Applying the Quality Function Deployment Method to Tourism's Industry Analysis

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Abstract: Tourism has become a leading modern service industry. Unfortunately, there are few studies focusing on consumers' perception and acceptance as well as the impact of service quality on tourism consulting. Besides, there has been no investigation of this industry service using two-dimensional gaps, along with importance and performance analysis along with quality function. This study applied the PZB service quality gap model to extend SERVQUAL to design a questionnaire. Through service quality gap analysis and IPA model presentation, it was found there are five projects in the fourth aspect, and priority should be given to the improving "travel planning", "agent's responsibility", "agent's executive ability", "unique style" and "professional travel host". In the hierarchical analysis, the weights of "agent's responsibility" and "unique style" were 0.34 and 0.3, respectively. In the quality house section, interviewers explored the correlation between quality technology execution projects and customers' needs, and obtained absolute weights. They found that "skill knowledge" and "creative idea" were above 4.0, while the "original knowledge" had the lowest absolute weight. Finally, this study provides implementation methods for assessing resource utilization and improving service quality, to enhance the competitiveness of tourism agent entrepreneurs.

1 Introduction

With the improvement in people's life quality, the influence of cultural needs on people's travel motivation is increasing. Tourists' travel behaviour is gradually changing from traditional sightseeing of "window shopping" to in-depth tourism of "teaching in fun or teaching in travel". Recently, attention to the development of quality tourism has been increasing all over the country. During the 12th Five Year Plan period, most provinces and autonomous regions have formulated or are preparing special plans for tourism development. At the macro strategic level, they have determined the brand strategy, thematic features, market positioning and product development of quality tourism development in their respective regions. Clearly, the development of quality tourism has started on the track of steady development.

2 Literature Review
2.1 Tourism's behaviour

The goal of the "tourism agent" is to assist people in acting as tourism consultants by mobilizing industrial resources to design a satisfying tour. They play an important role in providing suitable planning according to the travellers' budget and requirement, Ye Jinjia (2013) found tourism consultants play an integrated role in this industry. They integrate the surrounding industries to provide customized services to satisfy customer needs. Good service can produce positive consumer evaluation. With the change in times, people are looking for personalized tourism. Due to budget, time and unsatisfied needs, tourism agents are required to integrate all resource they have to create a unique travel experience for all customers.

2.2 PZB Model of Service Quality

Service quality is the comparison of customer expectation of service quality and their perceived satisfaction after they receive the services. Parasuraman, Berry, & Zelthaml (1994) suggested service quality is determined by whether the service meets the customer's expectations. Customers will decide whether to consume or not because of the service they receive. Plymire (1991) discovered that 91% of consumers will not consume again when they encounter unsatisfactory services in the process of consumption, and will complain about their unhappy experiences to a further 8-10 people. Among many service quality conceptual models, Parasuraman, Zeithaml & Berry proposed the most representative and frequently cited service quality conceptual model, referred to as the PZB model. The service quality gap model was put forward by A. Parasuraman, Valerie Zeithamal and Leonard L. Berry in the mid-1980s to the early 1990s. The 5 gap model was specially used to analyze the root

causes of quality problems. Customer gap (gap 5) is the gap between customer expectation and customer perceived service, which is the core of the gap model. To close this gap, we need to close the following four gaps: gap 1 - do not understand the expectations of customers; gap 2 - do not choose the right service design and standards; gap 3 - do not provide services according to standards; gap 4 - service delivery does not match external commitments.

2.3 Two-Dimensional Gap Model and Important Performance Analysis Method

The quality attribute model of the two-dimensional gap analysis is based on the horizontal axis of importance and the vertical axis of satisfaction. According to the average value of each quality attribute, the quality attribute model is divided into four regions. Quadrant I the is superior area, because of its high importance and high satisfaction. Quadrant II represents low importance and high satisfaction. It is called the surplus area. Quadrant III represents low importance and low satisfaction, known as unnecessary or waste area. Quadrant IV represents higher importance but lower satisfaction, known as the improved area. The two-dimensional gap model and importance-performance analysis (IPA) have gradually become popular management instruments, and are widely used in different fields. The IPA model is examined to realize service quality needs. Wang Zijun (2013) used a two-dimensional quality model and IPA to analyze the key service quality attributes of expatriates' interpretation of the National Palace Museum. Zhang Weixiong and Lin Ziyao (2016) discussed the importance and satisfaction of the operational service quality of the fitness club based on IPA analysis. In addition, Su Jiaxian (2017) used Importance-Performance Analysis (IPA) to conduct an empirical study on the service quality and customer satisfaction of four major domestic convenience store chains.

2.4 Quality Function Deployment

Quality Function Deployment (QFD) is a commonly used method of quality management. This method can effectively control quality. It not only makes the transmission between quality and consumers more effective, but also effectively reduces costs. QFD is a quality planning instrument using customer expectations to design and produce products and solve product' problems to meet customer' expectations. Yoji Akao and Shigeru Mizuno jointly put forward the concept of QFD, which was regarded as the founder of quality function deployment. The QFD can be used to understand whether the service of the system needs to be improved to ensure the service quality meets customer expectations. On the other hand, Chiweiyang II (1991) considered quality function deployment a technological skill. It will be developed according to the services' purpose and means, so the quality assurance activities can be completed through deploying a sales department in the companies to ensure customers' needs are met. It is pointed out quality function deployment is the methodology of transforming customer needs into new products. There are many advantages of implementing QFD, such as getting the most important information, shortening the product development cycle, reducing production costs, and reducing revisions of product designs, etc. Ye Meixia (2013) used IPA and quality function to explore the service quality of student dormitories; Li Yunlin (2014) used two-dimensional technology, IPA and quality function to analyze the service quality of tire manufacturing industries; Han Huilin et al. (2015) used IPA to explore the elderly care centre.

3 Research method
3.1 Research Design

The purpose of the present study was to collect customer' opinions on the service quality of travelling by applying a two-dimensional gap model to find the cognitive differences between the services provided and consumers. The results were presented with IPA, and QFD was used to transform customers' voices. The concept of the quality house was used as an auxiliary interface to discover the strategies for businesses to improve service quality. This section introduced the conceptual research framework (Fig. 1), research subjects and questionnaire. The conceptual research framework of the present study aimed to analyze the differences between customer' expectations and perception. The attributes of the quality items are divided into four quadrants and two-dimensional gaps. The quality items located in the fourth quadrant are the attributes of service quality that are the first priority, and they are developed in the framework of a quality house, looking for technical strategies to improve quality.
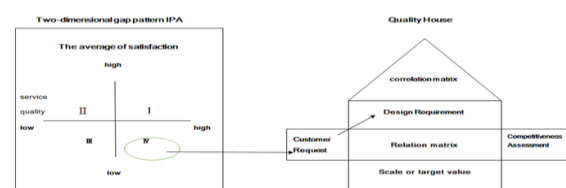

fig 1 Quality house

3.2 Research subjects and data collection method

The subjects in the present study were mainly consumers who had deal with agents for three years (including three years) in Taiwan. Before distributing questionnaires, the participants were asked to provide evidence of their travel experience. The subjects' real experience and actual needs were the purpose of the study. The questionnaire was distributed through travel agent and travel centre in every city and in every train station. The subjects were consumers who had received services from tourism agencies and related industries that provided services for tourism in Taiwan. The questionnaires were distributed in regular working hours to the participants had sufficient time to answer the questionnaire without being interrupted.

3.3 Research instrument

The subcategories of travel planning service quality include overall design service, professional' service, and banquet and ceremony service.

3.4 Reliability

A total of 196 questionnaires were collected, of which 48 were invalid. The validity rate of the questionnaires, 110 were accepted. Cronbach's alpha questionnaires was 75.5%. Among the valid (α)of the questionnaire is shown in Table 2, and the scale has good consistency.

Table 1 Questionnaires Reliability Analysis

Aspect	Importance extent Cronbach's α	Satisfaction extent Cronbach's α	
Overall design service	0.775	0.881	
Professional' service	0.914	0.849	
Banquet and ceremony service	0.897	0.889	

Data analysis

Table 2 Presentation of basic information

Item	amount	%	
Sex	Meal	26.4	
	Female	73.6	
Age	Below 26	10	
	26--35	44.6	
	35--46	39	
	46 above	7.4	
Experience	Within 1 year	35	
	1--2 year	23.2	
	3 and above	41.8	
Budget	Below 10000	19.6	
	10000-30000	31.3	
	30000-50000	47.1	
	More than 50000	2.0	
Travelling with	alone	11.0	
	friends	27.4	
	families	39.1	
	relative	22.5	

4 Importance-Performance Analysis (IPA Model)

4.1 Overall tourism planning services and professional staff

The average value of customer's attention was 4.36, while customer satisfaction increased to 4.0. With this as the central line, X and Y are divided into four quadrants (Fig. 2).

There were three items in quadrant four(IV)：They were respectively (4), (8) and (9) ". This quadrant means customers have high value but are not satisfied with the service. This means the projects falling in this quadrant are first priority improvement projects.

1	agency provides overvalued projects;	6	professional service of consultants
2	agency provides multiple service options	7	cordial and courteous service of consultants,
3	whether the agency provided customized services	8	travel agent commissioners have good adaptability
4	travel agent plans my tour very carefully	9	travel agent has good integrated and executive ability for my trip
5	agency can provide travel-related information on their own initiative.	10	good communication and coordination ability of consultants.

Satisfy/Value
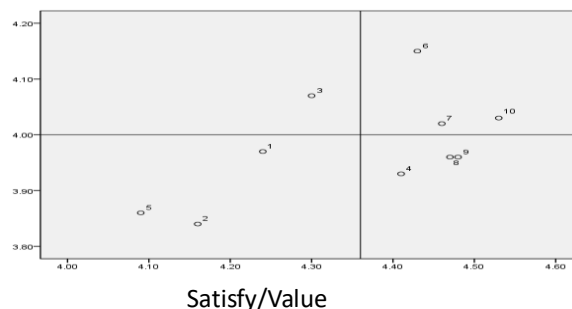
fig 2 Overall tourism planning services and professionals

4.2 Service quality provided by travel itinerary processes

The average customer expectation (attention) was 4.12, while the customer satisfaction (satisfaction) increased to 4.0. With this as the center line, X and Y are divided into four quadrants (Fig. 3). In which, there are only 15 1nd 16 located in the IV quadrant of high importance but low satisfaction. This expresses the need to put in first priority for improvement projects.

11	creative and unique tour arrangement	16	provides professional tour guide
12	Integrated an unforgettable and reliable travel service	17	Provides flexible but efficiency service
13	can create a high-quality travel atmosphere	18	provides high-quality travel entertainment
14	provides a wonderful memory	19	provides useful information
15	arrangement can meet my idea and style	20	can leave a good impression on families or friends

value

fig.3 Service quality provided by travelling itinerary processes

5. Establishment of Quality House

To construct a quality house for customer demand projects in priority improvement areas, the correlation between customer demand and technology execution projects is obtained by interviews and questionnaires, and the competitiveness of enterprises is explored through the relationship matrix.

According to the above two-dimensional gap model analysis, five quality items with high customer expectation importance and low cognitive satisfaction were identified. They were sorted and classified according to the quality dimensions.

5.1 Customer Demand：using AHP for future investigation

a. The second stage is using the questionnaire for AHP analysis: The questionnaire was designed by the constructed model. Customers were graded by 1-9 grades and weighted by AHP questionnaire. Out of 20 investigations, only 10 valid questionnaires were filled out after deducting the invalid questionnaires with inconsistent answers. Statistical results show the age of the subjects is between 25 and 40 years old, and the majority of them are women.

b. Analysis of Weight Assessment Results of Detailed Items：According to the weight evaluation of details, the average preference matrix is obtained by the geometric average for the data with the internal consistency of customers' opinions. The relative weight of each item is analyzed by Super Decisions software. The evaluation result in table 3 found priority should be given to improving the relative importance of the five items. The "good integrated and executive ability" is the most important item, and the weight value is 0.34857. Meet my idea and style is the second most important item with a weight of 0.30792. The result in is "relative weight of customer demand" on the left side of the house.

Table 3 weight and rank calculation

aspect	weight	rank
travel agent planned my tour very carefully	0.08697	5
travel agent commissioners have good adaptability	0.14816	3
travel agent have good integrated executive ability for my trip	0.34857	1
arrangement can meet my idea and style	0.30792	2
provides professional tour guide	0.10838	4

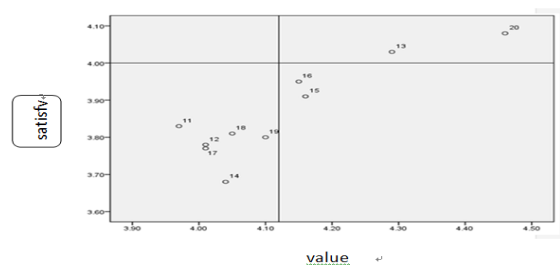## 5.2 Developing the technological needs of the operators

This section focuses on the service quality items of travel agents that need to be improved. The literature lists the possible related technologies to improve the quality, and interviews relevant professionals to analyze and sort the key elements of the perceived technology demand quality,

corresponding to customer demand (i.e. the upper side of the quality house). These related technologies are classified according to their attributes, and the related technologies can be divided into "planning ability", "operation management", "financial management" and "implementation ability".

5.3 The Relevance between Customer Quality Demand and Technology Demand

After "customer demand" and "business technology demand" are launched, the correlation between customer demand and business technology demand is assessed. The relationship matrix indicates the correlation degree and intensity between them. In the matrix, "5" shows highly correlated, and "3" is moderately correlated, while "1" is weak. In this part, experts' opinions are collected from senior staff of travel agent. Get the relationship matrix is obtained (that is, the middle part of the house of quality is completed).

The absolute weight is obtained by multiplying the customer demand quality weight and the correlation score of the relationship matrix. The results show the weights of "skill knowledge" are the highest 4.210, followed by "atmosphere creating" 4.006. Then "pre-service training" and "schedule control skills" reach 3.819, while the weights of "creative knowledge" are the lowest.

fig.4 Quality house for tour industry

6. Conclusions and Suggestions

1. Regarding to the above exploration of table 3, the integrated and executive ability is the most important aspect for customers. No matter how many advertisements the agents make, the customer still remains focused their behaviour in teams of integrated and executive tour resources. Only when quality tourism services such as accommodation, beverages and transportation are provided will and the customers' need be satisfied.

2. Customization and specialization are the most important requirements for customers. The monotonic or common tourism has been criticized from time to time. Customers are looking for a different but reliable way of travelling. It thus becomes the agents' responsibility to

design a unique and unforgettable travel experience.
3. Travel agent request must effectively train their staff. Especially, they should focus on planning and executive ability. Further, they are required to integrate useful resources as customers' required.

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