

International Journal of Business and Management

www.ccsenet.org/journal.html

Vol. 4, No. 7 July 2009

Tourists' Satisfaction on Kilim River Mangrove Forest Ecotourism Services

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Abstract

Ecotourism is a revenue generator for many countries, especially those endowed with natural attractions. In order to sustain industry growth, its players are looking for essential factors contributing towards tourists' satisfaction. This paper presents findings of a micro study on Langkawi mangrove forest ecotourism site along the Kilim River estuary. Four theoretical models were constructed and analyzed using Structural Equations Modeling (SEM). The Baseline Comparisons, Parsimony Adjusted Measures, and the RMSEA were used to evaluate good model fit and Model 3 was found to fulfill that fit. The overall tourist satisfaction index was found to be 79.1 of a possible 100 points. Significant contributing factors towards tourists' satisfaction consist of marketing practices (42.1 percent), business ethics (23.9 percent), environmental management (14.5 percent), and business management/operational systems (7.8 percent).

Keywords: Tourist, Satisfaction, Ecotourism services, Mangrove forest, Structural equations modeling

1. Introduction

Ecotourism, one of the fastest growing segments within the travel and tourism industry, comprises about 20 percent of all tourist arrivals. This rapid global growth in ecotourism illustrates an increasing interest in nature and the environment. According to Arlen (1995), ecotourism grossed over \$335 billion a year worldwide, and attracted millions of interested tourists. In Malaysia, ecotourism is also a major revenue earner and had benefited the country, its natural areas, and local communities.

One of Malaysia's well-known eco-sites is Langkawi. Now a duty free geopark, it was listed by UNESCO as one of the Global Network of Geoparks on 1st June 2007. This serves as an impetus for it to develop further as an eco paradise. The forests and waters of Langkawi mangroves are home to species of monkeys, reptiles, birds and even dolphins. Langkawi provides ecotourism experiences such as nature walks, bird watching, jungle-tracking and mangrove tours in motorized boats. The eagle-feeding sessions at the mangrove swamps of the Kilim River have become one of the main tourist attractions.

This study seeks to gauge tourists' feedback on Langkawi's Kilim mangrove forests ecotourism tour services and to discover the contributing factors and their related elements leading to tourists' satisfaction. The four hypothesized factors having probable influence on tourists' satisfaction are business ethics, environmental management, marketing practices, and business management and operational systems.

2. Methodology

The data collected during the study relates to tourists' assessment and ratings on Langkawi mangrove forest ecotourism services. The basic information sought consists of dimensions related to business management systems, ethics, marketing, environmental management, and overall impact of ecotourism services.

The target population comprises tourists having recent experiences with Langkawi mangrove forest ecotourism ranging from December 2007 to January 2008. The sample subjects selected are tourists having prior engagement with the mangrove ecotourism service. Subjects were conveniently sampled at mangrove forest jetty points immediately after disembarking their chartered tours. Survey questionnaires were distributed to consenting tourists for immediate response. Sample subjects consisted of 454 males and 456 females with ages ranging from 20 to 50 years. Eighty-seven percent were Malaysians.

Data collection process covered a period of two months beginning early December 2007 and ended late January 2008. Responses regarding product, service, and their satisfaction level were measured using the Likert scales of 1 to 10. Tourists' responses on all the 34 statements made regarding respective independent and dependent variables were measured on the scale that range from 1 (strongly disagree) to 10 (strongly agree). The mean scores of each item of "1-10" are simultaneously converted to a scale of "0-100" to determine the index scores for the items based on the formula stated in Table 5.

Data analysis to test the overall fit of models to the data was done using the Structural Equations Modeling (SEM). The procedure follows Mulaik & Millsap (2000) four-step approach to modelling and deriving the best estimates for regression equations, squared multiple correlations (R^2), and path coefficients. The models used for testing are as in Figure 1, 2, 3, and 4. Step 1 involves performing factor analysis to establish the number of latent factors or components. The latent variables in SEM are similar to factors in factor analysis, and the indicator variables likewise have loadings on their respective latent variables. These coefficients are the ones associated with the arrows from latent variables to their respective indicator variables. By convention, the indicators should have loadings of .7 or higher on the latent variable. The loadings were used to impute labels to the latent variables, though the logic of SEM is to start with theory, including labelled constructs, and then test for model fit in confirmatory factor analysis. Step 2 involves performing confirmatory factor analysis to confirm the measurement model. This research tested the measurement model first, and only then tested the structural model by comparing its fit. Step 3 involves testing the structural model and step 4 relates to testing nested models to get the most parsimonious one. The goodness of fit tests determines whether a model will be rejected or accepted. Only upon acceptance will path coefficients of the model be analyzed and interpreted. In SEM, we want to prove that the null hypothesis should be accepted (we fail to reject the model) and is indicated by having the probability value equal or above 0.05. If the probability value (P) is below .05, the model is rejected. In situations where the chi-square test of absolute fit displays a probability value lesser than 0.05, the tests of relative fit will be used to assess model fit. AMOS output produced several model fit statistics designed to test or describe overall model fit. The indicators for relative fit of these fit statistics vary. The RFI coefficient should be close to 1 to indicate good model fit. In terms of IFI or delta2, the acceptable fit should range from 0.9 to 1.0. Values above 0.90 are considered acceptable fit. For Tucker-Lewis Index (TLI) or rho2, any value close to 1 indicates good model fit despite suggestions by Hu and Bentler (1999) that the value should be higher than 0.95. For comparative fit index (CFI) values above .90 are considered acceptable fit. For parsimony ratio (PRATIO), the closer the coefficient to 1.0, the stronger and more parsimonious the model fit. In terms of the root mean square of approximation (RMSEA), the general rule of thumb is that RMSEA should be below 0.05 or 0.06. The standardized regression weights of variables (measured and latent) in AMOS output will indicate variables having relatively high influence.

3. Results and Discussions

Based on the AMOS output, minimum identification for all four models was achieved. This implies adequate fit for collected data and "Minimum was achieved" message was evident in the output. Based on the rules of thumb on assessing model fit statistics, Model 3 fulfilled the baseline comparisons (rho1, delta2, rho2), the parsimony adjusted

measures (PRATIO), and the root mean square of approximation (RMSEA). Model 1 fulfilled all model fit statistics except the parsimony adjusted measures (the parsimony ratio, PNFI, PCFI) and the root mean square of approximation (RMSEA). Model 2 is the third choice since its RFI is a bit away from 1. Model 4 does not fulfill the RFI, IFI, TLI, CFI, and the PRATIO. Its RMSEA however, is below 0.6.

Tourists' overall satisfaction index (Table 5) was found to be 79.1 of a possible 100. This implies that tourists' rating on Kilim River mangrove forest ecotourism service is basically good. Specific strategies requiring improvements include enhancing overall service delivery, making service worth the money tourists paid, raising tourists' satisfaction level, ensuring ecotourism services exceeding tourists' expectations, and striving to be above the competitors.

Based on AMOS Output (Table 1), Marketing Practices was found to influence 42.1% towards customer satisfaction. Hence, an increase of one standard unit of marketing practices index is expected to help increase tourists' satisfaction by 42.1 standard units. This was followed in descending order by Business Ethics (23.9%), and Environmental Management (14.5%). Business management and operational systems influence only 7.8% towards customer satisfaction. The estimated influence of these four factors towards tourists' satisfaction is 65.3 percent.

4. Conclusions

Based on the above results, we infer that tourists are least concerned on how tour operators internally manage their services. This is evidenced in Table 1 whereby the business management and operational systems factor only influence 7.8% towards tourists' satisfaction.

Business ethics (Table 3) is relatively more important to tourists. It influences about 23.9% of tourists' satisfaction. Specific variables having significant contributions include effectiveness in addressing customers' safety (Q13) and providing services the best possible way (Q12). Variables requiring improvement include attending to customers' queries (Q11), providing receipts for money received (Q10), delivering activities exactly as advertised(Q9), treating all customers equally(Q8), meeting reasonable expectations of all customers(Q7), effectively addressing customers' comfort(Q14), ensuring products are in good working order(Q15), addressing travel ethics relating to minimal impact behavior for natural areas(Q16), and providing equipment, clothing, supplies that are suitable for areas being visited(Q17). These variables, if improved, will probably make more tourists remember and recommend Kilim mangrove ecotourism to others.

Marketing practices (Table 2) is another very important factor to tourists. It was found to influence 42.1% towards tourists' satisfaction. An increase of one standard unit of marketing practices will help to increase tourists' satisfaction by 42.1 standard units. Specific variables that provide significant contribution towards marketing practices include providing sufficient equipment (Q20), providing tips to tourists for their maximum enjoyment (Q21), and spending at least seventy-five percent of ecotourism activities within the natural areas (Q22). Specific areas requiring improvement include upgrading facilities (Q19), providing adequate transport (Q18), and increased personalized assistance in experiencing nature (Q23).

The environmental management factor (Table 4) contributed about 14.5% towards tourists' satisfaction. Specific variables providing high impact to this factor include measures undertaken to prevent irreversible danger to nature (Q27) and also provision for minimal disturbances towards wildlife (Q26). Variables requiring further improvement include efforts to prevent damage to the environment (Q28), garbage management (Q24), and waste management (Q25).

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Table 1. Standardized Total Effects

Standardized Total Effects (Group number 1 - Default model)						
	Environmen tal_Manage ment	Business_ Manageme nt_& Operationa l_Systems	Marketing _Practices	Business_Et hics	CUSTOMER _SATISFACT ION	
CUSTOMER_SA TISFACTION	.145	.078	.421	.239	.000	
Q17	.000	.000	.000	.714	.000	
Q16	.000	.000	.000	.745	.000	

Table 2. Variables in Marketing

Q23	<	Marketing_Practices	.797				
Q22	<	Marketing_Practices	.809				
Q21	<	Marketing_Practices	.820				
Q20	<	Marketing_Practices	.835				
Q19	<	Marketing_Practices	.761				
Q18	<	Marketing_Practices	.777				
Table 3. Variables in B	Business Ethics						
Q11	<	Business_Ethics	.767				
Q10	<	Business_Ethics	.751				
Q9	<	Business_Ethics	.770				
Q8	<	Business_Ethics	.723				
Q7	<	Business_Ethics	.725				
Q12	<	Business_Ethics	.787				
Q13	<	Business_Ethics	.791				
Q14	<	Business_Ethics	.777				
Q15	<	Business_Ethics	.784				
Q16	<	Business_Ethics	.745				
Q17	<	Business_Ethics	.714				
Table 4. Variables in Environmental Management							
Q28	<	Environmental_Management	.781				
Q24	<	Environmental_Management	.764				
Q25	<	Environmental_Management	.786				
Q27	<	Environmental_Management	.811				
Q26	<	Environmental_Management	.845				

Table 5. Index

	BUSINESS MANAGEMENT & OPERATIONAL	SYSTEMS		
Q1	Product maintenance	64.3		
Q2	Customer service	66.6		
Q3	Safety measures	65.3	77	
Q4	Operational procedures observed	66.0		
Q5	Operational procedures effective	66.2		
	BUSINESS ETHICS			
Q7	Meet reasonable expectations of all customers	66.9		
Q8	treat all customers equally	66.5		
Q9	Deliver activities exactly as advertised	67.7		
Q10	Provide receipts for monies received	67.4		
Q11	Attend to customers' queries	68.1	70	
Q13	Address customers' safety effectively	67.7	79	
Q14	Address customers' comfort effectively	68.2		
Q15	Ensure product in good working order	67.5		
Q16	Address travel ethics relating to minimal impact	67.7		
Q17	Equipment, clothing, supplies are suitable	68.4		
	MARKETING PRACTICES			
Q18	Adequate transportation	64.7		
Q19	Provide relevant facilities	67.9		
Q20	Provide sufficient equipment	66.1	70	
Q21	Provide tips for maximum enjoyment	67.1	78	
Q22	Spent 75% of activities within the natural area	67.3		
Q23	Helped to experience nature	68.4		
	ENVIRONMENTAL MANAGEMENT			
Q24	Garbage management	66.3		
Q25	Waste management	67.1		
Q26	Minimal disturbance to wildlife	66.3	78	
Q27	Prevent irreversible danger to nature	66.6		
Q28	Prevent damage to environment	66.6		
	CUSTOMER SATISFACTION			
Q29	Overall ecotourism service	66.6		
Q30	Service is worth money paid	67.9		
Q31	Would certainly recommend to friends	67.5	70	
Q32	Service exceed normal expectations	68.1	13	
Q33	Service much better than competitors	67.7		
Q34	Overall satisfaction	69.3		

Index =
$$\frac{v - 1}{9}$$
 (100 %)

where v = mean score of item

Tourists' Satisfaction Indicator (ACSI): $[(Q_{29})(W_{29}) + (Q_{30})(W_{30}) + (Q_{31})(W_{31}) + (Q_{32})(W_{32}) + (Q_{33})(W_{33}) + (Q_{34})(W_{34})] \times 11.11$, where Q is the mean score for the item and W is the assigned weight for the item.



Figure 1. Conceptual Model 1





Figure 2. Conceptual Model 2



Figure 3. Conceptual Model 3



Figure 4. Conceptual Model 4