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The Influence of Perceived Environmental Impacts of Tourism on the Perceived Importance of Sustainable Tourism

Efforts for investigating perception towards tourism and its perceived negative impacts have mainly been conducted from the perspective of locals, often ignoring the perception of tourists on the negative environmental outcomes associated with tourism and its link with the perceived importance of sustainable tourism from the eyes of tourists. This study investigated the perception of tourists of the potential impacts of tourism on the natural environment. Additionally, it examined the influence of perceived environmental impacts of tourism on the perceived importance of sustainable tourism. The study model was analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM) based on data collected from 469 tourists visiting two attractive islands in Malaysia, namely Perhentian Island and Redang Island. Findings of this research revealed that perceived impacts of tourism on vegetation, water quality and wildlife had significant influence on the tourists' perceived importance of sustainable tourism, while the environmental impacts of tourism on soil, sand and rock, air quality and landscape did not have any significant influence on the perceived importance of sustainable tourism. Sustainable tourism in this study was limited to environmentally sustainable tourism. Study implications are discussed.

Keywords: Environmental Impacts; Tourism, Sustainable Tourism; Tourist Perceptions; Islands

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Abbreviations: AQ: Perceived Impacts of Tourism on Air Quality, LND: Perceived Impacts of Tourism on Landscape, PIST: Perceived Importance of Sustainable Tourism, SSR: Perceived Impacts of Tourism on Soil, Sand and Rock, VEG: Perceived Impacts of Tourism on Vegetation, WL: Perceived Impacts of Tourism on Wildlife, WQ: Perceived Impacts of Tourism on Water Quality

Introduction

Tourism is a successful industry in Malaysia and the country has been welcoming millions of tourists every year. This has placed Malaysia in the world's ninth place among the largest tourist destinations globally and the only Asian country except China to be listed among the top 10 most popular tourist destinations in the world. Nonetheless, despite great economic and social advantages of tourism for the country and the local community, it may also have some adverse impacts on the natural environment. As argued by Wunder (2000), unrealistic impressions of tourism as a source of 'easy money' with no detrimental consequences can lead to disillusionment. While tourism supports the local communities through generating income and jobs, creating new businesses, and enhancing local infrastructure in line with the tourism development, it has some negative impacts on the local community and environment, originating from irresponsible tourism. Irresponsible tourism refers to self-centered tourism activities without due attention to the social and environmental

consequences of one's visit and tourism-related activities. For example, activities such as hiking and climbing might negatively impact plants and vegetation, while water quality may be influenced by scuba diving and snorkeling. Hence, it is essential for the tourism industry to ensure its sustainability, without harming the attractions and existing resources for the benefit of locals, future tourists, and the next generation.

Due to the diversity of motivating factors for tourism, the visitors arriving to any tourist destination have different behaviors or attitudes towards that area (Spenceley, 2008). However, since the basis for the long-term sustainable development of tourism is responsible tourism (Weaver, 2003), it is essential to investigate the perception of tourists towards the impacts of tourism on natural environments and the importance of sustainable tourism as it will allow researchers to formulate and predict tourists' perceptions and behaviors towards responsible tourism. Such invaluable insight will allow policy makers to revise the tourism marketing and branding for responsible tourism, which not only benefits the local and national economy, but also preserves the natural environment. This will result in achieving the ultimate goal of sustainable tourism which demonstrates a balance between protecting the environment, maintaining cultural integrity and promoting economic benefits (Jayawardena, Patterson, Choi, & Brain, 2008).

Efforts for investigating perception towards tourism and its perceived negative impacts have mainly been conducted from the perspective of locals (e.g., Lepp, 2007; Perez & Nadal, 2005; Suntikul, Bauer, & Song, 2010) and few prior studies have examined the perception of tourists on the negative environmental outcomes associated with tourism (e.g., Hillery, Nancarrow, Griffin, & Syme, 2001) and the perceived importance of sustainable tourism from the eyes of tourists. Thus, the current study aimed to investigate the perceived environmental impacts of tourism from the perspective of tourists visiting two attractive islands in Malaysia. The research questions in this paper covered two issues. Firstly, are there any differences in the perception towards the impacts of tourism on the natural environment

between the local and foreign tourists? Secondly, do tourists' perceptions about the environmental impacts of tourism influence their perceived importance of sustainable tourism? Overall, the goal of this research was to examine the differences in terms of perceived environmental impacts of tourism between Malaysian and Non-Malaysian tourists and investigate its influence on the perceived importance of sustainable tourism.

Research Framework and Hypothesis Development

This study applied social exchange theory to explain its research framework. The theory has been used in prior studies to elaborate the theoretical underpinning regarding the attitudes towards tourism (e.g., Abdollahzadeh & Sharifzadeh, 2012; Andereck, Valentine, Knopf, & Vogt, 2005; Sirakaya, Teye, & Sönmez, 2002). According to exchange theory, people choose exchanges after evaluating both the benefits and costs (Homans, 1961). Thus, the decision made by people is determined by their perception of the exchange they are making. From the lens of social exchange theory, the benefits of tourism for the tourists would include having a joyful experience and the feeling of quality. On the contrary, other than the direct tangible costs associated to tourism for visitors (i.e. money spent for the travel, accommodation and activities), there are some intangible expenses involved including the direct or indirect damages to the environment as a result of their travel. Nonetheless, the intangible expenses of tourism are often neglected by tourists and they put the responsibility for these expenses on the shoulders of other stakeholders such as air carriers, hotels, tour operators and government. Based on the social exchange theory, so long as the benefits exceed the expenses in the above equation, traveling to the tourist destination would be a desirable choice by many people. However, considering the growing awareness among tourists on the environmental impacts of tourism development, the intangible expenses of tourism seems to have a more significant role to play in this social exchange. Thus, those tourists who consider the negative environmental impacts of tourism to be huge are more

likely to look for ways to minimize this expense and ensure a balanced and fair social exchange. Therefore, they are more likely to support the idea of sustainable tourism which has far less adverse impacts on the environment. Hence, it is conjectured that:

H: Perceived environmental impact of tourism has a significant positive influence on the perceived importance of sustainable tourism.

More specifically, this study examined six main categories of environmental impacts, including vegetation (VEG), soil, sand, and rock (SSR), water quality (WQ), air quality (AQ), landscape (LND), and wildlife (WL). Thus, the following sub-hypotheses were developed:

H-a: Perceived impact of tourism on vegetation has a significant positive influence on the perceived importance of sustainable tourism.
H-b: Perceived impact of tourism on soil, sand and rock has a significant positive influence on the perceived importance of sustainable tourism.
H-c: Perceived impact of tourism on water quality has a significant positive influence on the perceived importance of sustainable tourism.
H-d: Perceived impact of tourism on air quality has a significant positive influence on the perceived importance of sustainable tourism.
H-e: Perceived impact of tourism on landscape has a significant positive influence on the perceived importance of sustainable tourism.
H-f: Perceived impact of tourism on wildlife has a significant positive influence on the perceived importance of sustainable tourism.

Figure 1 depicts the research framework investigated in the current study. According to social exchange theory, once the expenses of an exchange outweigh its benefits, people will be discouraged for an exchange. In this case, it is likely for people to look for an alternative and less-costly exchange. Hence, it is expected that higher perceived environmental impacts of tourism will encourage supporting sustainable tourism which poses less threat and harm to the environment.

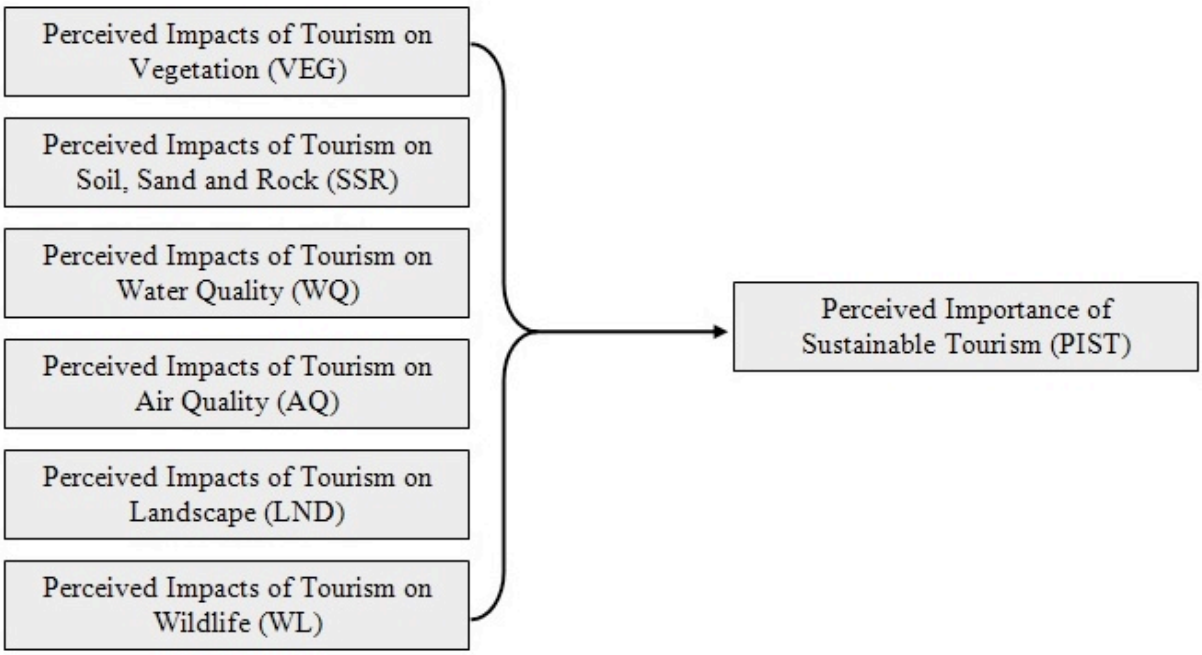

Figure 1: Research Framework

Method

Subjects and Sampling

The required data for this study was collected from tourists visiting two attractive islands in Malaysia, namely Perhentian Island and Redang Island. The Perhentian Island (known as Pulau Perhentian in the local language) is located off the northeastern coast of West Malaysia, and is a common tourist destination in Malaysia. Besides, Redang Island (known as Pulau Redang in the local language) is one of the largest islands off the east coast of Malaysia and offers numerous snorkeling and diving opportunities to tourists. A total of 469 tourists took part in this study, with 258 responses collected in Perhentian Island and 211 responses collected in Redang Island. Table 1 summarizes the demographic profile of the respondents.

Table 1: Demographic Profile of Respondents (N = 469)

	Number (Percentage)	
	Perhentian Island (N= 258)	Redang Island (N= 211)
Gender		
Male	181 (70.2 %)	144 (68.2 %)
Female	77 (29.8 %)	67 (31.8 %)
Age		
15-19 years	15 (5.8 %)	14 (6.6 %)
20-24 years	63 (24.4 %)	44 (20.9 %)
25-29 years	89 (34.5 %)	49 (23.2 %)
30-34 years	25 (9.7 %)	37 (17.5 %)
35-39 years	20 (7.8 %)	20 (9.5 %)
40-44 years	16 (6.2 %)	15 (7.1 %)
45-49 years	11 (4.3 %)	11 (5.2 %)
50-54 years	11 (4.3 %)	13 (6.2 %)
55-59 years	6 (2.4 %)	5 (2.4 %)
60-64 years	1 (0.4 %)	3 (1.4 %)
65-69 years	1 (0.4 %)	0 (0 %)
Level of Education		
Not Enrolled	13 (5.0 %)	8 (3.8 %)
Primary School	27 (10.5 %)	35 (16.5 %)
High School	217 (84. 1 %)	166 (78.7 %)
Diploma	1 (0.4 %)	1 (0.5 %)
Degree	0 (0 %)	1 (0.5 %)
Marital Status		
Single	175 (67.8 %)	110 (52.2 %)
Married	79 (30.6 %)	98 (46.4 %)
Widow	3 (1.2 %)	1 (0.5 %)
Widower	1 (0.4 %)	2 (0.9 %)
Originality		
Malaysian	134 (51.9 %)	136 (64.5 %)
Non-Malaysian	124 (48.1 %)	75 (35.5 %)

Instrument and Measures

The required data was collected through a survey comprising of different sections. The key variables measured included demographic data, perceived impacts of tourism on natural environment, and perceived importance of sustainable tourism. A 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) was used for the measurement. Items for the key constructs were extracted from Mathieson and Wall (1982).

Analysis Technique

Other than using descriptive statistics for reporting the demographic profile of the respondents, the independent samples t-test was used to investigate the differences in the perceived environmental impacts of tourism between Malaysian and non-Malaysian tourists. Additionally, this study applied structural equation modeling (SEM) to analyze the relationship in the research framework. While structural equation modeling roots back to the first half of the 20th century, it has not been widely used until the beginning of the new millennium due to its perceived complexity. Nonetheless, today SEM is known as "the dominant multivariate technique" (Hershberger, 2003), and has numerous advantages over the first generation of data analysis techniques such as multiple regression. This study applied partial least squares structural equation modeling since it allows answering interrelated research questions in a single, systematic, and comprehensive analysis. Besides, PLS-SEM is the suggested analysis technique for prediction (Hair, Ringle, & Sarstedt, 2011) and is not bounded with assumptions regarding the multivariate normality of data, skewness, multicollinearity, and specification error (Cassel, Hackl, & Westlund, 1999; Diamantopoulos & Siguaw, 2000).

In order to investigate the significance of the paths in the model, bootstrapping procedure was performed. Bootstrapping allows researchers to simulate a larger sample size by redrawing records already in the sample and placing the drawn record back into the sampling pool to be potentially picked again. This enhances the robustness of the analysis and decreases the risk of type II error (Brown, Homer, & Inman, 1998). Chin (2010) suggested that the number of bootstrap samples of 200-1000 tend to provide reasonable standard error estimates. Hence, this study performed bootstrapping with 500 samples.

Convergent Validity, Discriminent Validity, and Reliability

Confirmatory factor analysis (CFA) was performed using SmartPLS 2.0 M3 in order to validate both measurement and structural models, by applying partial least squares. This resulted in discarding a few items which did not have a high loading under their respective construct. All the remaining items strongly loaded (>= 0.7) on their corresponding factors indicating convergent validity. Moreover, there were no issues of high cross-loading (the cross-loading of most of the items was well below 0.6), demonstrating discriminant validity (Gefen & Straub, 2005). Furthermore, the square root of the average variance extracted (AVE) of each of the reflective constructs was much larger than its correlation with all the other constructs, which confirmed the evidence of discriminant validity. In order to assess the reliability of the constructs, composite reliability was measured. Table 2 confirmed the discriminant validity and reliability of the measures.

Table 2: Reliability and Discriminant Validity of the Constructs

Construct	Composite Reliability	AVE	AQ	LND	PIST	SSR	VEG	WL	WQ
AQ	0.92	0.86	**0.93**						
LND	0.86	0.75	0.46	**0.87**					
PIST	0.87	0.70	0.43	0.33	**0.84**				
SSR	0.92	0.69	0.53	0.52	0.40	**0.83**			
VEG	0.90	0.76	0.56	0.40	0.44	0.61	**0.87**		
WL	0.94	0.88	0.56	0.55	0.44	0.55	0.52	**0.94**	
WQ	0.92	0.80	0.68	0.42	0.49	0.52	0.58	0.53	**0.89**

Note: Diagonals (in bold) represent the square root of the average variance extracted while the other entries represent the correlations among constructs.

Findings

Differences in the Perceived Environmental Impacts of Tourism between Local and Foreign Tourists

The findings of this study revealed both Malaysian and Non-Malaysian tourists perceived tourism to have negative impacts on the natural environment, as the mean scores for all the 6 investigated categories were higher than the average point (i.e. 3). Table 3 indicates the result of the descriptive statistics for the mean scores of perception towards the

impacts of tourism on the natural environment. For Malaysian tourists, the highest environmental impacts of tourism were perceived to be on water quality, air quality and vegetation respectively, while according to non-Malaysian tourists the highest perceived environmental impacts of tourism pertained to vegetation, water quality and wildlife, respectively.

Table 3: Descriptive Statistics for Perceived Environmental Impacts of Tourism

		Mean	Std. Deviation
VEG	Malaysian (N = 270)	3.78	0.82
	Non-Malaysian (N = 199)	3.97	0.83
SSR	Malaysian	3.60	0.80
	Non-Malaysian	3.63	0.85
WQ	Malaysian	4.03	0.81
	Non-Malaysian	3.94	0.84
AQ	Malaysian	3.95	0.86
	Non-Malaysian	3.84	0.89
LND	Malaysian	3.64	0.81
	Non-Malaysian	3.45	0.86
WL	Malaysian	3.65	0.93
	Non-Malaysian	3.90	0.85

In order to investigate differences in the perceptions of the impact of tourism on the natural environment, independent samples t-tests were performed using SPSS. It was revealed that there is a significant difference regarding perceptions of the impacts of tourism on vegetation (t = 0.014, Significance = 0.05), landscape (t = 0.016, Significance = 0.05), and wildlife (t = 0.003, Significance = 0.01) among Malaysian and Non-Malaysian tourists. More specifically, it was found that Non-Malaysian tourists had a higher perception regarding the negative impacts of tourism on vegetation and wildlife than Malaysian tourists. However, the mean score of the perception of the Malaysian tourists regarding the negative impacts of tourism on landscape was significantly higher than the mean score for Non-Malaysian tourists.

The Influence of Perceived Environmental Impacts of Tourism on Perceived Importance of Sustainable Tourism

In order to examine the influence of perceived environmental impacts of tourism on the perceived importance of sustainable tourism from the perspective of visitors, partial least squares structural equation modeling was performed. The results of PLS-SEM revealed that among the six categories of perceived environmental impacts of tourism, only 3 of them, namely perceived impacts on vegetation, wildlife and water quality, significantly influenced the perceived importance of sustainable tourism. This indicates that those tourists who perceive the impacts of tourism to be higher on vegetation, wildlife and water quality, had a stronger perception towards sustainable tourism and believed that it is important for tourism development to be controlled and monitored to minimize its adverse impacts on the environment. Both Perhentian and Redang islands are rich in vegetation and wildlife, and have clear beaches and spectacular marine life. However, given the increasing visits by tourists to both islands, the diversity of vegetation and wildlife as well as the quality of the water and beaches has been negatively affected. Thus, it is apparent that visitors who are more concerned regarding these aspects of tourism impacts attached a higher importance to sustainable tourism as a potential mechanism to minimize the negative impacts of tourism on the vegetation, wildlife and water quality of the islands. Table 4 shows the results of PLS-SEM. It can therefore be inferred that responsible tourists do not support tourism development at the expense of damaging the vegetation, wildlife and water quality of the tourist destination.

Table 4: Summary of PLS-SEM Results

Relationship	Path Coefficient	T Statistics	Decision
H-a: VEG -> PIST	0.15	2.44 **	**Supported**
H-b: SSR -> PIST	0.05	0.92	Not Supported
H-c: WQ -> PIST	0.25	3.49 **	**Supported**
H-d: AQ -> PIST	0.05	0.66	Not Supported
H-e: LND -> PIST	0.02	0.49	Not Supported
H-f: WL -> PIST	0.16	2.72 **	**Supported**

One-Tailed Level of Confidence: * (95%): t => 1.645; ** (99%): t => 2.33

Overall, 30.7% of the total variation in the dependent variable (Perceived Importance of Sustainable Tourism) could be explained by the six categories of perceived environmental impacts of tourism. This indicates that there are other important factors which influence the perception of tourists with regard to importance of sustainable tourism which needs to be explored in future studies.

Discussion and Conclusion

Despite being an economically profitable industry, tourism has significant environmental impacts which cannot be ignored. The current study investigated the perceived environmental impacts of tourism and its influences on the perceived importance of sustainable tourism from the perspective of tourists visiting Perhentian and Redang Island in Malaysia. The findings of this study indicated the positive influence of perception towards the environmental impact of tourism on vegetation, wildlife and water quality on the perceived importance of sustainable tourism. This indicates the concern of responsible tourists on the extreme and out of control pace of development in tourist destinations and the support of tourists for environmentally sustainable tourism which controls and minimizes the adverse impacts of tourism development on the natural environment, especially in fragile areas such as islands. In other words, developing tourist destinations at the expense of the

natural environment is negatively perceived by tourists and might eventually result in their lack of interest in coming back to the tourist destination or discouraging them from recommending it to others. Hence, policy makers and tourist destination developers should take note of these findings in formulating the development plans and managing sustainability for islands and tourist destinations. The findings of this study can also change the perception of local government and developers on the intensity and level of future developments, which is essential to ensure sustainability. Results of an earlier study by de Lima and Buszynski (2011) indicated that a shift in the perception of government and political culture in relation to development of Amazonia had significant influence in decreasing the alarming environmental damages and deforestation in the region.

By ensuring a sustainable development of tourism on the islands, a "win-win-win" collaboration will emerge for locals, tourists and government. Not only locals will feel that they are obtaining a higher benefit due to increased income obtained from responsible visitors and lower environmental damages to their habitat, but tourists will also enjoy a quality experience in a responsible manner and will be treated more warmly by the locals as they are not perceived as a threat to the survival of the locals' living environment. Moreover, the sustainable development of the island can be used in the promotional activities and place marketing of the island to enhance its brand among prospective visitors. This will also help local government to develop the region and enhance the social and environmental impacts of tourism for the community. Place branding has obtained an increasing importance in recent years and previous studies show that it has a hand-in-hand relationship with sustainable development. Maheshwari, Vandewalle, and Bamber (2011) argued that place branding plays an important role in the sustainable development of a place. Additionally, sustainable development promotes the place and creates stronger place brands.

This study indicated the relatively high awareness of tourists regarding the negative impacts of tourism on the natural environment. Since locals have been argued to have a

negative attitude towards tourism development due to its potential environmental damages (Simmons, 1994), such high level of awareness towards environmental impacts of tourism and responsible tourism attitudes by tourists might eventually result in a more positive attitude of locals towards tourism development. Additionally, the tourists' awareness towards the negative impacts of tourism on the natural environment facilitates and encourages the sustainability control and management by developers on islands. Results of a study by van de Meene Ruschmann and Sagi (2010) on Porto Belo Island, Brazil, revealed that a 14-year sustainability project not only minimized the adverse environmental impacts of tourism on the island, but also turned the island into a more favorable tourist spot and enhanced the satisfaction of the visitors.

This study is limited by only examining the perceptions of tourists visiting the studied islands and not exploring the voices of locals. Future studies may investigate how locals perceive the tourists' perceptions on the environmental impacts of tourism. Additionally, sustainable tourism in this study was limited to environmentally sustainable tourism. Future researchers can examine the role of the perceived environmental impacts of tourism on the tourists' behavioral intentions towards responsible tourism. Another interesting theme of research for future researchers would be to explore the threshold of the feelings of quality by tourists at the expense of environmental damages. In other words, it is critical to investigate the degree to which tourists seek a higher level of quality despite its direct and indirect negative impacts on the environmental.

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