the public relations. Real social responsibility should be the positive effects of food service businesses on the society. A food service business therefore should complete the social responsibility, stress on well-treating the environment, and list environmental improvement problems in the production and consumption process as well as environmental management in the corporate social responsibility. Food service businesses do not simply aim to create social economy as the sole goal, but should enhance the environmental resource management and protection as well as environmental performance, as the essential way to promote the image, when constantly increasing the revenue and expanding the size. A food service business could not stop making progress for protecting the environment, nor sacrificing the protection of environment for developing economy. It should take the balance between two sides; it does not practice environmental management simply for changing the public image, but for the social responsibility behavior.

Recommendations

From the research results and findings, practical suggestions are proposed in this study.

1. To meet the green century, food service businesses could apply innovative technology to enhance the environmental performance or build good corporate image, enhance consumer satisfaction and corporate competitive advantages by producing green products in order to acquire the status to lead the business. Moreover, to create the vision of sustainable food service and lead the innovation of food service businesses with proper environmental protection standards could effectively utilize resources, reduce costs, and increase product value to acquire the opportunities in the future environmental protection trend.
2. In addition to the necessity and urgency of food service businesses practicing social responsibility, the nation or the public sectors have to establish corporate social responsibility evaluation systems. It is necessary to make social responsibility standards suitable for domestic food service businesses to regulate the behavior of food service businesses and reduce the disadvantage of food service businesses lacking systematic endorsement internationally as well as indirectly reinforce the international competitiveness. What is more, the government should award reputational or other substantial rewards to food service businesses with good practice of social responsibility so as to encourage food service businesses' awareness to practice social responsibility.
3. Food service businesses are suggested to continuously invest in resources to participate in the activity in the future and try to add the idea of brand in the practice of corporate social responsibility so that the brand image of food service businesses with excellent corporate social responsibility could implant in customers' mind to further promote the competitiveness and sustainable development. It not only helps food service businesses enhance the brand awareness and brand image and acquire customer identity but is the basis of sustainable management for food service businesses.

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