

# AN EMPIRICAL INVESTIGATION OF SERVICE QUALITY IMPACTS ON PASSENGERS' SATISFACTION IN AIR INDUSTRY

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## **Abstract**

**Purpose:** This paper aims to address how passengers' satisfaction can be measured in relative to quality services provided by airlines using SERVQUAL methodology.

**Research Approach:** An exploratory approach is applied to identify those key variables that influence passengers' satisfaction. Empirical Study has applied in reference to Egypt Air as a case study. A questionnaire is developed for collecting the required data and samples and the SERVQUAL methodology (Reliability, Tangibility, Response, Assurance, and Empathy) is used as an instrument to determine the effectiveness of service development and improvement initiatives in targeted dimensions.

**Findings and Originality:** The main findings conclude that passengers are mostly concerned with the Assurance and Response dimensions, while Reliability is the most dominant dimension affecting the service quality in Egypt Air.

**Research Impact:** Passenger's satisfaction service arises when a company can provide passengers with benefits that exceed their expectations. A number of studies have conducted in service quality related theories and methods in this field. Few studies were examined and prioritised those dimensions that affect passengers' satisfaction.

**Practical Impact:** Service quality is one of the most important determinants, which affect the world competitiveness of the aviation industry. This paper aims to help decision makers at Egypt Air to identify the key dimensions that influence the service quality level provided.

**Keywords:** Airline service quality, SERVQUAL methodology, Passengers' Satisfaction Model

## **Introduction**

Air transport is one of the most important modes of transport in terms of safety and offering both significant social and economic benefits. The quality of service level in airline industry is essential as it is a major determinant of competitiveness (Peters, 1999). Hence, airlines apply various quality strategies to achieve customer satisfaction, and where a demand on air transport is a derived demand of air travelers and the volume of air cargo. For this reason, a variety of in-flight product innovations and developing the aircraft seat on long haul flights have recently entered into the market (Change and Yeh, 2002). One of the main elements in the air transport industry is the airline. Current records indicate that there are more than 900 commercial airlines around the world (ICAO, 2012). Excellent passenger satisfaction is one of the greatest assets for air business in today's competitive environment. In 2013, Egypt Air, the 3-Star Airline Rating of Product and Service Quality in Economy class, was ranked as the 9th from the worst airlines in the world (airlinequality, 2013). The biggest complaint is poor service quality from flight crew and comfort. Hence, Egypt Air faces difficulties in surviving in the region, particularly the Middle East region that remains the fastest growing in the world, expanding at +11.9% in 2013 and accounting for 9% of the world traffic (ICAO, 2014). The purpose of this research is to study the effect of improving quality service level on passengers' satisfaction using SERVQUAL methodology, with application to Egypt Air. This paper is divided into four sections.

The second section gives a review of available literature in relative to a service quality concept in air industry. The third section analyses the data collected through the developed questionnaire. Descriptive analysis and testing hypothesis are addressed. Finally, findings, conclusions and recommendations are displayed in the fourth section.

**Literature Review**

Delivering high service quality is essential for airlines survival and competitiveness. Passenger’s satisfaction arises when an airline can provide passengers with benefits that exceed their expectations and this is considered value-added. Quality can be defined as meeting or exceeding customer expectations at a cost that represents value provided to customers (Harrington, 1991). While, Kotler (2005) defined service as an activity or benefit that one party can offer to another that is essentially intangible and does not result in the ownership of anything. Regarding the service quality concept, Parasuraman et al. (1988) defined it as “the difference between customer expectations and perceptions of service”. Hence, measuring service quality enables managers at airlines to find gaps to what they offer as services as it helps to identify the difference between perceived and expected services.

**Customer Expectations and Perceptions Concepts**

Kotler (2003) explained that the quality should start from the needs of customers (expectations) and ends at the customer's perception. This means that good quality perception is not based on the service provider, but based on the point of view or perception of the customer. Customer perception of service quality is a comprehensive assessment of a service’s benefits. There are two main factors that affect the quality of services, namely: expected service and perceived service. Ghobadian et al. (1994) showed that organizations with perceived high quality services usually have higher market share and higher profitability than companies with perceived low quality. Kotler (2003) discussed customer satisfaction or dissatisfaction as a response to the evaluation of the perceived discrepancy between expectations and service performance.

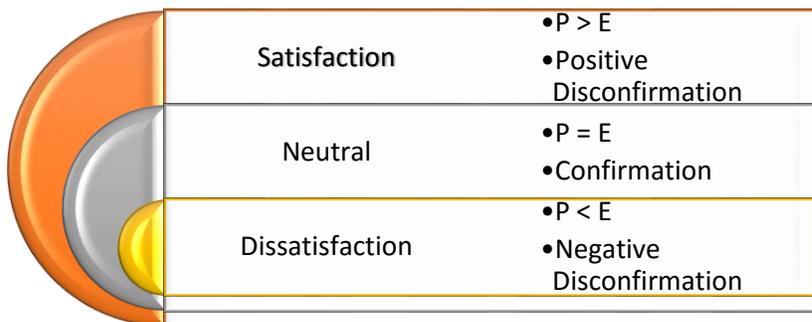


Figure 1: Passengers’ Satisfaction Model  
 Source: Fitzsimmons & Fitzsimmons (2001), p. 44.

Figure 1 shows that the fulfilment of an expectation is what leads to satisfaction. Satisfaction occurs when perceptions (P) exceeds expectations (E) and vice versa. Zeithaml & Bitner (2001) argued that satisfaction is considered to have a broader concept than service quality. They claimed that quality of service is the focus of the assessment that reflects the customer's perception of the five specific dimensions of quality service. While, satisfaction is more inclusive that is determined by the perception of service quality, product quality, price, situation factors, and personal factors.

**Service Quality Measurements**

Different tools for evaluating service quality are available (Franceschini and Cinetti, 1998), including:  
 - *SERVQUAL methodology*: the service quality can be assessed by calculating the difference (gap) between what customers expect and what he/she really perceives. SERVQUAL is a multiple-item scale for measuring consumer perceptions of service quality.

Parasuraman et al. (1985) identified a number of ten components to measure service quality, including for example reliability, communication and security. These components were then collapsed into five dimensions, namely Reliability, Tangibility, Response, Assurance, and Empathy. The SERVQUAL methodology can be divided into five quality dimensions. First dimension is Reliability that refers to on-time departure, consistent service delivery and cabin announcements. Second dimension is Tangible that refers to the physical facilities, equipment and personnel. Third dimension is Responsiveness that considers factors of efficiency in passenger guidance such as smooth seating, and safety instructions. Fourth dimension is Assurance as it is connected to underlying attributes such as trustworthiness among flight crew. Fifth dimension is Empathy that refers to courteousness.

- *Two-way tool*: developed by Schvaneveldt and Enkawa (1991), and it evaluates a service quality from two viewpoints. Objective dimension that is including the presence or absence of a particular quality dimension, and the second dimension is subjective that is including the users resulting sense of satisfaction or dissatisfaction.

- *SERVPERF tool*: developed by Cronin and Taylor (1992) and the main feature of this method is its main focus on customer's perceptions.

- *NQ tool*: proposed by Teas (1994) to better understanding the meaning of expectations. Customers may interpret expectation in two distinct ways: ideal level and feasible level. The NQ method focuses respondents' attention mainly towards both kinds of expectations.

- *QUALITOMETRO tool*: it focuses on determinants of service quality, deploying the same semantic scale and dimension as SERVQUAL. Quality evaluation is carried out by means of a comparison between quality and expectation and perception profiles (Franceschini and Cinetti, 1998).

### **Model of Service Quality Gaps**

There are seven major gaps in the service quality concept (Parasuraman et al., 1985), including: Gap1: Customers' expectations versus management perceptions; as a result of inadequate upward communication and too many layers of management. Gap2: Management perceptions versus service specifications: as a result of inadequate commitment to service quality, a perception of unfeasibility, and an absence of goal setting. Gap3: Service specifications versus service delivery: as a result of role ambiguity and conflict, poor employee-job fit and poor technology-job fit, inappropriate supervisory control systems, lack of perceived control and lack of teamwork. Gap4: Service delivery versus external communication: as a result of inadequate horizontal communications and propensity to over-promise. Gap5: The discrepancy between customer expectations and their perceptions of the service delivered: as a result of the influences exerted from the customer side and the shortfalls (gaps) on the part of the service provider. Gap6: The discrepancy between customer expectations and employees' perceptions: as a result of the differences in the understanding of customer expectations by front-line service providers. Gap7: The discrepancy between employee's perceptions and management perceptions: as a result of the differences in the understanding of customer expectations between managers and service providers.

The first six gaps (Gap 1, Gap 2, Gap 3, Gap 4, Gap 6 and Gap 7) are identified as functions of the way in which service is delivered, whereas Gap 5 pertains to the customer and as such is considered to be the true measure of service quality. In this research, the SERVQUAL methodology is used in measuring Gap 5 in Egypt Air.

### **SERVQUAL in Airline Industry**

SERVQUAL methodology is applied in this research for many reasons. First, it has influence on Gap 5 as it takes into account customer expectations of service as well as perceptions of service. Second, it is the most often used approach for measuring service quality in the literature (Zeithaml et al., 1990). Third, it measures the performance across five dimensions (Reliability, Tangibility, Response, Assurance, and Empathy), using a seven point likert scale measuring both customer expectations and perceptions. Pakdil and Aydin in (2007) investigated the expectations and perceptions of customers of a Turkish airline.

As a result, they found that responsiveness is the most important dimension for airline consumers, while availability is the least important dimension. Aksoy et al. (2003) measured the quality service levels provided by Turkish airline using SERVQUAL. They concluded that consumers flying on domestic airlines mainly do that based on price and they do not have a real service expectation package. Chou et al. (2010) examined the quality service at Taiwanese airline. The responsiveness dimension was highly valued by the airline customers, but this was not the most important dimension. For this airline, consumers valued reliability and assurance higher than the other measures. Chen and Chang (2005) also investigated the quality service provided by the Taiwanese airline. The result of the study showed that consumers were concerned with the responsiveness of ground personal, assurance and responsiveness are valued very high in in-flight service, while seat comfort has the highest priority for improvement. According to Gilbert and Wong (2003), Chinese and Japanese consumers value in-flight entertainment programs significantly higher than North American and West European consumers, while on the other hand, West European and North American passengers have higher expectations of an airline loyalty program compared to Japanese and Chinese passengers.

### **Problem description**

This research has set out to address the following problem: *How can passengers' satisfaction be measured in relative to quality services provided by Egypt Air using SERVQUAL methodology?*

### **Research Hypothesis**

The researchers have set out the following hypotheses to be tested. It can be defined as follows:

*'Improving a quality service level affects a customer's satisfaction in Egypt Air'*

Testing the above hypothesis requires to examine the quality service dimensions in Egypt Air and their relative importance, then discussing those variables that affect customers' satisfaction flying with Egypt Air. And finally, examining the effects of quality service on a customer's satisfaction will be discussed.

### **Questionnaire**

A questionnaire technique was developed to collect data at Egypt Air (economy class). The questionnaire is composed of four parts including 48 constructs which are developed with the coordination of Egypt Air managers and supervisors. The first part describes passenger's characteristics (demographic variables). The second part describes passenger's profile and their interests with the company. The third part contains five dimensions representing service quality of Egypt Airline Company. The fourth part displays passenger satisfaction flying with Egypt Airline Company. The questionnaire was distributed to 400 passengers flying by Egypt Air in 2013 to different destinations using economic class. Cronbach's alpha is used to measure internal reliability of each construct as follows:

$$\alpha = \frac{k}{k-1} \left[ 1 - \frac{\sum S_i^2}{S_t^2} \right]$$

Where K is the number of Constructs,  $S_i^2$  is variance responses to each Constructs of the test,  $S_t^2$  is variance of the total answers of Constructs of the test. For the sample size, it was calculated firstly without taking into account the study population using the equation (a), and secondly by taking into consideration the size of community using the equation (b):

$$n = \frac{t^2 p(1-p)}{d^2} \quad (a) \quad ; \quad n1 = \frac{n}{1 + n/N} \quad (b)$$

At the end, the sample size for the questionnaire equal:

$$n1 = \frac{384}{1 + 384/7327000} = 383.98 \cong 384$$

### **Research Discussion/Results**

The following part explains the results concerning the five dimensions representing the service quality delivered by Egypt Airline. It aims to highlight the customers' perception flying with Egypt Air and which construct received the most complains. Table 1 shows that the dimensions of quality of service have a mean (3.498) which is moderate, against a low dispersion indicated by standard deviation equal (0.730), and which means convergence of the answers of customers on these variables.

Ser.	Variables	Mean	Standard Deviation	Coefficient of Variation
1	Reliability	3.45	0.701	20.32%
2	Tangibility	3.34	0.807	24.16%
3	Response	3.60	0.668	18.56%
4	Assurance	3.85	0.577	14.99%
5	Empathy	3.25	0.896	27.57%
Mean and Std Dev.		3.498	0.730	20.87%

Table 1: Analysis of Service Quality Dimensions

For Reliability dimension, it has a moderate mean equal (3.45), against dispersion indicated by standard deviation equal (0.701). It is concluded that the construct (ease, accuracy and speed of check-in) has the highest mean (3.75) and standard deviation equal (0.574), while the construct (transfer service and efficiency at departure airport) has the least mean equal (3.15) and standard deviation equal (0.816).

For Tangibility dimension, it has a moderate weighted mean (3.34), against dispersion indicated by standard deviation equal (0.807). It is concluded that the constructs (the airline provides good quality food and beverages (tasty and fresh)) has achieved the highest mean equal (3.88) and standard deviation equal (0.819), while the construct (the airline has in-flight entertainment (newspapers, magazines) has achieved the least mean equal (2.80) and standard deviation equal (0.776).

For Response dimension, it has a moderate mean equal (3.60), against dispersion indicated by standard deviation equal (0.668). It is noted that the construct (Capable to response to emergency situations) has the highest mean which equal (3.90) and standard deviation equal (0.600), while the construct (Prompt attention to passengers' specific needs) has the least mean equal (3.30) and standard deviation equal (0.727).

For Assurance dimension, it has moderate mean equal (3.85), against dispersion indicated by standard deviation equal (0.577). It is also noted that the construct (Safety performance of airline) has the highest mean which equal (4.25) and standard deviation equal (0.474), while the construct (Knowledgeable staff to answer customer question) has the least mean equal (3.45) and standard deviation of (0.663).

For Empathy dimension, it has a moderate mean equal (3.25), and standard deviation equal (0.896). It is concluded that the construct (numerous, easy-to use ticketing channels) has the highest mean equal (3.65) and standard deviation (0.868), while the construct (The airline has other travel-related partners

such as car rentals, hotels and travel insurance where you can get discounts or earn extra miles) has the least mean equal (3.85) and standard deviation (0.908).

In turn, the relative importance of the service quality dimensions is discussed. The results shows that the assurance has the highest percentage (30.10%), followed by response (24.50%), while the empathy has the lowest percentage (10.70%). Figure 2 displays the relative importance of service quality dimensions at Egypt Air.

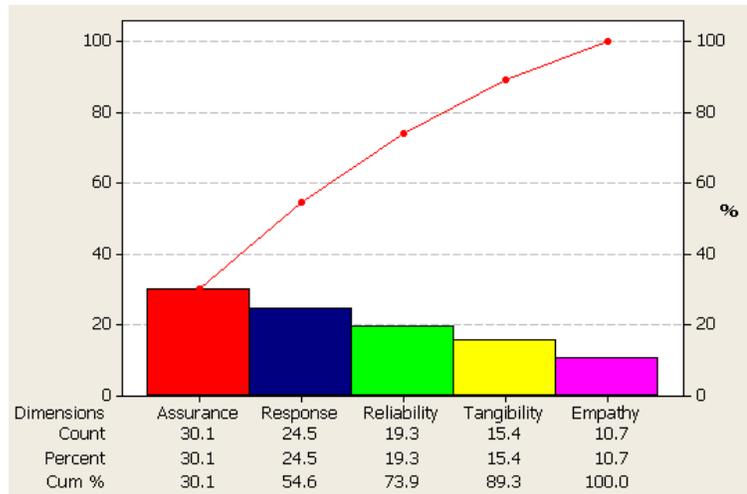


Figure 2: Relative Importance of Service Quality Dimensions

Regarding customers' satisfaction and expectations, the results indicated that it has a moderate mean (3.75), against dispersion indicated by standard deviation equal (0.556). It is concluded that the construct (the overall satisfaction with pre-flight services (early baggage check-in, email reminder etc.)) has highest mean equal (4.08) and standard deviation equal (0.443), while the construct (the overall satisfaction with employees which include (courteous and helpful during the flight – attitude – language skills- uniform)) has least mean equal (3.42) and standard deviation equal (0.622).

Comparing customers' perceptions with their expectations, a 1-Sample T test is used and it can be concluded that customer's perception not exceeding their expectation. This explains why customers have bad impression about Egypt Air. Customers using Egypt do not expect to receive quality services due to bad reputation the airline has. Air However, customer's satisfaction varies according to the demographic variables. The results using 2-Sample T test shows that gender affects customer's satisfaction.

Dependent Variables	N	Mean	St Dev	SE Mean	C. I	T	P Value
Quality of service	320	3.750	0.556	0.031	3.689 : 3.811	-8.304	0.000

Table 2: 1 Sample-T test for Customer's Perception versus Expectation

The results using 1 Way ANOVA test shows that age affects customer's satisfaction. Customers below 30 years has mean equal (3.050), and standard deviation equal (0.534), while customers between 30 and less than 40 years has mean equal (3.850) and standard deviation equal (0.495), and customers above 40 years has mean equal (4.100), and standard deviation equal (0.465). Also, the results shows that customers with no qualification level has mean equal (4.868), and standard deviation equal (0.412), while customers with moderate qualification level has mean equal (3.623) and standard deviation equal

(0.290), and customers with university level has mean equal (3.634), and standard deviation equal (0.263), and customers with postgraduate level has mean equal (2.155), and standard deviation equal (0.344). It is clear that qualification affects customer's satisfaction.

Regarding the occupations, the results shows that the governmental customers has mean equal (3.396), and standard deviation equal (0.448), while private customers has mean equal (3.807) and standard deviation equal (0.630), and business customers has mean equal (1.885), and standard deviation equal (0.584), while other customers has mean equal (3.247) and standard deviation equal (0.723).

In addition, the Purpose of Flight affects the satisfaction. The results shows that travelling for vacation has mean equal (3.489), and standard deviation equal (0.701), while travelling for honeymoon has mean equal (3.685) and standard deviation equal (0.672), and travelling for business has mean equal (3.405), and standard deviation equal (0.499), while travelling for other purposes has mean equal (3.060) and standard deviation equal (0.571).

Examining the effect of service quality on customer's satisfaction, this was tested in two steps. The first step was to test the relationship between service quality and customer's satisfaction through calculation of Pearson correlation coefficient between the dimensions of the service quality and customer's satisfaction. The results indicate that there a positive and strong relationship between service quality and customer's satisfaction, with a value equals (0.85) at level of significance (0.017). This means that improving service quality leads to increase customer's satisfaction. The second step was to test the effect of service quality on customer's satisfaction using simple regression analysis. The results shows that there is a significant effects where ( $F= 16.38$ ), and the coefficient of determination ( $R^2=0.853$ ).

### **Conclusion/Recommendations**

The quality service dimensions have received different attention by customers using Egypt Air. For reliability, customers are looking for an airline that provides 'Ease, accuracy and speed of check-in', while they concern 'the airline that provides good quality food and beverages (tasty and fresh) in tangibility. For response, customers are looking for the airline that is 'Capable to response to emergency situations. In assurance, customers are keen to use airline with less 'Probability of flights breakdowns'. Finally, the 'numerous, and easy-to use ticketing channels' is the most important aspect in empathy. On the other hand, Reliability is the most dominant dimension that affects the service quality in Egypt Air. Surviving in a competitive environment, it is recommended for Egypt Air to improve the weaknesses in all quality service dimensions, particularly Tangibility and Empathy. There are needs for providing high-tech equipment on board, training staff for providing spontaneous care and concern for passengers, collaborating with other travel related partners (e.g. car rental, hotels, travel insurance) and having a sound loyalty and mileage program to recognize frequent passengers to transfer him to loyal customer, providing in-flight entertainment and variety in-flight meals, and more newspapers and magazines. Also, it is recommended that the variety of the programs must be increased according to male and female preferences. When flight entertainment programs are selected, special programs for women must also be provided.

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