

# 机场服务质量之评价

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## An Evaluation of the Service Quality of Airport

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**Abstract:** The evaluation of airport service quality is an important issue in the air travel transportation industry. The aim of this paper is to construct a SERVQUAL method for evaluating the service quality of airport. This assessment model is tested by a Taiwanese airport. The results show that this assessment model proposed in this paper seems to be promising. Finally, some interesting conclusions and useful suggestions are given to airport to improve the service quality.

**Key words:** service quality; evaluation; airport SERVQUAL method

### 1 Introduction

The Taiwanese Government has recently become interested in evaluating the service quality of its airports due to the opening of direct route between Taiwan and Mainland China since December 2008. In order to increase the competitiveness of airports, to understand, maintain and improve the service quality are the main concerns of airports in Taiwan today.

In the past, studies on the service quality of air transportation have primarily concentrated on evaluating airline service quality. Only few focused on the subject of airport service quality. Thus this paper attempts to fill this gap in the current literature by establishing a SERVQUAL model for the evaluation of airport service quality. A case study of Kaohsiung International Airport in Taiwan is conducted to demonstrate the effectiveness of the proposed SERVQUAL model. Finally, some useful suggestions are given to the Kaohsiung International Airport to maintain and improve its service quality.

### 2 Literature Review

#### 2.1 SERVQUAL method

Understanding exactly what customers expect and want is the most crucial step in defining and delivering the high-quality service<sup>[1,2]</sup>. As in other sectors, the

problem in the airline sector is whether management can correctly perceive what customers want and expect. Expectations serve as a major determinant of a consumer's service quality evaluation and satisfaction<sup>[3]</sup>. At this point, the "voice of the customer" should be taken into the design process using advanced techniques, such as the experimental design, quality function development, and value engineering. After delivering services, service providers should monitor how well the customers' expectations have been met. For this task, the SERVQUAL method proposed by Parasuraman et al.<sup>[4]</sup> is one of the best evaluation methods for assessing the expectations and perceptions.

SERVQUAL method has five dimensions to measure service quality, including the tangibles, reliability, responsiveness, assurance and empathy<sup>[1]</sup>. Customers evaluate the service quality by determining whether there is any gap between their expectations and perceptions. SERVQUAL is based on the idea that quality is a subjective customer evaluation, as service is not a physical item, but an experience<sup>[4,5]</sup>.

#### 2.2 Airline service quality

To delivery better services to passengers, airlines have to understand passengers' needs and expectations<sup>[6]</sup>. Only the customer can truly define the service quality in the airline service industry<sup>[7]</sup>. The delivery of highquality service became

an important requirement among airlines as a result of competitive pressure<sup>[8]</sup>. Empirical studies of demand for airline services show that service quality is central of the choice of airline for both business and leisure travelers<sup>[9]</sup>. Tsaur et al.<sup>[10]</sup> argued that quality in airline services is difficult to describe and measure due to its heterogeneity, intangibility and inseparability. It is in this context that SERVQUAL has been proposed as a valid and reliable evaluation method in airline service quality studies<sup>[11,2]</sup>.

In addition to SERVQUAL-related airline service studies, many scholars measured the airline service quality through various quality dimensions. For example, Gourdin<sup>[13]</sup> categorized airline service quality in terms of three items including the price, safety and timeliness. Most air passengers are sensitive to airline ticket price and airlines thus use pricing to differentiate market segments based on elasticity of demand<sup>[14]</sup>. Prices are determined based on different fare sensitivities of business and leisure passengers, although modern yield management and practices also allow for much more sensitive dynamic price discrimination. Service quality also affects passengers' choices but is in many ways subjective, often being seen as referring to passengers' overall impressions of the relative quality of airlines and their services. It can influence an airline's competitive advantage<sup>[15]</sup>.

Elliott and Roach<sup>[16]</sup> proposed timeliness luggage transport, food and beverage service quality, seat comfort, the check-in process and in-flight service dimensions. Ostrowski et al.<sup>[8]</sup> measured the service quality with timeliness, food and beverage quality, and comfort of seat dimensions. Truitt and Haynes<sup>[17]</sup> used the check-in process, the convenience of transit, the processing of luggage, timeliness, seat cleanliness, food and beverage quality, and the handing of customer complaints as the standards of service quality. Bowen and Headley<sup>[18]</sup> indicated on-time arrival, mishandled baggage, being denied boarding, and airline safety. They also added passenger complaints on items such as the flight, reservation, ticketing and boarding problems, fares, refunds, customer service, advertising, and frequent flyer programs. In addition, the US Department of Commerce monitors schedule, non-stop flight availability, safety reputation, on-time reputation, in-flight service reputation

and frequent flyer program as variables affecting international air travelers' choice. Sultan and Simpson<sup>[19]</sup> examined the importance of the relationships between the airline service quality, passenger satisfaction and behavioral intentions.

Park et al.<sup>[12]</sup> seek to improve the understanding of air passengers' decision-making processes by testing a conceptual model that considers service expectation, service perception, service value, passenger satisfaction, airline image and behavioral intentions simultaneously. The results show that service value, passenger satisfaction and airline image are each found to have a direct effect on air passengers' decision-making processes. Park<sup>[20]</sup> found that passenger perceptions are significantly different across airlines, seat classes and usage frequencies. Pakdil and Aydin<sup>[21]</sup> measured the airline service quality based on data collected at a Turkey airline using SERVQUAL scores weighted by loadings derived from factor analysis.

### 2.3 Airport service quality

Yeh and Kuo<sup>[22]</sup> presented a fuzzy multi-attribute decision making approach for evaluating service quality of 14 major Asia-Pacific international airports via surveys. Based on the concept of the degree of optimality, an overall service quality index for airport is obtained by incorporating the decision maker's confidence level and preference on fuzzy assessments of the respondents. The index helps the airports understand their relative rankings in terms of manageable passenger service attributes.

Wang et al.<sup>[23]</sup> evaluated and compared the service quality of airports in Taiwan. The measure of service quality is based on the relationship between four factors: airport, passenger, airline and fire services. To overcome the restrictions of the small sample size, the grey relation analysis is used to group the initial evaluation and to select the representative indicators.

Correia and Wirasinghe<sup>[24]</sup> developed a methodology for developing level of service (LOS) standards at airport passenger terminals based on user perceptions. The underlying concept is the derivation of quantitative values for passenger perceptions of service based on airport survey. The check-in counter component is evaluated considering factors that have a bearing on the

user perceptions of LOS: processing time, waiting time, and space available per person. The study used data obtained from a passenger survey conducted at Sao Paulo/Guarulhos International Airport in Brazil. Finally, a multi-attribute analysis is done to obtain a composite evaluation of LOS at the check-in counter as a function of the waiting time, processing time, and space available.

Barros et al.<sup>[25]</sup> analyzed transfer passengers' views on the quality of services at the terminal building, using data collected at Bandaranaike International Airport in Sri Lanka, which aspires along with the airline 'Sri Lankan' to be a major hub for South Asia. Regression analysis was used to identify the transfer passenger facilities and services with the strongest effect on the overall perception of level of service. The results show that the courtesy of the security check staff and the quality of the flight information display are among the most valued by transfer passengers at that airport.

Correia et al.<sup>[26]</sup> used a psychometric scaling technique to obtain quantitative LOS rating from survey data. Regression analysis is used to obtain mathematical relationships between the quantitative LOS ratings and global indices (total service time, total walking distance and two orientation indices).

### 3 A Case Study of Service Quality

Four stages are involved in the evaluation procedure for evaluating the airport service quality. The four stages include the questionnaire design, interview survey and collection of data, calculation of scores of expectations and perceptions, and analysis of service quality.

#### Step 1: Questionnaire design

This paper designed a questionnaire based on the pervious literature. The SERVQUAL and airport service quality dimensions were taken into consideration under the inspiration of previous studies. Even though SERVQUAL presents general quality dimensions for service industries, it does not include the specific dimensions for each service industry, such as the air transportation service industry. Thus this paper summarized four major dimensions and 20 items in this SERVQUAL questionnaire for airport service quality as Table 1.

The SERVQUAL questionnaire addressing expect-

tations and perceptions are rated using 5-point Likert scale. For example, expectations are rated from 1=very low to 5=very high, and perceptions are rated from 1=strongly disagree to 5=strongly agree.

Table 1 Scores of expectations and perceptions

| Dimension and service terms                     | P           | E           | G            |
|---|-------------|-------------|--------------|
| <i>Check-in</i>                                 | 3.60        | 3.82        | -0.22        |
| Ticketing waiting time                          | 3.46        | 3.82        | -0.36        |
| Total time for check-in process                 | 3.61        | 3.83        | -0.22        |
| Courtesy of airline staff                       | 3.72        | 3.83        | -0.11        |
| Congestion level of check-in waiting area       | 3.60        | 3.79        | -0.19        |
| <i>Immigration process</i>                      | 3.70        | 3.87        | -0.17        |
| Waiting time for immigration processing         | 3.81        | 3.80        | 0.01         |
| Total time for immigration processing           | 3.78        | 3.79        | -0.01        |
| Courtesy of immigration Bureau staff            | 3.56        | 4.00        | -0.44        |
| Congestion level of immigration processing area | 3.63        | 3.90        | -0.27        |
| <i>Customs inspection</i>                       | 3.63        | 3.67        | -0.04        |
| Total time for Customs inspection               | 3.78        | 3.75        | 0.03         |
| Courtesy of Customs staff                       | 3.56        | 3.68        | -0.12        |
| Congestion level of inspection area             | 3.56        | 3.58        | -0.02        |
| <i>Overall</i>                                  | 3.75        | 4.00        | -0.25        |
| Airport facilities                              | 3.74        | 4.10        | -0.36        |
| Response to phone calls                         | 3.82        | 3.77        | 0.05         |
| Availability of lifts/escalators/moving         | 3.64        | 3.87        | -0.23        |
| Walkways/conveyors/stairs walking distance      | 3.68        | 3.88        | -0.20        |
| Cleanliness and lighting level of airport       | 3.86        | 4.32        | -0.46        |
| Art and exhibitions                             | 3.85        | 4.12        | -0.27        |
| Availability of information display for flights | 3.89        | 4.07        | -0.18        |
| Service in case of flight delay                 | 3.56        | 3.82        | -0.26        |
| Clearness and availability of signpost          | 3.75        | 4.00        | -0.25        |
| <b>Mean</b>                                     | <b>3.67</b> | <b>3.84</b> | <b>-0.17</b> |

#### Step 2: Interview survey and collection of data

The interview sample was taken from the passengers at International Airport of Kaohsiung in Taiwan. The International Airport of Kaohsiung is one of major

international airports in Taiwan area. The survey was administered over 4 weeks. To make the sample more representatives, the survey procedure was performed on three different flight routes based on cluster sampling: Europe, Far East and North America. Questionnaires were distributed to the passengers and collected in the last hour of the flight. Participation was voluntary. The size of sample was 176. Five hundred questionnaires were distributed with a response rate 35.2%.

Step 3: Calculation of scores of expectations and perceptions

After collecting and calculating of data, the scores of expectations and perceptions, and the gap between expectation and perception are shown in Table 1.

Step 4: Analysis of service quality of airport

Based on the results in Table 1, this paper further analyzes the service quality of airport as follows. The results show that there are four dimensions with gaps between the expectations and perceptions. In particular, in terms of the overall dimension, there is a large gap (-0.25 points) between the expectations and perceptions from passengers. Besides, in terms of the check-in dimension, the immigration process, and the Customs inspection dimensions, there are also gaps (-0.22 points), (-0.17) and (-0.04 points), respectively.

In the check-in dimension, passengers thought the airline or the airport has four items to need to be improved, including the ticketing waiting time, total time for check-in process, courtesy of airline staff, and congestion level of check-in waiting area. In the immigration process dimension, the most important problem the airport has to pay attention to improve is the courtesy of immigration bureau staff. Passengers did not think the immigration bureau staffs offered high quality services. In the Customs inspection dimension, passengers thought the airport or the Customs has two items to need to be improved, including the congestion level of inspection area and the courtesy of Customs staff. The Customs did delivery high-quality services to passengers in terms of the total time for Customs inspection. In terms of the overall dimension, the airport did delivery a high-quality phone call service to passengers, but other service items need to be improved. The most important problem the airport has to pay attention to improve is the cleanliness and lighting level of airport.

## 4 Conclusion

The highly competitive market conditions in the air transportation industry pressurize airports to delivery high-quality services to passengers. To provide this, the airports must first understand passengers' needs and expectations and then focus on how to delivery the high-quality services to meet passengers' needs. This paper evaluated the service quality of airport using the SERVQUAL method proposed by Parasuraman et al.<sup>[4]</sup>.

In the evaluation results, the average score for these major dimensions is 3.84 points in terms of passengers' expectations. The average score for these major dimensions is 3.67 points in terms of passengers' perceptions. It is noted that there is a gap (-0.17 points) between the expectations and perceptions. This means the overall service quality provided by the International Airport of Kaohsiung did not satisfy passengers' needs and expectations well. The airport has to improve its service quality in the future. For example, the results show that there are four dimensions with gaps between the expectations and perceptions. In particular, in terms of the overall dimension, there is a large gap (-0.25 points) between the expectations and perceptions from passengers. Besides, in terms of the check-in dimension, the immigration process, and the Customs inspection dimensions, there are also gaps (-0.22 points), (-0.17) and (-0.04 points), respectively.

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Only one airport was considered for surveying and 176 passengers who depart from the International Airport of Kaohsiung were interviewed and surveyed in this study. In future studies, more passengers who depart from various international airports should be considered to interview, survey and evaluate. The results for the SERVQUAL method will be compared with other methods for evaluation of service quality of airport in future studies.

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