

The Relationship between Environmental Management Practices and Environmental Performance: The Role of Organisational Culture

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Abstract

Nowadays, organisations and their management are working very hard to forecast and respond to ever-changing new markets and fierce competition. Due to increase in globalisation and technological advancements, the constant variable for today's workplace is perhaps the ability to continuously evolve. Organisations must ensure that their activities do not harm or negatively impact the environment. This study investigated the effect of organisational culture on the relationship between environmental management practice and environmental performance. Organisational culture was measured using an adapted version of the Henri's 2006 instrument which was based on a competing values perspective. Questionnaires were administered to 300 respondents (general managers/general managers) from various hotels in the Malaysian hotel industry. The hierarchical multiple regression method showed that organisational culture is not significantly related to environmental performance. However, to some extent, organisational culture has moderated the relationship between environmental management practice and environmental performance. This result implied that most of the sampled hotels in Malaysia employed a control dominant type of culture in achieving objectives. The results also showed even though hotels create an environmental culture in their activities, if people are not ready and not willing to share their knowledge toward creation of new values and beliefs, better environmental performance will not be achieved. This insignificant finding may be due to new beliefs relating to environmental issues in the Malaysian hotel industry.

Keywords: environmental management practice, environmental performance, organisational culture, Malaysia

1.0 Introduction

Organisations nowadays are becoming more aware of considering and embedding environmental management practices (EMP) into their operations to overcome global competition. In addition to this, uncertainties in global markets require organisations to change their structure and process to adapt to this new environment, while at the same time attempt to achieve higher levels of performance. Environmental performance (EP) cannot sustain at current levels of economic activity (Wackernagel & Rees, 1996), if organisations do not change their organisational culture. Maria (2011) proved that organisational culture and performance are closely linked, and positive culture can provide a sign of competitive advantage (Sadri & Lees, 2001). Sorensen (2002) indicated that if an organisation maintains a strong culture by demonstrating a well-integrated and effective set of specific values, belief, and behaviour, then it will perform at a higher level of productivity.

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From the environmental perspective, organisational culture is one of the variables that relates to the role and responsibilities of day-to-day tasks which is likely to help the organisation to solve problems related to environmental aspect. However, despite the claims that organisational culture plays a vital role in ensuring the improvement of environmental performance (Schein, 1990), little critical research attention (Bhimani, 2003; Henri, 2006) has been done to understanding the interaction effect of environmental management practice and organisational culture on environmental performance. Organisational culture and performance relationship had been examined by many scholars (Rousseau, 1990; Ogbonna & Harris, 2000; Henri, 2006) however, not much research has been done from the environmental perspective.

On the other hand, previous studies such as by Henri and Journeault (2006) examined environmental management practices within manufacturing firms, thus ignoring the significant impact of the service-based sector on environmental problems. As most of the empirical studies in Malaysia are on environmental management practices, such as by Baba (2004), Romlah et al. (2002), Jaafar (2001), and Foo and Tan (1988) who focused on firms listed on the Bursa Malaysia (that is manufacturing or construction industries), this study extends the practice to the service-based industry, e.g., the hotel sector. By focusing on service firms operating in developing countries, such as Malaysia, this study helps to advance an understanding of environmental management practice and organisational culture beyond its normal focus on the manufacturing and industrial sectors.

The purpose of this paper was to examine the role of organisational culture in the relationship between environmental management practice (EMP) and environmental performance (EP). The contribution of the current study is twofold; firstly, the study contributes to the environmental literature and organisational behaviour by examining the interaction effect of organisational culture and EMP on EP, and secondly, the study adopted the competing values framework as a dimension of organisational culture.

The remainder of the paper is structured as follows. The next section provides discussion on organisational culture, EMP, and EP, while the third section focuses on the research methodology. The findings are then discussed in the results section.

2.0 Literature Review and Hypothesis

2.1 Organisational Culture with Competing Values Framework

Previously, Deshpande and Webster (1989) defined organisational culture as a pattern of shared values and beliefs among people within an organisation. Eker and Eker (2009) also mentioned that organisational culture comprised values, beliefs, and norms which are shared by members of an organisation, and which consequently tend to influence the ideas, behaviours, and actions in their everyday work. The study adopted competing values framework (CVF) developed by The National Centre for Higher Education Management System, which was also used by Henri (2006), Eker and Eker (2009), and Agbejule (2011), where shared values pertain to dominant organisational attributes, importance of control, and the nature of information flow.

The competing value framework creates a shared meaning among people in the organisation and thus, produces similar behavioural norms. Generally, as discussed in Henri (2006) and Eker and Eker (2009), organisational culture is categorised into two types, which are control value culture and flexibility value culture. Control value culture refers to predictability, stability, formality, rigidity, and conformity. This type of value seems strict, tight, and focuses on a forcing through strategy, such as compliance to the law and regulations, and moving toward achieving goals. Meanwhile, flexibility value culture refers to spontaneity, change, openness, adaptability, and responsiveness. This value is associated with loose and

informal control, open, and lateral channels of communication, and free flow of information throughout an organisation.

This study employed the definition given by Henri (2006, p.80) where culture is defined as “the shared values that interact with the organisation’s structure and management control system and leads to behavioural changes”. Consequently, this study defines culture from an environmental management perspective, where the organisation’s environmental culture means people in the organisation will share the environmental information which creates and builds the same value within the organisation. Thus, the value is able to change the behavioural aspects of the people in the organisation in order to implement environmental management practices.

2.2 Environmental Management Practice

Environmental management practice, usually, represents the environmental management strategy of an organisation. According to Klassen and Whybark (1999), by using environmental management practices, an organisation can determine its environmental strategy. It is also argued by Azzone and Noci (1998) that organisational strategy can be determined by internal and external factors related to environmental issues which are translated by its practice.

In the environmental management literature, there is an argument that it is not possible to standardise practices of environmental management because the term “environmental management” has different meanings to different people. Carmona-Moreno et al. (2004) stated that environmental management involves a variety of environmental practices which differ depending on the industry, the nature of business, and its impact on the environment. In addition, Carmona-Moreno et al. (2004) mentioned that the characteristics of the industry with regard to environmental issues will affect the nature of environmental management practice in organisations. In their study, the characteristics of the hotel sector that involve environmental issues, such as engaging in environmental activities, limited environmental legislation, and active customers, contribute to how the hotel sector responds to their environmental problems. For example, having limited environmental legislation, hotels react to environmental problems by practising environmental management voluntarily and more emphasis on pollution prevention activities.

Berry and Rondinelli (1998) however, suggested that in order to improve performance, each organisation should practice appropriate environmental activities and strategies (for example, environmental proactive strategy). Furthermore, Winn and Angell (2000) agreed that proper implementation of the different environmental practices should result in improvement of the organisation’s environmental performance. Schaltegger et al. (2003) argued that good environmental management practice should have six key functions, which are goal setting, information management, decision support, control, communication and auditing, and review. In order to support all these functions, the environmental management tools that should be considered for implementation include total quality environmental management, life cycle assessment, environmental accounting, environmental reporting, and environmental auditing.

Furthermore, several researchers such as Griffin (1995), Heffelman (1995), Florida (1996), and Garrod and Chadwick (1996), identified significant adoption of environmental management elements among the organisations they studied. These studies revealed broad trends of adoption of environmental practices across industrial sectors and organisational sizes. However, according to Theyel (2000), none of these studies focused on the entire industrial sector as all included fewer than 10 organisations coming from any

number of industrial sectors. Therefore, these researchers were prevented from drawing statistically significant conclusions and forming generalised conclusions about the adoption of environmental management in a particular industry.

Basically, organisations practising environmental management will follow environmental management system (EMS) principles, namely plan, organise, command, coordinate, and control. Therefore, this study argues that any practises related to the environment should follow environmental management system principles such as creating an environmental policy, setting objectives, implementing a programme to achieve those objectives, monitoring and measuring its effectiveness, correcting problems, and reviewing the system to improve it, and thereby improving environmental performance.

2.3 Environmental Performance

In general, environmental performance is based on the ISO 14031 where this standard provides the guidelines to evaluate environmental performance of organisations. According to Schaltegger et al. (2003), ISO 14031 has been approved throughout the world. As cited in Schaltegger et al. (2003), ISO 14031 proposed three types of indicators to evaluate performance; the environmental performance indicator (EPI), the environmental management indicator (EMI), and the environmental condition indicator (ECI). However, only EPI and EMI are recognised by ISO 14031 as indicators of an organisation’s environmental performance.

Environmental performance is the interaction between business and the environment. The benefit and damage to the natural surroundings brought about by organisations’ activities is mentioned in relation to environmental performance. The other study that contributed towards systematising the dimensions to be included in environmental performance is that by Ilinitch et al. (1998). They integrated the elements of the model of Wood (1991) and Lober (1996) to measure environmental performance and developed the matrix of criteria to evaluate an organisation’s environmental performance using 2 x 2 dimensions; process, output, internal, and external (refer to Figure 1).

	Internal	External
Process	Organisational systems	Stakeholder relations
Output	Regulatory compliance	Environmental impacts

Figure 1: Matrix of criteria to evaluate an organisation’s environmental performance (Source: Ilinitch et al., 1998, p.388).

Ilinitch et al.’s (1998) model showed that internal organisational system measures refer to the activities or processes designed to improve organisation’s performance. An external stakeholder relation refers to the interaction between the organisational and external agents, while external environmental impacts include the negative spill over the organisation’s activities have on the environment. Finally, the internal regulatory compliance refers to the degree to which the organisation observes the minimum requisites established by certain norms or laws.

In the hotel sector, Burgos-Jimenez and Lorente (2001) stated that the objective of environmental performance should be understood as reducing the negative effect on the natural environment initiated by the activities of hotels. Similarly, Carmona-Moreno et al. (2004) defined environmental performance as the activities and processes that were designed to minimise the negative impact on the natural environment caused by the productive activities of a company and how people in hotels perceive that

associated impact. They focussed on internal processes in evaluating hotel's environmental performance. The current study refers to environmental performance based on Ilinitch et al.'s (1998) definition and adapted the instruments used by Carmona-Moreno et al. (2004).

2.4 EMP, Organisational Culture and EP

Contingency theory argues that design and use of organisational culture is contingent upon the specific circumstances of the setting in which the control system is operating. This idea was discussed by Emmanuel et al. (1990) where the contingency theory is based on the premise that there is no one standard or universal cultural system as a control system that can be applied to all firms in all situations. In terms of environmental management literature, people in organisations should share environmental information that creates value within organisations and be able to change belief systems in order to improve environmental performance.

Hunt and Auster (1990) argued that organisations should implement environmental culture to increase peoples' willingness to initiate environmental improvements. They argued that organisational culture has a positive effect on environmental performance. According to Hunt and Auster (1990), culture privilege (such as a reward system for employees who perform well in solving environmental problems or incentive systems for those who participate actively in environmental management practice) can be designed to increase employees' willingness to initiate environmental improvement. Previously, organisational culture was seen as a distinct factor which influences budget (Dunk & Lyson, 1997; O'Connor, 1995) or it was said as a related factor to accounting and reporting practices (Chow et al., 2002).

Simons (1995) argued that organisational culture can boost or hinder organisational performance. Simons (1995) postulated that organisational culture plays an important core value in implementing business strategy and it is deemed to be a primary determinant of the direction of employees' behaviour (Hasan & Azhar, 2008). Ehtesham, Muhammad, and Muhammad (2011) stated that without considering the impact of organisational culture, organisational practices (such as EMP) could be counterproductive because the two are interdependent and change in one will affect the other.

Therefore, according to contingency theory, organisational culture must change in order to adopt a new perspective implementation within an organisation. Accordingly, it was hypothesised that:

The more extensive the implementation of organisational culture (CULTURE), the greater the effect is of environmental management practice (EMP) on environmental performance (EP) in the hotel sector.

3.0 Research Method

3.1 Sample and Data Collection

Initially, details of all the 453 hotels in Malaysia were obtained mainly from the *Accommodation guide: Malaysia Truly Asia 2004* (the latest version up to 2007). This database was considered to be a sample of the study (based on Finance Ministry's report, up to 2004, there are in total 2,100 population of hotels in Malaysia). However, after considering the suggestion from previous literature that environmental management practice are most likely to be found in the larger firms, therefore, it was decided to focus on hotels which have more than 50 rooms. After improving the questions so as to eliminate ambiguous questions, questionnaires were mailed to 300 hotels (after deducting small hotels and those involved in the pilot study) with a cover letter assuring anonymity and confidentiality, as well as a stamped self-

addressed reply envelope. The questionnaires were addressed to the hygiene manager (where the hotel had an environmental or hygiene department) or general manager (where the hotel did not have an environmental department).

As cited previously, according to Bohdanowicz (2003), hotel size is grouped based on a formula, where those below 50 rooms are considered to be a small sized hotel, rooms between 50 and 150 is medium sized, and over 150 rooms is considered a large sized hotel. The initial version of the questionnaire was submitted in a pilot test involving 30 hotels that fulfilled the respondent criteria.

Referring to Table 1, the returned questionnaire was 125 cases and the response rate of the current study was 41.7%. Based on comments by Rahman (2001), this response rate was considered reasonably adequate. In order to achieve a high response rate, four steps were adopted (Theyel, 2000; Baba, 2004), namely (i) pre-notification; (ii) initial mailing; (iii) first follow-up, and (iv) second follow-up. The first step involved a letter, phone call, or e-mail to respondents to promote initial interest of the issues raised. Then, mail was sent to the environmental or hygiene managers in the sample, including the cover letter, questionnaire, and business reply envelope. In some circumstances, such as hotels which did not have a full address on the database, the questionnaire was sent by fax or e-mail. The first follow-up was a postcard reminder, while the second was a phone call or replacement questionnaire sent to those who had not answered.

Table 1

Hotel Sample Selection

Total hotels listed in the accommodation guide (exclude budget accommodation)	453
(-) Pilot sample	(30)
Total hotels considered as the sample of the study	423
(-) Hotels less than 50 rooms	(123)
Total hotels used as a sample of the study	300
Mailed questionnaire (m)	300 100%
Returned questionnaire (n)	125 41.7%

In order to test for potential non-response bias, one-way variance (ANOVA) analysis was conducted. The respondents were assessed with an analysis of variance between the early and late respondent groups (Armstrong & Overton, 1977). As Henri (2006) suggested in his study, the late respondents are also used in this study as a proxies for non-respondents. Late respondents are categorised as hotels that replied after the second notification. One-way ANOVA showed no significant differences between the two groups in terms of environmental performance. The non-response bias is therefore not considered a significant issue in this study.

- This guide provides hotel addresses, names of the hotels, star ratings, number of rooms and contact numbers (phone, fax, and e-mail address). However, the weakness of this guide is that it does not contain the name of a contact person in general and the environmental manager, in particular. Therefore, an initial contact (either by e-mail or by telephone) was made with all the hotels to get the names of the person in charge, especially, of environmental matters or the management control system.

3.2 Variables and Measurement

3.2.1 Organisational Culture

In this study, organisational culture is measured using an adapted version of Henri's (2006), and Eker and Eker's (2009) instruments which were based on a competing-values perspective developed by The National Centre for Higher Education Management System. This instrument was validated and has been used recently in an accounting setting (Bhimani, 2003). However, to better reflect the environmental context related to the unit of analysis, the statements used are slightly modified.

This instrument asks respondents to distribute 100 points among four cultural types, which best describes their hotel, within each of the four dimensions of culture; institutional character, institutional leader, institutional cohesion, and institutional emphasis (refer to appendix A). For each dimension, respondents must distribute 100 points among four sentences where sentence A refers to group culture, sentence B refers to development culture, sentence C refers to hierarchical culture, and sentence D refers to rational culture.

Following the approach of Henri (2006), the present study attempted to capture the specific position of each organisation on the control value and the flexibility value (dominant type). The summation of the group-culture score and the development-culture score gives the flexibility-value score, while the summation value of the hierarchical-culture score and the rational-culture score gives the control-value score². Then, the dominant type of culture of the organisation can be accessed through the different scores of flexibility value and control value.

According to Agbejule (2011), flexibility-value score is equal to group-culture score plus development-culture score while control-value score is equal to hierarchical-culture score plus rational-culture score. A positive value means a flexibility-dominant type of culture and negative value means a control-dominant type of culture. In order to standardise the score, the answer scale was re-coded to a five-point scale where the answer between range 0 to 20 is recoded as 1, 20 to 40 is recoded as 2, 40 to 60 is recoded as 3, 60 to 80 is recoded as 4, and 80 to 100 is recoded as 5.

The items load into two factors that were factor 1 as a flexibility value and factor 2 as a control value. Factor 1 (flexibility value) has eigenvalue 1.338 with 66.897% variance explaining the common factor (Cronbach-alpha is 0.603). On the other hand, factor 2 (control value) has eigenvalue 1.267 with 63.372% variance and 0.522 Cronbach-alpha. The dominant value of culture can be accessed by subtracting flexibility value from control value. A positive score captures flexibility value dominant type, while a negative score refers to a control dominant type. The type of dominant value adopted by hotels shows the hotels' involvement in environmental management practice.

3.2.2 EMP

The measure of EMP was drawn from an instrument used by Carmona-Moreno et al. (2004) and Gil et al. (2001). The adapted instrument consists of 22 items measured through a five-point scale, ranging from 1 (very little commitment) to 5 (very strong commitment) (refer to Appendix B).

² For example: Case 1

GROUP	DEV	HIERARCHICAL	RATIONAL	FLEX	CONTROL	DOMINANT
50.00	30.00	10.00	10.00	80.00	20.00	60.00

Therefore, dominant type of culture for this case is flexibility control system, where dominant can be gained from flexibility value (group + development) minus control value (hierarchical + rational).

Hotels were asked to state whether or not they were carrying out a number of EMP to prevent negative environmental impacts. A mean score was computed where a high mean score indicates a high level of commitment which represents a proactive environmental strategy. Splitting at the median of EMP, two sub-samples were created, where scores higher (lower) than the median were labelled high (low) commitment. This type of splitting was also used by Bisbe and Otley (2004).

Factor analysis indicated that the 20 remaining items loaded into a single factor (percentage of common variance explained is 75.052%), which supported the one dimension of the measurement instrument. The internal consistency of the items included in the scale was assessed using Cronbach-alpha as a reliability coefficient and resulting alpha was 0.982, which is above the 0.70 acceptance value as recommended by Nunnally (1978).

3.2.3 EP

This study defined EP based on subjective measurement and does not intend to look at objective figures, such as how much waste is reduced. The current study adapted the EP measurement by Carmona-Moreno et al. (2004), since their measurement was purposely developed and validated to measure hotels' EP (refer to Appendix C). They developed a measurement scale that adequately covers physical and societal aspects of EP of the hotel sector and does not require any quantitative information.

Respondents were asked to provide answers on a five-point scale ranging from 1=strongly disagree to 5=strongly agree for environmental improvement statements. A mean score was calculated whereby the highest mean score indicates better EP.

Factor analysis indicated that all items of EP loaded onto a single factor (percentage of common variance explained was 77.67%) that supported the unidimensionality of the measurement instrument. The Cronbach-alpha of the EP items was 0.959 which explained that the reliability coefficient of internal consistency is higher than the expected level (0.70).

3.3 Data Analysis

In order to test the moderating effect of organisational culture on the relationship between EMP and EP, moderated hierarchical multiple regressions was used. This method was first suggested by Baron and Kenny (1986).

4.0 Results

The present study shows how the interaction of EMP and organisational culture influences EP. The inter-correlation in Table 2 indicates that organisational culture is significantly and positively correlated to both EMP and EP.

Table 2

<i>Correlation Analysis</i>			
	CULTURE	EMP	EP
CULTURE (control/flexibility)	1		
EMP	0.234**	1	
EP	0.178**	0.261**	1

4.1 Hypothesis Test

The hypothesis of the study required a test on the interaction effect of organisational culture and EMP on EP. The moderating effect happens when the level of the third variable (in this case the organisational culture) influences or affects the degree of relationship between two variables (in this case the EMP and EP).

Baron and Kenny (1986) suggested that in order to test the moderating effect, moderated hierarchical multiple regression analysis should be used. This suggestion was supported by Bisbe and Otley (2004), and Harrington and Kendall (2006) who argued that the moderated multiple regression analysis allows the relationship between the independent variables and dependent variables count on the other independent variables (i.e., moderator).

This proposal can be tested using the formulation of the moderation model as shown below:

$$EP = \alpha + \beta_1 EMP + \beta_2 CULTURE_i + \beta_3 EMP * CULTURE_i + \varepsilon$$

Where

- EP is environmental performance,
- CULTURE is organisational culture,
- EMP is environmental management practice, and
- EMP*CULTURE_i is interaction term.

Model 1 in Table 3 gives the regression results for EMP and EP. The result indicated that EMP has a positive significant effect on EP. The standardised coefficient is 0.025 and significant at $p < 0.001$. Model 2 in Table 3 shows the result for the same regression with the addition of the CULTURE which is not significant at $p > 0.01$. Table 3 highlights that when using organisational culture as a moderator (Model 3), the interaction coefficient is significant but negative sign. The $R^2 = 0.123$ and the interaction term adds 4.0% to the explanation power to explain the variation in environmental performance.

Table 3

Moderated Multiple Regression Analysis: EP

Variable	Model 1	Model 2	Model 3
EMP	0.261*** (0.025)	0.232* (0.025)	0.205 *(0.025)
CULTURE		0.124 (0.006)	0.603 *(0.212)
EMP*CULTURE			-0.514*(0.003)
R2	0.068***	0.067**	0.123
R2 Change		0.015	0.040
F Change	8.301***	1.919	5.486*

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ All betas are standardised.

Figure in bracket indicates the standard errors. **Bold** figure highlights the significance of the relationship.

Even though, the study postulated that there will be a positive and direct relationship between organisational culture and EP in the hotel sector, this expectation was not supported as indicated in Table 3, Model 2 above.

In order to provide further evidence, Table 4 shows that just over half of the sampled hotels in Malaysia employed control dominant value in their organisational culture. Based on previous literature, for example Henri (2006), control-type of culture is more stringent and thus it is possibly more difficult to change and adopt a new system. Table 4 reveals the insignificant relationship between the types of culture and environmental performance.

Table 4

Cross-tabulation between EP and CULTURE

Environmental performance (EP)	Hotel's environmental culture (CULTURE)		Total
	Control dominant value(0)	Flexibility dominant value (1)	
Less than median (0)	38 (59.4%)	26(43.3%)	64
Better than median (1)	26(40.6%)	34(56.7%)	60
Total	64	60	124

Value = 2.581 *Sig. = 0.108 (p>0.05)*

Therefore, the statement which postulated that there is a positive and direct relationship between organisational culture and environmental performance is rejected. The results suggested that there is no significant direct relationship between environmental performance and hotels' culture. Hotels that employ flexibility-type of culture will possibly portray better environmental performance.

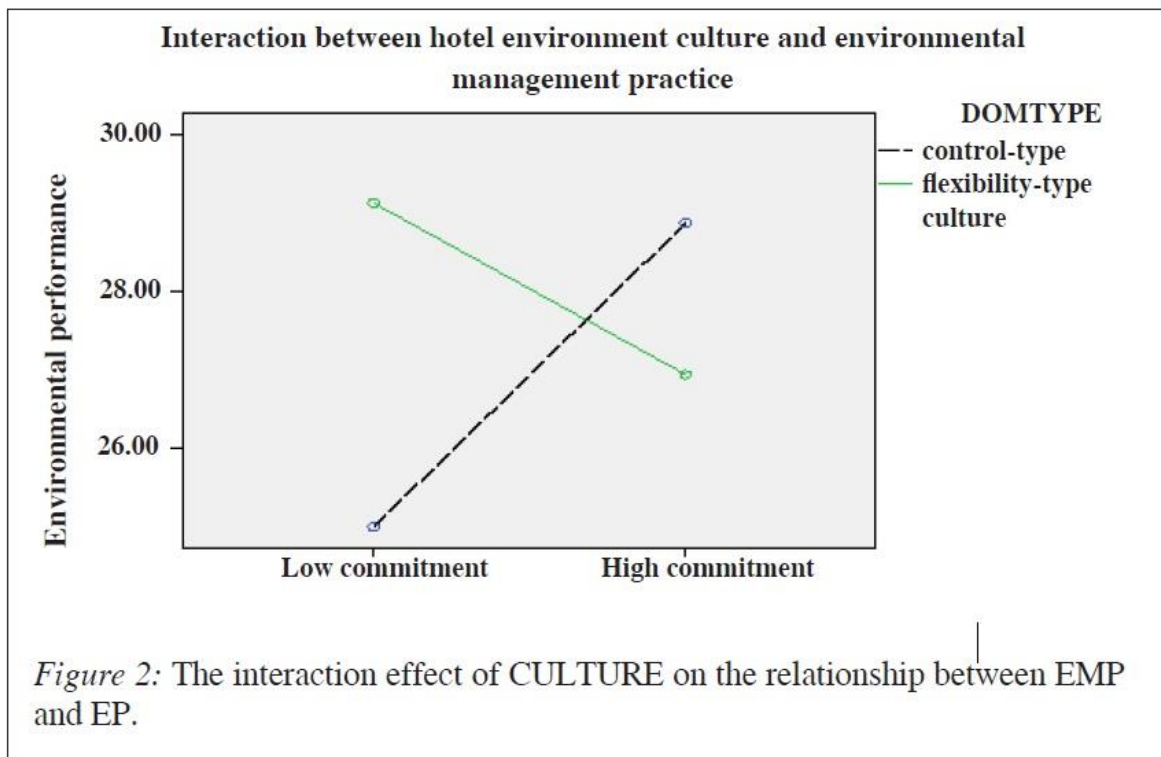
Overall, theoretical development suggests that the nature of the relationship between environmental management practice and environmental performance is diversified and varied. The variety depends on the extent organisations implement or extensively use management control systems in the environmental management context.

By using ANOVA, the interaction effect can be drawn between the environmental management practice and the environmental performance. CULTURE was split at median level into two groups, namely control-type and flexibility-type of culture. As shown in Figure 2, when hotels which have low commitment in practising environmental management activities, but engage in flexibility-value in environmental culture, they will have higher environmental performance, otherwise, engaging in control-dominant type value, they will have lower environmental performance.

5.0 Discussion and Conclusion

The result of the study sheds some light on the relationship between EMP and organisational culture. Organisational culture was found to be not significantly related to the level of environmental performance (Model 2 in Table 3). This result suggests that culture does not act as a factor to ensure hotels will achieve better environmental performance. Hunt and Auster (1990) suggested that firms should implement organisational culture related to environmental issues to increase people's willingness to initiate environmental improvement. However, in this present study, even though hotels create an environmental culture in their activities, if people are not ready to share their knowledge toward the creation and change of values and beliefs, better environmental performance may not be achieved. Most of the sampled hotels in Malaysia employ a control dominant type of culture which refers to formality, rigidity, and more strictness and tightness in achieving objectives. All the activities carried out are rigid and not flexible. Thus, adaptability to a new strategy is more difficult. This finding is similar to the traditional control system where formal and control feedback is considered vital to achieve better performance (Anthony, 1965). However, as Simons (1987) suggested, the new emerging issues such as environmental issues should be opened to new ideas in order for the organisation to change and respond to enhanced environmental performance.

On the other hand, this insignificant finding may be due to the environmental issues being a new concern in the Malaysian environment and not currently properly managed by the hotel sector (Kasim & Scarlat, 2007). One reason may be related to interactive action from the top management and employees. If people in the hotels are not well trained, the knowledge and skills may not be developed and shared properly. Thus, new values and beliefs cannot be created and consequently, the attitude of people toward environmental issues would not change.



Furthermore, the result also showed that interaction between environmental management practices and environmental culture (EMP*CULTURE) has a negative significant effect on environmental performance. This interaction also influenced the effect of environmental management practice on environmental performance by increasing the explanatory power of the model. The coefficient is opposite from expected. A negative coefficient of interaction effect of environmental management practice and environmental culture suggests that the more hotels integrate and use environmental culture in environmental management practice, the less the effect on environmental performance, while the less the hotels consider the environmental culture in their environmental management practices, the greater the effect on environmental performance. Without an interaction effect, environmental culture has no significant effect on environmental performance. Environmental performance, statistically, is similar between hotels that are committed to environmental management practice by employing flexible type of culture and those who are not committed to environmental management practice by employing control-type of culture. By entering the interaction between environmental culture and environmental management practice, hotels who commit differently appear to have different levels of environmental performance.

This study provided evidence on the importance of having correct organisational culture in the organisation. In conclusion, the results suggested that in order to achieve better environmental performance, the management and employees should be ready and flexible to accept new ideas and share a belief system which leaves them open toward new ideas (environmental matters). Even though hotels can create and use a new culture extensively, without willingness to adapt to a new environment, the hotels may not meet their objectives in reducing environmental impact. This study has important implications for management practices.

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Appendices

Appendix A

Items included in organisational control measures

1. Institutional characteristics (please distribute 100 points)

- a. Hotel A is a very personal place. It is like an extended family. People share a lot of the facilities. _____
- b. Hotel B is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks. _____
- c. Hotel C is a very formalised and structured place. Bureaucratic procedures generally govern what people do. _____
- d. Hotel D is very production oriented. A major concern is with getting the job done. People are not very happy. _____

2. Institutional leader (please distribute 100 points)

- a. The head of Hotel A is generally considered to be a mentor, a sage or a father or mother figure. _____
- b. The head of Hotel B is generally considered to be an entrepreneur, an innovator, or a risk taker. _____
- c. The head of Hotel C is generally considered to be a coordinator, an organiser or an administrator. _____
- d. The head of Hotel D is generally considered to be a producer, a technician or a hard-driver. _____

3. Institutional cohesion (please distribute 100 points)

- a. The glue that holds Hotel A together is loyalty and tradition. Commitment to this hotel runs high. _____
- b. The glue that holds Hotel B together is commitment to innovation and development.

- c. The glue that holds Hotel C together is formal rules and policies. Maintaining a smooth-running organisation. _____
- d. The glue that holds Hotel D together is the emphasis on tasks and goal accomplishment.

4. Institutional emphases (please distribute 100 points)

- a. Hotel A emphasises human resources. High cohesion and morale in the hotel are important. _____
- b. Hotel B emphasises growth and acquiring new resources. Readiness to meet new challenges is important. _____
- c. Hotel C emphasises permanence and stability. Efficient, smooth operations are important. _____
- d. Hotel D emphasises competitive actions and achievement. Measurable goals are important. _____

Appendix B

The items listed in the questionnaire are:

- The hotel is using an environmental plan.
- The hotel is using a written document describing its environmental plan.
- The hotel gives priority to purchasing ecological products (e.g., biodegradable, reusable, recyclable, etc.).
- The hotel stresses ecological issues when marketing its product.
- The hotel makes a selective collection of paper, oil, glass, etc. for recycling purposes.
- The hotel communicates its environmental plan to its shareholders
- The hotel communicates its environmental plan to its employees.
- The hotel is establishing or has established an environmental, health and safety unit.
- The hotel is developing a board or management committee or manager to dealing with environmental issues.
- The hotel conducts environmental and awareness training programmes for its employees.
- The hotel gives employees training about environmental issues.
- The hotel organises or sponsors environmental protection activities.
- The hotel produces a separate report communicating environmental costs and savings.
- The hotel carries out an internal environmental audit.
- The hotel has a written document describing its environmental audit.
- The hotel quantifies its environmental savings and costs in a budget.

- The hotels facilities customers' collaboration in environmental protection (e.g., voluntary changing towel, etc.).
- The hotel has procedures to check and revise environmental performance.
- The hotel is relatively efficient in the use of energy, water and other material.
- The hotel reduces the use of environmentally toxic and dangerous products (e.g., hygiene chemical, etc.).
- The hotel applies water saving practices.
- The hotel applies energy saving practices.

Appendix C

The items listed in the questionnaire are:

- The hotel's environmental objectives and targets have been achieved.
- The hotel has a good environmental reputation.
- The hotel is relatively efficient in the use of energy, water and other materials.
- The hotel has personnel with environmental protection training.
- The hotel has a stable relationship of cooperation with stakeholders.
- The personnel is proud of the hotel's environmental behaviour.
- The travel agencies and tour operator are satisfied with the hotel's measures in environmental protection.
- The managing board is satisfied with the hotel's environmental behaviour.