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Determining Service Improvement Priority in a Zoological Park

Ronald Sukwadi[1],Ching-Chow Yang[2]

[1]*Department of Industrial Engineering Atma Jaya Catholic University of Indonesia (Indonesia)*
[2]*Department of Industrial and Systems Engineering Chung Yuan Christian University (Taiwan)*

ronaldmanutd@yahoo.com, chinchow@cycu.edu.tw

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Abstract:

Purpose: The objective of this research is to determine the service improvement priority based on tourist judgements and experiences on service quality in a zoological park.

Design/methodology/approach: A powerful integrated model was developed to acquire accurate critical service attributes and their priority ranks that can promote tourist satisfaction and tourist loyalty. Drawing on relevant literature, a model was proposed based on tourists' perspective by integrating structural equation model (SEM) with SERVQUAL and refined Kano models.

Findings and originality/value: Based on the analysis of data through some quantitative tools, the study helped in prioritizing the critical service attributes, which, if adopted, improved, and implemented, could lead to satisfaction of tourists. This will help a zoological park to propose more efficient and value-added improvement policies of the service

Research limitations/implications: The primary limitation in the scope its sample. Because the study involved only one Zoological Park in Indonesia, the results cannot be generalized across a national wide spectrum.

Originality/value: The study was the first to successfully apply an integrated model in tourism sector, which has previously not been used. The study has hopefully opened up an area of research and methodology that could provide considerable further benefits for researchers

interested in this topic. Moreover, the integrated model has proven to be useful in determining the priority rank of critical service quality attributes.

Keywords: SERVQUAL, refined Kano model, SEM, service attributes, improvement priority

1. Introduction

As service industries are facing increased competition from market pressures, providing high quality service is an important strategy for business survival and growth. The main reason is that consumers have become increasingly sensitive to product and service quality in recent years (Lee & Hing, 1995). It is therefore important that the quality management system used by service industries will consider customer satisfaction as one of primary indicators to measure a company's performance. Usually, service quality is difficult to evaluate due to the unique features of service delivery—intangibility, heterogeneity and inseparability of production and consumption (Kang & Bradley, 2002). The customers evaluate the service quality based on the comparison between their expectations and perceptions on the critical aspects of services (Zeithaml, Berry & Parasuraman, 1996; Vazquez, Rodriguez-Del Bosque, Diaz & Ruiz, 2001; Van Iwaarden & Van der Wiele, 2002). When a service provider is able to lift a customer's experience to a level that exceeds their expectations, then the customer will be satisfied.

Tourism is one of the world's fastest growing service industries as well as the major source of foreign exchange earning and employment for many countries (Willliams & Buswell, 2003). As a service industry, tourism based on interactions with wildlife is increasing in popularity across the world. The traditional perspective of zoological park has three common roles: (1) to exhibit wildlife; (2) to educate visitors about animals; and (3) to enhance the survival of wildlife through research and conservation (Alexander, 1979). However, they provide an incomplete view of the contemporary perspective of most leading zoological park, which includes three additional roles: (1) to provide opportunities for recreation in natural settings; (2) to provide a tourist experience of outstanding service quality; and (3) to weave quality entertainment through the tourist experience (Tomas, Crompton & Scott, 2003). These additional goals reflect an emerging recognition among managers regarding the importance of quality of service offerings. Thus, zoological parks not only are collection of labelled animals to be protected and studied, but they are also popular recreational destinations.

A tourist's satisfaction comes from the activity component of an experience (Quan & Wang, 2004). The recreational experience is a multiphase conception comprising of the anticipation time, travel to the experience, on-site participation, travel back and recollection phases (Borrie & Roggenbuck, 2001). The recreational experience is affected by involvement, place attachment, social factors and the characteristics of the recreational areas (Kyle, Graefe,

Manning & Bacon, 2004; Gross & Brown, 2006). Recreational experiences in wild life tourism sites including zoological park provide opportunities to observe and interact with animals that may be endangered, threatened or rare, and are being offered in an increasing number of destinations world-wide (Woods & Moscardo, 2003; Cousins, 2007; Ballantyne, Packer & Hughes, 2009). A zoological park is one type of wild life tourism that occurs in a range of settings including sites where animals are captive (Akama & Kieti, 2003; Ballantyne et al., 2009). This tourism experiences provide opportunities for direct contact with nature and deliver a positive educational message to their visitors (Ballantyne, Packer & Sutherland, 2011).

As competition for tourist expectations rise, service quality is likely to be a key to zoological parks remaining viable. For most zoological parks tourists, the key determinant of quality service is likely to be the tangible elements of the parks. Service quality is recognized as the principal driver to improve customer satisfaction and, thereby, increase competitiveness (Chang, 2008; Hansemark & Albinsson, 2004; Paulson & Slotnick, 2004; Shamdasani, Mukherjee & Malhotra, 2008). Since quality is a multi-dimensional construct, managers must choose and excel at certain critical characteristics/attributes of their service operations (Vazquez et al., 2001; Matzler & Sauerwein, 2002; Ting & Chen, 2002; Tontini & Silveira, 2007; Witell & Löfgren, 2007). Thus, managers' success in enhancing tourists' quality of experience is likely to be dependent upon their ability to enhance the quality of a zoological park service attributes (Tomas et al., 2003).

Service quality can be improved by managing the performance of the service attributes. Since, not all attributes have the same influence on satisfying tourist needs, it becomes important to find out which critical attributes have a significant impact on tourist satisfaction (Zeithaml et al., 1996; Cronin, Brady & Hult, 2000; Yang, 2003; Tontini & Silviera, 2007; Ramseook-Munhurrun, Naidoo & Lukea-Bhiwajee, 2009). So, it is necessary for a zoological park to continuously access the attributes of service quality and hence tourists' expectation and perception on these attributes. A manager of a zoological park needs confirmation from the tourist that the facilities, services, and programs generally provided are satisfactory. Measuring service quality is premised on what Manning (1985) refers to as "evaluative communication between tourists and managers".

In pursuit of its goal of improving quality continuously, a zoological park sought to determine what service attributes zoological park visitors deemed to be critical and important; what attributes were viewed as unimportant; the types of experiences visitors were expecting; and how the zoological park was perceived to perform as a recreational and educational institution (Tomas et al., 2003). When visitors feel they have received high-quality experiences, they are likely to leave the zoo feeling satisfied with their visit, and will thus be more inclined to visit the zoo again in the future. Thus, understanding which aspects the tourist considers most important when evaluating service offerings has become a priority for zoological parks. It

means that a service provider should find out the critical attributes of the service quality that customers used to evaluate the performance of the service provision (Vazquez et al., 2001; Van Iwaarden & Van der Wiele, 2002; Yang, 2003).

The subject of determining critical service attributes is emphasized by several studies. More recently, several researchers have explored the subjects with varying perspectives and by using different methodologies. The theory of SERVQUAL (Parasuraman, Zeithaml & Berry, 1985; 1988) has been used to determine critical attributes of various services with high customer expectation and provides detailed information about perceived service quality in many different service sectors (Lee & Hing, 1995; Lu & Liu, 2000; Van Iwaarden & Van der Wiele, 2002; Yang, 2003; Kang & Bradley, 2002; Karatepe, Yavas & Babakus, 2005; Akbaba, 2006; Chen, Yang, Lin & Yeh, 2007). However, it should be stated that despite its wide application, the model still has notable deficiencies. Caruana, Ewing & Ramaseshan (2000) commented about the measurement validity of SERVQUAL. Nyeck, Morales, Ladhari and Pons (2002) criticized that the SERVQUAL measurement is more conceptual, and lacks of pragmatism. The service attributes that are used to measure service quality may not represent exact levels of service quality and/or may not measure all the critical attributes of services (Babakus & Boller, 1992). Therefore, although this approach can measure the critical quality attributes, it does not necessarily address actual customer requirements (Nyeck et al., 2002).

Another approach is to use the Kano model to identify the attractive attributes. The Kano model provides a rough sketch of the customer's satisfaction in relation to the product or service performance level (Kano, Seraku, Takahashi & Tsuji, 1984; Yang, 2005; Chen & Lee, 2006; Witell & Löfgren, 2007; Baek, Seung & Weon, 2009). Chen and Lee (2006) used Kano model to evaluate the performance of the student's dormitory service quality in Taiwan. In their paper, Baek et al. (2009) investigated how customers perceive currently available 3G mobile services by using the Kano model, it tried to categorize them into five quality attributes: attractive, one-dimensional, must-be, indifferent, and reverse. Some researchers comment that Kano model only allowed qualitative assessment of quality attributes (Yang, 2005), which could not precisely reflect the extent to which the customers are satisfied (Berger, Blauth, Boger, Bolster, Burchill, DuMouchel et al., 1993). This model also has a deficiency that prevents service providers from precisely evaluating the influences of quality attributes (Yang, 2005; Witell & Löfgren, 2007; Xu, Jiao, Xi, Helander, Jiao & Khalid, 2009). This model neglects the consideration of degree of importance of the service attributes. Thus, Yang (2005) refined the Kano model by considering the importance degree into the original model.

In the tourism industry context, although there are some methods can be used to identify tourist needs that can be used to determine the features of critical attributes, but they can not provide sufficiently valuable information for the service attributes. This shortfall causes the

motivation of this research to develop an integrated structural equation model (SEM) with SERVQUAL and refined Kano model as an effective model for evaluating tourist satisfaction and determining the key quality attributes. This integrated model can be used to measure impact degree of the attributes on the service quality, and also to determine the priority of critical quality attributes considered by tourists.

2. Literature review

2.1. Service quality in tourism and SERVQUAL

Quality management in tourism strives for the improvement of the service quality to deliver a distinctive service and stay competitive (Willliams & Buswell, 2003). Service quality is defined by expectancy-disconfirmation theory, which states that a tourist's expectancy level provides a baseline from which confirmatory or disconfirmatory judgments are made about level of performance (Tomas et al., 2003). Tourism service managers are challenged by a complex service environment in order to deliver a quality service and develop strategies to improve the service performance from the tourists' point of view (Gustafsson & Johnson, 2003).

The SERVQUAL is a common measurement instrument for obtaining customers' perceptions of service quality. It can identify differences or the disconfirmation between the customers' expectations and their perceived service performance within a range of potential communication gaps for quality improvement of the service (Parasuraman et al., 1985; 1988). The number of studies that discuss service quality issues in service industry mostly define service quality based on an overall customer judgment of service offerings (Parasuraman et al., 1988), and have viewed service quality as the gap between customers' expectations and their perceptions of actual services (Parasuraman et al., 1985). This measurement technique has been used in a variety of tourism sectors, such as tour operations (Lam & Zhang, 1999), national park operations (Akama & Kieti, 2003), and theme parks (Palmer & O'Neill, 2003),

The SERVQUAL method calculates the perception score and the expectation score by using the questionnaire survey to the customers (Parasuraman et al., 1985; 1988). For each quality attribute, the SERVQUAL score can be computed as follows:

$$\text{SERVQUAL score} = \text{Perception score} - \text{Expectation score} \quad (1)$$

The SERVQUAL consists of five dimensions: tangibles, reliability responsiveness, assurance, and empathy (Parasuraman et al., 1988; Lu & Liu, 2000). In the context of tourism, these dimensions include the appearance of the physical facilities, equipment, personnel, and communication materials (tangibles), the ability of the zoological parks to perform the

promised service dependably and accurately (reliability), the willingness of the zoological parks to help tourists and provide prompt service (responsiveness), the knowledge and courtesy of their staffs (assurance) and the caring, individualized attention the zoological parks provides their tourists with (empathy).

2.2. Kano model and refined Kano model

Kano et al. (1984) proposed a model that was inspired from Herzberg's motivator-hygiene model and identified the quality attributes into five categories, they are: (1) attractive quality, these attributes cause customers' satisfaction when they are fulfilled and are acceptable even when they are not fulfilled; (2) must-be, these attributes are taken for granted when fulfilled, but will result in dissatisfaction when they are not fulfilled; (3) one-dimensional, these attributes lead to satisfaction as fulfilled and result in dissatisfaction when they are not fulfilled; (4) indifferent quality, these attributes result in neither satisfaction nor dissatisfaction, regardless of being fulfilled or not; (5) reverse quality attributes, these elements result in dissatisfaction as fulfilled and lead to satisfaction when they are not fulfilled. Kano model has many applications related to the identification of quality categories, quality management, product/service development, strategic planning. The Kano model has the advantages in classifying the categories of customer needs (Yang, 2005) and helps the firms making quality decision.

However, the decision making can not be more precisely, since the model can not determine the priority of the attributes of each category. To solve this problem, Yang (2005) proposed a refined Kano model by considering the degree of importance of the attributes into the original Kano model. The degrees of importance were classified into "high" importance degree and "low" importance degree, depend on their degree of importance is greater or lower than the mean of importance degree. This refined Kano model can help service providers in precisely evaluating the influences of service quality attributes on product/service quality. The model effectively subdivided each of Kano first four main categories – thus making a total of eight categories from the original four. The redefinition of the categories of quality attributes according to the refined Kano model allows service providers to make quality decisions with more precision (Yang, 2005).

Categories of Kano model	High importance	Low importance
Attractive	Highly attractive	Less attractive
One-dimensional	High value-added	Low value-added
Must-be	Critical	Necessary
Indifferent	Potential	Care-free

Table 1. Categories of quality attributes in refined Kano model

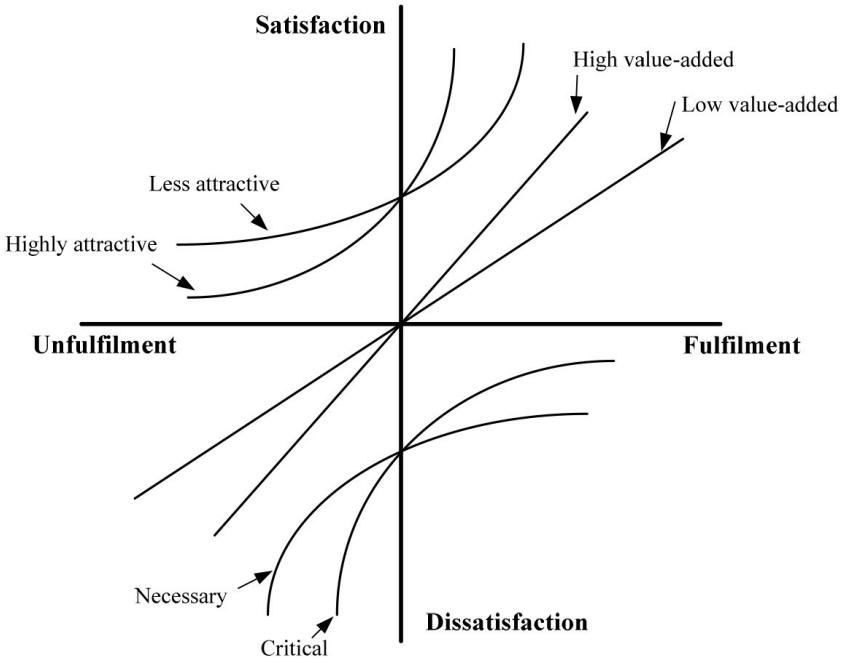

Figure 1. Refined Kano model of quality attributes (Yang, 2005)

Table 1 lists the redefined categories of quality attributes obtained by refining the Kano model. Yang (2005) represented these quality attributes as illustrated in Figure 1.

2.3. Structural equation model (SEM)

SEM is a framework for specifying equation models with latent variables and the application of the LISREL/AMOS statistical software, which has become a popular research in many management areas (Barrett, 2007; Jia, 2008). SEM can be specified to investigate measurement issues and to examine the structural relationships among sets of variables. Baumgartner and Homburg (1996) asserted that most published applications of SEM were factor analytic measurement studies and integrated investigations of both the measurement structure underlying a set of observed variables and the structural relationships among the latent variables. SEM is a multivariate statistical analysis technique that is used to analyze structural relationships (Diamantopoulos & Siguaw, 2000; McQuitty, 2004; Shah & Goldstein, 2006). This technique is the combination of factor analysis and multiple regression analysis, and is used to analyze the structural relationship between measured variables and latent constructs. It usually starts with a hypothesis, represents it as a model, operationalises the constructs of interest with a measurement instrument, and tests the model.

In SEM, theory can be thought of as a set of relationships providing consistency and comprehensive explanations of the actual phenomena. SEM consists of two types of models (Jöreskog & Sörbom, 1996; Diamantopoulos & Siguaw, 2000; Barrett, 2007): (1) a measurement model that specifies how to measure the variables, which are represented in theory; (2) a structural model that shows the relationships among the constructs in theory.

SEM should be tested in order to determine the fit of the model to data (Barrett, 2007). A wide variety of criteria can be computed to assess how well the data fit the model, including chi-square, GFI, AGFI, RMSEA, TLI and CFI, which are commonly utilized criteria (Diamantopoulos & Siguaw, 2000).

3. Methodology

3.1. The development of an integrated model

In this section, we will propose a conceptual framework of an integrated model, which is created to provide a traceable flow-down from describing the model conceptualization to determining the priority ranks of critical attributes. The SERVQUAL model and the refined Kano model are integrated into the SEM to allow the validity of the result and to incorporate the quantitative measures. Figure 2 provides the six main steps in applying this integrated model.

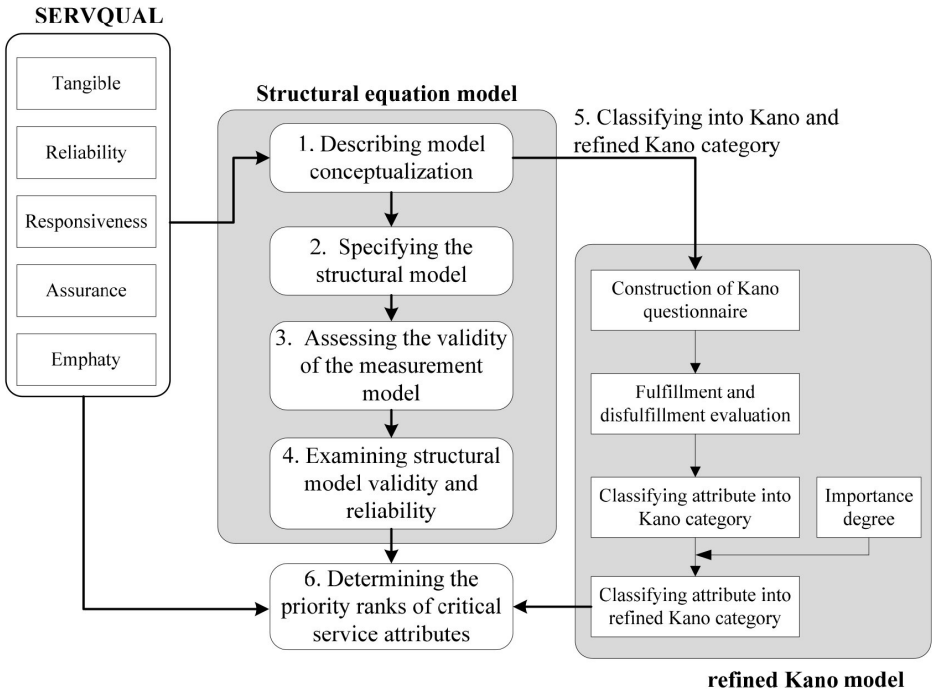

Figure 2. Conceptual framework of integrated model

3.2. Data collection

In this study, Ragunan Zoological Park, Jakarta, Indonesia will be used to illustrate the implementation of the integrated model. A pilot study of a sample size of 50 was conducted to ensure the user-friendliness of the designed questionnaires. Tourists departing the zoological park both in regular and peak season were asked. Beside that, departing tourists in the

mornings, afternoons, and evenings were asked to minimize selection biases. A systematic sampling scheme was used. A total of 200 samples were obtained. Thirty-six of the responses were found unusable and the remaining 164 responses collected were then processed for further analysis. This empirical study was conducted in a period of two months.

4. Result

4.1. Profile of respondents

The results of the descriptive analysis for profile of respondents indicated that among the analyzed samples (n = 164), 57.4% of the respondents were female, with 42.6% being male. Among the 164 respondents, 61.2% were single and 38.8% were married. The respondents were mostly young and well-educated, with 55.7% under 35 years old and 42.3% having a bachelor degree or above. In terms of occupation, the majority of respondents were students (52.2%).

4.2. Describing model conceptualization

The first step in this integrated model is to define the constructs theoretically. The identification of influenced critical service attributes based on five SERVQUAL dimensions (Parasuraman et al., 1985, 1988). The service items used in the questionnaire are determined by using the expert interviews and literature review. First, a total of 20 tourists were randomly interviewed. At the same time, the nominal group technique was used to conduct a panel discussion. The participants included Ragunan Zoological Park representatives and Jakarta Culture and Tourism Department representatives. The interview and discussion material were derived from five SERVQUAL dimensions, to measure service quality. The purpose was to determine the service attributes to be listed in the questionnaire. As a result, 12 service attributes were considered.

A questionnaire was also developed to test the causal relationships of the latent variables and manifest variables within the service quality-satisfaction-loyalty model. The model includes three latent variables: service quality, tourist satisfaction and tourist loyalty. The performance of each variable (and constituent items) was measured on a five-point Likert-type scale. Three parts of questionnaire were designed: the importance of service attributes, the satisfaction of service attributes, and the categorization of attributes according to Kano model. The indicators of each variable are listed in Table 2.

Variables/Constructs	Indicators
Service Quality (SQ)	X1 = animal completeness X2 = on time opening X3 = tour activities X4 = information centre X5 = cleanness X6 = safety X7 = animal attraction show X8 = comfortability X9 = zoo layout X10 = friendliness X11 = amusement facilities X12 = responsiveness
Tourist Satisfaction (TS)	X13 = happiness X14 = knowledge X15 = price value X16 = transportation X17 = restaurant / canteen X18 = lighting X19 = safari route track X20 = catalogue X21 = parking X22 = accessibility
Tourist Loyalty (TL)	X23 = revisit X24 = retention X25 = referral

Table 2. Variables and their indicators

4.3. Specifying the structural equation model

A structural equation model was constructed to specify how well some variables could predict some other variables (Diamantopoulos & Siguaw, 2000; Barrett, 2007). In this step, structural paths that showed the cause and effect relationship between constructs were drawn.

The structural model illustrated the relationship between service quality and tourist satisfaction; moreover, each variable respectively affected tourist loyalty, see Figure 3.

Based upon the structural model, some research hypotheses were explored to test the relationship among constructs:

H1: Service quality (SQ) positively affects tourist satisfaction (TS)

H2: Service quality (SQ) positively affects tourist loyalty (TL)

H3: Tourist satisfaction (TS) positively affects tourist loyalty (TL)

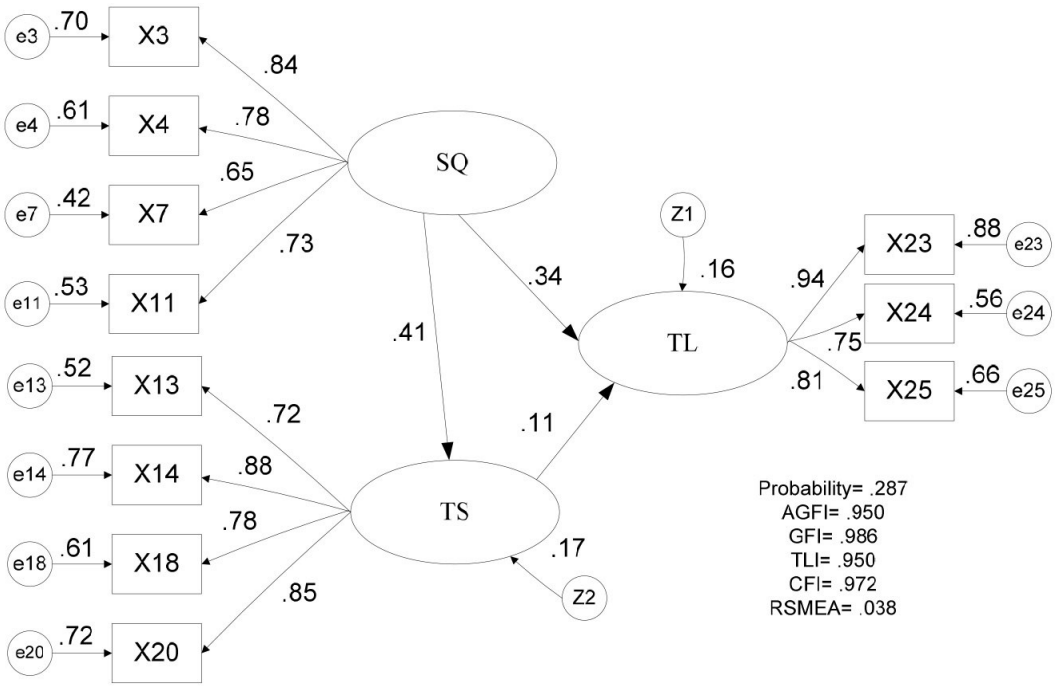

Figure 3. Structural equation model with estimated results

4.4. Assessing the validity of the measurement model

Regarding the measurement model, in accordance with Mueller (1996) we use the confirmatory factor analysis (CFA) technique to evaluate the validity of the measurement scales. In this section, we discuss how to develop instrument with high validity and low measurement error. Based on recommendations by Jöreskog & Sörbom (1996), we have followed two steps to ensure the adequacy of the measurement scales. Firstly, an individual confirmatory factor analysis (CFA) is performed for each dimension to ensure that the proposed items loaded significantly on the posited dimension. The goodness of fit values (GOF) for all dimensions should be within the accepted range: representing Bentler Bonett-Non Normed Fit (BB-NNFI) $\geq$ 0.90, Comparative Fit Index (CFI) $\geq$ 0.90, and Root Mean Square Error of Approximation (RMSEA) $\leq$ 0.08 (Bentler & Bonett, 1980; Bagozzi & Phillips, 1982; Diamantopoulos & Siguaw, 2000). Secondly, we conduct a single confirmatory factor analysis (CFA) with the indicators/ observed variables simultaneously, considered as correlated first-order factors. Each observed variable is allowed to load only on the target factor. The factor loading for each item also should be greater than 0.5 (Hair, Black, Babin & Anderson, 2010) and/or presented significant cross loadings (Bollen, 1989).

As a result of this research, some items in 'service quality' construct were dropped from the analysis because they showed a reliability of below 0.5, and/or presented significant cross loadings (Bollen, 1989). The same procedure was applied to test the validity of the 'tourist satisfaction' and 'tourist loyalty'. A confirmatory factor analysis (CFA) model with correlated

first-order factors was estimated to analyse the properties of the scales. The fit of the model confirms the existence of correlated indicators. In summary, the goodness of fit values for all confirmatory factor analysis (CFA) models allow us to accept the validity of these constructs (see Table 3).

	p-value	BB-NNFI	CFI	RSMEA
Service Quality	0.263	0.954	0.996	0.045
Tourist Satisfaction	0.576	0.986	1.000	0.000
Tourist Loyalty	0.512	0.943	1.000	0.000

Table 3. The validity of the scales

4.5. Examining the structural equation model validity and reliability

The technique of estimation will be here performed Maximum Likelihood (ML) in AMOS/LISREL software. To measure the fit-goodness and reliability of the developed SEM, we generally use several indicators, such as chi-square values (GFI, AGFI, RMSEA, TLI and CFI), construct reliability and variance extract. To judge if the model applicability is good or not, the quotient of AGFI and GFI are generally advised to be larger than 0.9, RMSEA to be less than 0.08, TLI to be larger than 0.95, and the bigger the CFI, the better (Hair et al., 2010). Construct reliability should be above 0.7 and variance extract should be above 0.5 (Fornell & Larcker, 1981). Both of them are indicating construct validity for all latent variables. Figure 3 and Table 4 show that the results indicating all indexes for applicability are within an acceptable range.

	Construct reliability	Variance extract
Service Quality	0.8387	0.5674
Tourist Satisfaction	0.8834	0.6560
Tourist Loyalty	0.8744	0.7007

Table 4. Reliability and variance extract

The confirmation of the hypotheses implied by its critical ratio (C.R.) as can be seen in the regression weight resulting from running the linear regression program. The value of a critical ratio (C.R.) with a significance level of 1% should be equal to 1.96 or above, for accepting the hypotheses tested and claiming that the causality relationships developed really exist. The value of critical ratio (C.R.) results shown in Table 5 indices for all values are larger than 1.96. It means that all hypotheses are accepted.

	Estimate	S.E.	C.R.	P
TS ← SQ	0.412	0.157	3.153	0.002
TL ← SQ	0.343	2.962	2.962	0.005
TL ← TS	0.111	0.201	3.026	0.008

Table 5. Regression weight and critical ratio

4.6. Classifying attributes into Kano and refined Kano categories

Based on the measurements and SEM results, the critical attributes of service quality can be identified. These attributes will be further used for integrating with the Kano model. The attributes are evaluated with the evaluation steps of the Kano model. According to Kano model, the customer satisfaction concern the critical quality attributes which include must-be attributes, one-dimensional attributes, and attractive attributes (Kano et al., 1984; Lee, Hu & Chiu, 2007). For each attribute, a pair of questions is formulated, the first question concerns the perception of the customer if the attribute is fulfilled, the second concerns the perception of the customer if the attribute is not fulfilled (Sauerwein, Bailom, Matzler & Hinterhuber, 1996). The indicators of SERVQUAL dimensions in the final model that have high loading factor value usually will be considered to be critical service attributes.

Based on the measurements and structural model results, four attributes of service quality have significant influence with tourist satisfaction and loyalty. These four attributes will be further used for integrating with the refined Kano model. The results of the service attributes categories are listed in fourth and fifth columns of Table 6.

4.7. Determining the priority ranks of critical attributes

The next step is to analyze and interpret all of the results and then determining the priority rank of service attributes that will be improved. We will combine the SEM and refined Kano model result. From the SEM results, we can know how strongly the factor loadings correlate between SERVQUAL dimensions and each factor. The squared factor loading is the percentage of variance in the dimension, explained by a factor. Usually, we will choose the service attributes that have high factor loading value, but it also depends on goodness fit indicators of the final modified model. Loadings 0.50 or greater are considered practically significant (Hair et al., 2010). In this study, it is assumed that the high factor loading values are classified into three categories. If the factor loading value of an attribute is greater than 0.5 and lower than 0.65, then the attribute has 'quite high' factor loading. It has 'high' factor loading if between 0.65 and 0.80, and it has 'very high' factor loading if above 0.80.

In addition, SEM-refined Kano evaluation might be useful to determine the relative importance of each attribute (self-stated-importance) and find out the top priorities the priorities for service development and make improvements wherever necessary. Based on the analysis, we can find out that the 'information centre' (X4) is the first priority of service quality for service development (see Table 6).

Attributes	Factor loadings	Factor loadings categories	Kano category	Refined Kano category	Priority ranks
X3	0.84	Very high	I	Potential	3
X4	0.78	High	M	Critical	1
X7	0.65	Quite high	A	Highly Attractive	2
X11	0.73	High	I	Potential	4

Table 6. SEM-refined Kano evaluation

5. Discussion and conclusion

Severe challenges to Ragunan Zoological Park are associated with the identification of the tourist' latent needs, which implies that zoological park need to satisfy (or even delight) the tourists on the critical service attributes. If Ragunan Zoological Park knows to what critical attributes influence the tourist satisfaction (must-be, one-dimensional or attractive attributes), and also influence the tourist loyalty, and if Ragunan Zoological Park is also aware of the relative critical of these service attributes and assessment from the tourist's viewpoint compared to the other zoological parks, the satisfaction portfolio can be drawn up and suitable measures can be taken. These critical attributes are defined early in the service strategy design and development of zoological park. The long-term objective is to raise the tourist loyalty with regard to important service attributes in order to establish tenable competitive advantages.

The proposed methodology intends to increase the level of validity of by guiding Ragunan Zoological Park through a structured process. This paper proposed a framework for Ragunan Zoological Park's service designer to determine attributes of tourist satisfaction approximately from the concrete attribute values represent properties of SERVQUAL dimensions. Applying a survey approach, based on the estimated results of the modified new model which integrated the SERVQUAL and refined Kano model in SEM framework, the implications of customer satisfaction and loyalty could be inferred.

In accordance with the result, Ragunan Zoological Park has to develop the core competence required to raise or improve the fulfillment level of the quality attributes in the following order of priority: information centre (X4), animal attraction show (X7), tour activities (X3), and amusement facilities (X11). In this study, the most critical attribute for improvement is an information center that provides tourist information to the visitors who tour the zoological park

area. A good information center should provide visitors with complete information on the area's attractions, maps, and other items relevant to zoological park. An information center role is to promote a zoological park and help orient visitors to enjoy natural environment and animal attractions. It can also provide a site for promoting locally produced goods (like art and craft). So, information centers can perform an additional public relations function in order to improve a zoological park's image.

It is the contention of this paper that other service providers can analyze the priority of quality attributes according to both the refined Kano model and the SEM. This enables service providers to obtain much more valuable information. First, it measures the zoo's performance against tourists' expectation. This offers guidance for practical actions to be taken to improve the quality of service offerings and, hence, tourists' satisfaction. Second, by applying this integrated method, it is expected to identify the critical attributes and their priority for tourists quantitatively. The following strategic implications emerge: fulfill all must-be requirements, be competitive with regard to one-dimensional requirements and make unique attractive requirements. Third, periodic replication of this study would enable the impact of improving actions on service quality to be monitored and evaluated over time.

Therefore, this integrated model is a good tool for industries to use in determining critical quality attributes and their priorities in order to make better decisions on service quality strategies. This will make a service provider to propose more efficient and value-added improvement policies of the service. This integrated model is not only a useful and valuable practical tool for service providers, but it is also a theoretical model for academic research.

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