



Determining the drivers of sustainable ecotourism destination competitiveness from a supply-side perspective: a case of UNESCO World Heritage Site in Sarawak, Borneo, Malaysia

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ABSTRACT

Over the last decade, a new segment of the tourism market has been established following the shift in global visitors' preferences. Individuals have directed their travel course towards another form of travel, namely ecotourism. Nonetheless, the sustainability and progression of ecotourism destinations are often debated. This study involves local industry players' perspectives, primarily to identify their perceptions towards the impacts of destination core and supporting resources on destination marketing efforts and destination competitiveness (DC). This study gathered 132 valid responses and the proposed model was evaluated using SmartPLS 4.0. Through partial least squares-structural equation modelling (PLS-SEM), the findings showed that core resources (natural resources and cultural heritage attraction) have substantial positive associations with destination marketing efforts. Supporting resources (tourism infrastructure and quality of tourism services) were found to be significantly and positively associated with DC. Interestingly, this study has revealed the absence of significant relationships between destination marketing efforts and ecotourism DC. These findings enable tourism practitioners to better understand the impacts of resources on sustainable development of ecotourism competitiveness, specifically from suppliers' perspectives. The implications are further discussed in the paper.

KEYWORDS

Ecotourism; Destination Marketing Efforts; Destination Competitiveness; PLS-SEM.

RESUMEN

En la última década, se ha creado un nuevo segmento del mercado turístico a raíz del cambio en las preferencias de los visitantes de todo el mundo. Las personas han orientado sus viajes hacia otra forma de turismo, el ecoturismo. No obstante, la sostenibilidad y la progresión de los destinos ecoturísticos suelen ser objeto de debate. Este estudio aborda las perspectivas de los agentes del sector local, principalmente para identificar sus percepciones sobre las repercusiones del núcleo del destino y los recursos de apoyo en los esfuerzos de marketing y la competitividad del destino (CD). Este estudio reunió 132 respuestas válidas y el modelo propuesto se evaluó mediante SmartPLS 4.0. Mediante el modelo de ecuaciones estructurales por mínimos cuadrados parciales (PLS-SEM), los resultados mostraron que los recursos básicos (recursos naturales y atracción del patrimonio cultural) tienen asociaciones positivas sustanciales con los esfuerzos de marketing de los destinos. Los recursos de apoyo (infraestructura turística y calidad de los servicios turísticos) se asociaron significativa y positivamente con el DC. Curiosamente, este estudio ha revelado la ausencia de relaciones significativas entre los esfuerzos de marketing del destino y la CD del ecoturismo. Estas conclusiones permiten a los profesionales del turismo comprender mejor el impacto de los recursos en el desarrollo sostenible de la competitividad del ecoturismo, concretamente desde la perspectiva de los proveedores. Las implicaciones se discuten con más detalle en el documento.

PALABRAS CLAVE

Ecoturismo; Esfuerzos de marketing del destino; Competitividad del destino; PLS-SEM.

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1. INTRODUCTION

Tourism, is broadly known as a diverse phenomenon that encompasses a vast array of entities, subjects, activities, behaviour, and movement between places or countries (Imran, 2022), while functioning as a mechanism that benefits local economy (Rasool et al., 2021). Over the years, the industry of tourism has undergone evolvement into one of the most competitive segments in service industry. According to United Nation World Tourism Organization (2020), a sum which accounted for 1.5 billion visitors have visited international destinations in 2019, which is ahead of its initial 10-year visitor arrivals projection (2012-2021) by two years. In other words, tourism is regarded as a resilient and leading sector of economy, which has grown tremendously over the decades and visitors are increasingly looking for new areas to unwind, such as natural tourism spots.

In recent years, the growing trend where visitors are choosing to visit natural areas has been witnessed around the globe, particularly for their vacations to experience the authentic local natures and traditional cultures (Baloch et al., 2023). The establishment of ecotourism sector has benefited the respective industry, particularly, in enhancing business opportunities enhancement and alleviating poverty. Subsequently, major attention of government bodies and researchers was directed towards developing tourism in a sustainable manner (Hall, 2019). This includes the present context, where the Ministry of Tourism, Arts and Culture (MOTAC) Malaysia and the Ministry of Tourism, Creative Industry and Performing Arts (MTCP) Sarawak, have shifted their directions towards ecotourism industry development, striving towards their goals of becoming the “Preferred Ecotourism Destination in the World” (Tourism Malaysia, 2023).

In point of fact, ensuing from the rise in visitors’ demands to unwind via natural landscapes and

distinctive ethnicities, there has been an occurrence of snowballing within the industry of tourism, following the broad range of options available for visitors (Liu et al., 2020). Hence, it is imperative for the navigation of the current economic downturn through a reasonable number of promotional initiatives and strategic development of ecotourism destinations, primarily to maintain or strengthen one’s competitive position in the market of tourism.

Despite the importance of being comparative and competitive; nonetheless, the nexus between the sustainability and development of ecotourism destinations has been constantly argued (Jaini et al., 2019). Following the evolving needs of future generations, a fine equilibrium between the said initiatives is utterly essential, as it is important to preserve these natural protected areas (NPAs) and avoid being overwhelmed by vast amount of marketing activities. This may eventually exceed the carrying capacity of an eco-destination, causing it to be congested. Therefore, local industry players should strategically plan and execute approaches to marketing that focus on promoting responsible tourism, highlighting the unique resources that are available in the destinations.

Gunung Mulu National Park, the biggest national park in the Bornean Island, was declared an UNESCO World Heritage Site in 2000. It is located about 106km away from the city centre of Miri, Sarawak (Sarawak Forestry Corporation, 2023). This park is accessible by public transport and boat, where the whole journey could take from one to several days depending on the connections. This ecotourism destination is well-known for its sandstone summit, gigantic caves, and adventurous trails. Moreover, Gunung Mulu National Park is unique for its 85,000 hectares of some of the oldest pristine rainforests in the world and excavations with 1,500 to 3,000 years of history. In addition, the Heritage Site is being

famed for its Melinau Limestone Formation with approximately 4000 to 5000 meters thick, revealing a geological history of over 1.5 million years. Subsequently, this national park is selected as the present study location for its abundant ecotourism elements and resources.

In short, the abundance of natural resources and other relevant resources are commonly seen as the primary appeals that motivate visitations to national parks (Thong et al., 2022b). The natural landscape, facilities, cultural and artistic heritage are propounded as the key contributors to the growth of tourism destinations (Confetto et al., 2023). Additionally, the quality of tourism services is likely to influence the satisfaction levels among visitors, planning, development, and tourism destination competitiveness (DC) (Muresan et al., 2019). As previous studies typically viewed at DC from the demand perspectives (Carneiro et al., 2015; Chin et al., 2022), there is a limited understanding of how tourism suppliers could strategically put sustainable development into practice, coupled with a scholarly gap concerning the perception towards this implementation.

Building upon this foundation, this study incorporates the view of local industry players on the impact of core resources (i.e., natural resources and cultural heritage attraction), supporting resources (i.e., tourism infrastructure and quality of tourism services), towards the perceived destination marketing efforts and ecotourism DC. Hence, this study aims to bridge the gap by answering the following research questions:

- i. Do destination core and supporting resources lead to local industry players' ecotourism destination marketing efforts?
- ii. Do destination core and supporting resources enhance ecotourism DC?

- iii. To what extent do destination marketing efforts lead to increased ecotourism DC?

This manuscript is followed by several sections to provide a comprehensive analysis of ecotourism, comprising of the Literature Review section which surveys existing research on ecotourism, destination competitiveness, and sustainable tourism practices. Besides, the section of Methodology outlines the research design, data collection, and analytical methods used in the study. Subsequently, the findings from the data analyses are presented in the Results section and interpreted in the section of Discussion. Finally, the implications of the present study and prospects for forthcoming studies are further discussed.

2. LITERATURE REVIEW

2.1 Ecotourism

As Santarém et al. (2020) indicated, ecotourism has the potential to exert a significant impact on both the environment and human lives, while also adding to a nation's economic prosperity. Moreover, ecotourism can raise awareness about the importance of environmental preservation, prompting the implementation of sustainable practices and conservation initiatives, for the preservation of natural resources, biodiversity, and the delicate ecosystems (Fennell, 2008; Naseem, 2021). This form of tourism is often referred to travel to ecological spots that promotes environment conservation, education, and well-being of the locals (Chan et al., 2023; Ciarlantini et al., 2023). Although there is no universally accepted definition for ecotourism (Buckley, 2013; Fennell, 2001); however, it is presented as a new phenomenon which provides important impacts to the tourism industry. In recent studies, ecotourism is defined to a sustainable tourism which is promoted alongside with travel to natural places responsibly (Fennell, 2020). Thus, an ecotourism destination's

progression must be more than just ecologically and economically sustained to be deemed competitive. In a similar vein, several studies have underlined the significance of tourism destination resources (e.g., core and supporting resources) to the industry's sustainability and development of DC (Murayama et al., 2022; Thong et al., 2023). Therefore, in this study, destination core and supporting resources, destination marketing efforts, and DC are integrated as the independent as well as dependent variables respectively.

2.2 Competitiveness Theory

In respect of competitiveness theory, the theoretical foundation for creating a model of DC frequently employed both the comparative and competitive advantage concepts in its illustration (Mihalic, 2000; Ritchie & Crouch, 2003). Precedingly, Ritchie and Crouch (1999) defined destination comparative advantage as its core attractors (e.g., natural, and artificial resources), while competitive advantage is described as the more sophisticated components which comprises created or man-made resources (e.g., tourism activities and events), to ensure one's competitiveness. Also, scholars have emphasized the use of theories of comparative and competitive advantage in studying the competitiveness of a tourism destination (Navickas & Malakauskaite, 2009). Recently, the respective theory was widely used in scholarly studies, specifically in the investigation of sustainable tourism DC to elucidate the formation of important DC factors. These include both inherited resources (comparative advantage) and supporting resources (competitive advantage) for tourism destinations (Thong et al., 2022a; Zehrer et al., 2017). In the present ecotourism context, competitiveness theory underpins this study in explaining the contribution of core resources

(natural resources and cultural heritage attraction) and supporting resources (tourism infrastructure and quality of tourism services), anticipating them to have significant impacts on the development of ecotourism DC.

2.3 Destination Competitiveness (DC)

In the literature of tourism, strong emphasis and studies have focused on the DC concept from numerous perceptions (Angelkova et al., 2012; Natalia et al., 2019). Initially, DC was defined as the tactics and methods used for analysing and comparing the different traits of planning perspective between various destinations (Hassan, 2000; Mihalic, 2000). Subsequently, scholars have propounded that competitiveness is achieved when a destination meets certain conditions, such as the growth in economic prosperity for the local community (Warren, 2013), along with sustainable advancement of the key resources (Wilde & Cox, 2008). Moreover, some researchers in the past have highlighted the importance of studying DC in terms of financial returns and sustainability (Vengesai et al., 2013). Despite DC is defined in numerous ways, the definition postulated by Hassan (2000) has made it to one of the top cited designations, suggesting that a destination is regarded as competitive when it possesses the capability to maintain its position in the market relative to competitors through creation of value-added products and resources sustainability. Following that, this concept has been widely applied in the investigation of service industry (Ritchie & Crouch, 2003). It is suggested that adequate management of a destination leads to enhanced competitiveness, thus led to the growing interest in the application of DC concept at different tourism destinations (Chin, 2022; Díaz & Fernández, 2020).

2.4 Natural Resources

In the context of ecotourism DC, the availability of natural resources, such as diverse flora and fauna and picturesque landscapes, plays a crucial role in enhancing and sustaining a competitive market position against other destinations. Ecotourism revolves around the concept of travel and exploration in natural areas (Ceballos-Lascurain, 1993), where the environmental resources act as the primary enticement to allure both visitors and tourists (Zakariya et al., 2019). Moreover, studies in the have elucidated the critical influence of natural resources in enhancing the competitiveness of tourism destinations, establishing competitive advantages, and fostering sustainable environments (Yoon, 2002).

Over the years, visitors increasingly seek opportunities to escape urban environments and immerse themselves in the beauty and serenity of natural settings (Wray et al., 2010). Additionally, it is evident that visitors are increasingly seeking opportunities to unwind, gain knowledge about the nature, as well as to observe plants and wildlife in their natural habitats (Rehman et al., 2023). Thus, the presence of abundant flora and fauna that are coupled with captivating landscapes, provides visitors with unique experiences that cannot be replicated elsewhere, thereby contributing to a competitive edge (Zaman, 2023). Nevertheless, given the significance of natural resources, it becomes paramount for local tourism industry players to prioritize the conservation of these resources, primarily to avoid unnecessary impacts on the environment's competency (Lo et al., 2017; Scales, 2014). Hence, the abovementioned discussion led to the hypotheses below:

H1: Natural resources are significantly and positively related to destination marketing efforts.

H2: Natural resources are significantly and positively related to DC.

2.5 Cultural Heritage Attraction

The cultural heritage of a destination, encompassing its history, traditions, customs, architectural features, and artistic creations, has been highlighted by Dwyer and Kim (2003) as a significant factor in attracting visitors. Destinations that offer exclusive cultural experience allow visitors to immerse themselves in the local ethnicity, learn about its historical significance, engage with traditional customs, and marvel at architectural masterpieces. This inclusion of cultural heritage attractions in travel experiences enhances visitor satisfaction by providing them with unique and authentic encounters with the local culture, traditions, and artistic expressions. Nonetheless, Giudici et al. (2013) highlighted the importance of understanding and mitigating any adverse effects that cultural heritage tourism may have on the local socio-cultural fabric. It is crucial for the preservation and promotion of cultural heritage to be approached in a manner that respects and safeguards the values, traditions, and social dynamics of the local community.

Furthermore, scholars have emphasized the substantial role that a destination's cultural and historical aspects play in enhancing its competitiveness (Potashova & Girijchuk, 2019). In the competitive landscape of the tourism industry, the cultural and historical aspects of a destination become crucial elements in setting it apart from other contenders. Moreover, the significant role of cultural heritage attractions in determining the competitiveness of a tourism destination has been revealed by Gupta and Singh (2019). In the highly competitive tourism market, destinations with well-preserved and compelling cultural heritage assets gain a competitive edge, as they not only attract

visitors but also contribute to the destination's overall appeal and market positioning. This distinctiveness not only attracts visitors but also encourages them to stay longer, explore further, and contribute to the local economy (Fernández et al., 2020). Thus, it is hypothesized that:

H3: Cultural heritage attraction is significantly and positively related to destination marketing efforts.

H4: Cultural heritage attraction is significantly and positively related to DC.

2.6 Tourism Infrastructure

In the realm of destination marketing, the significance of effective marketing strategies cannot be understated. It plays a pivotal role in generating greater visitor expenditures and patronage for a destination (Yuju-Wang, 2007). In this context, previous scholars have consistently emphasized the crucial role of tourism infrastructure in attracting visitors to a destination (Seetanah et al., 2018). It is often viewed as the ultimate attractor for visitors, directly influencing their overall travel experience. Thus, the maintenance and robust development of tourism infrastructure is imperative for destinations seeking to attract visitors and enhance their competitiveness. Following its close bond with the success of destination marketing, it serves as a foundation for promoting and delivering exceptional experiences to visitors.

Tourism infrastructure, beyond its functional role, also contributes significantly to the overall competitiveness of a destination (Hosseini et al., 2015). Likewise, tourism infrastructure is ranked as the next most significant factor in defining a destination's comparative and competitive advantage, following environmental indicators (Dwyer & Kim, 2003; Khadaroo & Seetanah, 2008). The presence of well-developed and efficient

infrastructure, including transportation networks, accommodation options, and basic amenities, enhances a destination's attractiveness and competitiveness in the tourism market. Furthermore, improvements in tourism infrastructure augments the accessibility and reachability of a tourism destination (Su & Wall, 2019). A well-connected facility system, including airports and public transportation, enables the movement and convenient access of visitors. This degree of convenience, in turn, plays a pivotal role in increasing the destination's competitiveness (Chin et al., 2017; Confetto et al., 2023). the subsequent hypothesis is formulated:

H5: Tourism infrastructure is significantly and positively related to destination marketing efforts.

H6: Tourism infrastructure is significantly and positively related to DC.

2.7 Quality of Tourism Services

Past studies have consistently highlighted the notion that tourism destinations primarily offer "experiences" rather than tangible goods and services (Fabricius, 2001; Schlesinger et al., 2020). To provide visitors with distinctive and memorable experiences, the effectiveness of services becomes crucial (Fuchs & Weiermair, 2003). These experiences subsequently contribute to the overall enjoyment of visitors, which has been extensively linked to DC (Chi & Qu, 2008; Davidson, 2016). Moreover, the quality of tourism services in a destination is essential in shaping visitor experience and destination marketing effectiveness (Akroush et al., 2016).

Furthermore, studies have revealed that enhancing the quality of tourism services leads to increased levels of satisfaction among visitors (Cimbaljevic et al., 2018; Zainuddin et al., 2016). A

destination that prioritizes service quality gains a competitive edge over others in the market (Cao et al., 2022). By providing exceptional service experiences, destinations can differentiate themselves, create positive brand perceptions, and develop a loyal customer base, thereby enhancing their overall competitiveness. Consequently, the following hypotheses are devised:

H7: Quality of tourism services is significantly and positively related to destination marketing efforts.

H8: Quality of tourism services is significantly and positively related to DC.

2.8 Destination Marketing Efforts

Destination marketing efforts are often recognized as one of the most essential and powerful tools in the endeavour of accomplishing sustainable development for a tourism destination (Giray et al., 2019). Through destination marketing efforts, a destination is more equipped and prepared for the mounting competition in the markets of tourism. In addition, destination marketing efforts are also referred to an incessant identification of visitors' demands, hence enable effective formulation of the precise strategy for fulfilment, specifically through enhancement of travel experience (Morrison, 2023). Effective destination marketing leads to the sustainable utilization of resources and the optimization of positive impacts resulting from tourism development (Mwinuka, 2017). Subsequently, its significant role is highly emphasized and highlighted to deliver the suitable offers to visitors, especially when they originate from diverse cultural background (Dwyer et al., 2009). Moreover, Peceny et al. (2019) have indicated that destination marketing efforts as a crucial initiative to promote available resources, simultaneously, as a

tourism attractor by providing significant impact on visitors' decision-making processes of a destination. Researchers explained the role of destination marketing in establishing the image of a destination, which subsequently leads to greater success of a tourism destination in comparison with competing destinations (Lund et al., 2018). In the present context, its marketing primarily involves the promotion of ecotourism opportunities and experiences in an eco-destination (Massi & De Nisco, 2018). Besides, past studies have propounded that a differentiated tourism destination tends to gain competitive advantage from the practice of destination marketing (Blain et al., 2005; Khan et al., 2022). Henceforth, the following hypothesis is proposed:

H9: Destination marketing efforts are significantly and positively related to DC.

2.9 Conceptual Framework

In accordance with the above mentioned review of literature and hypotheses formulation, Figure 1 depicts the proposed conceptual framework in this study.

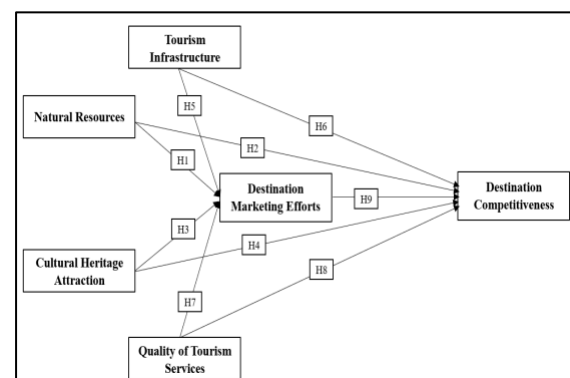


Figure 1. Conceptual framework.

3. METHODOLOGY

Following the increased emphasis on promoting ecotourism, responsible travel, unique ethnicities, and local arts (Louis, 2019), this study was performed at Gunung Mulu National Park, an

UNESCO World Heritage Site located in Sarawak, Malaysia. The respective heritage site is recognized for its magnificent formation of sandstone pinnacles and limestone, a thick layer of sedimentary rocks within the infamous Sarawak Chamber, Deer Cave, and Clearwater Cave. In conjunction with the Malaysia's National Tourism Policy (NTP) 2020-2030, it has raised the concern in relation to the development of strategy and operation, to ensure availability in the long run. The location of the study site on Sarawak map is demonstrated in Figure 2, while Figure 3 displays a snapshot taken during the collection of data.

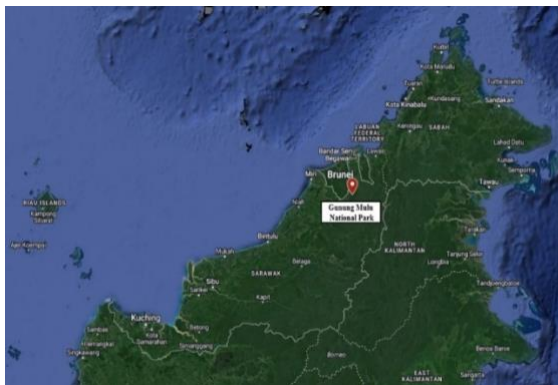


Figure 2. The location of study site on map.

To collect data, the present study has utilized a quantitative method, particularly through the distribution of questionnaires, consisted of two sections, namely Section I and II. As included in Table 4, Section I comprises 36 items adapted from the past studies (Azzopardi & Nash, 2016; Canny & Hidayat, 2012; Dwyer & Kim, 2003; Enright & Newton, 2005; Maroofi & Dehghan, 2012). Following slight modifications to suit the Malaysian context, these items were used to gather the local industry players' perceptions on destination resources (natural resources, cultural heritage attraction, tourism infrastructure, and quality of tourism services) towards the destination marketing efforts and DC of Gunung Mulu National Park. By



Figure 3. The calcareous cave in Gunung Mulu.

using a 7-point Likert scale, these individuals are required to rate each item based on the given scale (1 – strongly disagree and 7 – strongly agree). On the other hand, the six items contained in the Section II gathered the respective respondents' demographic profiles. The respondents' demographic profiles are tabulated in Table 1.

Regarding the gender composition of the respondents in the current study, there was a predominant male representation, with males constituting 62.1% of the participants, contrasted with a 37.9% female representation. This disparity is noteworthy despite the absence of any evidence suggesting inferior competence among women. The study conducted by Hryniewicz and Vienna (2018) further corroborates this observation, indicating a male-dominated presence in the labour market, especially within local industry sectors. Consequently, this research yields an intriguing insight, particularly concerning gender-based participation discrepancies in local tourism-related engagements.

Furthermore, a significant proportion of the survey participants reported a monthly income below RM 5,001, accounting for 62.8%, which includes individuals earning less than RM 1,000. Generally, locals' financial earnings are intrinsically tied to the

visitor influx. This economic pattern is presumably connected to their prevalent occupation, many of whom were engaged in handicraft production at the research site. This trend is likely attributable to the recent easing of border restrictions, a policy change implemented only a few months before the gathering of this data, which may have influenced the reduced their income levels.

Figure 4 displays the graph of G*Power, a standalone power analysis software, to perform a priori power analysis. In brief, a minimum sample size of 98 is required for the present study, based on a 5% significance level, 80% statistical power, and an effect size of 0.15.

Using purposive sampling method, the present study has selected local industry players who aged at least 18 years and above to be deemed eligible for participation.

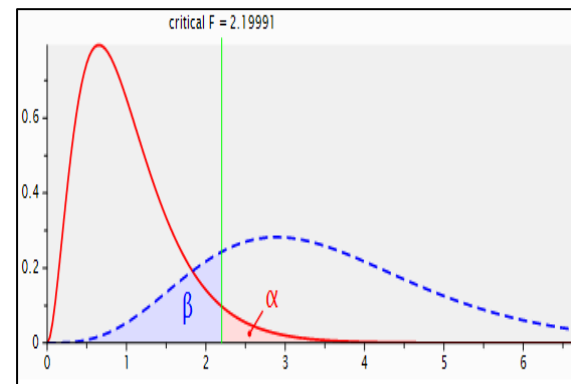


Figure 4. Graph of G*Power analysis.

Demographic Variable	Category	Frequency (n)	Percentage (%)	
Gender	Male	82	62.1	
	Female	50	37.9	
Age	Between 18 and 20 years old	7	5.3	
	Between 21 and 30 years old	15	11.4	
	Between 31 and 40 years old	28	21.2	
	Between 41 and 50 years old	33	25.0	
	Between 51 and 60 years old	45	34.1	
	61 years old and above	4	3.0	
Ethnic Group	Malay	40	30.3	
	Chinese	5	3.8	
	Indian	0	0.0	
	Bidayuh	22	16.7	
	Iban	46	34.8	
	Penan	3	2.3	
	Kelabit	16	12.1	
Education Level	High school or below	73	55.3	
	Diploma	40	30.3	
	Degree or professional qualifications	17	12.9	
	Postgraduate	2	1.5	
Occupation	Handicraft Maker	24	18.2	
	Homestay Owner	13	9.8	
	Resort or Hotel Operator	35	26.5	
	Transportation Provider	32	24.2	
	Restaurant Owner	28	21.2	
Monthly Income	Less than RM 1,000	13	9.8	
	Between RM 1,001 and RM 3,000	38	28.8	
	Between RM 3,001 and RM 5,000	32	24.2	
	Between RM 5,001 and RM 7,000	28	21.2	
	Between RM 7,001 and RM 9,000	18	13.6	
	RM 9,001 and above	3	2.3	
Respondents' profile (n=132)		Mean	Min.	Max.
		(Overall)		
Age (in years)		41.2	18	76

Table 1. Demographic profiles of respondents.

Based on the researchers' personal judgement, this non-probability sampling was applied for the sample selection of this study, rather than grounded on a population size (Sekaran & Bougie, 2013). Following the park management's approval and legal informed consent from the selected respondents, the data collection was conducted over a duration of seven months, as of June until December 2022.

4. RESULTS

4.1 Preliminary Analyses

By using Social Sciences Statistical Package (SPSS) 28.0, the issue of common method bias was examined using full collinearity (Kock, 2023). As Table 2 depicts, all the values of variance inflation factor (VIF) were less than 3.3 was yielded, hence deduced that the remaining 132 data sets were free from issues related to single source bias.

Construct	VIF
NR	2.083
CHA	1.566
TI	1.726
QS	1.501
DME	1.714

Table 2. Full collinearity of constructs.

Note: NR = Natural Resources, CHA = Cultural Heritage Attraction, TI = Tourism Infrastructure, QS = Quality of Tourism Services, DME = Destination Marketing Efforts.

4.2 Common Method Variance (CMV)

This study had applied a Harman's single factor test to investigate the CMV issue (O'Connor, 2000). Fundamentally, it is a prerequisite for the value of the first factor to be less than 50% (Aulakh & Gencturk, 2000). As the results implied in Table 3, the principal loading was only 36.92%, thereby confirmed that method biases were absent.

4.3 Statistical Analyses

Overall, this study has attained a valid response rate of 91% (Nulty, 2008), where 136 out of 150 sets of questionnaires were returned. Subsequently, the missing data, outliers, and suspicious data patterns were identified using SPSS 28.0. As a result, 4 sets of response were omitted, and the remaining 132 data sets were further evaluated using SmartPLS 4.0. By using a two-step PLS-SEM analysis, both the measurement and structural models were assessed to ensure their reliability. Then, the hypothesised relationships between the constructs were examined in the second phase (Ringle et al., 2023).

4.3.1 Assessment of the Measurement Model

Following a confirmatory factory analysis (CFA), the reliability and validity (convergent and discriminant) of all measures were assessed. As Table 4 tabulated, the internal consistency was ensured via verifying the factor loadings against a minimum standard of 0.5 to ensure internal consistency (Bagozzi et al., 1991). Moreover, to establish validity, it is essential that the composite reliability (CR) values surpass the minimum threshold of 0.7 (Chin, 2010), while the average variance extracted (AVE) values are required to exceed the benchmark criterion of 0.50 (Fornell & Larcker, 1981). The results indicated that both CR and AVE values successfully fulfilled these stipulated minimum criteria.

The discriminant validity of the measures is shown in Table 5 (Chin, 2010). Accordingly, it was confirmed that the measurement model was valid and appropriate, establishing its precision, convergent and discriminant validity. In addition, the coefficients of determination (R^2) obtained for destination marketing efforts and DC were 0.417 and 0.548 respectively (Cohen, 1998).

4.3.2 Assessment of the Structural Model

For one-tailed testing, particularly to correspond to the 95% (statistically significant) and 99% confidences (highly statistically significant), the

hypothesized linkages should achieve at least t-values of 1.645 or 2.33, while not exceeding 0.01 or 0.05 p-values, respectively (Fisher, 1992). Table 6

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.290	36.916	36.916	13.290	36.916	36.916
2	2.962	8.227	45.143	2.962	8.227	45.143
3	2.231	6.196	51.339	2.231	6.196	51.339
4	1.441	4.002	55.341	1.441	4.002	55.341
5	1.384	3.844	59.186	1.384	3.844	59.186
6	1.196	3.321	62.507	1.196	3.321	62.507
7	.950	2.638	65.145			
8	.907	2.519	67.663			
9	.821	2.280	69.943			
10	.795	2.209	72.153			
11	.754	2.094	74.247			
12	.673	1.870	76.118			
13	.631	1.754	77.871			
14	.585	1.626	79.497			
15	.548	1.523	81.021			
16	.544	1.510	82.531			
17	.504	1.401	83.932			
18	.467	1.297	85.229			
19	.442	1.227	86.456			
20	.435	1.208	87.663			
21	.422	1.172	88.835			
22	.400	1.112	89.947			
23	.362	1.005	90.953			
24	.347	.963	91.915			
25	.330	.916	92.831			
26	.319	.886	93.717			
27	.304	.845	94.563			
28	.290	.805	95.368			
29	.275	.765	96.132			
30	.247	.686	96.819			
31	.230	.638	97.457			
32	.211	.586	98.043			
33	.187	.521	98.564			
34	.181	.502	99.066			
35	.175	.486	99.552			
36	.161	.448	100.000			

Table 3. Total variance explained.

and Figure 5 illustrate the statistical results obtained from the hypotheses testing.

5. DISCUSSION

As the present results indicated, three out of the four direct hypotheses (H1, H3, and H5) which were projected to have significant positive linkages with

destination marketing efforts, were found to be supported. To begin with, the significance of natural resources on destination marketing efforts was discovered, particularly in the sense of a UNESCO World Heritage Site – Gunung Mulu National Park. This finding is aligned with studies in the past, where the crucial role of these resources as a destination’s

core attractor was highlighted (Gupta, 2015; Zakariya et al., 2019). Henceforth, it can be deduced

that local industry players viewed natural resources, such as the flora and fauna, as an important element

Constructs	Item(s)	Loadings	AVE	CR
Natural Resources				
The destination has a beautiful natural landscape.	NR_01	0.860	0.745	0.886
The availability of flora and fauna to attract tourists.	NR_02	0.899		
The destination has a peaceful and restful atmosphere.	NR_03	0.887		
The destination environment is well-preserved.	NR_04	0.803		
Cultural Heritage Attraction				
There are unique ethnic groups and cultures in this area.	CHA_02	0.732	0.641	0.730
Abundance of tourism resources (scenery, historic/cultural/heritage site, local culture, etc.).	CHA_03	0.846		
The destination offers interesting historical attractions.	CHA_04	0.820		
Tourism Infrastructure				
The infrastructure within the destination is adequate to meet visitor needs.	TI_01	0.837	0.683	0.908
The signals and sign-postings within the destination are operating well.	TI_02	0.865		
The functionality of the facilities in the destination is satisfactory.	TI_03	0.847		
There are health/medical facilities to serve tourists in this area.	TI_04	0.854		
There is availability of telecommunication system for tourists (e.g., telephone network, Internet).	TI_05	0.777		
There is consistency of electricity supply in the destination.	TI_06	0.773		
Quality of Tourism Services				
Employees in this place are credible and courteous with tourists.	QS_1	0.784	0.618	0.881
The tour escorts in this place are experienced and competent.	QS_2	0.786		
This place has unspoiled nature.	QS_3	0.764		
This place offers provision of information on local events/activities.	QS_4	0.831		
This place offers consistent cost for tours.	QS_5	0.795		
This place cultivates friendly relationship with tourists.	QS_6	0.754		
Destination Marketing Efforts				
Tourism helps to increase the development of a strong destination image.	DME_01	0.815	0.685	0.851
This place has an overall favourable image in the world community.	DME_02	0.847		
This place has commitment to providing a satisfactory vacation experience for tourists.	DME_03	0.822		
This place has continuous commitment to the ongoing improvement and development of a high-quality destination.	DME_04	0.826		
Destination Competitiveness				
This place offers value for the money.	DC_01	0.786	0.681	0.942
This place has a high commitment to preserving the destination environment.	DC_02	0.843		
This place has a high commitment improving and developing a high-quality destination.	DC_03	0.795		
This place has a high commitment to providing the safe and secure environment.	DC_04	0.786		
The local peoples are friendly, and I enjoyed the hospitality in this place.	DC_05	0.859		
The policies and regulations in this place are favourable to the visitor.	DC_06	0.844		
This place provides quality relative to visitor's country/state.	DC_07	0.831		
There are unique tourism resources which attracted visitor to this place.	DC_08	0.851		
It is easy for the visitor to access the information about this place before travel.	DC_09	0.830		

Table 4. Results of the assessment of the measurement model.

	1	2	3	4	5	6
Natural Resources						
Cultural Heritage Attraction	0.599					
Tourism Infrastructure	0.682	0.363				
Quality of Tourism Services	0.562	0.533	0.487			
Destination Marketing Efforts	0.619	0.669	0.510	0.497		
Destination Competitiveness	0.663	0.376	0.704	0.606	0.437	

Table 5. Discriminant validity of the constructs

H	Relationships	Std Beta	Std Error	t-values	p-values	f ²	Decision
H1	NR→DME	0.230	0.089	2.528	0.006	0.043	Supported
H2	NR→DC	0.256	0.069	3.739	0.000	0.070	Supported
H3	CHA→DME	0.327	0.071	4.613	0.000	0.132	Supported
H4	CHA→DC	-0.035	0.051	0.700	0.242	0.002	Not Supported
H5	TI→DME	0.170	0.084	2.061	0.020	0.031	Supported
H6	TI→DC	0.385	0.073	5.291	0.000	0.191	Supported
H7	QS→DME	0.102	0.065	1.590	0.056	0.012	Not Supported
H8	QS→DC	0.288	0.064	4.442	0.000	0.120	Supported
H9	DME→DC	-0.024	0.056	0.433	0.333	0.001	Not Supported

Table 6. Summary of path coefficients and hypotheses testing.

for the purpose of promoting Gunung Mulu National Park.

Besides, the statistical outcomes revealed the significant positive impact of cultural heritage attraction on destination marketing efforts. In line with past findings (Potashova & Girijchuk, 2019), the present study has discovered that cultural element in a destination is perceived as an essential component of comparative advantage, from a local

industry players' perspective. Likewise, this study has shown findings consistent with previous studies (Chi et al., 2020; Erislan, 2016), demonstrating the significant role of tourism infrastructure in destination marketing.

Therefore, it can be deduced that the locals perceived the available infrastructure, such as electric supply and telecommunication systems, are crucial in promoting an ecotourism destination.

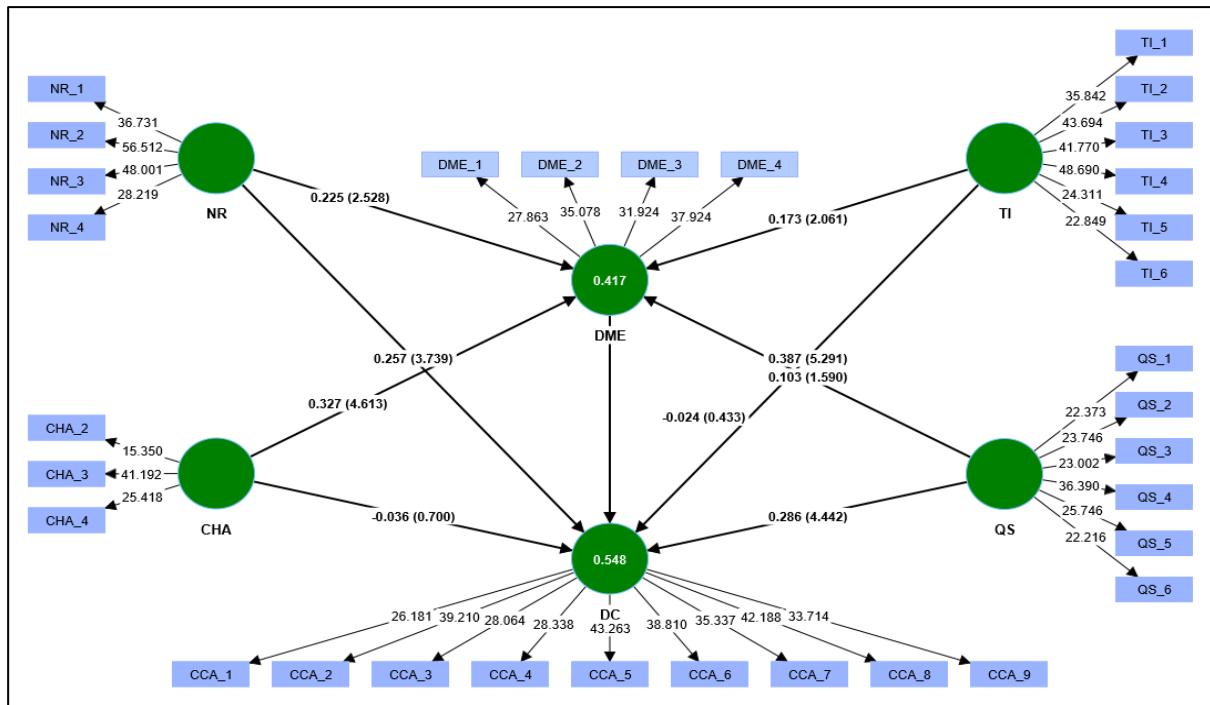


Figure 5. Research model with path coefficients and t-values.

On the other hand, three out of the five direct hypotheses (H2, H6, and H8), which were anticipated to be significantly and positively associated with local industry players' perceived DC, were supported by the findings. As the local industry players of Gunung Mulu National Park perceived, the abundance of natural landscapes and untouched environments are recognized as a unique selling proposition (USP), adding to the competitive edge in comparison to other destinations (Zaman, 2023). Apart from core resources, the results also backed previous findings, showing that the locals have viewed the accessible supporting resources, namely, tourism-related infrastructure as an important contributor to a destination's competitive advantage (Chin, 2022; Erislan, 2016).

Moreover, the significant influence of the quality of tourism services was demonstrated in this study. This finding urges a greater emphasis on the enrichment of services quality in ecotourism destination, such as the local staffs' credibility, friendliness, and informativeness. In other words, the

more decent the extent and ability of the service provided, a higher number of visitors will be attracted to the respective destination, thus boosting its development of competitiveness in a sustainable manner (Chin et al., 2023; Setokoe et al., 2019; Zainuddin et al., 2016).

The three hypotheses that remained, namely, H4, H7, and H9 were not supported. In point of fact, the present study has shown a rather interesting finding, indicating the absence of the significant relationship between cultural heritage attraction and DC. In contrary to the past findings (Potashova & Girijchuk, 2019; Thong et al., 2023), it was found that the cultural elements had a negative impact on DC, as perceived by the local industry players. This is justifiable as this study emphasized on the unique perspective of the tourism suppliers, which is dissimilar from those of visitors or previous studies. As these individuals are more attuned to the daily practical aspects of eco-destination management, which typically rely on one's ecological aspects, they might be insensitive to how these cultural

elements can influence the competitiveness of a destination in the long run.

Despite the findings of numerous previous scholars suggesting that a tourism destinations' quality of services is substantially related to its competitive advantage (Kanwal et al., 2019; Mihai et al., 2023); however, this study has indicated otherwise. It is suggested that ecotourists, who are typically regarded as nature lovers, may be more focused on the natural environment than on interacting with local staffs in Gunung Mulu National Park. This may be due, in part, to language barriers and other factors that limit the ability of ecotourists to fully engage with local industry players. As a result, their satisfaction with the tourism experience may be driven more by the natural environment they encounter, rather than quality of tourism services received during their trips to ecotourism destinations.

Furthermore, another surprising outcome was shown by the present results, particularly, signifying that destination marketing efforts were not significantly associated with DC. The respective discovery contradicts past studies, which have

postulated that the promotion of a tourism destination plays an imperative part of boosting its competency (Khan et al., 2022). This is explainable as the local industry players, which are mainly consisted of local communities in the location, are highly concerned about the potential risk of overcrowding due to excessive marketing. As the name suggests, overcrowding occurs when the natural carrying capacity is rigorously exceeded, possibly leading to the degradation of one's ecological integrity.

Subsequently, the method of PLSpredict was employed to assess the predictive efficacy of the model. This technique involves the use of a holdout sample combined with a 10-fold cross-validation approach to generate predictions at the individual level, either at the item or construct level (Shmueli et al., 2019). The comparison with a linear regression (LM) model is pivotal; a robust predictive capability is indicated when the majority of differences between the partial least squares and linear model (PLS-LM) are smaller. A moderate predictive strength is suggested when most of these differences

<i>Item</i>	<i>PLS_RMSE</i>	<i>LM_RMSE</i>	<i>PLS-LM</i>	<i>Q²_predict</i>
Sample (n = 260)				
DC_01	0.832	0.881	-0.049	0.351
DC_02	0.873	0.911	-0.038	0.350
DC_03	0.925	0.965	-0.040	0.309
DC_04	0.885	0.924	-0.039	0.339
DC_05	0.865	0.895	-0.030	0.422
DC_06	0.896	0.923	-0.027	0.401
DC_07	0.886	0.920	-0.034	0.364
DC_08	0.960	1.004	-0.044	0.361
DC_09	0.958	1.005	-0.047	0.313
DME_01	0.942	0.972	-0.030	0.266
DME_02	1.014	1.034	-0.020	0.243
DME_03	1.030	1.061	-0.031	0.201
DME_04	0.933	0.970	-0.037	0.326

Table 7. Outcomes of PLSpredict.

are reduced, and a weaker predictive ability is inferred if only a limited number adhere to this criterion. As illustrated in Table 7, in the context of the current PLS model, all root mean square errors of prediction (PLS_RMSE) were lower than those in the LM model, thus denoting a significant predictive strength.

6. CONCLUSION, THEORETICAL AND PRACTICAL IMPLICATIONS

To conclude, this study has provided sufficient empirical evidence on how destination core and supporting resources affect the destination marketing efforts and DC, particularly from the supply side stakeholders' perspectives. Additionally, the statistical results have identified the significance of destination core and supporting resources (natural resources, cultural heritage attraction, tourism infrastructure, and quality of tourism services) towards promotional initiatives and competitiveness of a destination.

In this study, it was attempted to examine the linkage between resources, marketing efforts, and competitiveness in an UNESCO World Heritage Site through the integration of competitiveness theory. Subsequently, it adds to the development of the theoretical framework, consisting of the abovementioned constructs. Moreover, it contributes to the expanding body of knowledge in identifying the determining factors for ecotourism DC, via obtaining a better understanding of destination core resources (natural resources and cultural heritage attraction) and supporting resources (tourism infrastructure and quality of tourism services). Besides, the cross-validated measures adapted from the past studies (Azzopardi & Nash, 2016; Canny & Hidayat, 2012; Dwyer & Kim, 2003; Enright & Newton, 2005; Maroofi & Dehghan, 2012) have

demonstrated reliable and valid scores. As the present study has proven these the consistency of these measures, which signifies their usability in future research and thereby contributing to the existing literature.

This study also presents meaningful practical insights for key tourism industry stakeholders, comprised of the local governments, planners, policy makers, and business operators on succeeding an ecotourism destination. Following the gradually fierce competition in the tourism market, it is essential for destination managers to implement the right tactic and strategy (Cosvi et al., 2019), particularly in striking a delicate equilibrium between sustaining and developing an ecotourism destination. In the present statistical results, the highest path coefficients were witnessed among the constructs of cultural heritage attraction and tourism infrastructure. Hence, it is wise for relevant stakeholders such as MTCP Sarawak, to place greater emphasis in providing continuous maintenance and improvement on these elements. Ultimately, the study underscores the importance of effective strategies, particularly in driving ecotourism development. Ensuring destination sustainability hinges on the availability of accessible destination resources for visitors. Therefore, these findings can serve as a benchmark for competency, providing valuable guidance to industry stakeholders for effective management planning and resource utilization. Additionally, these insights can inform effective decision-making processes for business operators, policymakers, and planners, ensuring the thriving of ecotourism destinations.

7. LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

However, this study is also with its limitations. First of all, the present study has primarily relied on the samples drawn from the supply side stakeholders. Particularly, the local industry players who are based in Gunung Mulu National Park, Sarawak, Malaysia. Subsequently, there may be dissimilarities in perceptions for local communities located in other ecotourism destinations, mainly due to difference in experiences. This distinctiveness in terms of cultural aspects may result in restricted generalizability of the discoveries. Hence, by incorporating diverse viewpoints from various stakeholders, including tourism professionals, locals, and visitors who have visited to the ecotourism site, is essential for achieving more unbiased outcomes and enhancing the generalizability of the findings.

Also, the determination of causality may be constrained, as the data was collected in a cross-sectional manner, which gathers the feedback from the same group of participants at one point in time instead of over a longer period. Moreover, future studies may incorporate potential variables, such as locals' self-efficacy, as the moderator into the current solitary framework. This is because the local industry players' perceptions may be altered when they are more confident in their capabilities, particularly to partake in activities related to sustainable destination development. Additionally, future research may examine this model in other ecotourism destinations, such as wildlife sanctuaries, nature reserves, and Heritage Site, as this study was done only at Gunung Mulu National Park. This will potentially draw a dissimilar set of results or aligned with the present study.

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