

Ecotourists' satisfaction and dissatisfaction: asymmetric effects of service attributes

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Received 21 July 2018
Revised 12 November 2018
8 December 2018
18 February 2019
25 March 2019
Accepted 8 April 2019

Abstract

Purpose – The purpose of this paper is to identify and classify ecotourism service elements according to their instrumentality to customer satisfaction.

Design/methodology/approach – Drawing on the ECOSERV model, the authors conduct further qualitative and quantitative research to find additional dimensions of service quality. Kano's model and Customer Satisfaction Index are then employed with a sample of 324 ecotourists to categorize these service quality elements.

Findings – A new scale of ecotourism service quality is proposed, with the addition of four dimensions: price-quality, interaction with locals, interaction with other customers and relaxation feelings. The paper also confirms the existence of four groups which are classified according to their level of impacts on satisfaction and dissatisfaction: attractive, one-dimensional, must-be and indifferent.

Originality/value – The paper improves the present ecotourism scale and develops an integrated approach to facilitate effective decision making by identifying areas that require greater attention, thus providing practical benefits for eco-site managers. It also hopes to contribute to better understanding about ecotourism services in the context of an Asia country like Vietnam and encourages further research in this area.

Keywords Satisfaction, Kano model, Categorization, Ecotourism, ECOSERV, Asymmetrical weights

Paper type Research paper

1. Introduction

The international tourism industry in the last few decades has witnessed a noticeable shift from mass tourism to awareness tourism, of which ecotourism is one of the fastest growing subsectors. Providing considerable benefits in terms of local economic development and environmental conservation, ecotourism has received considerable attention in the literature as well as the international tourism marketplace (Wearing and Neil, 2009). Ecotourism often involves the tourists from developed countries, with a specific interest in more intrinsic qualities of life, traveling to the less developed territories of the world (Whelan, 1991). While this group makes up the largest proportion of ecotourists, there is now a growing trend for people in developing countries to undertake this new, eco-friendly form of tourism as a result of increased environmental awareness and income in these areas.

Understanding about service quality and customer satisfaction in this field remains academically underexplored, however. In marketing, ECOSERV is the most adopted measurement instrument for ecotourism attributes (Ladhari, 2008). However, in our opinion, the ECOSERV model has some limitations such as lack of consideration for emotional and social aspects or price-quality fit which have been found to have a significant impact on the

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This research is funded by Vietnam National University Ho Chi Minh City (VNU-HCM) under Grant No. C2017-34-01.



Journal of Asian Business and
Economic Studies
Vol. 26 No. 2, 2019
pp. 189-205
Emerald Publishing Limited
2515-964X
DOI 10.1108/JABES-07-2018-0051

consumption experience of ecotourists (Camelis *et al.*, 2014; Reichenberger, 2017). Therefore, this study proposes to add price-quality inference as well as experiential attributes, such as sensory, emotional and social experiences to a new model. It is also the aim of this paper to investigate the linear relationship between service quality attributes and satisfaction as implicitly assumed in many studies adopting SERVQUAL and ECOSERV. Indeed, some research suggested the presence of a zone of indifference where there is no satisfaction nor dissatisfaction irrespective of the perceived performance of service attributes (Cadotte and Turgeon, 1988) and argued that satisfaction and dissatisfaction are, therefore, considered independent of each other (Herzberg, 1959).

2. Literature review

2.1 Ecotourism

There has been a lack of a core definition of ecotourism because “it is a complex notion which ambitiously attempts to describe an activity, set forth a philosophy and espouse a model of development” (Ziffer, 1989, p. 5). A review of the extant literature reveals three main approaches to understanding ecotourism. First, from the conservation organizations’ point of view, ecotourism is defined as nature-based tourism activities which have strong links with sustainable development (Dolnicar and Leisch, 2008). Such activities provide the benefits to the conservation of nature and environment which go beyond their costs to the environment. Another approach, supported by community development organizations, views ecotourism as community-based tourism which plays an important role in creating positive influences on the local economy and the life quality of poor local people (Carter *et al.*, 2004). According to these definitions, ecotourism can be called natural tourism or responsible tourism. However, many researchers in tourism service marketing accepted a definition by Khan (2003), considering ecotourism as “purposeful time spent in natural environment to interact, learn, and experience other cultures, and to economically help local communities that work toward preservation of the ecosystem” (p. 111). For instance, Ceballos-Lascuráin (1991) defined ecotourism as “tourism that involves travelling to relatively undisturbed or uncontaminated areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas” (p. 25). Most of the recent studies also find that ecotourism provides opportunities for experiencing and appreciating the nature, local customs and culture (Wurzinger and Johansson, 2006), and it also allows tourist to learn about responsible traveling (Ban and Ramsaran, 2016). Our study also adopts this third approach which reflects the motivation of ecotourists. Therefore, ecotourism may involve natural tourism, cultural tourism, soft tourism, discoverable tourism, adventurous tourism and responsible tourism.

2.2 Ecotourism in Vietnam

Vietnam is a tropical country that has enormous potential for ecotourism, with its stunning natural and cultural resources. One of the most attractive features of Vietnam is its rich biodiversity thanks to its unique topography and climatic conditions. Despite its small size, Vietnam’s special geographical location allows an exclusive combination of native species and organisms from the biota of the north (Himalaya–south China), the south (Malaysia–Indonesia) and the west (India–Myanmar) (Khanh, 1999), resulting in noticeably diverse and appealing flora and fauna with a high degree of uniqueness. Around 10 percent of the 8,000 known plant taxa in Vietnam are endemic, and the corresponding figure for faunal species is 11 percent (Reed, 1997). The forests of Vietnam, including rainforests in the south and evergreen forests in the north, have the highest number of avian and primate species in mainland Southeast Asia; similarly, the mangrove forests and wetlands are also abundant, proving possibilities for flora and fauna discoveries. Vietnam also has a long coastline that hosts a wide range of coastal ecosystems, of which the coral reefs in particular are a huge

attraction for divers. Another attraction for tourists is the Limestone Mountains distributed mostly from northern to central provinces. The mountains, which consist of evergreen forests with diverse fauna and flora species, are also home to the distinctive cultures represented by some of Vietnam's ethnic minorities. With 54 peoples and diverse traditional customs and festivals, local cuisine, farming methods, indigenous lifestyle and language, ecotourism opportunities in Vietnam are ample, including both natural and cultural tourism.

In spite of these favorable conditions, Vietnam has not been able to take advantage of the natural beauty and rich culture due to the lack of development strategy and confusion in defining ecotourism activities. Considering the pivotal role of ecotourism in economic development as well as the growth potential of this sector in Vietnam, it is of great benefit for travel agents, ecotourism sites and even the government to understand its contents and identify service features that offer the best experience to ecotourists.

2.3 Service quality attributes in the ecotourism industry

With regard to the ecotourism sector, based on SERVQUAL (Parasuraman *et al.*, 1985), Khan (2003) developed a model measuring service quality expectation of ecotourists, named ECOSERV. Besides five dimensions inherited from SERVQUAL without any modification (including reliability, responsiveness, assurance, empathy and tangibles), a new dimension, eco-tangibles, is added. Thus, while SERVQUAL measures the tangibles by 4 items, ECOSERV uses 14 items which are divided into two categories: equipment and service facilities, and elements related to the environment. ECOSERV has become a basic measurement instrument of ecotourism attributes (Ladhari, 2008), and has been applied in many subsequent studies in the field (Khan and Su, 2003).

However, many scholars have debated the comprehensiveness of the ECOSERV dimensions (Ban and Ramsaran, 2016) and suggested a need to improve this scale for better and more reliable measuring capability. While ECOSERV places greater emphasis on physical facilities and equipment appropriate to the environment, local recreational activities and other factors with endemic characteristics, arguably a major motivation for many ecotourists, are largely ignored. In addition, except for the relationship with staff, other social interactions which can affect the ecotourism experience are not mentioned adequately in the model. Given that ecotourism is a form of community-based tourism, the interactions between tourists and local people or cultures at the destination is one of the driving forces behind the decision to choose ecotours (Devesa *et al.*, 2010; Kastenholz *et al.*, 2012). Similarly, ecotourists' experiences can also be affected by the presence, behavior and the quality of their interactions with other travelers (Camelis *et al.*, 2014). It has been shown that meeting and exchanging views with people having the same interest is important to many tourists (Reichenberger, 2017) as such interactions create social values related to personal orientation (Richins, 1994). As "ecotourists are likely to perceive ecotourism site visits in terms of their expressive experience rather than merely as an utilitarian transaction," the feelings of tourists toward their visit will shape their experiences (Lian Chan and Baum, 2007a, b). As such, "relaxation" feelings play a vital role in the process of the ecotourists' experience (Eagles, 1992). Finally, while price-quality inference attributes have proven good indicators of product/service quality in previous research, they are rarely applied in the tourism service domain, especially with ecotourism. In response to this gap in the literature, this study aims to explore additional eco-attributes that help to measure service quality in the context of ecotourism.

2.4 Customer satisfaction and dissatisfaction

Customer satisfaction is a central concept in marketing because of its role in creating the company's competitive advantages (Mittal *et al.*, 2005). There has been a growing tendency to consider customer satisfaction as a function of satisfaction and dissatisfaction at an attribute level (i.e. satisfaction and dissatisfaction toward different components of a product

or service) (Slevitch and Oh, 2010). Gardial *et al.* (1994) demonstrate that customers are more likely to evaluate their post-purchase experiences and describe their consumption outcomes based on attribute-level quality than on the overall offering, acknowledging the multi-faceted nature of service consumption. The recent popularity of this approach is due to the fact that it provides better diagnostic benefits for business managers by identifying areas (attributes) for improvement (Verhoef *et al.*, 2004).

Many scholars in their models, however, implicitly assume a linear relationship between each constituent attribute and overall customer satisfaction. That is, adequate quality at an attribute level leads to a certain level of satisfaction while the same level of dissatisfaction is engendered by equally inadequate quality. Satisfaction, in this case, is considered a bipolar concept, implying that the opposite of satisfaction is dissatisfaction (Oliver, 1980; Westbrook, 1987). This view has been questioned by many subsequent studies suggesting service attributes which might generate satisfaction but their absence might not lead to dissatisfaction and vice versa (Cadotte and Turgeon, 1988; Johnston, 1995; Kano *et al.*, 1984; Llosa, 1996). Interestingly, this approach, which has been widely adopted in marketing, was first introduced by Herzberg (1959) in the area of human resources. He argued that two groups of factors, namely, motivation factors and hygiene factors, have distinct impacts on employee satisfaction. Therefore, satisfaction and dissatisfaction are not two extremes on one continuum. Instead, the opposite of satisfaction is no satisfaction, and the opposite of dissatisfaction is no dissatisfaction (Figure 1).

2.5 Kano's classification of service attributes

Supporting the two-factor approach, Kano *et al.* (1984) pointed out the non-linear nature of customer satisfaction function. Kano's original contribution is that his model reconciled the traditional customer satisfaction and two-factor views by making a distinction between attributes that have one-dimensional effects and those that have asymmetrical effects. Kano's model was later adopted and refined by other studies (Anderson and Mittal, 2000; Matzler and Sauerwein, 2002). By pointing out that product/service attributes do not contribute equally to customer satisfaction, these proposals challenge the traditional customer satisfaction models that suggest higher satisfaction on all attributes is more desirable.

In his model, Kano and colleagues (1984) distinguished five types of quality attributes whose performances impact differently on customer satisfaction. They are called attractive, one-dimensional, must-be, indifferent and reverse quality. The presence of attractive attributes tends to generate satisfaction, but their absence does not cause any feeling of dissatisfaction. Conversely, must-be attributes do not have a positive impact on satisfaction, at best only leads to a state of "not dissatisfied" if customers' expectations are exceeded, but dissatisfaction is

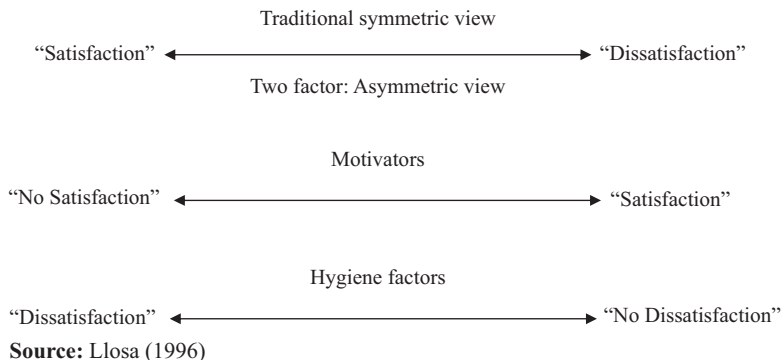


Figure 1.
Two approaches of
the asymmetry of (dis)
satisfaction

triggered by their absence. One-dimensional attributes have a symmetric impact on both satisfaction and dissatisfaction in proportion to their level of fulfillment. Indifferent quality includes attributes that have no impact on customer satisfaction or dissatisfaction whether they are present or absent, fulfilled or not. In contrast to one-dimensionals, reverse quality causes dissatisfaction when present and satisfaction when absent.

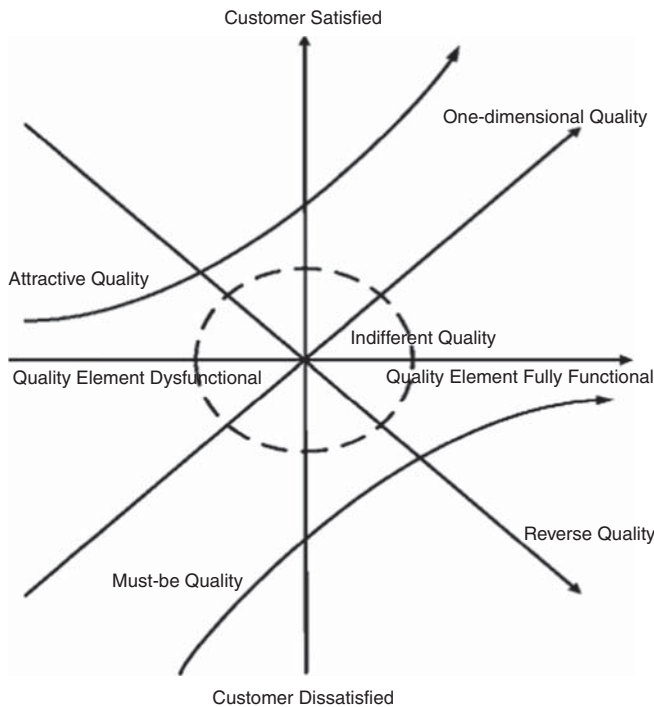
The relationships between these quality attributes and customer satisfaction are visually illustrated in Figure 2.

The classification of attributes according to Kano's criteria has been conducted in various contexts, which further confirms the model's usefulness in establishing positioning and pricing strategies and directing product development efforts (Gregory and Parsa, 2013). The Kano's model has also been widely utilized in tourism and hospitality setting (Högström *et al.*, 2010; Pawitra and Tan, 2003), but to the authors' knowledge, there has been no attempt to use the model to categorize eco-service attributes according to tourist preference. Such categorization will help to reveal the origins of tourist satisfaction and the features that should be focused on in order for a tour provider to be competitive and differentiate itself in the marketplace.

3. Methodology

3.1 Qualitative research

3.1.1 *Qualitative study design.* While ECOSERV is used in this study as a basic framework for assessing ecotourism service quality, further dimensions to cover the experiential aspects of tourists have also been explored from the literature. In the next step, an in-depth interview approach was implemented in order to determine ecotourism service experience



Source: Kano *et al.* (1984)

Figure 2. Kano's model

and identify the underlying dimensions and sub-dimensions (attributes) for Vietnamese tourists. The rationale for using a qualitative approach in this case is that it provides an insight into the complex behavior of ecotourists (Richardson *et al.*, 1999). In total, 22 ecotourists who had traveled to a national forest or park area in the last two years participated in the interview as 20–40 in-depth interviews are recommended as the sample size for qualitative research (Travers, 2009).

An interview guide with a combination of open-ended and semi-structured questions was used, which ensures consistent conduct of the interview and systematic collection of data. The main interview questions were divided into three parts. First, the informants were asked about their recent trip at one ecotourism place regarding what they saw, did and explored about the tangibles, environment, culture of the place, what they perceived and felt about the staff, local people, the social interaction in their trip, and what they perceived about the overall service quality. Next, the participants were asked about critical service quality attributes during their experience. This second step included open-ended sub-questions based on service expectation attributes on ECOSERV. Finally, the informants were asked about the most positive and negative experiences in order to explore more aspects of experience and service quality attributes that they have not mentioned before.

3.1.2 Content analysis. All responses were recorded, transcribed and analyzed using inductive reasoning (Lincoln and Guba, 1985). With the objective of the study to test theoretical issues to enhance understanding of the concepts, the content analysis recommended by Lauri and Kyngas (2005) was then conducted, by manual procedures. Basically, it works by dividing the many contents of the text into much smaller content units, then classifying the units that share similar meaning into the same category (Bardin *et al.*, 2005). The relevant units contribute to the explanation of the category. After the different categories had been established, we counted the frequencies of the units (attributes of ecotourism) to identify the presence of dominant and at times not so dominant units. The units whose frequencies were less than half of the total number of interviewees will be removed. We noted that convergence in the responses or repetition and saturation started to occur at the 15 interviews mark. Seven more interviews were conducted to ensure no new information was being provided.

Table I shows the service attributes that have been cited and have emerged from the qualitative research.

3.2 Quantitative research

3.2.1 Empirical study design. A questionnaire was constructed on the items that have been drawn from the literature review, confirmed or added by the subsequent qualitative research. In total, 367 tourists who had visited ecotourism destinations in Vietnam participated in the questionnaire by giving their answers to 48 sets of questions related to 48 service experience attributes. Of these, 324 valid answers were used. The questionnaire was conducted with the help of some tour operators in Ho Chi Minh City during six months.

The classification of service attributes was made using the method proposed by Kano *et al.* (1984), called the functional-dysfunctional questionnaire. In this structured questionnaire, each service attribute was represented by a pair of questions, one (functional) to capture the consumer's feelings when the attribute is provided in the offering while the other (dysfunctional) examines the consumer's feelings in the case of an absence of such attribute. For example:

Functional item: If the staff at the ecotourist destination provide you with necessary information, how do you feel?

Dysfunctional item: If the staff at the ecotourist destination do not provide you with necessary information, how do you feel?

Service and experience attributes		Examples of existing literature in ecotourism	Emerging from qualitative study (Ratio equivalent $n/22 \times 100$)
Assurance1	Feeling safe during my visit	Parasuraman <i>et al.</i> (1988), Khan (2003), Kim Lian and Baum (2007) and Yusof <i>et al.</i>	22
Assurance2	Staff providing necessary information	Parasuraman <i>et al.</i> (1988) and Khan (2003)	18
Assurance3	Staff having knowledge to answer my questions	Parasuraman <i>et al.</i> (1988), Khan (2003) and Yusof <i>et al.</i>	11
Assurance4	Staff instilling confidence in customers	Parasuraman <i>et al.</i> (1988) and Khan (2003)	20
Assurance5	Staff consistently courteous	Parasuraman <i>et al.</i> (1988), Khan (2003) and Yusof <i>et al.</i>	17
Reliability1	Staff providing services at promised time	Parasuraman <i>et al.</i> (1988) and Khan (2003)	13
Reliability2	Staff insisting error-free service	Parasuraman <i>et al.</i> (1988) and Khan (2003)	12
Reliability3	Staff performing the service right the first time	Parasuraman <i>et al.</i> (1988) and Khan (2003)	11
Reliability4	Staff showing sincere interest in solving problem	Parasuraman <i>et al.</i> (1988) and Khan (2003)	13
Reliability5	<i>Staff providing reliable information</i>	Yusof <i>et al.</i>	14
Responsiveness1	Staff always willing to help	Parasuraman <i>et al.</i> (1988), Khan (2003) and Yusof <i>et al.</i>	20
Responsiveness2	Staff giving prompt service to customers	Parasuraman <i>et al.</i> (1988), Khan (2003) and Yusof <i>et al.</i>	20
Responsiveness3	Staff never busy to help	Parasuraman <i>et al.</i> (1988) and Khan (2003)	11
Responsiveness4	<i>Staff providing details regarding the service/product offered</i>	Qualitative result	14
Empathy1	Staff providing tourists with personal attention	Parasuraman <i>et al.</i> (1988), Khan (2003) and Yusof <i>et al.</i>	14
Empathy 2	Staff understanding the specific needs of tourists	Khan (2003)	11
Empathy3	<i>Operating hours of services being convenient</i>	Parasuraman <i>et al.</i> (1988), Khan (2003) and Yusof <i>et al.</i>	15
Tangible1	Facilities reflecting local influence	Parasuraman <i>et al.</i> (1988) and Khan (2003)	21
Tangible2	Materials and facilities visually appealing	Parasuraman <i>et al.</i> (1988)	22
Tangible3	<i>Facilities being clean</i>	Qualitative result	20
Tangible4	<i>Facilities being comfortable</i>	Qualitative result	13
Tangible5	<i>Natural resources easy to access (i.e. adequate transport, materials used to interact with nature [...])</i>	Yusof <i>et al.</i>	19
Eco-tangible1	Facilities appropriate to the environment	Khan (2003) and Yusof <i>et al.</i>	15
Eco-tangible2	Equipment minimizing degradation	Khan (2003)	14
Eco-tangible3	Facilities environmentally safe	Khan (2003)	13
Eco-tangible4	<i>The transport minimizing the pollution</i>	Qualitative result	12
Eco-tangible5	<i>The environment being unpolluted</i>	Qualitative result	20

(continued)

Table I.
Service quality and experience attributes at ecotourism locations

Service and experience attributes	Examples of existing literature in ecotourism	Emerging from qualitative study (Ratio equivalent n/22 × 100)
Eco-tangible6 <i>The nature being wild and undisturbed</i>	Eagles (1992)	22
Eco-tangible7 <i>The scenery and nature being attractive</i>	Lu and Stepchenkova (2012) and Yusof <i>et al.</i>	22
Price-quality1 <i>Price fitting service quality</i>	Qualitative result	22
Price-quality2 <i>Staff respecting the listed prices</i>	Qualitative result	13
Price-quality3 <i>Staff ensuring the quality of services fits the listed prices</i>	Qualitative result	14
Interaction with local1 <i>Local people showing hospitality toward tourists</i>	Qualitative result	22
Interaction with local2 <i>Local people not having discrimination against different tourists</i>	Qualitative result	17
Interaction with local3 <i>Simple and authentic meetings with local people</i>	Qualitative result	16
Interaction with local4 <i>Experience of new lifestyles (local culture)</i>	Eagles (1992)	18
Interaction with nature1 <i>Authentic interaction with nature</i>	Qualitative result	22
Interaction with nature2 <i>Different nature-based local activities (jungle tracking, kayaking, live animals [...])</i>	Holden and Sparrowhawk (2002), Lu and Stepchenkova (2012) and Yusof <i>et al.</i>	20
Interaction with nature3 <i>Delicious local foods made with natural ingredients</i>	Qualitative result	22
Interaction with nature4 <i>Beautiful and original local products made by using natural resources</i>	Qualitative result	14
Interaction with other customers1 <i>Not disturbed by the presence of other tourists in my visit (number, density)</i>	Qualitative result	20
Interaction with other customers2 <i>Nice exchange with other tourists in my visit</i>	Eagles (1992), Kim Lian and Baum (2007) and Lu and Stepchenenkova (2012)	16
Interaction with other customers3 <i>Proper behavior of other tourists in my visit</i>	Qualitative result	13
Relaxation1 <i>Feeling like home</i>	Eagles (1992) and Kim Lian and Baum (2007)	16
Relaxation2 <i>Feeling a change from my busy job</i>	Eagles (1992)	21
Relaxation3 <i>Feeling an escape from the demands of life</i>	Eagles (1992)	22
Relaxation4 <i>Feeling I could act the way I like</i>	Eagles (1992)	16
Relaxation5 <i>Feeling a peaceful atmosphere</i>	Kim Lian and Baum (2007) and Lu and Stepchenkova (2012)	22

Notes: A statement with negative meaning is regarded the same as one with positive meaning (of the same item) for the purpose of counting the frequencies of the items in 22 interviews. Items in italic indicate new service attributes found from studies other than those suggested in Khan's model (2003)

Table I.

The respondents have five options to register their responses: (1) I like it that way; (2) I expect it to be that way; (3) I'm neutral; (4) I can accept it that way; (5) I dislike it that way.

3.2.2 *Quantitative data analysis.* The data are then analyzed by means of an evaluation table, resulting in a categorization of the ecotourism service attributes for each respondent into five Kano categories (as illustrated in Figure 4). For instance, if the tourist answers

"I like it that way" to the functional form of the question, and answers "I am neutral" or "I can accept it that way" to the dysfunctional form of the question, the combination in the evaluation table reveals A (attractive quality). If the combination results in I, the customer is indifferent to the attribute whether it is provided or not. Category O indicates a one-dimensional attribute. A combination resulting in category R means the service attribute is not wanted; the customer prefers its absence. Category Q, where most answers do not fall into, represents questionable results. This may be caused by incorrect phrasing or misunderstanding (Matzler and Hinterhuber, 1998).

The frequencies of single-respondent categorizations provide the basis for the final classification of attributes (Figure 3).

The variations in market segments as well as differences in customer demands and expectations may result in some ambiguity in classification; for example, some attributes can be assigned to more than one category. Hence, understanding the impact of each service attribute on the satisfaction of all the customers provides a useful tool to compare and categorize the attributes. Berger *et al.* (1993) therefore suggest the customer satisfaction coefficient which is indicative of the extent of influence a specific product/service attribute has on satisfaction (in case of fulfillment) and on dissatisfaction (in case of non-fulfillment).

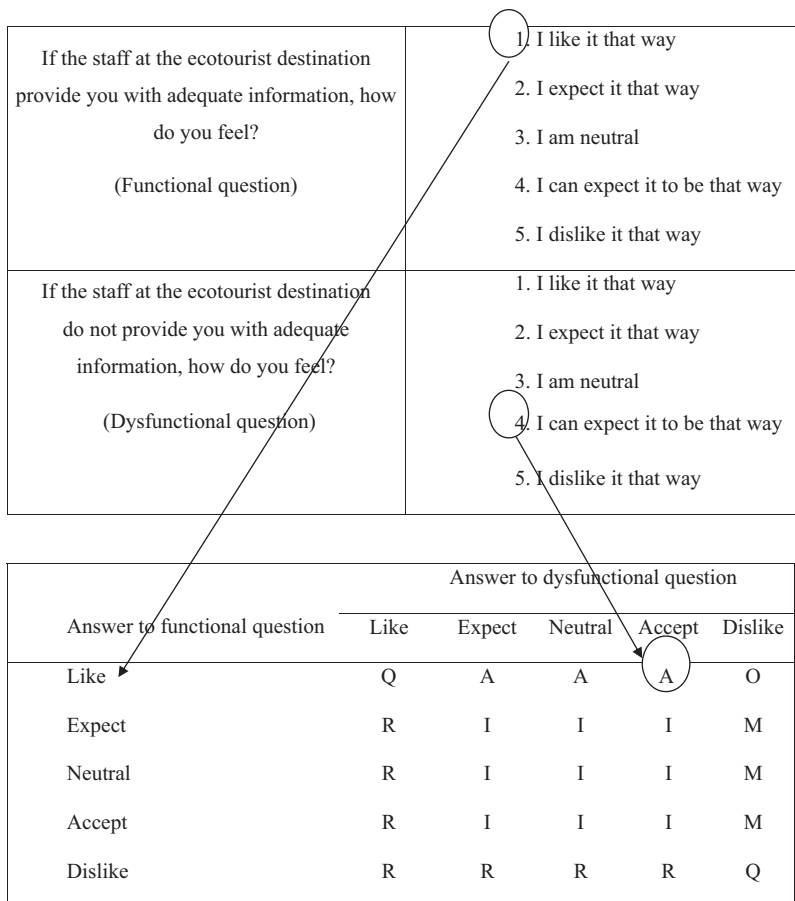


Figure 3. Kano's method

The coefficient includes two indices, satisfaction increment index (SII) and dissatisfaction decrement index (DDI) which are calculated as follows:

$$\text{SII} = (A + O)/(A + O + M + I);$$

$$\text{DDI} = (O + M)/(A + O + M + I)(-1),$$

where A is attractive quality, O is one-dimensional quality, M is must-be quality and I is indifferent quality.

SII scores range from 0 to 1: a value of 0 means that the effect of the service attribute on consumer satisfaction is negligible, whereas a value of 1 represents a positive effect on customer satisfaction. Meanwhile, DDI ranges from -1 to 0. If it is close to -1 the influence of a non-fulfilled service attribute on dissatisfaction is strong while a value of 0 indicates no dissatisfaction caused when the attribute is not or under-fulfilled.

These indices will be calculated in this study to illustrate the level of impact of each service attribute on satisfaction and dissatisfaction.

4. Results

4.1 *Defining service attributes in ecotourism*

First, the study used principle component analysis with a varimax rotation (Kinnear and Taylor, 1996). The number of factors was not restricted. For the sake of convergent validity, 0.5 was used as a factor loading cut-off point. Items had to display a 0.3 loading difference with any other factors to ensure distinctive validity. After the first exploratory factor analysis (EFA), one item had been eliminated because factor loading was less than 0.5 "Operating hours of services at this place are convenient." After this, EFA was run again. The results showed 11 factors with the factor structure fully matched: Bartlett's test of sphericity is statistically significant ($p(\text{Bartlett}) = 0.000$), which verified that the correlation matrix was not an identity matrix, thereby validating the suitability of the factor analysis. The Kaiser-Meyer-Olkin (KMO) was performed, which showed $\text{KMO} = 0.953$, higher than the suggested 0.60. Total variance explained was 67.86 percent. The factor loadings of the remaining items ranged from 0.50 to 0.750. The results of the reliability test also met requirements (all Cronbach's $\alpha - \alpha \geq 0.706$), which showed the internal cohesiveness among items within each factor (Hair *et al.*, 2010).

Following the procedure, similar units were clustered together to produce 11 categories or dimensions (together consist of 48 units or attributes) including: assurance, reliability, responsiveness, empathy, tangibles support, eco-tangibles, price-quality, interaction with nature, interaction with other customers, interaction with the locals and relaxation feelings. The first five categories were consistent with five service quality dimensions on SERVQUAL or ECOSERV. Also, most of the attributes of the eco-tangibles dimension were compatible with the same dimension in ECOSERV. However, there were additional service experience attributes found under each of these six dimensions. The finding is not totally novel, as some items can be found in a few studies that focus on ecotourists' experience or motivation in the literature. The corroboration of these findings with the existing service quality or service quality expectation in the literature supports the rigor and trustworthiness of the study. Five emerging dimensions are labeled price-quality, interaction with nature, interaction with local people, interaction with other customers and relaxation feelings.

4.2 *Classification of service attributes*

The ecotourism service attributes classified by Kano's method in this study fall into only four categories (rather than all six listed in Section 3.2.2): one-dimensional, must-be, attractive and indifferent. The degree of impact of these attributes on satisfaction and

dissatisfaction (SII and DDI indices) is also calculated. Details of classification results are shown in Figures 4–7.

Of the total 48, the findings reveal 13 attractive attributes, 11 must-be attributes, 12 one-dimensional attributes and 12 indifferent attributes. However, the classification is not unambiguous. While most of the attributes can be classified into certain quality groups by 50 percent or more of individual responses, there are some attributes that combine the characteristics of different categories (i.e. proportion of the strongest category below 50 percent). For instance, in the one-dimensional group, one attribute also belongs to indifferent, one to must-be and one to attractive. Similarly, as observed in the must-be category, there is one attribute that can also be assigned to “attractive,” one to “one-dimensional.” With regard to attractive attributes, the combinations include three attractive that can also be “indifferent” and one which is also “one-dimensional.” Most noticeably, the indifferent group has the highest number of “hybrid attributes,” with only one attribute being totally indifferent. Meanwhile, eight attributes have potential to become “attractive,” two attributes have potential to become “one-dimensional” and two attributes have potential to become “must-be.”

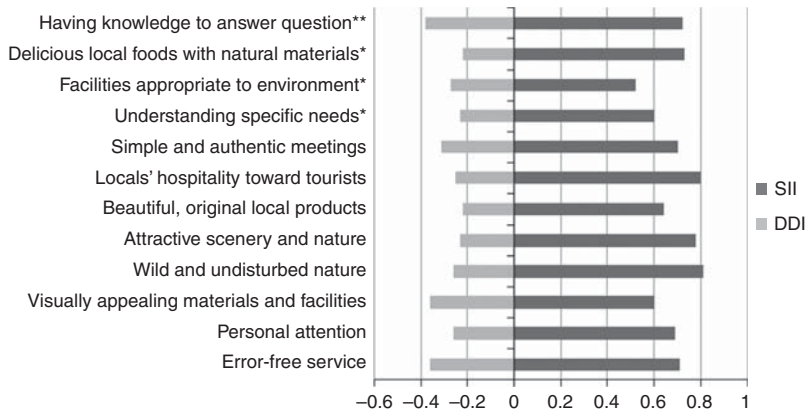


Figure 4. CS Coefficients of attractive attributes

Notes: *(A-I); **(A-O)

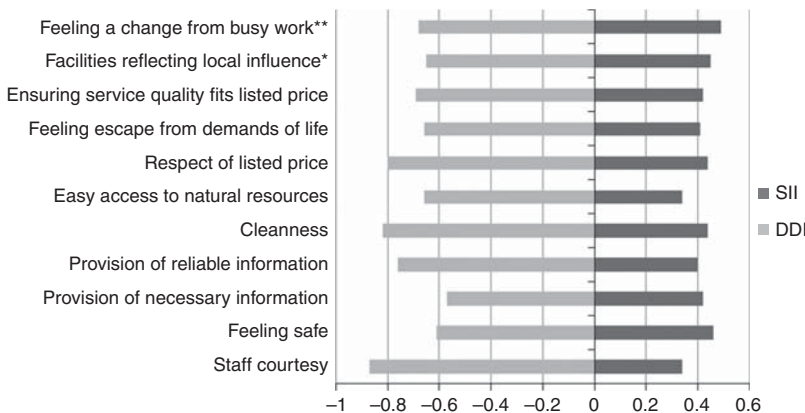
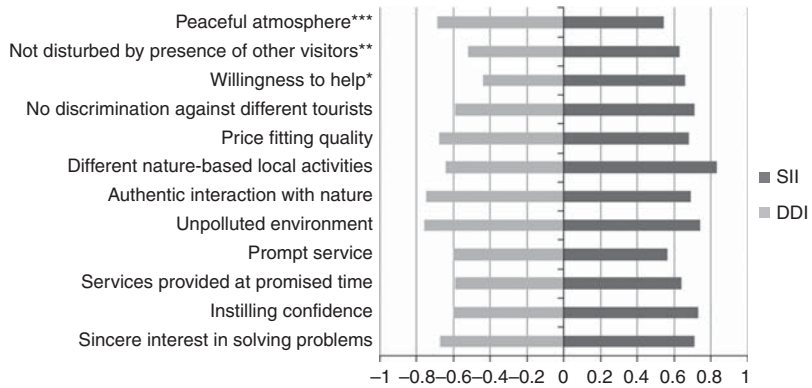


Figure 5. CS Coefficients of must-be attributes

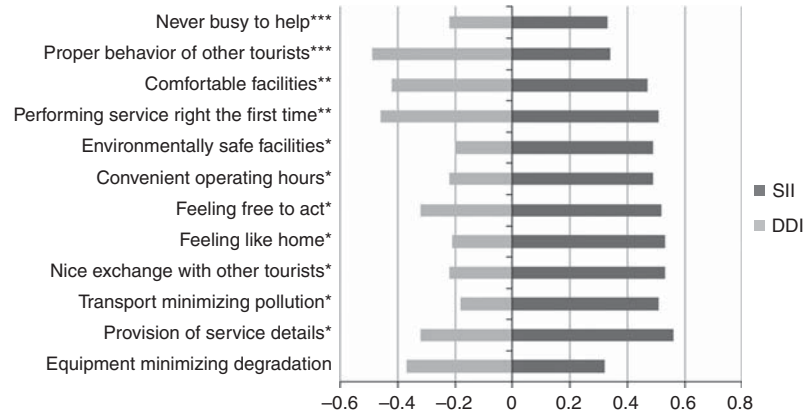
Notes: *(M-I); **(M-O)

Figure 6.
CS Coefficients of one-dimensional attributes



Notes: *(O-A); **(O-I); *** (O-M)

Figure 7.
CS Coefficients of indifferent attributes



Notes: *(I-A); **(I-O); *** (I-M)

This combination phenomenon is not uncommon. Several papers that adopt Kano's techniques also come up with attributes that cannot be clearly classified (e.g. Högström *et al.*, 2010; Löfgren and Witell, 2005). According to the authors, the dynamics of service attributes may be one possible explanation for this trend. For example, Kano (2001) suggested alternative life cycles of quality attributes. A successful service attribute, for example, starts from being indifferent to attractive when customers discover its usefulness and feel satisfied when using it. Then over time, customers who experience the attractive attribute with satisfaction will become dissatisfied if it disappears, making it one-dimensional quality, which eventually matures into a must-be attribute. A successful service attribute, therefore, has the typical pattern: indifferent – attractive – one-dimensional – must-be. Alternatively, “flavor of the month” attributes follow a life cycle from being indifferent to one-dimensional then back to indifferent. This explanation also seems consistent with Maslow's hierarchy of needs that suggests customers having their needs substantially met will move to seek satisfaction of higher-level needs. As the lower-level needs now become basic and expected, lacking them will cause dissatisfaction. Nilsson-Witell and Fundin (2005) provided further support for the existence of the life cycles of service attributes. However, according to

Högström *et al.* (2010), regarding attributes classified as combinations, more research should be conducted to determine whether it is caused by changes in their life cycles or by differences between studied segments (e.g. gender, skill and age).

The following figures provide visual illustrations regarding the degree of impact each category of attributes has on customer satisfaction and dissatisfaction, with detailed analyses.

As can be seen, of the 13 attributes categorized as attractive, those that have the greatest potential to delight customers include the wilderness of nature, the attractiveness of scenery, local foods and the hospitality of local people. It can be noted from the results that a large share of ecotourists' satisfaction comes from nature-related and site-specific elements. Support for this view is given in other studies in ecotourism. For example, Sim and Lee (2013), when examining visitors' satisfaction and their intention to revisit and recommend national natural forests in Korea, found that visitors were most satisfied with forest scenery, cleanliness of stream and kindness of personnel. Nepal (2007) surveyed trekkers in a mountain area in Nepal and reported higher importance ratings for natural attributes than for comfort and hygiene-related attributes. These findings seem consistent with how the extant literature has characterized ecotourists as those who seek "uncrowded, remote, wilderness, learning about wildlife, nature and local cultures, community benefits and having physical challenge" (Wight, 1997, p. 218). Attractive attributes act to increase importantly customer satisfaction, without triggering dissatisfaction in the case of under-fulfillment. As a consequence, significant investment in these attractive attributes is likely to generate exceptional and memorable experiences exceeding visitors' expectations.

On the other hand, the must-be category presented in Figure 5 includes 11 attributes. Those with the strongest level of impact in this group are the courtesy of staff, respect of listed prices, the reliability of information and the cleanliness of facilities. Interestingly, most of these involve human factors. Also, people who decide to embark on an ecotour seem to have high expectations of the relaxative values it offers, a trend reflected through some attributes in this group such as a change from work or an escape from life. Must-be attributes require adequate attention because they are the main source of dissatisfaction.

The findings also show some attributes that have linear influences on customer satisfaction: customers will be happy if the quality of these attributes is assured and displeased otherwise. The 12 one-dimensional attributes are mainly associated with the interaction with nature, the range of nature-based activities, unpolluted environment, the attitude and competence of staff at ecotourism sites. They have similar levels of influence on tourist satisfaction and dissatisfaction (Figure 6). This classification of staff service is in agreement with Lu and Stephenkova (2011) who suggest many service attributes (e.g. customer service or tour guide service) be categorized in this group.

Finally, there are 12 attributes that are placed in the indifferent category. It is of note that only one attribute has practically no impact on satisfaction and dissatisfaction irrespective of their performance (equipment minimizing degradation). Apart from this, some indifferent attributes, when performing well, have potential to become a source of customer delight, some others are more likely to become one-dimensional, and one has potential to be considered as must-be. It is also worth noticing that most of these "hybrid" attributes seem to be associated with service quality requirements that are deemed difficult to fulfill (such as service performed right the first time) or unnecessary in the context of ecotourism (such as feeling like home and comfortable facilities) or those that tourists may implicitly assume that the eco-site management has little control over such as behavior of other tourists during their visit or their exchange with other tourists.

5. Conclusion

The study enriches and contributes to the available literature on ecotourism service quality by proposing a modified model of ECOSERV which incorporates the social and experiential

aspects of the ecotourism service experience. Five further dimensions of the scale, including price-quality, relaxation feelings, interaction with nature, interaction with other customers and interaction with the locals, have been proposed.

The results confirm the multifactor structure of customer satisfaction. Attributes whose high quality has strong influences on customer satisfaction do not necessarily cause dissatisfaction when failing to meet customers' expectations. For instance, it is found that if employees at an ecotourism site have sufficient knowledge to answer tourists' questions with regard to the site and ecotourism activities, the tourists will be very pleased. However, limited knowledge of employees does not cause dissatisfaction, meaning it is not expected of the employees to be able to answer all questions. On the other hand, there are certain service attributes that are taken for granted; for example, the accuracy of information provided. The provision of correct information does not make tourists more satisfied, but they will become extremely displeased if information is later found inaccurate. Similarly, attributes whose performances are proportionate to customers' satisfaction (one-dimensional) or unremarkable to them (indifferent) are also revealed in the study.

Our findings can provide practitioners with insights regarding how to better manage the customers' service experience at ecotourism destinations so as to maximize satisfaction. Although a service-oriented company might wish to offer a continuously positive experience to its clients, maintaining such a performance is likely to be unrealistic. Rather, service experiences tend to consist of both positive and negative events. Understanding potential impacts of discrete events in a service experience on satisfaction and dissatisfaction provides managers with a basis for performing. Moreover, the classification of different elements of the ecotourism service is helpful to decide how much money and effort should be placed on each quality attribute. Consequently, optimal investment can be made in order to produce highest level of satisfaction within a predefined budget. This is especially important in trade-off situations when multiple service requirements cannot be met due to resource constraints. Travel agencies and tour operators will also find the classification useful to help them design effective and attractive ecotourism experiences that will deliver greater customer's pleasure and satisfaction.

This study still has a number of issues hindering the generalizability of its findings, which suggest areas for further research. The sample size is adequate, but it should extend the sample to be generalizable to the whole population. This research focuses on ecotourists' experience at national forests or parks. Also it has been conducted only with Vietnamese tourists. As culture gap may create significant differences in terms of tourists' behavior and perception, it is recommended that the study is replicated for international ecotourism contexts in order to identify sources of satisfaction for tourists of different countries and cultures, draw a distinction between the different types of tourists and provide consequent managerial implications. Future research may also focus on the classification of service attributes according to other criteria such as gender, age, purpose of the trip.

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