

# Tourists' cognitive image attributes of Kilim Karst Geoforest Park, Langkawi

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## Abstract

Geoparks has been gaining attention in Malaysia. This study aims to identify the attributes of cognitive image based on tourists' perception of Kilim Karst Geoforest Park located in Langkawi Island, Malaysia. 384 questionnaires were collected at the study site. Data gathered was analysed using descriptive statistics and principle component analysis. Results suggest 13 attributes that form four dimensions of cognitive attributes; essential conditions, attractive condition, appealing activities and natural environment. This confirms the sub dimensions of cognitive attributes as proposed by previous researchers in a different setting. Theoretical and practical significance of the study is also provided.

## Keywords:

Geopark, Geoforest Park, Destination Image, Cognitive Image, Attributes.

## 1 Introduction

The tourism sector is one of the contributors to the national income. According to WTTC (2018), the tourism sector is expected to grow every year. One way to assess the effectiveness of the tourism industry is through assessment of the destination image model and destination attributes. Destination image models have been developed since the 1970s, and destination image typically contains three main dimensions, namely cognitive, affective, and conative image (Gartner, 1993). Each of these dimensions has the advantage and element that contribute to the destination image model. Among the

often debated by researchers are the cognitive image and cognitive attribute (Baloglu & McCleary, 1999, Tasci & Gartner, 2007, Beerli & Martín, 2004). Cognitive attributes can be used as a measurement of the effectiveness of the tourism industry in Malaysia. Thus, this study aims to find out the attribute that leads to the cognitive image based on tourist perception when visiting Geoforest Park, Langkawi.

In Malaysia, only Langkawi are blessed with Geoforest parks that is recognized by United Nations of Educational, Scientific and Cultural Organization (UNESCO) (Lembaga Pembangunan Langkawi - LANGKAWI UNESCO GLOBAL GEOPARK, 2018). There are three Geoforest Parks located in Langkawi Island: Kilim Karst Geoforest Park, Dayang Bunting Marble Geoforest Park, and Machinchang Cambrian Geoforest Park. Before a destination can be recognized as a global geopark, four critical criterias are assessed and evaluated. These criteria includes the geological heritage of international value, management, visibility, and networking. Global Geopark does not focuses solely on the involvement of tourists but is one of UNESCO's initiatives to preserve and ensure that the selected destination is sustained in the right way while simultaneously becomes an educational platform.

Kilim Karst Geoforest Park comprises of the oldest limestone area in Malaysia and is located on the northern part of Langkawi island. The area is surrounded and protected by 100 kilometers worth of Mangrove forests. According to Nurul Hikmah, Syamsul Herman, Zaiton, and Ahmad (2013), the area surrounding Kilim is inhabited by locals, with economic activities of mangrove tree planting and fishing. The main economic activities of the locals have since changed in 2000, in parallel with the progressively growing demands for tourism activities near the area. Tourism has become the main source of income for the local people in Kilim. Kilim Karst Geoforest Park offers various point of interests and activities. Tourists can visit the Bat Cave, Karst cave, Karst landscape, mangrove river, fish farm and engage in activities such as fish feeding, eagle watching (Kilim Karst Geoforest Park, 2018).

## **2 Literature Review**

### **2.1 Cognitive image attributes**

Destination image is a sum of individual's trust, behaviour and impressions based on how they interpret information gathered from different sources over time that could influence their judgments on destinations attributes (Zhang, Fu, Cai & Lu, 2014). Studies have simultaneously investigated both cognitive and affective dimensions to assess destination image and argued that the coexistence of both dimensions can better explain destination image (Zeng, Chiu, Lee, Kang & Park, 2015).

Cognitive image attributes can be described as an individual's own formation of opinion based on information provided as well as one's own belief about a destination through the assessment of the perceived attributes of a destination (Kladou & Mavragani, 2015). Stylos, Vassiliadis, Bellou, and Andronikidis (2016) suggests that cognitive image consists of 21 attributes. These attributes were then divided into four

dimensions, namely essential condition, attractive condition, appealing activities, and natural environment. Seven attributes were classified under essential condition, six attributes under attractive condition, five attributes under appealing activities, and three attributes under natural environment.

Essential condition comprises of several factors such as the availability of lodging/accommodation such as camping, relaxation/avoiding from the daily routine, a safe place to travel, family-oriented destination, and good value for money. Infrastructure, cleanliness, the reputation of a destination, policies, and sustainability are part of the attractive condition of a destination (Chen, Petrick, & Shahvali, 2016). Generally, appealing activities refer to shopping, cultural, nature, and man-made attraction/activity (Schänzel & Yeoman, 2015). Moreover, empirical research revealed that shopping has turned into one of the significant activities while traveling (Choi, Heo, & Law, 2016). A study by Fredman, Wall-Reinius, and Grundén (2012) suggested the following four dimensions to define nature-based tourism: (i) guests to nature zones, (ii) experience of natural habitats, (iii) action taken, and (iv) derivation to sustainability and local development.

Guzman-Parra, Vila-Oblitas and Maqueda-Lafuente (2016) stated that cognitive image consists of two main dimension and 11 attributes. The attributes include hospitality and friendliness, folklore and popular culture, help language, personal attention tourist establishments, personal attention non-tourist establishments, natural resources, general infrastructure, tourism infrastructure, tourist leisure and recreation, political and economic factors, and historical resources. The essential attributes in this study were personal attention to tourist establishments, and the lowest was personal attention to non-tourist establishments.

### **3 Methodology**

#### **3.1 Sample**

Sampling data consists of 384 respondents from local and international tourists who visited Kilim Karst Geoforest Park on March 2019. This sample size fits with the studies in accordance with the table of population and sample size (Krejcie & Morgan, 1970). The number of tourist arrival in Kilim Karst Geoforest Park in 2017 was 400, 654 (Koperasi Kilim, personal communication, 2018). 400 questionnaires were distributed directly to the respondents but only 384 were used for analysis.

#### **3.2 Instrumentations**

The questionnaire comprises of close-ended questions that are bilingually worded in both English and Bahasa Malaysia. The questionnaire is divided into two main parts, namely, demographic profile and cognitive image. There are 9 items gauging respondents' demographic profile, and 18 items gauging cognitive image that were adapted from Stylos et al. (2016). Descriptive analysis was conducted to provide an

overview of the respondents profile and factor analysis was used to confirm the dimensions of cognitive image.

## 4 Findings

### 4.1 Descriptive Analysis

As illustrated in Table 1, Malaysians represents 56.0% of the total respondents, while Non-Malaysian respondents are 46.0%. Out of the total 384 respondents, 112 are males, with the rest 272 females. The results showed that 55.2% of respondent are single and 44.8% are married. Majority (71.9%) of the visitors are first timers with only 28.1% are repeat visitors.

Table 1: Demographic Profile (n=384)

Demographic	Frequency	Percentage (%)
Nationality		
Malaysian	215	56.0
Non-Malaysian	169	44.0
Gender		
Male	112	29.2
Female	272	70.8
Marital status		
Single	212	55.2
Married	172	44.8
Number of Visit		
First Time	276	79.1
Repeat Visitor	108	28.1

### 4.2 Factor Analysis

Factor analysis is a technique used to analyze factor loadings of the variable based on the relations between variables (İslamoğlu, 2011). The objective of the study focuses on the identification of dimensions of tourists' cognitive image of Kilim Karst Geoforest Park, Langkawi. According to Hair et al. (2006), the measure of sampling adequacy, a statistical test to quantify the extent of inter-correlations among the variables should be utilized. The Bartlett's Test of Sphericity (Bartlett's Test) and Kaiser-Mayer-Olkin (KMO) indicated the measure of sampling adequacy (Hair et al., 2006). The Bartlett's Test of Sphericity (Bartlett's Test) is significant at  $p < 0.05$  for the exploratory factor analysis to be considered appropriate and KMO is lower than 0.5 is not suitable (Pallant, 2007).

Consistent with Pallant (2007), KMO with a value between 0.5 and 0.7 is mediocre, 0.7 and 0.8 is good, 0.8 and 0.9 is great and above 0.9 is excellent.

16 items were grouped into four factors, and were named as attractive condition, natural environment, appealing activities, and essential condition. Five items were classified into attractive condition, four items for the natural environment, three items for appealing activities, and four items for the essential condition.

Table 2: Results of factor analysis on Attractive Condition Dimension

Items	Factor Loading	Eigenvalues	Variance Explained
AC1	0.828	3.436	68.724
AC2	0.884		
AC3	0.726		
AC4	0.870		
AC5	0.827		
KMO	0.856		
Bartlett's Test of Sphericity	0.000		

Results of factor analysis on “attractive condition” can be seen in Table 2. Factor analysis for attractive condition are shown with the Bartlett’s Test for Sphericity ( $p < 0.001$ ) and Kaiser-Meyer-Olkin value of 0.856 indicating that all five items load into a single, one dimensional factor higher than the value of 0.5, explaining 68.72% of the total variance and eigenvalues 3.436. Under this factor, there are five items which mainly concerned on quality of infrastructure, standard hygiene, and cleanliness, good reputation of destination, unpolluted natural environment and implementation of policies towards sustainability & environmental protection.

The second factor, “Natural Environment” comprises of four items, including beautiful and natural scenery of mountains, forests and valleys, beautiful lakes and rivers, spectacular caves and underground formations and a great variety of fauna and flora. From a principal component factor analysis, the result of Kaiser-Meyer-Olkin measure of sampling adequacy test (0.677) and the Bartlett’s Test of Sphericity ( $p < 0.001$ ) indicated that the data were acceptable for factor analysis. The principal component analysis indicated that one factor explained 67.23% of the items’ variance with eigenvalues of 2.017. However, out of four, one item was deleted due to factor loading below 0.500 (table 3).

Table 3: Results of factor analysis on Natural Environment Dimension

Items	Factor Loading	Eigenvalues	Variance Explained
NAT1	0.824	2.017	67.230
NAT2	0.855		
NAT4	0.779		
KMO	0.677		
Bartlett's Test of Sphericity	0.000		

Table 4: Results of factor analysis on Appealing Activities Dimension

Items	Factor Loading	Eigenvalues	Variance Explained
AA1	0.823	1.822	60.721
AA2	0.813		
AA3	0.695		
KMO	0.636		
Bartlett's Test of Sphericity	0.000		

The third dimension or factor 3 was “Appealing Activities,” and it consists of three items, including interesting cultural attractions, interesting historical monuments and relevant events and nice opportunities for biking/fishing/climbing. The Kaiser-Meyer-Olkin value of 0.636 and the Bartlett’s Test of Sphericity ( $p < 0.001$ ) indicated that factor analysis was appropriate to use for analyzing the appealing activities. Accordingly, the study found that the three differences in appealing activities items load significantly on a single factor that explains 60.72% of the items’ variance with an eigenvalue of 1.822 (table 4).

The fourth factor and the last dimension in the cognitive image was an “Essential Condition”. From a principal component factor analysis, the result of Kaiser-Meyer-Olkin measure of sampling adequacy test (0.500) and the Bartlett’s Test of Sphericity ( $p < 0.001$ ) indicated that the data were acceptable for factor analysis. The principal component analysis indicated that one factor explained 75.48% of the items’ variance with eigenvalues of 1.510 and two items of essential condition load significantly into one factor higher than the value of 0.500. However, two items were deleted due to factor loading below 0.500 (see table 5).

Table 5: Results of factor analysis on Essential Condition Dimension

Items	Factor Loading	Eigenvalues	Variance Explained
EC2	0.869	1.510	75.484
EC4	0.869		
KMO	0.500		
Bartlett's Test of Sphericity	0.000		

## 5 Conclusion

The aim of this study was to reveal tourists' cognitive attributes when visiting Kilim Karst Geoforest Park. The park has a variety of attractions which attracts tourists to visit the destination. Among the attractions that make this location receive recognition from tourists are natural attractions. Natural attractions such as the Bat Cave at Kilim Karst Geoforest Park, Langkawi is one of the main attractions. Tourists can explore the Bat Cave using the boat provided by the management. This cave is a habitat of bats and tourists will have the chance to see the cave's natural environment with the opportunity to take pictures for their keepsake. In addition, the exclusiveness of Kilim Karst Geoforest Park, Langkawi can be seen through the limestone area, which is the oldest limestone in Malaysia. The limestone area makes Langkawi a sought after destination for tourists and geologists alike.

Flora and fauna at Kilim Karst Geoforest Park, Langkawi are also very popular with visitors of this destination. Tourists will be brought around Kilim Karst Geoforest Park and see the flora and fauna available. The mangrove tree at Kilim area became a fortress of defense for soil erosion and the waves of the sea. The mangrove tree is also a home for various habitat and source of food for marine life such as fish and crabs. Kilim Karst Geoforest Park is a safe destination to visit as there were no reports of criminal incidences in the area.

In this study, the attributes that attract tourist to the destination are grouped under four dimensions. Attractive condition (quality of infrastructure, standard hygiene, and cleanliness, good reputation of destination, unpolluted natural environment and implementation of policies towards sustainability & environmental protection), natural environment (which represent beautiful and natural scenery of mountains, forests and valleys, beautiful lakes and rivers, spectacular caves and underground formations and a great variety of fauna and flora), appealing activities (cultural attractions, interesting historical monuments & relevant events and nice opportunities for biking/fishing/climbing), and essential condition are the dimension for cognitive image for Kilim Karst Geoforest Park. Therefore, the destination can be one of the main attractions for Langkawi Island if the management and the Langkawi Development Authority (LADA) takes an aggressive initiative to promote this destination using the

factors identified in this research. LADA has taken several actions to ensure Kilim Karst Geoforest Park, Langkawi become a must-visit destination in Langkawi Island. LADA has provided necessary facilities such as proper jetty for fishermen and tourism activity and facilitate travel arrangements between the locals and tourists as well as market local products to travelers.

In this study, the attributes only focused on the cognitive image based on tourist assessment at Kilim Karst Geoforest Park, Langkawi. The result only portrays a few parts in destination image model, and it is suggested for future research focus on other elements such as the affective and conative image to get a full and better understanding of the destination image model.

## 6 About the author

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