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Building Green Hotel, by Employee's Green Awareness, Knowledge and Skill

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Abstract: There has been a growing awareness of the need to implement environmentally friendly operations in the hotel industry, but most studies focus on guest behaviors. Only a few studies investigate employees' willingness to comply with hotels' green practices. This study seeks to further the investigation from the human resource perspective. Using alumni from a tourism and hospitality programs, this study collected 233 responses. The study hypothesizes that the employees' green ability consisting of environmental awareness, environmental knowledge, and environmental skill creates a positive impact on hotels' green ability. The results indicate that employees contribute approximately a fifth of hotels' ability to implement greener practices.

Keywords: green hotel; environmental awareness; environmental knowledge

Introduction

Employees are also an important component in the success of implementing green practice in the hotel industry. A company, therefore, needs to improve employees' environmental knowledge, awareness and concern (Chan, Hon, Chan, & Okumus, 2014) to prevail in meeting the challenges of implementing green practices.

The literature already contains numbers of studies. Some pertain to green hotel customers' buying intention (e.g., Han, 2015; Han, Hsu, & Sheu, 2010; Yeh, Ma, & Huan, 2016). Some take hotel managers' perspectives regarding adopting green practice (e.g., Chan, 2008, 2013). However, it is only recently that some studies (Chan *et al.*, 2014) have aimed to understand the employees' role.

It has been suggested that hospitality employees resist complying with green practice due to various reasons (Hon & Chan, 2013). Consequently, academia began to explore the motivation behind employees' devotion to green practice (e.g., Chan *et al.*, 2014; Norton, Zacher, & Ashkanasy, 2014). As far as the authors can tell, no article examines employees' ability to help with a hotel's goal to go green. Thus, this study investigates the causal relationship between hotel employees' ability in green practice and their contribution to hotel's overall greenness. Specifically, the objectives of this study are: (1) to investigate how hotel employees' environmental awareness, environmental participation, and environmental skill affect hotels' green ability.

Given that uncertain outcome is one of the major deterrents of hotels implementing green practices (Chan, 2008; Yeh *et al.*, 2016), estimating employees' contribution to hotels' greenness is vital to convincing the employees to become devoted to hotels' environmental programs. Understanding the employees' role is a piece of the puzzle in completely understanding the outcome of green practice.

Green hotels in Taiwan

The green movement in Taiwan's hotel industry has just start to gain momentum. There are still many deterrents, such as lack of financial incentive, that hinder the effort to go green (Chang, Tsai, & Yeh, 2014; Yeh *et al.*, 2016). In 2008, the Taiwanese government and hotel practitioners hosted a green hotel competition that award hotels implementing green practices. Input to the competition lets one see the green practice adopted. Many practices adopted seemed quite rudimentary, such as not providing toiletries unless requested.

There is no standardized way to assess the greenness of a hotel and thus achieve differentiation. Having an assessment method would provide a way to have incentives for hotels to invest more (Wang, Chen, Lee, & Tsai, 2013). Studies indicate (e.g., Teng, Horng, Hu, Chien, & Shen, 2012) hotels can perform greenly without excessive expenditure, so incentives could have an impact. Regardless, many hoteliers remain reluctant to join the green movement due to various reasons other than cost (Chan, 2008; Wang *et al.*, 2013).

Green hospitality products are less popular in Taiwan compared to some other countries (Wang *et al.*, 2013). The Taiwanese market is certainly showing a tendency to demand a greener product (Chang *et al.*, 2014). Though there is a trend, there are still many things affecting customers' willingness to accept green products. For example, since the official certification for green property is still at its infancy, customer confusion and perceived risk is a problem for customer to accepting green products (Chen & Chang, 2013). This is particularly true after Taiwan's recent food scandal (Yang, Hauser, & Goldman, 2013) that destroyed many people's faith in official labels. There is also the problem of greenwashing (Best & Thapa, 2013), which refers to using green marketing deceptively to promote products (Chen & Chang, 2013). Anyway, despite setbacks, Taiwan's green movement and the market for environmentally friendly products are undoubtedly growing.

Hotel employees' practices toward green

Going green impacts employees in different ways. When a hotel adopts green practices this often entails additional works for its employees (Chan *et al.*, 2014). In addition to having new work, employees may need to be properly trained in order to cope with greening (Renwick, Redman, & Maguire, 2013). Training is not just a cost to the employer; it can be seen as an inconvenience for the employees. Furthermore, green products introducing a certain level of inconveniences to the customers (Chang *et al.*, 2014) can translate to difficulty for employees to deliver excellent services.

A matter to consider is that employees do not possess the "entire picture" regarding going green. Employees can question the management's real motive for going green. Lack of understanding of management's rational can affect green performance (Chan *et al.*, 2014). It is, therefore, essential for management to provide employees with sufficient information regarding their role and contributions in a hotel's greening process.

Most of previous study concerning greening industries focused on management and customer perspectives. In other words, study has paid limited attention to the employees' side of the story (Chan *et al.*, 2014). The employees' support in the process of greening is vital to its success and should warrant more attention. Logically, given employee contribution is important to effective greening, it seems clear that progress toward more employee contribution can be expedited by accurately measuring employees' contributions to greening programs of companies.

In order to improve service quality, hotels often enhances their employees'

knowledge about a specific area so they can excel in that area (Bouncken, 2002). An employee's value to a firm generally depends on knowledge, skill, and experience (Choi & Dickson, 2009). Wise company management evaluates the ability of their employees considering knowledge, skill, and experience. In this study, we evaluate a very specific area of ability of hotel employees, namely green ability.

Previous studies (e.g., Best & Thapa, 2013; Chan, 2008) regarding firm's greenness often uses items such as environmental knowledge, environmental awareness, and environmental skill. These terms relate to employees' environmental behavioral intention (Chan *et al.*, 2014). However, something directly affecting firms is how employees' green abilities contribute to a firm's overall green performance.

Hotel's green practices in relation to its overall performance

Environment management is thought to be complementary to quality management. Both environment management and quality management can have positive effect on a firm's financial and marketing performance (Pereira-Moliner, Claver-Cortés, Molina-Azorín, & José Tarí, 2012). From a financial point of view, new recycling technology and building techniques allow firms to construct eco-friendly buildings (Butler, 2008). The firm can, therefore, adopt green operation without costs of doing so in building that present problems. Having the right building can mean saving money (Pereira-Moliner *et al.*, 2012).

From a marketing point of view, "green product" is an effective way to foster a firm's differentiation and to appeal to environmentally-friendly customers (Miles & Covin, 2000). For example, at a fundamental level, simple energy conservation and carbon reduction can improve firm's competitiveness (Teng *et al.*, 2012). In today's market, simple energy conservation can be presented and can be a powerful means to achieve competitive edge by targeting the growing number of green customers.

Methodology

Based on the literature, we propose a model (see Figure 1) to illustrate the causal relationships between a hotel's employees' green ability, the hotels' green ability, and the hotel's overall performance. The paths indicating the impact of an employee's green ability on the hotel's green ability (H1, H2, and H3). These hypotheses are based on the proposition that employees' environmental awareness, environmental knowledge, and environmental skill can contribute to their intention to comply with firm's green practice (Best & Thapa, 2013; Chan, 2008).

- H1. An employee's green awareness positively affects his/her hotel's green ability.
- H2. An employee's green knowledge positively affects his/her hotel's green ability.
- H3. An employee's green skill positively affects his/her hotel's green ability.

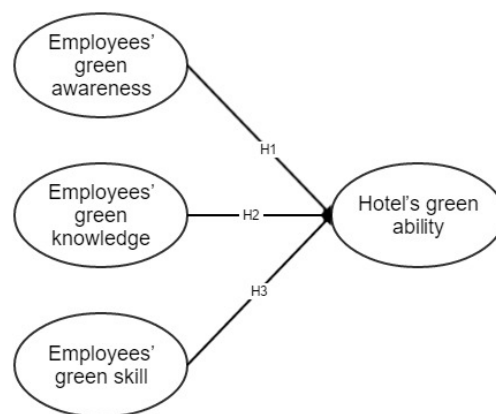


Figure 1: Proposed Model and Hypotheses

Sampling

The main goal of the study is to examine hotel employees' green abilities and how they contribute to hotels' green and overall performance. Thus the main research population is the junior level, front-line employees of Taiwan's hotel industry. As one might surmise, with hotels keeping employees busy, it is difficult to enlist eligible respondents to participate in a study.

The authors needed to be creative. The authors had worked in a few different universities and therefore knew alumni working in the hotel industry. The authors sent questionnaires via email to these alumni and phone anyone who had not replied within two weeks. 250 email questionnaire requests were sent. We managed to obtain 233 responses. The return rate is 93.2%.

Questionnaire design

The questionnaire used in this research has one parts. In the questionnaire there are scales with items with 7 point Likert like scale response structure.

The first part of the questionnaire has three subsections. Data from these subsections are scales that were used to measure hotel employees' environmental awareness, environmental knowledge (Chan *et al.*, 2014), and environmental skill (Chan, 2008). The scales are based on the literature. Environmental awareness has six items, which is developed by modifying the items used in past studies (Ballantyne, Packer, & Hughes, 2008; McCann, Sullivan, Erickson, & De Young, 1997). It assess whether an employee considers if their action at work has any adverse effect on the environment. Environmental knowledge is a four item scale used to measure employees' level of environmental knowledge by self-assessment. Basically, answers should measure employees knowledge of basic environmental science (e.g., how carbon dioxide affect environment), knowledge about the means that can help reduce environmental damage, and ability to assess which eco-friendly actions are most effective (Roczen, Kaiser, Bogner, & Wilson, 2014). Environmental skill questions involve self-assessed items as does knowledge. The three items involve reporting on the respondent's work in the hotel industry to see if it involves recycling, energy conservation, and reduce consumption of materials (Wong, Lai, Shang, Lu, & Leung, 2012). These questions allow the study to assess ways employees have been exposed to hotels' green practices that could be fostering environmental skills.

Results

Respondents' characteristics

We give information about the sample so you can know the diversity of respondents. There is no claim that the sample represents junior employees in Taiwan. The sample includes 38 males and 185 females. This is not surprising since most employees in the junior level of the hospitality industry are female (Tsaur & Tang, 2012). As previously explained, this study focused on front-line employees and consequently the respondents are relatively young compare to the management level. Youth is reflected by 121 respondents age between 21~30 years old and 102 respondents' age being between 31~36 years old. Also because of being junior, the monthly salary is relatively low. Salary ranged between NT\$22K to NT\$30K. Due to young age and the work-family conflict (Karatepe & Karadas, 2014), it is also not surprising that only 12 respondents were married. The majority of the respondents worked in hotels in northern Taiwan (122). The next most were working in southern Taiwan (75). There were a few respondents working in central Taiwan (36). Finally, sample consists of employees from 52 different 4~5 star hotels scattered out in central regions of Taiwan.

Reliability and validity test

When conducting structural equation modeling (SEM) analysis, reliability and validity of the data structure is tested through the calculation of various values, such as composite reliability (CR), average variance extracted (AVE), maximum shared squared variance (MSV), and average shared square variance (ASV). According to SEM scholars (Fornell & Larcker, 1981; Hair, Black, Babin, & Anderson, 2009), it is recommended that CR exceed 0.7 to achieve adequate reliability. It is recommended that AVE exceed 0.5 and be greater than MSV and ASV to achieve acceptable discriminant validity. As indicated in Table 1, the CR values ranged from 0.866 to 0.938 exceed the suggested 0.7 threshold. The AVE values ranged from 0.615 to 0.834 exceed the suggested 0.5 threshold and higher than their MSV counterparts and ASV, which ranged from 0.358 to 0.549 and 0.229 to 0.315 respectively.

Convergent and discriminant validity are important. Convergent validity being adequate is to ensure that variables within the same factor correlate well with each other. For example, all the items under the factor "green image" is used to measure employees' perception of the firm's green image and not to measure other concept such as performance. Discriminant validity, on the other hand, is to ensure variables does not correlated too highly with variables from other factors. This is to ensure that, for example, green image and overall performance are measuring two different things.

The material covered above shows that the data quality is sufficiently for further analysis to be conducted.

Table 1: Reliability and Validity Tests and Correlations

	CR	AVE	MSV	ASV	1.	2.	3.	4.
1. Hotel's green ability	0.902	0.648	0.491	0.233	0.805			
2. Green awareness	0.929	0.688	0.549	0.242	0.199	0.829		
3. Green knowledge	0.873	0.635	0.549	0.315	0.397	0.741	0.797	
4. Green image	0.918	0.615	0.358	0.229	0.598	0.300	0.424	0.784

Hypothesis testing

Having found that data are acceptable for seeing if a model can be a accepted, one proceeds to estimating the model's parameters. Model fit must be acceptable if one is going to use model parameters to test hypotheses. The purpose of model fitting is to determine model parameters that in some way reflect the best that observed data values can be fit. Determining if a model's fit to data is adequate is achieved by examining certain model fit indices.

Model fit indices can be viewed differently. In order to ensure the model fit, absolute indexes such as chi-square to degrees of freedom (χ^2/df) and goodness-of-fit index (GFI) were examined (Doll & Xia, 1997). Apart from the aforementioned two indices, there are numerous complementary indices of global fit that are frequently cited by SEM researchers. Such indices are the root-mean-square error of approximation (RMSEA) and comparative fit index (CFI) were also examined (Jackson, Gillaspay Jr, & Purc-Stephenson, 2009). According to SEM scholars' (Hair *et al.*, 2009; Hooper, Coughlan, & Mullen, 2008), it is recommended that GFI and CFI exceed 0.8 (0.9 will be preferable). , RMSEA be less than 0.08 (0.05 will be preferable), and χ^2/df larger than 1 but under 3.

This study examines two models and the information regarding the model fit is annexed in Figure 2. Model 1 first model and solely examines employees' contributions. The indices for Model 2 are GFI= .868, CFI= .951, χ^2/df =1.916, RMSEA=.064.

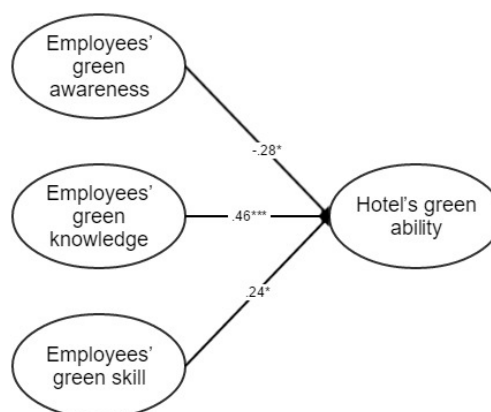


Figure 2: Model 1

Hypotheses H1, H2, and H3 examine the impacts of employees' environmental awareness, environmental knowledge, and environmental skill respectively to hotels' green ability. In short, this section of hypotheses tests employees' contribution to hotel's efforts to go green. The β values for the path H1 $-.281$ for Model 1. The p values are .014 respectively indicating moderate significance. The β values for the path H2 are .458 for Model 1. The p values are .001 respectively. The causal links between employees' environmental knowledge and hotels' green ability is clearly more pronounce when hotel's green image is out of the picture. The β values for the path H3 are .236 for Model 1. The p values are .021 respectively. It is evident that when hotel's green image is introduced to the equation, employees' green skill became less significant contributor to hotel's green ability.

Table 2: Summary of Results

	Cause	Path	Effect	Model 2	
				β	p
H1	Green awareness	→	Hotel's green ability	-0.281	0.014
H2	Green knowledge	→	Hotel's green ability	0.458	***
H3	Green skill	→	Hotel's green ability	0.236	0.021

From the result of this study, one is able to draw some conclusive findings. For employees' green ability, an employee's environmental knowledge contributes the most to his/her hotel's green ability. Employees' green ability as a whole predicts approximately 22% of hotel's green ability ($R^2=.22$). That's over a fifth of hotel's green ability.

However an employee's environmental awareness seems to have an adverse effect on his/her hotel's green ability. One can start to wonder why that is. From most of the literature (e.g., Chan *et al.*, 2014), environmental awareness plays an important and positive role in regarding implementing green practice. This particular finding is certainly confounding. One can argue that being aware of a problem and not being able to solve it is negative. And, although there is study (Chan *et al.*, 2014) that showed that awareness promotes intention to act, junior employees rarely possess any autonomous decision-making opportunities and thus may be frustrated, be negative. There is also a study (Mathews, 1990) that asserts that sometimes awareness causes people to interpret a situation in a relatively threatening way. This may not bode well for improving hotel's green endeavor. One needs to keep in mind that Asian's environmental education is relatively rudimentary compare to that of western societies (Chan, 2008). Awareness without proper knowledge and a global view of the problem may create panic that hinders the very effort to deal with a problem.

Based on these results, we can conclude that an employee's green ability is quite important to a hotel's green ability. It is therefore worthwhile for hotels to devote a certain amount of resources to train and educate their employees on how to implement their operation in a more eco-friendly way.

Conclusion

This study has three objectives. By testing hypotheses H1, H2, and H3, we are able to understand how employees' green ability affect hotel's green ability, thus complete the first objective and prove hotel's green ability contribute positively to its overall performance.

Based on the finding, it is also important that improving employees' environmental knowledge take priority over improving environmental skill and environmental awareness. A special caution arises because environmental awareness may have an adverse effect on a hotel's green ability if employees don't have sufficient knowledge to interpret events correctly.

Green image contributes to a hotel's overall performance partly through direct influence and partly through improving a hotel's green ability. This is consistent with past finding (Han & Kim, 2010) that image is a strong contributor to a hotel's success. This study only introduces this construct to be able to address an employee's green ability fostering his/her hotel's green ability.

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