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ASSESSING SERVICE QUALITY OF COMMUNITY-BASED ECOTOURISM: A CASE STUDY FROM KAMPUNG KUANTAN FIREFLY PARK

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MOHD SHAHWAHID HO, MOHD IQBAL MN, AMIRA MAS AYU AM & FARAH MS. 2013. Assessing service quality of community-based ecotourism: a case study from Kampung Kuantan Firefly Park. Community-based ecotourism (CBE) could offer business opportunities to local communities living within or adjacent to unique ecological sites. CBE focuses on impact of tourism on the community and takes environmental, social and cultural sustainability into account. To assess the extent that CBE has been practised in Malaysia, Kampung Kuantan Firefly Park (FP), a habitat of the Lampyridae species beetle, was selected as study site to evaluate the services that the park offered and to assess the ability of the service provider, with the participation from local stakeholders, to fulfil tourist requests using the criteria of CBE as guidelines. Data were collected using convenience sampling of international and domestic tourists using questionnaire. All questions had been prior tested for reliability. The method of analysis involved the critical incident technique to identify and assess the satisfaction or dissatisfaction of tourists with regard to service encounters at the park. Five service failure constructs were identified and prioritised, namely, dissatisfaction with the quality of attractions and facilities at the park, tourist expectations before the visit, inadequate knowledge of employees, unacceptable behaviours of employees and other tourists, and inadequate responses to tourist needs. The form of recovery strategies undertaken by the service provider, its employees and participating community for major service quality failures were recorded and their effectiveness assessed.

Keywords: Critical incident technique, service failure, recovery strategy

MOHD SHAHWAHID HO, MOHD IQBAL MN, AMIRA MAS AYU AM & FARAH MS. 2013. Menilai kualiti khidmat ekopelancongan berasaskan komuniti: kajian kes Taman Kelip-Kelip Kampung Kuantan. Ekopelancongan berasaskan komuniti (CBE) dapat menawarkan peluang perniagaan kepada komuniti tempatan yang tinggal di tapak-tapak ekologi unik atau berhampiran dengannya. CBE lebih menitikberatkan kesan pelancongan terhadap komuniti dengan mengambil kira kelestarian alam sekitar, sosial dan budaya. Taman Kelip-Kelip Kampung Kuantan, habitat bagi spesies kumbang Lampyridae, telah dipilih untuk menilai sejauh mana CBE diamalkan di Malaysia. Tujuannya adalah untuk menilai perkhidmatan yang ditawarkan oleh KKFP dan menilai kemampuan pekhidmat, dengan penglibatan pemegang taruh, untuk menyempurnakan kehendak pelancong berdasarkan kriteria CBE sebagai garis panduan. Data dikumpul secara pensampelan mudah pelancong antarabangsa dan tempatan menggunakan soal selidik yang telah diuji kebolehpercayaannya. Kaedah analisis melibatkan teknik insiden kritikal untuk mengenal pasti dan menilai kepuasan (atau ketidakpuasan) perkhidmatan yang diterima di taman tersebut. Lima konstruk kegagalan perkhidmatan dikenal pasti dan diberi keutamaan iaitu ketidakpuasan terhadap kualiti tarikan dan kemudahan di taman, jangkaan pelancong sebelum lawatan, kekurangan ilmu pekerja, tingkah laku pekerja dan pelancong yang tidak dapat diterima, dan respons yang tidak memuaskan terhadap kehendak pelancong. Bentuk strategi untuk menangani kegagalan ini yang diambil oleh pekhidmat, pekerja dan komuniti yang terlibat direkod dan keberkesannya dinilai.

INTRODUCTION

Malaysia received 24.6 million tourists in 2010 which amounted to RM56.5 billion (RM3.04 = 1USD) in revenue generation. Tourism

revenue as a proportion of the Malaysian gross domestic product (GDP) rose from 4.8% in 2000 to 7.2% in 2010. Hence, tourism could

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offer opportunities to generate income for business providers, including local communities living within or adjacent to ecotourism sites, through community-based ecotourism (CBE).

CBE is a unique type of ecotourism with characteristics quite different from mass tourism. It takes environmental, social and cultural sustainability into account. It is managed and owned by the community, for the community, with the purpose of enabling visitors to increase their awareness and learn about the community and local ways of life (Potjana 2003). In general, CBE serves as a tool for conservation and, at the same time, improves the quality of life for the community. It also serves as a tool to bring the community together to consult, discuss and work closely in solving community problems.

With the rising potential of tourism, it is necessary for providers of CBE to maintain high quality services for visitors. Researches in Malaysia have begun to emphasise on the quality of services provided by ecotourism areas and operators. Different ethnic groups of resort operators in Malaysia can influence the organisational, work culture and employee hospitality in the tourism industry (Shardy et al. 2008).

Certain constructs could influence the level of ecotourism services. Environmentally friendly services and products have been ranked as one of the most important criterion in ecotourism service quality (Khan 2003). Another important service construct is the design of the attractions and facilities provided. Tangible aspects of the service environment also had critical impact on affective responses of customers and this may influence their perceptions of the place (Wakefield & Blodgett 1999). Tourist reactions towards service quality are also easily affected by the actions of service providers and of other tourists as well. The ability of management and employees to provide satisfactory responses to visitors' requests and grievances on security and special requests will determine their level of satisfaction and intention for repeat visits (Choi & Chu 2001). Thus, it is important to gauge the quality of ecotourism service, identify forms of service failure and find suitable remedies to overcome them.

This study investigated the level of service quality of a Malaysian CBE site with the aim of gauging the level of tourist satisfaction and in cases of dissatisfaction, to determine the form of service failures and recovery strategies being undertaken. This assessment was done at Kampung Kuantan Firefly Park (KKFP), located 67 km south of Kuala Lumpur, the capital of Malaysia. This CBE site was selected as it had service quality issues. KKFP is facing problems in maintaining environmental quality, site attractions and tourist facilities and services (Lim et al. 2010). The site is jointly managed by the community and district municipality whereby the main activity of transporting and guiding tourists along the Selangor River which is located 20 km from the estuary to observe the fireflies is currently being managed and decided upon by the local community. From funds provided by the State Government, the District Office developed a proper visitor complex complete with ticketing booth, handicraft and exhibition centre, food stalls, public toilet and parking area.

With its firefly attraction, Kampung Kuantan is a popular CBE site for tourists around the world. The firefly Lampyridae habituate on the berembang (*Sonneratia caseolaris*) trees along the river bank. These beetles provide flashing light from the bioluminous elements in their bodies as the male fireflies compete with each other for the attention of female fireflies. Viewing the fireflies would take about 20 min and the whole boat trip would take about 40 min.

Visitation is all year round and the fee for the boat ride is RM10.00 per person. The number of visitors has been rising over the years, from an estimated 24,000 in 1995 to 40,000 in 2010. Visitors comprised approximately equal numbers of local and international tourists, either in organised tours or on independent visits. Studies have not yet measured the impact of tourist numbers on the fireflies to determine a sustainable carrying capacity. Invariably, a rising visitation will certainly have an effect on the quality of services offered.

When a service fails to meet customer's expectation, a service failure occurs (Michel 2001). Consequences of service failure include customer dissatisfaction, negative word-of-mouth

recommendation (Mattila 2001), customer defection (Keaveney 1995), increased costs and lower employee performance and morale (Bitner et al. 1994). Further, service failures could be consolidated into major groups of critical incidents whether involving customers–park participating stakeholder interaction or dissatisfying services or park attractions that could be visualised in sufficient detail (Bitner et al. 1994). Understanding the types of service failure encountered is the starting point to developing effective service recovery strategies and improving customer retention (Mack et al. 2000, Zhang 2011).

Service failures in an ecotourism industry may be associated with the ability of service providers in managing supply and demand for ecotourism services (Lovelock & Wirtz 2007). To sustain a service quality, recovery strategies are necessary when service quality fail to meet tourists' expectation. When a service failure occurs, the management needs to recover it quickly. The term service recovery involves actions designed to resolve problems, alter negative attitude of dissatisfied tourists and ultimately, to retain these visitors (Miller et al. 2000). Recovery strategies can be categorised into: (1) empathetic responses whereby tourists perceive that the management and participating community exhibit the ability to recognise and share the emotional states of mind of tourists who complain, (2) remedial responses whereby tourists perceive that recovery strategies have been taken to correct a dissatisfactory situation or service, (3) management intervention whereby tourists perceive that an involvement of the management in the resolution of service failure problem has taken place, and (4) no responses whereby the management and employees have refused to acknowledge tourists' perceptions of a service failure or failure to resolve the situation. Successful recovery strategies can significantly benefit the park. It can enhance tourist perception on service quality and the management, lead to a positive word-of-mouth communication and enhance tourist satisfaction (Michel 2001).

The purpose of this study was to evaluate the quality of services provided by KKFP and to gauge the service recovery strategies. In general, the success of a CBE depends

on the ability of the service provider, with participation from local communities, to fulfil tourists' expectations. The research probed the presence of service quality characteristics that could constrain the fulfilment of these expectations. Data collected were analysed to test the null hypotheses of an absence of various forms of service quality constructs that may include the state of ecotourism attractions, site facilities, worker hospitality and assistance, behaviour of other tourists and overall worthiness of the visit. For hypotheses that were rejected (presence of service failures at 5% level of significance), recovery strategies undertaken were indentified.

MATERIALS AND METHODS

Critical incident technique (CIT) was used to determine customer satisfaction in KKFP. The CIT is a method of classification of the quality of services and recovery strategies that utilises clearly-defined procedures to collect behavioural observations as well as identify and assess (dis)satisfying service encounters (Akhtar et al. 2009, Skaalsvik 2011). CIT method produces unequivocal and very concrete information as respondents have the opportunity to give a detailed account of their own experience. It is particularly well suited for use in assessing perceptions of customers from different cultures because it invites consumers to share their perceptions on an issue, rather than indicate them via researcher-initiated questions (de Ruyter et al 1995, Stauss & Mang 1999). In particular, CIT is a less culturally-bound technique than traditional surveys—there is no *a priori* determination of what will be important.

Although the benefits of using the CIT method are considerable, the method has some drawbacks depending on the experience of the researcher. The researcher may misinterpret respondent feedback when categorising into themes or labels (Edvardsson 1992, Gabbott & Hogg 1996). Also since CIT is a naturally retrospective research method, it may face difficulties of recall bias (Michel 2001) or of memory lapses (Singh & Wilkes 1996). However, generally CIT has been demonstrated to be a sound method and relatively few modifications have been suggested to the

method in the 50 years since it was introduced (Gremler 2004). Further, misunderstanding and recalling bias could be overcome by giving respondents more time to ponder, respond and detail out their own story lines.

CIT involves two steps: (1) identifying the critical incidents which are defined as specific dissatisfying interactions between customers and the employee and the park participating stakeholders pertaining to services that have been provided, and (2) recording the specific recovery strategies taken by the employee and park participating stakeholders to overcome the problem (Bitner et al 1994, Gremler 2004). For an incident to be classified as critical, it should meet several criteria including: (1) involving customer–employee or customer–park participating stakeholder interaction, (2) dissatisfying services from customers' point of view, (3) taking place in the park at the time of encounter, and (4) having sufficient detail to be visualised by the interviewer.

The recovery strategies as perceived by tourists to be adopted by the park management, employees and local boat rowers were framed following the categories adopted by Hoffman et al. (2003). These strategies were further subcategorised according to what the management and participating community of KKFP had undertaken to recover their service failures and respond to what the tourists expected and requested from the park management.

Data collection

A structured interview was conducted where the enumerator asked tourists a list of predetermined questions about the service quality and the response to recovery strategies by KKFP stakeholders that included the management, employees and local boat rowers. The interview questions had been pre-tested on tourists at the KKFP prior to the actual survey. The questions were modified and updated to enhance their validity. The actual survey was undertaken by trained enumerators who interviewed through convenient sampling of 100 tourists from KKFP over a period of one month, covering weekends and weekdays in

March 2010. To obtain an unbiased response, only one tourist was surveyed per boat ride to avoid any collaborative answers among tourists on the same boat. Sample size was considered valid for a 5% margin of error from an average 10,000 boat rides per annum given that a boat ride comprised four tourists.

The enumerator was allowed to provide explanation if the tourists did not understand or found the question confusing. Answers were used to explore how tourists felt about a particular topic before further probing (such as observation or in-depth interviewing) to gather more information. This structured interview was also suitable to identify tourists whose views needed further exploration (through the use of focused interviews, for example). All tourists were asked the same questions in the same way. This enhanced standardisation of the interviews during the actual survey of all the samples.

The actual survey compiled 210 critical incidents that met the requirements classified. The reliability analysis of the questionnaire responses provided a Cronbach's alpha value of 0.965 that indicated that the questions were reliable and would produce similar results had these questions were administered to the same person in the same setting. The rich details suggested that the information described in the incident was accurate and easily recalled (Kemppainen et al. 1998).

Tourists were probed into describing the circumstance that led to the service problem and into discussing why they thought the service problem occurred. They were requested to rate the quality of the services provided by KKFP, its management, employees and local boat rowers according to a Likert scale of 1 (not very serious) to a maximum of 5 (very serious problem). Respondents were then requested to describe what was done to correct the initial service problem and whether they were satisfied with the responses. The responses were based either from actions taken soon after the problem occurred, i.e. while the tourists were still there or from actions taken for the problem experienced during previous visits. The tourists were also asked if they would revisit KKFP. The questionnaire concluded

with demographic questions on age, gender, annual income and attained educational level of the respondent.

Data analysis

The analytical framework was based on the following model with the dependent variable construct being service quality failure at KKFP and its determinant constructs, the critical incidents obtained from data analyses.

The analysis of the intensity of service quality received and eventual recovery strategies adopted by KKFP stakeholders were all based on data and information provided by tourists. The data were first analysed to obtain a list of service failure incidents of which several were similar incidents, thus reducing the number of incident categories. These categories were further sorted into smaller groups or constructs of incidents. A frequency analysis of the occurrence of the groups of service failure incidents was done. This provided information on what were the critical incidents of service failure at KKFP. The second stage of the analysis was to determine the magnitude of each service failure. The intensities of the critical incidents of service failure were obtained from the Likert scale ratings ranging from 1 (not very serious) to 5 (very serious) reported by respondents dissatisfied with that particular service. Respondents not facing a particular service quality incident, would score 0 for that service. To obtain the mean score for each service quality that reflected the perspective of all respondents, zero responses together with the Likert scale responses of each service quality were further averaged out. A t-test was conducted using the statistical package for social science programme to statistically verify that the mean of each service was not equal to 0. Further attempt was done to cross-tabulate the service failures with selected characteristics of the visitor. This information is useful to park management to disaggregate further whether these service failures vary among gender of visitors, visiting times of the week and origin of tourist. A t-test for differences of means of service quality intensities between two tourist groups (male versus female, weekend versus weekday and domestic versus international tourists) was undertaken.

The third stage involved a frequency analysis of the recovery strategies being adopted by the park management, employees and local boat rowers, and the percentage of tourists who intended to revisit KKFP.

RESULTS AND DISCUSSION

Tourist profile

A high proportion of the tourists surveyed were males (59%) within the age group below 30 years old (54%) (Table 1). The highest income range was RM4001–RM5000 per month and about 40% of the tourists had college degrees. From this figure, it could be concluded that most of the tourists were young and well-educated with good income. The majority (75%) of tourists visited the park on weekends and 69% of the total number of visitors were locals. International visitors comprised Australians, Europeans, Koreans, Japanese and from middle eastern countries. This profiling together with further findings from this investigation can provide information

Table 1 A profile of tourists to Kampung Kuantan Firefly Park (KKFP), March 2010

Profile	Percentage
Male	59.0
Female	41.0
Age (years)	
≤ 30	54.0
31–40	31.0
> 40	15.0
Monthly income (RM)	
< 1000	9.0
1001–2000	24.0
2001–3000	7.0
3001–4000	8.0
4001–5000	34.0
5001–6000	18.0
Day visited	
Weekend	75.0
Weekday	25.0
Visitor citizenship	
Malaysian	69.0
International	31.0
Education	
Secondary school	4.0
Professional certificate	15.0
Diploma	36.0
Bachelor degree	40.0
Post graduate degree	5.0

to the management of the park on which areas they need to give more attention.

From the tourists surveyed, 210 service failure incidents were identified and in a number of cases, there were multiple incidents reported by a tourist (Table 2), which inadvertently created conflicts between visitors' satisfaction and preservation of natural resources. For example, bringing tourists by boat close to the berembang trees along the river bank increased access but this also disturbed the firefly population. It has been reported that protected areas in the Mediterranean are fairing worse than parks in the rest of Europe in terms of monitoring visitors' needs and the effects of tourism on biodiversity (Taylor 2004). These service failures were accounted by the greater range of barriers in particular funding, political and legislative support, and staff skills/education, as well as by the lower levels of influence they had over managing local distinctiveness. The service failure problems could be made worse when the choice of remedial approaches was based on what was possible and not on what was best. In addition, some tourists could recall the worst incident that happened to them more clearly than the good service received. This is expected since people are more likely to recall negative experiences than positive ones (Kivela & Chu 2001).

Critical incidents

From the 210 incidents, a total of 13 categories of service failures were identified (Table 2). The most common failure experienced was dissatisfaction with facility condition (13.33%) followed by bias treatment from employees (10.95%), employee attitude (10.48%) and worthiness of the park entrance fee (10.48%). The less mentioned failures by tourists were restrictions involving touching and photographing fireflies (each 4.29%) and unaccustomed behaviour of other tourists (2.86%). The 13 categories of service failures were then consolidated and sorted into five constructs of service failures raised by tourists during the survey, namely, problems with: (1) quality of attractions and facilities at KKFP, (2) expectation before the event, (3) unacceptable behaviours of employees and other tourists, (4) inadequate knowledge of employees and (5) inadequate responses to tourists needs and request.

Construct 1 was related to failure in the natural attractions, physical facilities, equipment and communications material. An illustration is provided below:

"I came with my family of five and I brought along my mother who is 50 years old. After we bought tickets to take the ride, we found out that no seating areas were provided for the elderly and disabled. The waiting

Table 2 Types of service failures

Service failure category	Percentage	Frequency	Ranking
Dissatisfied with facility condition	13.33	28	1
Bias treatment from employees	10.95	23	2
Employee attitude	10.48	22	3
Worthiness of the park fee	10.48	22	3
Tourists not abiding by park regulations	10.00	21	5
Tourists jumping queue	8.57	18	6
Firefly quantity not meeting expectation	7.13	15	7
Problem with mosquitoes	6.67	14	8
Difficult to communicate and understand employee	6.19	13	9
Pollution at the park	4.76	10	10
Tourists not allowed to touch fireflies	4.29	9	11
Cannot capture picture of fireflies	4.29	9	11
Unaccustomed behaviour of tourists	2.86	6	13

Compiled from survey data from 210 incidents reported by 100 samples

place could not accommodate all visitors. We had to wait about half an hour to get a seat.”

(From a 50-year-old Malaysian male)

This showed that the tourist rated the service negatively based on poor design of the park. Poor design can become a critical determinant of the way customers feel about a place (Wakefield & Blodgett 1999).

Service failures in construct 2 were related to circumstances where the tourists' expectation of the park was not met. Typical tourist responses were the failure to fulfil advertised features of the park. Below is an illustration of a visit not meeting prior expectation due to misleading advertisement:

“Before I visited this place, I saw an advertisement that showed a huge amount of fireflies. I felt really disappointed when I came and saw that they were sparsely available. When I asked the boatman why it was not like in the advertisement, he said that I should visit before the full moon. I felt cheated because there was no mention of any appropriate or ideal time for a visit in the advertisement.”

(From a 35-year-old Malaysian female)

Service failures in construct 3 were concerned with the different treatments provided to tourists that may sprout discriminatory feelings among some of them. Tourists experienced unacceptable and uncomfortable behaviours from employees or other tourists. Two illustrations are provided:

(1) *“A couple of young lovers were acting immorally in front of my family. I brought two of my kids and this made my family and I very uncomfortable.”*

(From a 50-year-old Malaysian male)

(2) *“One of the workers gave a free pass to an international tourist who was clearly not waiting in line. There were many people waiting but no action had been taken.”*

(From a 45-year-old Malaysian female)

Further research in this area of excellence in service is warranted. Customer satisfaction is very much affected by employees and behaviour of other patrons. However, environmental conditions influence visitors' actions, and the reactions of employees and management towards such behaviours make organisations what they are (Grove & Fisk 1997). The waiting coupled with the warm weather contributed to such complaint by the 45-year-old woman.

Service failures in construct 4 were related to the lack of foreign language proficiency, knowledge or the inability to respond to tourists' questions or provide educational interpretation about the park. An illustration of the unpreparedness of the management to instil and train the employees of the requirements of ecotourism that include communication skills and educational interpretations is provided:

“When I was on the boat ride, the boatman did not understand my English, so I could not ask more about the fireflies and I felt deprived of the needed new knowledge.”

(From a 40-year-old Australian male)

Construct 5 was about the failure of employees and local community to give caring and individualised attention to tourists. Any special requests from tourists have to be looked into from their point of view. Responses from employees on security and special requests from customers give a good impression on service quality (Choi & Chu 2001). The failure of this park to do so is shown here:

“There were a lot of mosquitoes around and when I mentioned this to one of the workers, he just laughed and said that it was normal. I felt that was not how you should treat a customer.”

(From a 25-year-old Japanese female)

Table 3 provides the frequencies of the service failure constructs and categories in KKFP. Among the constructs of service failure, the problem with the employees' lack of knowledge and communication skills was rated as the highest at the park with 27.62% responses. Employees' knowledge, interpretive and communication skills are important qualities in giving excellent services. Other problems also receiving high percentage of complaints were unacceptable behaviour of employees and other visitors and inadequate responses to tourist needs and requests, each with 21.43% responses. Tourists often have the view that employees' behaviour and appearance (Wong et al. 1999) and their smiles (Parasuraman et al. 1988) are among the most important predictors of service quality. The fourth rated service failure construct was the problem with the appearance and material quality of the park attractions (18.10%). With a total of 11.42%, the problem with the

Table 3 Frequency analysis of critical incident constructs and categories

Service failure construct	Service failure category	Frequency ¹	%
Problem with lack of knowledge and communication skills of employees	Difficult to communicate and understand the employee	13	6.19
	Employee attitude	22	10.48
	Bias treatment from employees	23	10.95
	Subtotal	58	27.62
Problem with unacceptable behaviour of employees and other visitors	Unaccustomed behaviour of tourists	6	2.86
	Tourists jumping queue	18	8.57
	Tourists not abiding by park regulations	21	10.00
	Subtotal	45	21.43
Problem with inadequate responses to tourists' needs and requests	The worthiness of the park fee	22	10.48
	Problem with mosquitoes	14	6.66
	Cannot capture picture of fireflies	9	4.29
	Subtotal	45	21.43
Problem with the attractions and facilities at KKFP	Pollution at the park	10	4.76
	Dissatisfied with facility condition	28	13.34
	Subtotal	38	18.10
Problem with the expectation before the event	Firefly quantity not meeting expectation	15	7.13
	Tourists not allowed to touch fireflies	9	4.29
	Subtotal	24	11.42

¹The sum of the frequencies add up to 210 service failure incidents which is greater than the sample size of 100 due to multiple incidents recorded by respondents

expectation before the event was ranked fifth. Based on individual category of service quality, dissatisfaction with the facility conditions at the park (13.34%) was the highest followed by bias treatment from employees (10.95%), employee attitude (10.48%) and worthiness of the park entrance fee (10.48%). The least service quality issue was unaccustomed behaviour of visitors that included intimate expressions by international tourists which were unbecoming to the traditional values of local visitors.

Magnitude of service failure

Intensities of the service failure categories experienced by visitors and frequencies of intensity responses are provided in Table 4. The service failure categories received mean scores ranging from 3.21 to 5. Seven service quality failures received maximum scores of 5 implying that the respondents felt that the problems were very serious. These included issues on difficulty to communicate with and understand the employee, employee attitude, bias treatment from employees, tourist jumping queue, tourists not abiding by park regulations, tourists not allowed to touch fireflies and dissatisfied with facility condition.

These problems arose because the salient characteristics of ecotourism and good guiding were not observed. These characteristics included maintaining of a meaningful and satisfying experience for tourists, raising their awareness about sustainability issues and promoting sustainable tourism practices amongst them (UNWTO 2005). Further, effective CBE should demonstrate good management practices and ensure quality and satisfying experience for all tourists (Asker et al. 2010).

As expected, mean scores from respondents dissatisfied with particular services were high because the averaging was computed from ratings provided by the dissatisfied respondents only, thus the skewed perception of the extent of service failure at the park. To obtain an unbiased overall mean score, averaging was also done over the whole sample size, i.e. including responses having no service problem (i.e. by giving a score of zero). These means of service quality categories which are now much lower are provided in Table 4. The t-test showed that the means were all statistically significant at 5% level, rejecting the null hypothesis of each mean of service failure category being zero. Hence, it could be concluded that all 13 service failures

Table 4 Means of service failure intensities (n = 100)

Category of service failure	Service failure intensity continuum		
	Mean for dissatisfied sample ¹	Mean for whole sample ^{2,3}	t statistics for mean of whole sample
Difficult to communicate and understand the employee	5.00	0.81	3.73*
Employee attitude	5.00	1.38	5.45*
Bias treatment from employees	5.00	1.44	5.65*
Tourists jumping queue	5.00	1.13	4.62*
Tourists not abiding by park regulations	5.00	1.31	5.30*
Tourists not allowed to touch fireflies	5.00	0.56	3.17*
Dissatisfied with facility condition	5.00	1.75	6.34*
Firefly quantity not meeting expectation	4.27	0.80	4.19*
Unaccustomed behaviour of tourists	4.17	0.31	2.53*
Pollution at the park	4.00	0.50	3.36*
Cannot capture photograph of fireflies	3.78	0.43	3.12*
The worthiness of the park fee	3.73	1.03	5.40*
Problem with mosquitoes	3.21	0.56	4.02*

¹Intensity (1: not very serious– 5: very serious), responses having no service problem was not included; ²intensity (0: as not a problem, 1: not very serious–5: very serious), responses having no service problem was included as part of the whole sample and used in the analysis; ³null hypotheses of each category of service failure mean = 0 was rejected statistically at 5% significant level with t statistics > 1.96, *p < 0.05

were indeed important and had affected the mean satisfaction level of tourists although the problems were less serious.

Each service failure was cross-tabulated with selected characteristics of visitor, namely, visiting time of the week, gender and tourist origin. The results are shown in Table 5. This information is useful to park management to disaggregate further these service failures. Variation in service failure scores was observed for these selected visitor characteristics and a t-test was undertaken to verify occurrence of statistical difference.

Male and female visitors had statistically ($p < 0.05$) different perceptions on three issues, namely, firefly quantity not meeting their expectations, inability to photograph the fireflies and pollution at the park. Male visitors rated quite high the service failure on the firefly attraction for not meeting their initial visit expectation (mean = 1.21). Female visitors on the other hand had lower concerns over this criterion (0.21). Female visitors gave higher scores for the problems on pollution at the park and inability to capture the picture of fireflies (0.85 and 0.79 respectively) compared with male visitors (0.26 and 0.17 respectively).

Weekend and weekday visitors had statistically ($p < 0.05$) different perceptions on seven issues. Weekend visitors rated higher service failures on other tourists not abiding by park regulations (1.58), other tourists jumping queue (1.42), dissatisfied with park facility (2.25) and pollution at the park (0.67). These concerns were mainly about the quality of the park and its management, as well as the enforcement of rules and regulations. Weekday visitors recorded higher service failures for difficulty to communicate and understand the employee (1.75), bias treatment (2.50) and the issue of mosquitoes (1.05).

The above differences in the perceptions of service quality between weekend and weekday visitors are interesting. A total of 75% of visitors came during the weekends and this overload had a major impact on the main problem of crowd control and tourists not abiding by park regulations. More employees are needed to control the park during weekends to ensure that tourists get the best service. The behaviour of employees must be closely observed by the management. Facilities and human resources at KKFP could not accommodate the high number of tourists

Table 5 Cross-tabulations of mean scores of service failures between several types of visitors

Category of service failure	Service failure intensity ¹					
	Gender		Visitation day		Origin	
	Male	Female	Weekend	Weekday	Domestic	International
Difficult to communicate and understand the employee	0.85	0.61	0.42*	1.75*	0.27*	0.80*
Employee attitude	1.28	1.52	1.17	2.00	1.82*	0.40*
Bias treatment from employees	1.60	1.21	1.08*	2.50*	1.82*	0.60*
Tourists jumping queue	0.96	1.21	1.42*	0*	0.91	1.40
Tourists do not abide by park regulations	1.17	1.20	1.58*	0.50*	1.45	1.00
Tourists not allowed to touch fireflies	0.74	0.30	0.58	0.50	0.73	0.20
Dissatisfied with facility condition	1.91	1.36	2.25*	0*	0.73*	3.80*
Firefly quantity not meeting expectation	1.21*	0.21*	0.78	0.85	0.38*	0.72*
Unaccustomed behaviour of tourists	0.28	0.36	0.42	0	0.22	0.52
Pollution at the park	0.26*	0.85*	0.67*	0*	0.65*	0.16*
Not allowed to photograph fireflies	0.17*	0.79*	0.45	0.35		
The worthiness of the park fee	0.89	1.21	0.97	1.20	1.49*	0*
Problem with mosquitoes	0.53	0.61	0.4*	1.05*	0.55	0.60

¹0 = not a problem, 1 = not very serious–5 = very serious; responses having no service problem was included as part of the whole sample and used in the analysis; *null hypotheses of each category of service failure differences for gender, visitation type and tourist origin = 0 was rejected statistically at $p < 0.05$, t statistics > 1.96

during weekends and this was troublesome for the tourists. The waiting and queuing place for boat trips were packed. There were incidents where tourists jumped queue to avoid the long wait.

Even though there were fewer crowds during weekdays, there were other problems with employee attitude. Feedback from tourists suggested that employees did not show adequate respect towards them and took their work casually. Cases of employees shouting at each other and playing loud music were disturbing the tranquillity of watching the fireflies.

Local and international visitors also had statistically ($p < 0.05$) different perceptions on seven issues. Several service failures were rated quite high by local visitors. These included problems with bias treatment from employees (mean = 1.82), poor employee attitude (1.82), worthiness of the park entrance fee for the boat ride (1.49) and pollution at the park (0.65). International visitors perceived quite low the above problems but rated highly the problem of the difficulty to communicate with and to understand the employees, particularly the

boatman (0.80), dissatisfied with park facility (3.8) and quantity of fireflies not meeting expectation (0.72).

Local tourists felt that the boat cruise fee was overpriced for a short ride taking only about 20–30 min. They were concerned with the poor attitude of employees and their bias treatment towards visitors especially during the long queue. International tourists felt the most serious service failure was communication skills of the employees. The boatmen could only communicate in Malay and this had frustrated the international tourists who needed further explanation on fireflies and expected these boatmen to act as tourist guides.

Recovery strategies

Feedback on the recovery strategies obtained from visiting respondents suggested that empathetic response was perceived as the most common strategy adopted (30.48%) by the management and participating community. This mirrors previous research findings and the way management corrects a service quality problem (Lewis & Sprakopoulos 2001). The

common responses falling under this category at KKFP were smiles, apologies, further explanations and admittance of mistakes. The second most frequent recovery strategy was remedial responses (27.14%) followed by management intervention (24.29%). On certain occasions, the management and representative of the boat rowers had to intervene by, for example, issuing warnings to the local boat rowers and imposing fine to those not abiding by the regulation. The lowest recovery strategy was taking no action (18.09%) whereby the management, employees and boat rowers did not admit or just ignored the presence of problem, provided excuses and delayed taking actions.

The number of tourists satisfied with the perceived recovery strategies being undertaken at KKFP were investigated. Only 45.24% of the tourists were satisfied with the recovery strategies taken by the management and participating community with the remaining majority not satisfied. Among the satisfactory remedial responses included the building of a new waiting place or finding a way to save the beremban trees with the intention of retaining or increasing the firefly population. These responses came from return visitors who had seen changes since their last visit.

CONCLUSIONS

The objective of this paper is to evaluate the quality of services at KKFP. The CIT method employed provided insights into tourist perspective of service failure and recovery strategies adopted. This paper has shown that CIT can be applied in the ecotourism industry to provide feedback on service quality in a CBE and on the recovery strategies taken by the management and community service provider. The management and participating community should take remedial steps to improve incidents not meeting tourist expectations, unacceptable behaviours of employees and other tourists, lack of knowledge and communication skills of employees, and inadequate responses to tourist needs and request. The capacity of recovering service quality problems mentioned by tourists has to be raised. When service quality declines, it is important for the management and service

provider to evaluate their recovery strategy and adopt more friendly and satisfying actions.

In this study a relatively small, convenience sample was used. The research was conducted at Kampong Kuantan and the findings could not be extrapolated to other CBE sites elsewhere. Thus, research should be broadened to other CBE sites. Further, the research relied only on recall from tourists. It would be interesting to probe on the service quality problems and recovery strategies from the perspective of the management, employees and local community service provider and what they perceived of the effectiveness of their actions related to their recovery strategies in improving the tour and facilities including interpretation.

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