THE USE OF IMPORTANCE –PERFORMANCE ANALYSIS APPROACH IN EVALUATING PENANG NATIONAL PARK

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ABSTRACT

Penang National Park has been listed as one of the eco-tourism destination in Malaysia. In tourism management, importance-performance analysis (IPA) has been used as part of quality management. The objective of this research paper was to use importance–performance analysis (IPA) to examine the performance of Penang National Park. A quantitative questionnaire was distributed to 385 tourists at the Penang National Park by using the convenience sampling approach. The respondents were provided with a list of environmental and social attributes and asked to rate the importance and performance of each attribute. The IPA grid is broken into four categories: (1) Concentrate Here; (2) Keep Up the Good Work; (3) Low Priority; and (4) Possible Overkill, to enable each of the attributes to be plotted into the grid. It is a clear and powerful evaluation tool for management to find out attributes that are doing well and attributes that need to be improved, which require action immediately. The results of IPA identified that factor 2 (Scenery and comfort) and factor 4 (Environment) are attributes that have high importance and performance. The attribute that need to be improved was identified as factor 3 (Safety), suggesting management attention is needed. The results of the study can be used by management in Penang National Park to improve the attributes that tourists think are most important. Other tourist destinations could also conduct similar studies to examine their performance.

Keywords: Importance-performance analysis; eco-tourism; gap analysis; Penang National Park

Introduction

Penang National Park has been listed as one of the eco-tourism destination in Malaysia. It is the smallest national park in a country and the world which has the size of 2,562 hectares. Over 140 species of mammals live among the trees and sea (Five Malaysian National Parks, 2013). This park is declared as a national state park on April 2003 after so much effort has been made to preserve this area from logging activities. It was the first park legally gazetted under the National Park Act of 1980, signifying the State and Federal Governments' efforts in protecting the environment. Since then, tourism has developed and currently the park attracts many tourists. It is one of the famous ecotourism destinations in Penang other than the well-known UNESCO Heritage sites. This signifies that the park has successfully completed the transition from a pure conservation area to a tourist attraction that gives benefits for tourism and the economy of the local community.

National parks and natural areas are able to attract tourists, and that these attractions are major export earners. The combination of pristine beaches, rich flora and fauna and also unique features have become opportunities for this park to grow into a world class ecotourism attraction (Hong & Chan, 2010). However, Penang National Park is one of many attractions in the country that provides this type of tourism product. Some of high quality hardwood trees, especially shore species such as Meranti and Meranwan Baru can be found in the Penang National Park. Impressive bio-diversity in park with 1,000 species of plants, including five different species of the Bintangor tree, plant pitchers, wild orchids and fungi, and medicinal plants (Visit Malaysia 2014, 2014).

National park conserves natural resources and provides opportunities for recreation and tourism. In order to provide more opportunities for recreation and tourism, the national park management need to gain the knowledge about their visitors and the type of experiences they are seeking. It is essential to maintain high-quality experiences to keep the protected areas to be more competitive with other forms of tourism and retain budgetary allocations from government treasuries (McCool, 2002). Thus, understanding visitor satisfaction is crucial for management to provide services and facilities that satisfies visitor expectations, while also validating that visitors are satisfied with their experiences (Hornback & Eagles, 1999). In addition, national park

management and researcher have great interests to understand how the opportunities provided such as services and facilities affect the quality of visitors' experience (Hollenhorst & Gardner, 1994).

There are several approaches of performance analysis in tourism and hospitality research that have direct relevance to the experiential component of protected-area management (Ryan & Cessford, 2003). One such approach is importance-performance analysis (IPA) (Oh, 2001). Figure 1 showed the importance-performance analysis (IPA) grid. IPA is a simple and effective tool which to identify strength and weakness of the performance for the attributes selected. This technique is used to understand the tourist's level of satisfaction is that determined by their expectations towards service performance. Slack (1994) showed an IPA model which to examine the correlation between importance and performance and proved that the desired level of performances for specific product attributes are proportional to the importance of these attributes. The aims of this study were to identify Penang National Park's attributes that are considered important by the tourists and examine whether Penang National Park perform those attributes well by using IPA.

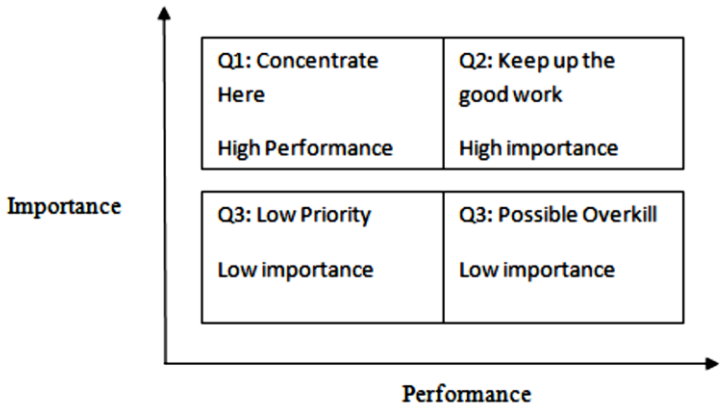

Figure 1: Importance Performance Analysis Grids

Source: Soresson & Von (2012)

Methodology

The questionnaire was designed as the survey instrument, including all constructs of the proposed attributes that are based on the literature review to ensure validity. The questionnaire consists five sections including respondents' demographic profile, tourists' behavior, 20 environmental and social attributes of Penang National Park. The 5- point Likert scale was used, which ranging from Very important=5 to Very unimportant=1 and also Very satisfied = 5 to Very dissatisfied = 1.

The survey was conducted at the Penang National Park from December 2013 to January 2014. The questionnaires were distributed to the 385 tourists who were visiting Penang National Park by using convenience sampling. The respondents were provided with a list of environmental and social attributes and asked to rate the importance and performance of each attribute.

IBM SPSS Statistic 21.0 was used to analyze the collected data. Descriptive analysis was used to present a respondents' demographic profile in the frequency and percentage. Factor analysis was used to identify Penang National Park's attributes that are considered important by the tourists. Gap analysis was used to determine the performance gap as the measurement between importance score and performance score among selected factor and their attributes. A two-sample t-test tested the gap's statistical significance between importance score and performance score. A negative, statistically significant gap in which the importance mean is greater than the satisfaction mean, suggesting management action is required. Conversely, a positive, significant gap in which the importance mean is lower than the satisfaction mean, indicating no extra management is required. The means of importance and satisfaction for each attribute provided the coordinates for placement in a two-dimensional matrix in IPA. The data was presented on a grid.

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Results and Discussion

Respondents' Demographic Profile

Table 1 showed respondents' demographic characteristics of. A total of 385 respondents involved in this survey. In terms of gender, there were a total of 56.2% male and 43.38%.females. Majority of respondents were

aged from 21 to 30 years old (45.5%) and in single status (69.1%). There were 53.8% Malaysian respondents and 46.2% respondents were non-Malaysian. The majority of respondents were degree (36.1%). There were a total of 43.1% respondents had the income RM1000 and below.

Table 1 Respondents' Demographic Characteristics

Demographic Profile		**Percentage (%)**
Gender	Male	56.6
	Female	43.4
Age	20 and below	13.8
	21 – 30	45.5
	31 - 40	20.3
	41 – 50	11.4
	51 – 60	7.5
	61 and above	1.6
Marital Status	Single	69.1
	Married	24.3
	Divorced	6.8
Nationality	Malaysian	46.2
	Non-Malaysian	53.8
Level of Education	Graduated from primary school	2.3
	Graduated from high school	15.3
	Diploma or certificate	29.9
	Degree	36.1
	Master Degree or higher	16.4
Employment Status	Employed for wages	40.0
	Out of work and looking for work	2.9
	Out of work ,but not currently looking for work	4.2
	Retired	6.5
	Self-employed	12.7
	A student	31.9
	Military	1.8
Average Monthly Income	RM1000 and below	43.1
	RM2001-RM3000	9.1
	RM3001- RM4000	6.2
	RM4001- RM5000	6.2
	RM5001- RM6000	9.4
	RM6001- RM7000	6.2
	RM7001- RM8000	7.0
	RM8001 and above	12.7

Factor Analysis for Importance level of Penang National Park Attributes

The exploratory factor analysis (EFA) was conducted in the 20 Penang National Park attributes. All attributes were factor-analyzed, using principal component analysis with orthogonal VARIMAX rotation, to identify the underlying factors that are considered important by the tourists. Table 2 showed Kaiser–Meyer–Olkin (KMO) and Barlett's Test of Sphericity. The result of KMO value with 0.933, indicating that the variables were interrelated and they shared common factors. The study achieved 0.000 for Barlett's test of sphericity which showed significant correlations among at least some variation in the matrix. This indicated that the factorial analysis was good and co-related.

Table 2 KMO and Barlett's Test of Sphericity of EFA

Test	Result
Total Variance explained	52.17%
Kaiser Meyer Olkin	0.933
Barlett's Test of Sphericity (sig)	0.000

Table 3 showed the perceived importance of 20 social and environmental variables of Penang National Park was factor analyzed by using VARIMAX. The result suggested five factor solutions including 20 attributes and explained 52.17% percent of the variance in the data with Eigenvalue greater than 1.0.

Table 3 Factor Analysis result with VARIMAX rotation of the importance of Penang National Park attributes.

Penang National Park attributes. Penang National Park Selection Factor (N=20)	Factor Loading	Eigenvalue	Variance
Factor 1 - Facilities (N=6)	8. 9		34.11%
Comfortable recreational facilities		.501	
Convenience of transportation and parking lots		.550	
Access to water (beach, river, lake)		.539	
Clean and well-presented picnic facilities		.655	
Clean and well-presented campgrounds		.715	
Clean and well-presented toilet facilities		.557	
Factor 2 - Scenery and comfort (N=4)	1.3		5.14%
Maintenance of the park		.528	
Clean and clear sea water		.651	
Peaceful beach		.620	
Natural attractions of the beach		.658	
Factor 3 - Safety (N=4)	1.2		4.72%
Information safety signs in the park		.651	
Well designed and maintained walking tracks		.524	
Clear and reassuring information about visitor safety		.638	
Useful directional road signs in the park		.757	
Factor 4 – Environment (N=4)	1.1		4.26%
A broad range of experiences available		.515	
Scenery and views of the beach area		.584	
Useful visitor guides/maps in the Park		.630	
Safety of tour		.622	
Factor 5- Accessibility in park (N=2)	1.0		3.94%
Useful information on plants and in the Park		.749	
Access to toilet facilities		.502	

Factor 1 (F1), facilities was the most important factor, accounting for 34.11% of the variance of the total factor solution with six elements attained loading from 0.501 to 0.715. The attributes included was comfortable recreational facilities, convenience of transportation and parking lots, access to water (beach, river, lake), clean and well-presented picnic facilities, clean and well-presented campgrounds, clean and well-presented toilet facilities.

Factor 2 (F2) was the scenery and comfort which achieved 5.14% of the total variance and each element loading ranging from 0.528 to 0.658, involved 4 attributes. The attributes were maintenance of the park, clean and clear sea water, peaceful beach and natural attractions of the beach.

Factor 3 (F3) was safety with four attributes which consist of information safety signs in the park, well designed and maintained walking tracks, clear and reassuring information about visitor safety, useful directional road signs in the park. The factor loading from 0.524 to 0.757 with the total variance of the factor was 4.72%.

Factor 4 (F4) was environment with the 4.26% of the variance of the total factor solution with four elements attained loading from 0.515 to 0.630. This factor included a broad range of experiences available, scenery and views of the beach area, useful visitor guides/maps in the park and safety of the tour. Lastly, Factor 5 (F5) was accessibility in park, which consists of 2 elements, useful information on plants and in the park, access to toilet facilities. The Eigenvalue was 1.0 with the percent of variance 3.94%.

In terms of attributes, there also seems value in pursuing the development of a core set of attributes, based on progressing the preliminary work of Ryan and Cessford (2003). They used factor analysis to group 13 protected area service attributes into 4 clusters—infrastructure, ancillary infrastructure, aesthetic/experience components, and car parking—and indicating the contribution of each cluster to the percentage variance in responses

Gap Analysis between Level of Importance and Performance

Gap analysis was to find performance gaps as measured between the perceived importance score and perceived satisfaction among the Penang National Park attributes. Table 4 showed the mean ratings of importance and performance of 20 Penang National Park attributes. Management should be aware of those attributes that did not meet expectation from the tourists.

Table 4 Mean ratings of importance and performance of 20 Penang National Park attributes

	Importance		Performance				
	Mean	Std. Dev	Mean	Std. Dev	Gap Mean	t	sig
Factor 1 - Facilities (N=6)	3.64	0.89	3.20	0.64	-0.44	10.154	0.000
Comfortable recreational facilities	3.72	1.21	3.10	1.10	-0.62	8.223	0.000
Convenience of transportation and parking lots	3.56	1.33	3.47	1.04	-0.13	1.295	0.196
Access to water (beach,river,lake)	3.63	1.23	3.24	1.23	-0.39	6.569	0.000
Clean and well-presented picnic facilities	3.51	1.24	2.99	1.04	-0.52	8.643	0.000
Clean and well-presented campgrounds	3.51	1.37	3.08	1.18	-0.43	7.676	0.000
Clean and well-presented toilet facilities	3.89	1.13	3.34	1.11	-0.55	10.041	0.000
Factor 2 - Scenery and comfort (N=4)	3.96	0.78	3.41	0.76	-0.55	11.205	0.000
Maintenance of the park	3.95	1.04	3.32	1.07	-0.63	9.692	0.000
Clean and clear sea water	4.09	1.05	3.31	1.18	-0.78	11.175	0.000
Peaceful beach	3.95	1.21	3.57	1.19	-0.38	7.542	0.000
Natural attractions of the beach	3.85	1.11	3.45	1.08	-0.40	7.602	0.000
Factor 3 - Safety (N=4)	3.84	0.90	3.18	0.75	-0.66	15.089	0.000
Information safety signs in the park	3.87	1.22	3.29	1.21	-0.58	10.153	0.000
Well designed and maintained walking tracks	3.87	1.14	3.32	1.09	-0.55	10.340	0.000
Clear and reassuring information about visitor safety	3.76	1.15	3.24	1.04	-0.52	8.158	0.000
Useful directional road signs in the park	3.88	1.22	2.90	1.20	-0.98	13.099	0.000
Factor 4 -Activities in the park (N=4)	3.96	0.76	3.53	0.76	-0.43	9.249	0.000
A broad range of experiences available	3.74	1.16	3.48	1.07	-0.26	4.927	0.000
Scenery and views of the beach area	3.97	1.13	3.60	1.11	-0.37	7.142	0.000
Useful visitor guides/maps in the Park	4.08	.20	3.69	1.86	-0.39	3.667	0.000
Safety of tour	4.04	1.02	3.34	1.07	-0.70	11.152	0.000
Factor 5 - Accessibility in park (N=2)	3.71	0.90	3.25	0.99	-0.46	9.674	0.000
Useful information on plants	3.58	1.15	3.19	1.22	-0.39	6.296	0.000
Access to toilet facilities	3.84	1.15	3.30	1.16	-0.54	9.445	0.000

Based on the result presented in Table 4, all factors unable to meet the expectation of tourists in which performance score was lower than the importance score. The highest gap means between importance and performance was the factor of safety (F3) (0.66). In this factor, the attributes of useful directional road signs in the park had gap mean score of 0.98 which means the management needs to emphasize on this attribute for seeking solutions to improve it.

Every factor has significant difference between importance and performance means score. The importance means scores of all factors were higher than their performance mean score. This brings a message that the performance of Penang National Park still needs to be improved in order to bring positive image to the park.

The negative gap value for satisfaction with the condition of the path, significant at the 0.1% level was also reported by Tonge & Moore (2007) in Western Australia.

Importance Performance Analysis

Figure 2 shows the importance performance grid for the five factors, including 20 attributes of Penang National Park constructed by using the information obtained from the respondents. In the analysis of Importance – Performance scale that used in this study, a mean statistic for each item was calculated and a two-dimensional, four-quadrant grid has formed from the result. The crosshairs were located at the scale means, after Griffin and Archer (2001) and Ryan and Cessford (2003). The four quadrants were titled follow by the placement of the item on the importance and performance axes. The grand means for the importance and performance items have been used as the dividing lines for the horizontal and vertical dimensions. X-axis represents the perception of the performance score of tourist on Penang National Park while the Y-axis represents the relative weight of the 5 important items relating to Penang National Park.

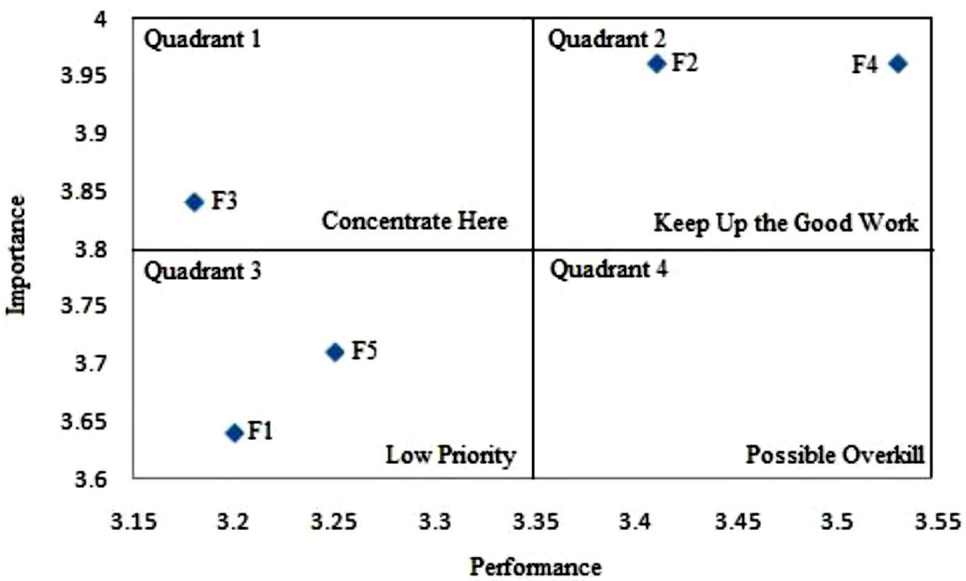

Figure 2 IPA grid presentations

The Concentrate Here quadrant

The quadrant 1 reflects the factor that is important but has low performance mean score. Factor 3 (Safety) was captured in this quadrant, which included 4 Penang National Park attributes. They are information safety signs in the park, well designed and maintained walking tracks, clear and reassuring information about visitor safety and useful directional road signs in the park. Attributes that fall into this quadrant show that management should improve the performance of these attributes in order to retain tourists and increase the tourist's arrival. It is a direct message that the management of Penang National Park should make more efforts for improvement.

Keep up Good Work quadrant

The quadrant 2 reflects the factor has both the importance and performance level above the mean scores. Factor 2 (Scenery and comfort) and Factor 4 (Environment) fall into quadrant 2. There were four attributes in factor 2 (Maintenance of the park, clean and clear sea water, peaceful beach and natural attractions of the beach) and four attributes as well in Factor 4 (a broad range of experiences available, scenery and views of the beach area, useful visitor guides/maps in the Park and safety of the tour). It indicated that these two factors were satisfied and managed to meet tourists' expectation of travelers. The management should continue work on these factors in order to sustain the tourists' satisfaction.

The Low priority quadrant

Quadrant 3 reflects the factor that has a low level of importance and performance, suggesting attributes in this quadrat are performing not effectively and tourists perceive those attribute as less important. Two factors were captured in this quadrant, including F1 (facilities) and F5 (accessibility in parks). There are 6 attributes in F1, which included comfortable recreational facilities, convenience of transportation and parking lots, access to water (beach, river, lake), clean and well-presented picnic facilities, clean and well-presented campgrounds and clean and well-presented toilet facilities. F5 has two attributes including Useful information on plants and access to toilet facilities. Based on the result, the facilities and accessibility in the National Park were performed adequately by the management, when the respondents perceive those attributes are less important when comparing with other attributes.

The Possible Overkill quadrant

The possible overkill quadrant indicated that the factors are lower in importance level, but performed high towards tourists. None of the factor were captured in this quadrant.

In this study, a attribute (Factor 3, Safety) has been plotted into the quadrat of high importance–low satisfaction (Quadrat 1). There are some studies also reported that a number of attributes have been plotted into the quadrat of high importance–low satisfaction (Quadrat 1), meaning concentrated management attention is needed (Griffin & Archer, 2001; Ryan & Cessford, 2003; Wade & Eagles, 2003). Griffin and Archer (2001), in their research with visitors to seven national parks on northeastern NSW, Australia, located directional signs and maps, crowding, seeing wildlife, and toilets in Quadrat 1. Ryan and Cessford (2003), in their research with campsite users in New Zealand national parks, placed car parks, toilets, and the availability and cleanliness of tent sites in Quadrat 1. Wade and Eagles (2003), in their Tanzanian research, put security and crowding in Quadrat 1.

Moreover, several critical future research areas are limited from this study. First, requirement of further research attention to the crosshairs issue associated with importance-satisfaction analysis (Moore, Smith, & Newsome, 2003). Besides, judgments by managers regarding an acceptable gap might be similarly employed in gap analyses. For instance, a manager may determine that attributes with gap values above –2.0 require immediate management attention due to the large difference in mean values. That attributes with gap values over +2.0 can potentially have resources directed away from them to improve other areas. Determination of the acceptable standards and gap sizes are needed in the research.

Conclusion and Recommendation

In conclusion, IPA technique had evaluated Penang National Park which consists of 5 factors such as facilities, activities in the park, accessibility in the park, safety, scenery and comfort. The result showed that tourists are considering Factor 2 (facilities) was the most important factor to them. The grid IPA indicated that there was factor 2 (Scenery and comfort) and factor 4 (Environment) are attributes that have high importance and performance. The attribute that need to be improved was identified as factor 3 (Safety), suggesting management attention is needed. The performance Factor 3 (Safety) should be improved in order to retain tourists and increase the tourist's arrival. It is a direct message that the management of Penang National Park should make more efforts for improvement. This study is beneficial to the management team of Penang National Park because it focused on the performance of the Penang National Park attributes. The management may be more understand to their weakness and strength of their management in Penang National Park. In addition, future research could also determine differences and influences of socio-demographic characteristics such as age, gender, or income on responses to the importance and performance of the national park attributes. A final future focus is exploring further how satisfaction differs between varies visitor segments (Wade & Eagles,

2003). It seems likely that varies groups of respondents have varies requirements and be seeking varies experiences, an importance not picked up in this study.

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